As filed with the Securities and Exchange Commission on October 15, 2003

Registration No. 333-

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form S-1

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

GTx, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**2834**	**20-0221828**
(State or other jurisdiction of incorporation or organization)	*(Primary Standard Industrial Classification Code Number)*	*(I.R.S. Employer Identification No.)*

GTx, Inc.

3 N. Dunlap Street, 3rd Floor
Van Vleet Building
Memphis, TN 38163
(901) 523-9700
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Mitchell S. Steiner, M.D., F.A.C.S.

Chief Executive Officer
GTx, Inc.
3 N. Dunlap Street, 3rd Floor
Van Vleet Building
Memphis, TN 38163
(901) 523-9700
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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(650) 843-5000	**(901) 543-5904**	

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. o

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price(1)	Amount of Registration Fee
Common stock, par value $0.001 per share	$86,250,000	$6,977.63

(1) Estimated solely for the purpose of computing the registration fee in accordance with Rule 457 under the Securities Act of 1933.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the SEC, acting pursuant to Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion. Dated October 15, 2003.

Shares

Common Stock

This is an initial public offering of shares of common stock of GTx, Inc. All of the shares of common stock are being sold by the company.

Prior to this offering, there has been no public market for the common stock. It is currently estimated that the initial public offering price per share will be between $ and $. Application has been made for the quotation of the common stock on the Nasdaq National Market under the symbol "GTXI".

See "Risk Factors" on page 7 to read about factors you should consider before buying shares of the common stock.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Initial public offering price	$	$
Underwriting discount	$	$
Proceeds, before expenses, to GTx	$	$

To the extent that the underwriters sell more than shares of common stock, the underwriters have the option to purchase up to an additional shares from GTx at the initial public offering price less the underwriting discount.

The underwriters expect to deliver the shares against payment in New York, New York on , 2003.

Goldman, Sachs & Co.

SG Cowen

Lazard

Prospectus dated , 2003.

PROSPECTUS SUMMARY

The following summary is qualified in its entirety by reference to the more detailed information and financial statements appearing elsewhere in this prospectus

Our Business

GTx is a biopharmaceutical company dedicated to the discovery, development and commercialization of therapeutics primarily related to the treatment of serious men's health conditions. Our drug discovery and development programs are focused on small molecules that selectively modulate the effects of estrogens and androgens, two essential classes of hormones. We currently have two product candidates that are in human clinical trials. We are developing Acapodene, our most advanced product candidate, through clinical trials for two separate indications: (1) a Phase IIb clinical trial for the reduction in the incidence of prostate cancer in men with precancerous prostate lesions and (2) a planned pivotal Phase III clinical trial for the treatment of serious side effects of advanced prostate cancer therapy. We are initially developing our second product candidate, Andarine, for the treatment of cachexia from various types of cancer. Cancer cachexia is a muscle wasting condition that is a potentially life-threatening complication of many cancers. Andarine is the most advanced of our internally discovered portfolio of compounds designed to modulate the effects of hormones. We plan to build a specialized sales and marketing capability to market our product candidates directly to the relatively small and concentrated community of urologists and medical oncologists in the United States and to seek collaborators to commercialize our product candidates outside the United States and to broader target physician markets.

Acapodene for the Reduction in the Incidence of Prostate Cancer in Men with Precancerous Prostate Lesions

Prostate cancer is one of the most commonly diagnosed cancers in men and the second leading cause of cancer-related deaths in the United States. Scientific evidence has established that men who have high grade, or advanced, prostatic intraepithelial neoplasia, a precancerous prostate lesion referred to as high grade PIN, are at high risk of developing prostate cancer. In the United States, there are over 115,000 new cases of high grade PIN diagnosed each year, and an estimated 9.4 million men unknowingly harbor high grade PIN. Currently, there is no therapy for the treatment of high grade PIN.

We are conducting a Phase IIb clinical trial in which we have enrolled 515 patients to determine the efficacy and safety of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN. In April 2003, we performed a planned interim analysis of the first 120 patients in this clinical trial. The interim analysis indicated that patients who received Acapodene had a 10% to 17% incidence of prostate cancer 12 months after being diagnosed with high grade PIN, depending on the dose of Acapodene, compared to a 23% incidence in the placebo group. This represents an approximately 26% to 57% reduction in prostate cancer incidence in patients who received Acapodene compared to the placebo group. The last patient is scheduled to complete this trial in May 2004, with final results expected in the third quarter of 2004. We believe that our Phase IIb clinical trial for the reduction in the incidence of prostate cancer in men with high grade PIN will support a single pivotal Phase III clinical trial of Acapodene for this indication. We are evaluating the protocol and timing of this pivotal Phase III clinical trial.

Acapodene for the Treatment of Side Effects of Androgen Deprivation Therapy

The standard medical treatment for men who have advanced, recurrent or metastatic prostate cancer is androgen deprivation therapy, which reduces blood level of testosterone, the growth factor for prostate cancer. In the United States, more than 675,000 men are currently being treated by androgen deprivation therapy for advanced, recurrent or metastatic prostate cancer, with over

120,000 new patients started on this therapy each year. Androgen deprivation therapy has serious side effects, including: severe bone loss, or osteoporosis, leading to skeletal fractures; hot flashes; and breast pain and enlargement, or gynecomastia. There are no drugs approved by the FDA for the treatment of these side effects of androgen deprivation therapy.

We have completed two six-month Phase II clinical trials of Acapodene for the treatment of osteoporosis and hot flashes, two serious side effects of androgen deprivation therapy. The first Phase II clinical trial evaluated Acapodene in 43 patients shortly after initiation of androgen deprivation therapy, and the second Phase II clinical trial evaluated Acapodene in 46 patients who had been receiving androgen deprivation therapy for more than 12 months. In the second trial, patients who received Acapodene at the highest tested dose on average experienced a 3.5% increase in lumbar vertebral spine bone mineral density, which is an indicator of bone strength, while the patients who received the placebo on average experienced a 0.5% decrease in lumbar vertebral spine bone mineral density. Only 12.5% of the patients in this trial who received Acapodene at the highest tested dose, compared to 50% of the patients who received the placebo, reported experiencing an increase in the frequency of hot flashes during the clinical trial. Our planned pivotal Phase III clinical trial for this indication, which we expect to commence in November 2003, is principally based on the results of our Phase II clinical trial that evaluated patients who had been receiving androgen deprivation therapy for more than 12 months. The primary endpoint of the trial will be the incidence of skeletal fractures, and the secondary endpoints will include the measurement of bone loss and the incidence of hot flashes and gynecomastia.

Andarine for the Treatment of Cancer Cachexia

We believe that Andarine has the potential to treat testosterone deficiency in aging men, or andropause, and related diseases, including osteoporosis and muscle wasting. Our strategy is to develop Andarine initially for the treatment of cachexia from various types of cancer. We selected this indication because it represents a potentially large market and, we believe, has a relatively well-defined clinical and regulatory process. Depending on the results of our initial development efforts, we may also develop Andarine for other andropause-related conditions. For cachexia from various types of cancer, we are developing Andarine for the treatment of both men and women. There are approximately 1.3 million patients diagnosed with cancer each year in the United States. Cancer cachexia afflicts approximately one-third of newly-diagnosed cancer patients. There are no drugs that have been approved by the FDA for the treatment of cancer cachexia. Although there are two commercially available drugs that are being prescribed off-label for the treatment of some types of cancer cachexia, chronic use of these drugs may result in bleeding liver cysts and liver cell tumors.

We have completed three Phase I clinical trials of Andarine. In these trials, Andarine was well-tolerated by all participants and there were no serious adverse events. We observed preliminary indications in a multiple-dose Phase I clinical trial in men that Andarine promoted growth activity, as measured by levels of a growth factor in the blood. We plan to commence a placebo-controlled, dose-finding Phase II clinical trial of Andarine for the treatment of cachexia from non-small cell lung cancer in the first half of 2004.

Pipeline

We have a robust preclinical product candidate pipeline of small molecules that modulate the effects of hormones. Our current preclinical product candidate pipeline focuses on the treatment of major indications in men’s health, including:

- Prostarine for the treatment of benign prostatic hyperplasia, or BPH, a benign prostate enlargement that results in obstruction of the urinary tract;
- Ostarine for the treatment of osteoporosis and andropause; and

- Andromustine for the treatment of prostate cancer that is not responsive to androgen deprivation therapy.

We believe that our drug discovery capabilities position us well to sustain our clinical pipeline through the design and development of nonsteroidal small molecule drugs that modulate the effects of hormones.

Company Information

We were originally incorporated under the name Genotherapeutics, Inc. in Tennessee in September 1997. We changed our name to GTx, Inc. in 2001, and we reincorporated in Delaware in 2003. Our principal executive office is located at 3 N. Dunlap Street, 3rd Floor, Van Vleet Building, Memphis, Tennessee, and our telephone number is (901) 523-9700. Our website address is www.gtxinc.com. The information contained in our website is not a part of this prospectus.

Service marks, trademarks and trade names referred to in this prospectus are the property of their respective owners.

The Offering

Common stock offered by GTx	shares
Common stock to be outstanding after the offering	shares
Proposed Nasdaq National Market symbol	GTXI
Use of proceeds	We expect to use the net proceeds from this offering to fund our clinical trials and other research and development activities and for general corporate purposes.

The number of shares of common stock to be outstanding after this offering is based on the number of shares outstanding as of August 31, 2003 and excludes:

- 67,000 shares of common stock issuable upon exercise of options issued under our current stock option plans, at a weighted average exercise price of $50.28 per share; and
- 83,900 shares of common stock reserved for future issuance under our current stock option plans and shares of common stock reserved for future issuance under our 2003 Equity Incentive Plan, 2003 Non-Employee Directors' Stock Option Plan and 2003 Employee Stock Purchase Plan, which we plan to adopt before the completion of this offering.

Except as otherwise noted, all information in this prospectus:

- assumes no exercise of the underwriters' over-allotment option;
- gives effect to the conversion into common stock of all outstanding shares of preferred stock and dividends accrued thereon through August 31, 2003; and
- gives effect to our reincorporation in Delaware, which will occur before the closing of this offering.

The terms "GTx," "we," "us" and "our" as used in this prospectus refer to GTx, Inc.

Summary Financial Information

The summary financial information below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements, notes thereto and other financial information included elsewhere in this prospectus. The information presented for the six-month periods ended June 30, 2002 and June 30, 2003 are derived from unaudited financial statements and include, in the opinion of management, all adjustments, consisting only of normal recurring accruals, necessary to present fairly the information for such periods. The results for the six-month period ended June 30, 2003 are not necessarily indicative of the results to be expected for the full fiscal year.

Pro forma net loss per share for the year ended December 31, 2002 and the six months ended June 30, 2003 is computed using the weighted average number of shares of common stock outstanding, including the pro forma effects of the automatic conversion of our preferred stock and dividends accrued thereon into shares of common stock effective upon the closing of the offering as if such conversion occurred on January 1, 2002 and January 1, 2003 or at the date of the original issuance if later. The calculation of pro forma net loss per share attributable to common stockholders excludes incremental common stock issuable upon exercise of options, a its effect would be antidilutive. For the six months ended June 30, 2003, diluted net loss per share attributable to common stockholders and pro forma net loss per share attributable to common stockholders basic and diluted are computed using the net loss excluding accrued preferred stock dividends and the adjustment to preferred stock redemption value.

	Year Ended December 31,			Six Months Ended June 30,	
	2000	2001	2002	2002	2003
					(unaudited)
	(in thousands, except share and per share data)				
Statement of Operations Data:					
Operating expenses:					
Research and development	$ 2,679	$ 5,744	$ 9,285	$ 3,975	$ 4,703
General and administrative	1,203	2,187	2,405	1,105	1,411
Depreciation	80	215	332	153	175
Total operating expenses	3,962	8,146	12,022	5,233	6,289
Interest income	150	83	156	55	43
Net loss	(3,812)	(8,063)	(11,866)	(5,178)	(6,246)
Accrued preferred stock dividends	(297)	(790)	(2,147)	(858)	(1,366)
Adjustment to preferred stock redemption value	(21,077)	(57)	(7,220)	(7,036)	4,736
Net loss attributable to common stockholders	$ (25,186)	$ (8,910)	$ (21,233)	$ (13,072)	$ (2,876)
Net loss per share attributable to common stockholders:					
Basic	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.16)
Diluted	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.34)
Weighted average shares used in computing net loss per share attributable to common stockholders:					
Basic	910,000	910,000	910,000	910,000	910,000
Diluted	910,000	910,000	910,000	910,000	1,869,021
Pro forma net loss per share attributable to common stockholders — basic and diluted			$ (6.81)		$ (3.34)
Shares used in computing pro forma net loss per share attributable to common stockholders — basic and diluted			1,742,563		1,869,021

The following table presents a summary of our balance sheet as of June 30, 2003:

- on an actual basis;
- on a pro forma basis to give effect to the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock on August 7, 2003 for ne proceeds of approximately $20.0 million; and
- on a pro forma as adjusted basis to reflect the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock on August 7, 2003 for net proceeds of approximately $20.0 million, the conversion into common stock of all outstanding shares of preferred stock and dividends accrued thereon through August 31, 2003 and the sale in this offering of shares of common stock at an assumed initial offering price of $ per share, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	As of June 30, 2003		
	Actual	Pro Forma	Pro Forma As Adjusted
		(unaudited) (in thousands)	
Balance Sheet Data:			
Cash and cash equivalents	$ 3,112	$ 23,098	$
Working capital	1,544	21,530	
Total assets	4,064	24,050	
Cumulative redeemable convertible preferred stock	60,656	80,656	
Deficit accumulated during development stage	(59,154)	(59,168)	
Total stockholders' (deficit) equity	(58,184)	(58,198)	

RISK FACTORS

Any investment in our stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, and all information contained in this prospectus, before you decide whether to purchase our common stock. If any of the following risks or uncertainties actually occurs, our business, financial condition, results of operations and prospects would likely suffer, possibly materially. In addition, the trading price of our common stock could decline due to any of these risks or uncertainties, and you may lose part or all of your investment.

Risks Related to Our Business

If preclinical or clinical trials of Acapodene, Andarine or any other product candidates that we may develop do not produce successful results, we will be unable to commercialize these product candidates, which will materially harm our business.

We need to obtain regulatory approval to commercially market Acapodene, Andarine or any other product candidates that we may develop. To receive regulatory approval for the commercial distribution and sale of Acapodene, Andarine or any other product candidates that we may develop, we must conduct, at our own expense, extensive preclinical and clinical trials to demonstrate the safety and efficacy in humans of the product candidates. Preclinical and clinical testing is expensive, can take many years and has an uncertain outcome. Failure can occur at any stage of the testing. We may experience numerous unforeseen events during, or as a result of, the testing process that could delay or prevent commercialization of Acapodene, Andarine or any other product candidates that we may develop, including:

- our preclinical or clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional preclinical or clinical testing;
- registration or enrollment in our (1) planned pivotal Phase III clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN, (2) planned pivotal Phase III clinical trial of Acapodene for the treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy for advanced prostate cancer and (3) planned Phase II clinical trial of Andarine for the treatment of cachexia from non-small cell lung cancer may be slower than we currently anticipate, resulting in significant delays;
- the Food and Drug Administration, or FDA, may require more than a single pivotal Phase III clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN in order to grant marketing approval of Acapodene for this indication;
- the safety and efficacy results attained in our clinical trials for Acapodene or Andarine may be less positive than the results obtained in our earlier clinical trials for Acapodene or Andarine;
- the cost of our clinical trials may be greater than we currently anticipate;
- after reviewing trial results, we may abandon projects that we expected to be promising;
- we, regulators or institutional review boards may suspend or terminate our clinical trials if the participating patients are being exposed to unacceptable health risks;
- regulators or institutional review boards may suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements; and
- the effects of Acapodene, Andarine or any other product candidates that we may develop may not be the desired effects or may include undesirable side effects or other characteristics that may delay or preclude regulatory approval or limit their commercial use if approved.

Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful, and interim results of a clinical trial do not necessarily predict final results. For example, the interim results from our Phase IIb clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN do not necessarily predict favorable final results from the trial or from our planned pivotal Phase III clinical trial. Further, bone mineral density changes observed in our Phase II clinical trials of Acapodene for the treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy for advanced prostate cancer are not necessarily indicative of the results that will be demonstrated in our planned larger pivotal Phase III clinical trial.

We do not know whether our current or any future clinical trials will demonstrate safety and efficacy sufficiently to result in marketable products. Our failure to adequately demonstrate the safety and efficacy of Acapodene, Andarine or any other product candidates that we may develop will prevent receipt of regulatory approval and, ultimately, commercialization of Acapodene, Andarine or any other product candidates that we may develop, which will materially harm our business.

Delays in clinical testing could result in increased costs to us and delay our ability to generate revenue.

Significant delays in clinical testing or termination of clinical testing could materially impact our product development costs. We do not know whether planned clinical trials will begin on time, will need to be restructured or will be completed on schedule, if at all. Clinical trials can be delayed for a variety of reasons, including delays related to:

- obtaining regulatory approval to commence a clinical trial;
- clinical holds;
- negotiating acceptable clinical trial agreement terms with prospective trial sites;
- obtaining institutional review board approval to conduct a clinical trial at a prospective site;
- recruiting patients to participate in a clinical trial;
- competition for clinical investigators or clinical trial subjects;
- shortage or lack of availability of clinical trial drugs;
- the need to repeat clinical trials; and
- the failure of third parties conducting and overseeing the operations of our clinical trials to perform their contractual or regulatory obligations in a timely fashion.

In addition, delays in or termination of clinical trials due to exposure of clinical trial subjects to unacceptable health risks or noncompliance with regulatory requirements could also occur. If we have significant delays in or termination of clinical trials, our financial results and the commercial prospects for Acapodene, Andarine or any other products that we may develop will be adversely impacted, our costs could increase and our ability to generate revenue could be impaired.

We may not be successful in our efforts to develop a pipeline of product candidates.

A key element of our strategy is to discover and develop a pipeline of small molecule product candidates. We are seeking to do so primarily through our internal research programs. Research programs to identify product candidates require substantial technical, financial and human resources, whether or not we ultimately identify any product candidates. Our research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development for a number of reasons, including:

- the research methodology used may not be successful in identifying potential product candidates; or
- on further study, potential product candidates may be shown to have harmful side effects or other characteristics that indicate they are unlikely to be effective drugs.

If we are unable to develop suitable product candidates, our business may suffer.

Risks Related to Regulatory Approval of our Product Candidates

We and our collaborators are subject to extensive regulation, which can be costly and time-consuming to comply with and may subject us to unanticipated delays or prevent us from obtaining the required approvals to commercialize Acapodene, Andarine or any other product candidates that we may develop.

Acapodene, Andarine and any other product candidates that we may develop, and the preclinical and clinical trials and manufacturing and distribution activities associated with their development, are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by comparable authorities in other countries. The process of obtaining regulatory approvals is expensive, often takes many years, if approval is obtained at all, and can vary substantially based upon the type, complexity and novelty of the product candidates involved.

Applicants for FDA approval must submit extensive preclinical and clinical data as well as information about product manufacturing processes and facilities and other supporting information to the FDA. Varying interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent regulatory approval of a product candidate. Changes in the FDA approval policy during the development period, or changes in regulatory review for each submitted product application, may also cause delays in the approval or rejection of an application. The FDA has substantial discretion in the approval process and may disagree with our or any collaborator's interpretations of such data, which also could cause delays of an approval or rejection of an application. Even if the FDA approves a product candidate, the approval may limit the uses or conditions for which a product may be marketed, or may require further studies. The FDA also can withdraw product clearances and approvals for failure to comply with regulatory requirements or if problems follow initial marketing.

The FDA's and foreign regulatory agencies' statutes, regulations or policies may change, and additional government regulations or statutes may be enacted that could prevent or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of adverse governmental regulation that might arise from future legislative or administrative action, either in the United States or abroad.

We have only limited experience in filing and prosecuting the applications necessary to gain regulatory approvals. The FDA may refuse to accept any application or may decide that our data is insufficient for approval and require additional preclinical, clinical or other studies. For example, while we believe that our ongoing Phase IIb clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN will support a single pivotal Phase III clinical trial of Acapodene for this indication, we cannot assure you that the FDA will not require more than one pivotal Phase III clinical trial in order to grant marketing approval of Acapodene for this indication. We will not be able to commercialize Acapodene, Andarine or any other product candidates that we may develop until we obtain FDA approval in the United States and approval from comparable authorities in other countries.

The approval procedure varies among countries and can involve additional testing beyond that required by the FDA. The time required to obtain approval in other countries may differ from that required to obtain FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries or by the FDA.

We do not expect to receive regulatory approval for the commercial sale of Acapodene, Andarine or any other product candidate for a number of years. The inability to obtain FDA approval or approval from comparable authorities in other countries would prevent us from commercializing Acapodene, Andarine or any other product candidates that we may develop in the United States or other countries.

Even if Acapodene, Andarine or any other product candidates or products that we may develop receive regulatory approval, we may still face development and regulatory difficulties relating to such product candidates or products.

If we receive regulatory approval to sell Acapodene, Andarine or any other product candidates that we may develop, the FDA and foreign regulatory authorities may, nevertheless, impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, marketing or production of such product, or impose ongoing requirements for post-approval studies, including additional research and development and clinical trials. In addition, regulatory agencies subject a marketed product, its manufacturer and the manufacturer's facilities to continual review and periodic inspections. If we discover previously unknown problems with a product, a regulatory agency may impose restrictions on that product or on us or any collaborators, including requiring us or our collaborators to withdraw the product from the market.

We will be subject to ongoing FDA requirements, including required submissions of safety and other post-market information, registration requirements, current Good Manufacturing Practice, or cGMP, regulations, requirements regarding the distribution of samples to physicians and recordkeeping requirements. The cGMP regulations include requirements relating to quality control and quality assurance, as well as the corresponding maintenance of records and documentation. The manufacturing process must consistently produce quality batches of the product, and the manufacturer must develop methods for testing the quality, purity and potency of the final drugs. Additionally, we must select and test appropriate packaging and conduct chemistry stability studies to demonstrate that the product does not undergo unacceptable deterioration over its shelf-life.

If we or any collaborators fail to comply with applicable regulatory requirements, a regulatory agency may:

- issue warning letters;
- impose civil or criminal penalties;
- suspend or withdraw our regulatory approval;
- suspend or terminate any of our ongoing clinical trials;
- refuse to permit the import or export of our products;
- refuse to approve pending applications or supplements to approved applications that we file;
- impose restrictions on our or our collaborators' operations, including closing a manufacturing facility; or
- seize or detain products or require a product recall.

The FDA's and foreign regulatory agencies' statutes, regulations or policies may change, and additional government regulation or statutes may be enacted, which could increase post-approval regulatory requirements, or delay, suspend or prevent marketing of any approved products. We cannot predict the likelihood, nature or extent of adverse governmental regulation that might arise from future legislative or administrative action, either in the United States or abroad.

Risks Related to Our Intellectual Property

We are dependent upon our licenses from Orion Corporation and the University of Tennessee Research Foundation to develop and commercialize Acapodene, Andarine and two of our preclinical product candidates; if these licenses terminate, we may be unable to develop and commercialize these product candidates.

Under a license and supply agreement with Orion Corporation, we have a license from Orion to develop, use, market and distribute toremifene, the active pharmaceutical ingredient in Acapodene,

under Orion's patents covering the composition of matter of toremifene. This license is limited to the fields of the prevention and treatment of prostate cancer and the prevention and treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy in the treatment of prostate cancer. Without this license, we would not have the right to commercialize Acapodene for any indication prior to the expiration of Orion's composition of matter patents. We paid Orion an initial license fee and have agreed to pay Orion a royalty based on net sales of Acapodene and a share of any consideration received by us for sublicensing our rights under the agreement. If we are acquired prior to the first regulatory approval of a product for use in the licensed field, we will be obligated to pay Orion a one-time fee of up to $1.0 million at the time of acquisition. The agreement requires us to achieve specified minimum sales requirements of Acapodene in the United States or pay royalties on the shortfall amount.

The term of our license from Orion continues on a country-by-country basis until the date of expiration or invalidation of the last to expire or be invalidated of our licensed patent rights. Orion has the right to terminate the license as a result of a material breach of the agreement by us that is not cured, our bankruptcy or the acquisition of us by a direct competitor of Orion with respect to toremifene.

Orion may require us to modify our final Acapodene development plans for specified major markets if such development plans could adversely affect toremifene outside of the field that Orion has licensed to us. Any required modifications may limit our ability to maximize the commercial potential of Acapodene. In addition, we and our affiliates are prohibited from selling a product that competes with toremifene in the licensed field in major countries located outside of the European Union during the term of the agreement and in major countries in the European Union through October 2006. This noncompetition provision may limit our ability to commercialize any other compounds in the licensed field even if we believe that other compounds have more commercial potential than Acapodene. The binding effect of this noncompetition provision on our affiliates, as well as Orion's right to terminate the agreement if we are acquired by a direct competitor of Orion with respect to toremifene, may make it more difficult for us to be acquired by some potential buyers even if we determine that a sale of the company would be in the best interests of our stockholders.

We have exclusive, worldwide licenses from the University of Tennessee Research Foundation under its method of use patents relating to toremifene for the reduction in the incidence of prostate cancer in men with high grade PIN and its composition of matter and method of use patents and patent applications relating to Andarine, Ostarine and Prostarine. Without these licenses, we would not be able to commercialize Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN or Andarine, Ostarine or Prostarine for any indication prior to the expiration of University of Tennessee Research Foundation's patents. We have agreed to pay the University of Tennessee Research Foundation a royalty based on net sales of these product candidates and sublicense income. The term of each of the licenses is the longer of 20 years or the term of any licensed patent having a valid claim covering the licensed technology. The University of Tennessee Research Foundation has the right to terminate each of the licenses under specified circumstances, including in the event that we breach the agreement and do not cure the breach or in the case of our bankruptcy. We are obligated to use commercially reasonable efforts to develop and commercialize products based on the licensed patents and patent applications. These obligations could require us to take actions related to the development of Acapodene, Andarine, Ostarine and Prostarine that we would otherwise not take. These required actions may be costly and may divert our resources from other activities.

If we are unable to maintain our licenses from Orion and the University of Tennessee Research Foundation, we would likely not be able to develop and commercialize Acapodene, Andarine, Ostarine or Prostarine for any indication. In addition, the terms of our agreements with Orion and the University of Tennessee Research Foundation may adversely affect our operations, financial results or competitive business position.

Because it is difficult and costly to protect our proprietary rights, we may not be able to ensure their protection.

Our commercial success will depend in part on obtaining and maintaining patent and trade secret protection for Acapodene, Andarine and any other product candidates or products that we may develop, the methods used to manufacture these product candidates and products and the methods for treating patients using these product candidates and products. It will also depend on our successfully defending these patents and pending patent applications against third-party challenges and in other similar proceedings, and enforcing these patents against third-party infringers. We will be able to protect our product candidates, any products that we may develop and our technologies from unauthorized use by third parties only to the extent that valid and enforceable patents or trade secrets cover them.

The patent covering the composition of matter of toremifene, the active pharmaceutical ingredient in Acapodene, that we have licensed from Orion will expire in the United States in 2009, in Europe in 2003 or 2008, depending on the country, and in Japan in 2005. We also have licensed from the University of Tennessee Research Foundation method of use patents in the United States and pending patent applications internationally related to the use of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN. The method of use patents issued in the United States related to the use of Acapodene for this indication will expire in 2019. We also have our own pending method of use patent applications in the United States and internationally related to the use of Acapodene for the prevention and treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy.

The patent covering the composition of matter of the active pharmaceutical ingredient in Andarine that we have licensed from the University of Tennessee Research Foundation will expire in the United States in 2021. We have also licensed from the University of Tennessee Research Foundation rights to pending patent applications internationally covering the composition of matter of the active pharmaceutical ingredient in Andarine and pending patent applications in the United States and internationally related to, among other things, methods for treating cancer cachexia with Andarine. We also have our own pending patent applications in the United States and internationally related to methods of using Andarine.

It is possible that patents will not issue in respect of some or all of our or our licensed patent applications. If the patent applications do not yield issued patents, or if they yield patents with narrow claims, we may be subject to direct competition in countries in which our licensed composition of matter patents have expired.

The patent positions of biopharmaceutical companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved and as to which relevant laws and procedures are constantly shifting. No consistent policy regarding the breadth or interpretation of claims allowed in patents has emerged to date in the United States. Further, the specific content of patents and patent applications that are necessary to support and interpret patent claims is highly uncertain due to the complex nature of the relevant legal, scientific and factual issues. Furthermore, the policies governing biotechnology patents outside the United States are even more uncertain. Changes in either patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property or narrow the scope of our patent protection. Accordingly, we cannot predict the breadth of claims that may be allowed in a pending patent application, nor can we predict the interpretation, scope, validity or enforceability of claims in our own or in any third party's patents.

The degree of future protection for our proprietary rights, or the proprietary rights that we license from others, is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- others might have been the first to make the inventions covered by each of our or our licensors' pending patent applications and issued patents;
- others might have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of these technologies;
- it is possible that none of our or our licensors' pending patent applications will result in issued patents;
- our issued patents or pending patent applications or the patents or patent applications that we license from others may not provide a basis for commercially-viable products, may not provide us with any competitive advantages or may be challenged by third parties;
- we may not develop additional proprietary technologies that are patentable;
- the patents of others may have an adverse effect on our business; or
- patents may be successfully challenged by competitors filing abbreviated new drug applications, or ANDAs, or new drug applications in which the applicant does not own or have a legal right of reference to all of the data required for approval, or 505(b)(2) NDAs, resulting in approval of competitors' products for the same intended use.

We also rely on trade secrets to protect our technology, especially where we do not believe that patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. Our employees, consultants, contractors, outside scientific collaborators and other advisors may unintentionally or willfully disclose our confidential information to competitors, and confidentiality agreements may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. Enforcing a claim that a third party illegally obtained and is using our trade secrets is expensive and time-consuming, and the outcome is unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets than courts in the United States. Moreover, our competitors may independently develop equivalent knowledge, methods and know-how. Failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

Off-label sale or use of toremifene, the active pharmaceutical ingredient in Acapodene, may result in reduced sales of Acapodene and pricing pressure.

In all countries in which we hold or have licensed rights to patents or patent applications related to Acapodene, the composition of matter patents will expire before the method of use patents. Furthermore, with respect to the method of use of Acapodene for the treatment of side effects of androgen deprivation therapy worldwide and the method of use of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN outside the United States, we have only pending patent applications. Method of use patents are more difficult to enforce than composition of matter patents because of the risk of off-label sale or use of the subject compounds.

In the event that patents issue in respect of our pending method of use patent applications, after the expiration of the patent covering the composition of matter of toremifene in a particular country, competitors could market and sell generic versions of toremifene at doses and in formulations that are bioequivalent to Acapodene for uses other than the indications for Acapodene covered by these pending method of use patent applications, and physicians would be permitted to prescribe generic versions of toremifene for indications that are protected by our or our licensors' method of use patents and pending patent applications. After the expiration of the patent covering the composition of matter of toremifene in a particular country, if patents do not issue in respect of our pending method of use patent applications related to the use of Acapodene for the treatment of side effects of androgen deprivation therapy worldwide and the use of Acapodene for the reduction

in the incidence of prostate cancer in men with high grade PIN outside the United States, competitors could market and sell generic versions of toremifene at doses and in formulations bioequivalent to Acapodene for these indications.

Our license from Orion is limited to the use of toremifene for the prevention and treatment of prostate cancer and the prevention and treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy in the treatment of prostate cancer. Orion has licensed Shire Pharmaceuticals Group in the United States and other parties elsewhere in the world to market, sell and distribute toremifene for the treatment of advanced breast cancer and could license other parties to market, sell and distribute toremifene for other indications in the United States and elsewhere. This further increases the risk of off-label competition developing for Acapodene for the indications for which we are developing this product candidate.

Off-label sale or use of generic toremifene products, including products marketed and sold by other licensees of Orion, for the indications for which we are developing Acapodene could decrease our sales of Acapodene and could lead to pricing pressure if such products become available at competitive prices and in dosages that are appropriate for the indications for which we are developing Acapodene.

If we are sued for infringing intellectual property rights of third parties, it will be costly and time-consuming; an unfavorable outcome in litigation would have a material adverse effect on our business.

Our ability to commercialize Acapodene, Andarine and any other product candidates or products that we may develop depends upon our ability to develop, manufacture, market and sell such product candidates or products without infringing the proprietary rights of third parties. Our drug discovery and development efforts are focused on selective estrogen receptor modulators, or SERMs, and selective androgen receptor modulators, or SARMs. Acapodene is a SERM, and Andarine is a SARM. Numerous United States and foreign issued patents and pending patent applications, which are owned by third parties, exist in the general field of SERMs and SARMs. In addition, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that cover the production, manufacture, commercialization or use of Acapodene, Andarine or any other product candidates or products that we may develop. In addition, the production, manufacture, commercialization or use of Acapodene, Andarine or any other product candidates or products that we may develop may infringe existing patents of which we are not aware.

There is a substantial amount of litigation involving patent and other intellectual property rights in the biotechnology and biopharmaceutical industries generally. If a third party claims that we infringe on its intellectual property, we could face a number of issues, including:

- infringement and other intellectual property claims which, with or without merit, can be expensive and time-consuming to litigate and can divert management’s attention from our business;
- substantial damages for past infringement that we would have to pay if a court decides that any product that we may develop infringes on a third party’s patent;
- a court prohibiting us from selling or licensing any product that we may develop unless the patent holder licenses the patent to us, which it is not required to do;
- if a license is available from a patent holder, we may have to pay substantial royalties or grant a cross license to our patents; and
- redesigning the formulation of our product candidate or any product that we may develop so it does not infringe, which may not be possible or could require substantial funds and time.

Risks Related to Our Dependence on Third Parties

If we are unable to continue relationships or contracts with third parties to manufacture Acapodene, Andarine or any other product candidates or products that we may develop in sufficient quantities and at an acceptable cost, clinical development and commercialization of our product candidates could be delayed, and we may be unable to meet clinical or commercial demand for these product candidates or products.

We do not currently own or operate manufacturing facilities for the production of clinical or commercial quantities of Acapodene or Andarine. We currently rely and expect to continue to rely on third parties for the manufacture of Acapodene, Andarine and any other product candidates or products that we may develop.

Orion, our only supplier of Acapodene, has agreed to supply us with, and we have agreed to purchase from Orion, our worldwide requirements of Acapodene in finished tablet form at specified transfer prices under a license and supply agreement. Our agreement with Orion may be terminated for a variety of reasons. Following such a termination, we would obtain the right to manufacture Acapodene under specified circumstances. We would also be able to manufacture Acapodene after expiration of the agreement as a result of the expiration of Orion's patents with respect to the composition of matter of toremifene. However, in the event that Orion terminates the agreement as a result of a material breach of the agreement by us that is not cured, our bankruptcy or the acquisition of us by a direct competitor of Orion with respect to toremifene, we would not obtain the right to manufacture Acapodene and could not do so until Orion's patents or related market exclusivity with respect to the composition of matter of toremifene expire.

Orion may terminate its obligation to supply us with toremifene if marketing approval for Acapodene in the licensed field is not granted in the United States by December 31, 2007 or upon the expiration or invalidation of the last valid claim of the licensed Orion patent rights in the United States, or, subject to a prior notice requirement, if Orion permanently ceases the manufacture of toremifene. In these circumstances, we will have the right to manufacture Acapodene, but we would be required to make arrangements with a qualified alternative supplier to do so.

We have entered into an agreement with ChemSyn Laboratories, a department of EaglePicher Technologies, LLC, under which ChemSyn has agreed to manufacture Andarine for us in a quantity that we believe is sufficient to supply clinical trials of Andarine for the treatment of cachexia from various types of cancer and initial commercialization of Andarine for this indication. We do not have a contract with ChemSyn for the supply of Andarine for full-scale commercialization.

We may not be able to maintain or renew these or any other third-party manufacturing arrangements on acceptable terms, if at all. If we are unable to continue relationships with Orion and ChemSyn, or to do so at an acceptable cost, or if these suppliers fail to meet our requirements for Acapodene or Andarine for any reason, we would be required to obtain alternate suppliers, which we may not be permitted to do for Acapodene under our license agreement with Orion in some circumstances. Any inability to obtain alternate suppliers, including an inability to obtain approval of an alternate supplier from the FDA, would delay or prevent the clinical development and commercialization of Acapodene or Andarine and result in our inability to meet clinical or commercial demand for these product candidates.

Third parties may not manufacture our product candidates or products in a cost effective or timely manner. If manufacturing is not performed in a timely manner, the clinical development of our product candidates or their submission for regulatory approval could be delayed, and our ability to deliver Acapodene, Andarine or any product candidates or products that we may develop on a timely basis could be impaired or precluded.

Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured product candidates or products ourselves, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party because of factors beyond our control; and
- the possible termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us.

Our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. For example, the active pharmaceutical ingredient in Acapodene, toremifene, is also the active pharmaceutical ingredient in Fareston. Orion also manufactures Fareston for Shire Pharmaceuticals Group, which markets it in the United States for the treatment of advanced breast cancer in post-menopausal women.

We cannot be certain that our present or future manufacturing partners will be able to comply with cGMP regulations and other FDA regulatory requirements or similar regulatory requirements outside the United States. Failure of our third-party manufacturers or us to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approval of our product candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect our business. Changing manufacturers may require revalidation of the manufacturing process and procedures in accordance with FDA mandated cGMP regulations. This revalidation may be costly and time-consuming.

Our current and anticipated future dependence upon others for the manufacture of Acapodene and Andarine and our anticipated dependence upon others for the manufacture of any other product candidates or products that we may develop may adversely affect our future profit margins and our ability to develop product candidates, to commercialize any product candidates or products that we may develop on a timely and competitive basis and to meet the demand for any approved products.

We currently depend on a single source supplier for Acapodene, and we are currently purchasing Andarine from a single supplier. The loss of either of these suppliers could delay our clinical trials or prevent or delay commercialization of Acapodene or Andarine.

Currently, we rely on Orion as a single source supplier for Acapodene, and we are currently purchasing Andarine from ChemSyn as a single supplier. Establishing additional or replacement suppliers for Acapodene or Andarine may take a substantial amount of time, and in some circumstances our agreement with Orion may prevent us from obtaining an alternate supplier with respect to Acapodene. If we have to switch to a replacement supplier, we may face additional regulatory delays, and the manufacture and delivery of Acapodene or Andarine could be interrupted for an extended period of time, which may delay completion of our clinical trials or commercialization of Acapodene or Andarine. If we are unable to obtain an adequate supply of Acapodene or Andarine, our clinical trials will be delayed. As a result, regulatory approval of Acapodene or Andarine could be delayed, or may not be received at all.

We rely on third parties to help conduct our preclinical development activities and clinical trials. If these third parties do not successfully carry out their contractual duties or regulatory obligations or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize Acapodene, Andarine or any other product candidates that we may develop.

We do not have the ability to independently conduct clinical trials for Acapodene, Andarine or any other product candidates that we may develop, and we must rely on third parties, such as contract research organizations, medical institutions, clinical investigators and contract laboratories to

conduct our clinical trials. In addition, we rely on third parties to assist with our preclinical development of product candidates. If these third parties do not successfully carry out their contractual duties or regulatory obligations or meet expected deadlines, if the third parties need to be replaced, or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our preclinical development activities or clinical trials may be extended, delayed, suspended or terminated, and we may not be able to obtain regulatory approval for or successfully commercialize Acapodene, Andarine or any other product candidates that we may develop.

We expect to be dependent upon collaborative arrangements to complete the development and commercialization of some of our product candidates. These collaborative arrangements may place the development of our product candidates outside of our control, may require us to relinquish important rights or may otherwise be on terms unfavorable to us.

We expect to enter into collaborative arrangements with third parties for clinical trials, development, manufacturing, regulatory approvals and commercialization of some of our product candidates. We may not be successful in entering into these collaborative arrangements. If we fail to enter into additional collaborative agreements on favorable terms, our business, financial condition and results of operations could be materially adversely affected. Dependence on collaborative arrangements will subject us to a number of risks, including:

- we may not be able to control the amount and timing of resources that our collaborators may devote to the product candidates;
- our collaborators may experience financial difficulties;
- should a collaborator fail to develop or commercialize one of our compounds or product candidates, we may not receive any future milestone payments and will not receive any royalties for this compound or product candidate;
- business combinations or significant changes in a collaborator's business strategy may also adversely affect a collaborator's willingness or ability to complete its obligations under any arrangement; and
- a collaborator could independently move forward with a competing product candidate developed either independently or in collaboration with others, including our competitors.

Collaborative arrangements with third parties are often terminated or allowed to expire. Such terminations or expirations could adversely affect us financially as well as harm our business reputation.

Risks Related to Commercialization

The commercial success of any products that we may develop will depend upon the degree of market acceptance among physicians, patients, health care payors and the medical community.

Any products that we may develop may not gain market acceptance among physicians, patients, health care payors and the medical community. The degree of market acceptance of Acapodene, Andarine or any other products that we may develop, if approved for commercial sale, will depend on a number of factors, including:

- market acceptance of SERMs and SARMs;
- the prevalence and severity of any side effects;
- potential advantages over alternative treatments;

- the ability to offer Acapodene and Andarine for sale at competitive prices;
- relative convenience and ease of administration;
- the strength of marketing and distribution support; and
- sufficient third-party coverage or reimbursement.

If Acapodene, Andarine or any other product candidates that we may develop are approved by the FDA or a similar foreign authority but do not achieve an adequate level of acceptance by physicians, health care payors and patients, we may not generate material product revenue and we may not become profitable.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell Acapodene and Andarine, we may be unable to generate product revenue.

We do not have a sales organization and have no experience as a company in the sales, marketing and distribution of pharmaceutical products. In order to commercialize any products that we may develop, we must develop our sales, marketing and distribution capabilities or make arrangements with a third party to perform these services. If we are unable to establish adequate sales, marketing and distribution capabilities, independently or with others, we will not be able to generate material product revenue and will not become profitable.

If Acapodene or Andarine is approved for commercial sale, we currently plan to establish our own specialized sales force to market Acapodene and, for selected indications, Andarine to urologists and medical oncologists in the United States. Developing a sales force is expensive and time-consuming and could delay any product launch. We might not be able to develop our sales and marketing and distribution capability. If we are unable to establish this capability, we will need to contract with third parties to market and sell Acapodene and Andarine in the United States. We will also need to establish sales, marketing and distribution capabilities in the United States for potential indications of Andarine that cannot be addressed by our planned specialized sales force and outside of the United States for both Acapodene and Andarine, which is likely to require contracting with third parties. To the extent that we enter into arrangements with third parties to perform sales, marketing and distribution services, our product revenues are likely to be lower than if we market and sell Acapodene, Andarine or any other product we may develop ourselves.

If we are unable to obtain acceptable prices or adequate coverage and reimbursement from third-party payors for any products that we may develop, our revenues and prospects for profitability will suffer.

Our ability to commercialize any products that we may develop is highly dependent on the extent to which coverage and reimbursement for such products will be available from:

- governmental payors, such as Medicare and Medicaid;
- private health insurers, including managed care organizations; and
- other third-party payors.

Many patients will not be capable of paying for any products that we may develop themselves and will rely on third-party payors to pay for their medical needs. Currently, Medicare does not have a broad-based outpatient prescription drug benefit that covers products self-administered by patients. State Medicaid programs generally have outpatient prescription drug coverage, subject to state regulatory restrictions, for the population eligible for Medicaid. The availability of coverage or reimbursement for prescription drugs under private health insurance and managed care plans varies based on the type of contract or plan purchased.

A primary trend in the United States health care industry is toward cost containment. In addition, in some foreign countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take six to twelve months or longer after the receipt of regulatory marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidates or products to other available therapies.

Large governmental and private payors, managed care organizations, prescription benefit managers and similar organizations are exerting increasing influence on decisions regarding the use of, and reimbursement levels for, particular treatments. Such third-party payors are challenging the prices charged for medical products and services, and many third-party payors limit reimbursement for newly-approved health care products. In particular, third-party payors may limit the indications for which they will reimburse patients who use any products that we may develop. Cost-control initiatives could decrease the price we might establish for products that we may develop, which would result in lower product revenues to us. If the reimbursement for any products that we may develop decreases or if governmental and other third-party payors do not provide coverage or reimbursement for any products that we may develop, our revenues and prospects for profitability will suffer.

Another development that may affect the pricing of drugs is proposed Congressional action regarding drug reimportation into the United States. Proposed legislation would allow the reimportation of approved drugs originally manufactured in the United States back into the United States from other countries where the drugs are sold at a lower price. If legislation or regulations were passed allowing the reimportation of drugs, they could decrease the price we receive for any products that we may develop, negatively affecting our revenues and prospects for profitability.

Legislative or regulatory reform of health care systems may affect our ability to sell any products profitably.

In the United States, there have been a number of legislative and regulatory proposals to change the public financing of health care in ways that could adversely affect our ability to sell any products that we may develop profitably. Federal and state proposals and health care reforms are likely. Our results of operations could be materially adversely affected depending on the type of health care reforms that are adopted, if any.

If product liability lawsuits are brought against us, we will incur substantial liabilities and may be required to limit commercialization of any products that we may develop.

We face an inherent risk of product liability exposure related to the testing of Acapodene, Andarine or any other product candidates that we may develop in human clinical trials and will face an even greater risk if we commercially sell any products that we may develop. In the future, an individual may bring a liability claim against us if any product candidates or products that we may develop cause, or merely appear to have caused, an injury. If we cannot successfully defend ourselves against the product liability claim, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products that we may develop;
- injury to our reputation;
- withdrawal of clinical trial participants;
- costs to defend the related litigation;
- substantial monetary awards to trial participants or patients;

- loss of revenue; and

- the inability to commercialize any products that we may develop.

We have product liability insurance that covers our clinical trials up to a $5 million annual aggregate limit. We intend to expand our insurance coverage to include the sale of commercial products if marketing approval is obtained for any products that we may develop. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost and we may not be able to obtain insurance coverage that will be adequate to satisfy any liability that may arise.

If our competitors are better able to develop and market products that are more effective than any products that we may develop, our commercial opportunity will be reduced or eliminated.

We face competition from established pharmaceutical and biotechnology companies, as well as from academic institutions, government agencies and private and public research institutions. Various products are currently marketed or sold and used off-label for some of the diseases and conditions that we are targeting, and a number of companies are or may be developing new treatments. In addition, physicians are permitted to prescribe legally available drugs for uses that are not described in the drug's labeling and that differ from those uses tested and approved by the FDA. Such off-label uses are common across medical specialties. The occurrence of such off-label uses could significantly reduce our ability to market and sell any products that we may develop.

Many of our competitors have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. Our commercial opportunity will be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer side effects or are less expensive than any products that we may develop. These third parties compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies and technology licenses complementary to our programs or advantageous to our business.

We expect that our ability to compete effectively will depend upon our ability to:

- successfully and rapidly complete clinical trials and obtain requisite regulatory approvals in a cost-effective manner;

- obtain and maintain proprietary rights to any products that we may develop;

- build an adequate specialized sales and marketing infrastructure;

- enter into collaborative arrangements for marketing and sales; and

- attract and retain key personnel.

Risks Related to Employees and Growth

If we fail to attract and keep senior management and key scientific personnel, we may be unable to successfully develop or commercialize Acapodene, Andarine or any other product candidates or products that we may develop.

Our success depends on our continued ability to attract, retain and motivate highly qualified management, clinical and scientific personnel and on our ability to develop and maintain important relationships with leading academic institutions, clinicians and scientists. We are highly dependent upon our senior management and scientific staff, particularly Dr. Mitchell S. Steiner. All of our employees are at-will employees and can terminate their employment at any time. We do not carry

"key person" insurance covering members of senior management, other than $15 million of insurance covering Dr. Steiner. If we are not able to attract and keep senior management and key scientific personnel, we may not be able to successfully develop or commercialize Acapodene, Andarine or any other product candidates that we may develop.

We will need to increase the number of our managerial, operational, financial and other employees, and we may experience difficulties in managing growth.

In order to continue our clinical trials and commercialize Acapodene, Andarine or any other product candidates that we may develop, we will need to expand the number of our managerial, operational, financial and other employees. We currently anticipate that we will need between 150 and 250 additional employees by the time that Acapodene or Andarine is initially commercialized, including 50 to 80 sales representatives. While to date we have not experienced difficulties in recruiting and hiring qualified individuals, the competition for qualified personnel in the biotechnology field is intense.

Future growth will impose significant added responsibilities on members of management, including the need to identify, recruit, maintain and integrate additional employees. Our future financial performance and our ability to commercialize Acapodene, Andarine or any other product candidates that we may develop and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to:

- manage our research and development efforts effectively;
- manage our clinical trials effectively;
- integrate additional management, administrative and sales and marketing personnel;
- develop our administrative, accounting and management information systems and controls; and
- hire and train additional qualified personnel.

We may not be able to accomplish these tasks, and our failure to accomplish any of them could harm our business and financial results.

Risks Related to Our Financial Results and Need for Additional Financing

We have incurred losses since inception and anticipate that we will incur continued losses for the foreseeable future.

We are a development stage company with a limited operating history. Currently, we have no products approved for commercial sale, and, to date, we have not generated any product revenue. We have financed our operations and internal growth almost exclusively through private placements of preferred stock. We have devoted substantially all of our efforts to research and development, including clinical trials. We have incurred losses in each year since our inception in 1997. Net losses were $11.9 million in 2002, $8.1 million in 2001 and $3.8 million in 2000. For the six months ended June 30, 2003, net losses were $6.2 million. As of June 30, 2003, we had a deficit accumulated during the development stage of $59.2 million. We expect our research and development expenses to increase in connection with the following:

- our ongoing Phase IIb clinical trial and planned pivotal Phase III clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN;
- our planned pivotal Phase III clinical trial of Acapodene for the treatment of side effects of androgen deprivation therapy for advanced prostate cancer;

- our planned Phase II clinical trial of Andarine for the treatment of cachexia from non-small cell lung cancer; and

- any other clinical trials that we may initiate.

In addition, subject to regulatory approval of Acapodene or Andarine, we expect to incur sales and marketing and increased manufacturing expenses. As a result, we expect to continue to incur significant and increasing operating losses for the foreseeable future. These losses have had and will continue to have an adverse effect on our stockholders' equity and working capital. Because of the numerous risks and uncertainties associated with developing small molecule drugs, such as Acapodene and Andarine, we are unable to predict the extent of any future losses or when we will become profitable, if at all.

We currently have no source of revenue and may never become profitable.

Our ability to become profitable depends upon our ability to generate revenue. Our ability to generate product revenue depends heavily on our success in completing our clinical trials and commercializing Acapodene or Andarine. To date, neither Acapodene nor Andarine has generated any revenue, and we do not know when or if Acapodene or Andarine will generate revenue. Our ability to generate revenue depends on a number of factors, including the other risk factors described in this section of this prospectus. We do not anticipate that we will generate product revenue for a number of years or achieve profitability for at least several years after generating material revenue. If we are unable to generate revenue, we will not become profitable, and we may be unable to continue our operations.

We will need substantial additional funding and may be unable to raise capital when needed, which would force us to delay, reduce or eliminate our product development programs or commercialization efforts.

Developing small molecule drugs, conducting clinical trials and marketing any products that we may successfully develop is expensive. We will need to raise additional capital to:

- fund our operations and clinical trials;

- continue our research and development; and

- commercialize Acapodene, Andarine or any other product candidates that we may develop, if any such product candidates receive regulatory approval for commercial sale.

We believe that the net proceeds from this offering, our existing cash resources and interest on these funds will be sufficient to meet our projected operating requirements through the end of 2005. Our future funding requirements will depend on many factors, including:

- the scope, rate of progress and cost of our clinical trials and other research and development activities;

- future clinical trial results;

- the terms and timing of any collaborative, licensing and other arrangements that we may establish;

- the cost and timing of regulatory approvals;

- the cost and timing of establishing sales, marketing and distribution capabilities;

- the cost of establishing clinical and commercial supplies of our product candidates and any products that we may develop;

- the effect of competing technological and market developments;

- the cost of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights; and

- the extent to which we acquire or invest in businesses, products and technologies, although we currently have no commitments or agreements relating to any of these types of transactions.

Until we can generate a sufficient amount of product revenue, if ever, we expect to finance future cash needs through public or private equity offerings, debt financings or corporate collaboration and licensing arrangements, as well as through interest income earned on cash balances. We cannot be certain that additional funding will be available on acceptable terms, or at all. If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate one or more of our research and development programs or our commercialization efforts.

Raising additional funds by issuing securities or through collaboration and licensing arrangements with third parties may cause dilution to existing stockholders or require us to relinquish rights to our technologies, Acapodene, Andarine or any other product candidates that we may develop.

We may raise additional funds through public or private equity offerings, debt financings or corporate collaboration and licensing arrangements. We cannot be certain that additional funding will be available on acceptable terms, or at all. If we raise additional funds by issuing equity securities, our stockholders may experience dilution. Debt financing, if available, may involve restrictive covenants. Any debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it will be necessary to relinquish some rights to our technologies, Acapodene, Andarine or any other product candidates that we may develop, or grant licenses on terms that are not favorable to us.

Risks Related to the Offering

Market volatility may affect our stock price and the value of your investment.

Our stock price is likely to be volatile. The market prices for securities of biopharmaceutical companies in general have been highly volatile and may continue to be highly volatile in the future. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

- adverse results or delays in our clinical trials;

- the timing of achievement of our clinical, regulatory and other milestones, such as the commencement of clinical development, the completion of a clinical trial or the receipt of regulatory approval;

- announcement of FDA approval or non-approval of Acapodene, Andarine or any other product candidates that we may develop or delays in the FDA review process;

- actions taken by regulatory agencies with respect to Acapodene, Andarine or any other product candidates that we may develop, our clinical trials or our sales and marketing activities;

- the commercial success of any product approved by the FDA or foreign counterpart;

- regulatory developments in the United States and foreign countries;

- changes in the structure of health care payment systems;

- any intellectual property infringement lawsuit involving us;

- announcements of technological innovations or new products by us or our competitors;
- market conditions for the biotechnology or pharmaceutical industries in general;
- actual or anticipated fluctuations in our results of operation;
- changes in financial estimates or recommendations by securities analysts;
- sales of large blocks of our common stock;
- sales of our common stock by our executive officers, directors and significant stockholders;
- changes in accounting principles; and
- the loss of any of our key scientific or management personnel.

In particular, investors purchasing common stock in this offering may not be able to resell their shares at or above the initial public offering price. The stock markets in general, and the markets for biotechnology stocks in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock. In the past, class action litigation has often been instituted against companies whose securities have experienced periods of volatility in market price. Any such litigation brought against us could result in substantial costs and divert management's attention and resources, which would hurt our business, financial condition and results of operations.

The ownership interests of our officers, directors and largest stockholders could conflict with the interests of our other stockholders.

Based on our outstanding shares as of August 31, 2003, after this offering, our officers, directors and holders of 5% or more of our outstanding common stock will beneficially own approximately % of our common stock, after giving effect to the conversion into common stock of all outstanding shares of our preferred stock and dividends accrued thereon through August 31, 2003, but assuming no exercise of the underwriters' over-allotment option and no exercise of outstanding options. As a result, these stockholders, acting together, will be able to control all matters requiring approval by our stockholders, including the election of directors and the approval of mergers or other business combination transactions. The interests of this group of stockholders may not always coincide with our interests or the interests of other stockholders.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our certificate of incorporation and our bylaws that will become effective upon the completion of this offering may delay or prevent an acquisition of us or a change in our management. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board of Directors. Because our Board of Directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. These provisions include:

- a classified Board of Directors;
- a prohibition on actions by our stockholders by written consent;
- the ability of our Board of Directors to issue preferred stock without stockholder approval, which could be used to institute a "poison pill" that would work to dilute the stock ownership

of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our Board of Directors; and

- limitations on the removal of directors.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. Finally, these provisions establish advance notice requirements for nominations for election to our Board of Directors or for proposing matters that can be acted upon at stockholder meetings. These provisions would apply even if the offer may be considered beneficial by some stockholders.

We may allocate the net proceeds from this offering in ways that you and other stockholders may not approve.

We expect to use the net proceeds from this offering to fund our clinical trials and other research and development capabilities and for general corporate purposes. Our management will, however, have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not necessarily improve our results of operations or enhance the value of our common stock.

Future sales of our common or preferred stock could lower the market price of our common stock.

Based on our outstanding shares as of August 31, 2003, after this offering, we will have outstanding shares of common stock, after giving effect to the conversion of all outstanding shares of our preferred stock and dividends accrued thereon through August 31, 2003, but assuming no exercise of the underwriters' over-allotment option and no exercise of outstanding options. Of these shares, the shares being offered in this offering will be freely tradable under federal and state securities laws. Each of our officers, directors and stockholders and the holders of substantially all of our outstanding options have agreed, subject to specified exceptions, that, without the prior written consent of Goldman, Sachs & Co., they will not, directly or indirectly, sell, offer, contract to sell, transfer the economic risk of ownership in, make any short sale, pledge or otherwise dispose of any shares of our capital stock or any securities convertible into or exchangeable or exercisable for or any other rights to purchase or acquire our capital stock for a period of 180 days from the date of this prospectus. Goldman, Sachs & Co. may, in its sole discretion, permit early release of shares subject to the lock-up agreements.

Assuming that all of our preferred stock and accrued dividends had been converted into common stock on August 31, 2003, all but 331,218 of the 2,232,944 shares of our common stock that are not being sold in this offering, but which would have been outstanding as of August 31, 2003, will be eligible for sale in the public market 180 days after the effective date of the registration statement of which this prospectus is a part under Rules 144, 144(k) and 701 under the Securities Act of 1933, subject in some cases to volume and other limitations. In addition, of the 67,000 shares issuable upon exercise of options to purchase our common stock outstanding as of August 31, 2003, approximately 10,247 shares will be vested and eligible for sale 180 days after the date of this prospectus. Promptly following this offering, we intend to register the shares of common stock that are authorized for issuance under our employee and non-employee director equity incentive plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to the lock-up agreements referred to above and the restrictions imposed on our affiliates under Rule 144.

In addition, if we propose to register any of our securities under the Securities Act either for our own account or for the accounts of other security holders after this offering, the holders of

registration rights generally will be entitled to include their shares of common stock. In addition, two holders of demand registration rights may require us on not more than two occasions each to effect a registration under the Securities Act with respect to shares of common stock owned by these stockholders or their affiliates or transferees. In the future, we may also issue additional shares to our employees, directors or consultants, in connection with collaborations or acquisitions and in follow-on offerings to raise additional capital.

Due to these factors, sales of a substantial number of shares of our common stock in the public market could occur at any time. Such sales could reduce the market price of our common stock.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The assumed initial public offering price is substantially higher than the book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the book value of our assets after subtracting our liabilities. Further, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the shares of common stock outstanding.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less than the price offered to the public in this offering when they purchased their shares and the exercise of stock options granted to our employees. As a result of this dilution, investors purchasing stock in this offering may receive significantly less than the purchase price paid in this offering in the event of a liquidation.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. The forward-looking statements are contained principally in the sections entitled “Prospectus Summary,” “Risk Factors,” “Use of Proceeds,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business.” These statements involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements include statements about:

- the anticipated progress of our research, development and clinical programs;
- our ability to market, commercialize and achieve market acceptance for Acapodene, Andarine or any other product candidates or products that we may develop;
- our ability to generate additional product candidates for clinical testing;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others; and
- our estimates regarding the sufficiency of our cash resources.

In some cases, you can identify forward-looking statements by terms such as “anticipates,” “believes,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “potential,” “predicts,” “projects,” “should,” “will,” “would,” and similar expressions intended to identify forward-looking statements. Forward-looking statements reflect our current views with respect to future events, are based on assumptions and subject to risks and uncertainties. We discuss many of these risks in this prospectus in greater detail under the heading “Risk Factors.” Given these uncertainties, you should not place undue reliance on these forward-looking statements. Also, forward-looking statements represent our estimates and assumptions only as of the date of this prospectus. You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect.

Except as required by law, we assume no obligation to update any forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in any forward-looking statements, even if new information becomes available in the future.

USE OF PROCEEDS

We estimate that our net proceeds from the sale of shares of common stock in this offering will be approximately $ million and $ million if the underwriters exercise their over-allotment option in full, based upon an assumed initial public offering price of $ per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The principal purposes of this offering are to obtain additional capital and to create a public market for our common stock.

We expect to use approximately $ million of the net proceeds from this offering to fund our clinical trials and other research and development activities and approximately $ million for general corporate purposes. In addition, we may use a portion of the net proceeds from this offering to acquire equipment, products, technologies or businesses, although we currently have no commitments or agreements relating to any of these types of transactions. We believe that the net proceeds from this offering, our existing cash resources and interest on these funds will be sufficient to meet our projected operating requirements through the end of 2005.

While we have estimated the particular uses for the net proceeds to be received upon the completion of this offering, we cannot specify these uses with certainty. Accordingly, our management will have broad discretion in the application of the net proceeds, and investors will be relying on the judgment of our management regarding the application of the proceeds of this offering. Pending these uses, we plan to invest the net proceeds in short-term, interest bearing obligations, investment grade instruments, certificates of deposit or direct or guaranteed obligations of the United States. The goal with respect to the investment of these net proceeds is capital preservation and liquidity so that such funds are readily available to fund our research and development operations.

DIVIDEND POLICY

Dividends on outstanding shares of our preferred stock accrue and are payable at the time these shares are converted into shares of common stock, which will occur upon completion of this offering. These dividends are payable solely in shares at the time of conversion.

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain any future earnings to fund the development and expansion of our business, and therefore we do not anticipate paying cash dividends on our common stock in the foreseeable future. Any future determination to pay dividends will be at the discretion of our Board of Directors.

CAPITALIZATION

The following table sets forth our capitalization as of June 30, 2003:

- on an actual basis;
- on a pro forma basis to give effect to the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock on August 7, 2003 for net proceeds of approximately $20.0 million; and
- on a pro forma as adjusted basis to reflect the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock on August 7, 2003 for net proceeds of approximately $20.0 million, the conversion into common stock of all outstanding shares of preferred stock and dividends accrued thereon through August 31, 2003 and the sale in this offering of shares of common stock at an assumed initial public offering price of $ per share, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The information in this table is based on shares outstanding as of June 30, 2003 and excludes:

- 45,750 shares of common stock issuable upon exercise of options issued under our current stock option plans, at a weighted average exercise price of $48.79 per share; and
- 105,150 shares of common stock reserved for future issuance under our current stock option plans and shares of common stock reserved for future issuance under our 2003 Equity Incentive Plan, 2003 Non-Employee Directors' Stock Option Plan and 2003 Employee Stock Purchase Plan, which we plan to adopt before the completion of this offering.

You should read the information below in conjunction with the financial statements and the related notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this prospectus.

	As of June 30, 2003		
	Actual	Pro Forma	Pro Forma As Adjusted
		(unaudited) (in thousands, except share data)	
Cash and cash equivalents	$ 3,112	$ 23,098	$
Cumulative redeemable convertible preferred stock, no par value:			
1,227,500 shares authorized and 902,419 shares issued and outstanding, actual; 1,677,500 authorized and 1,231,955 shares issued and outstanding, pro forma; and no shares authorized, issued or outstanding, pro forma as adjusted	60,656	80,656	
Stockholders' (deficit) equity:			
Common stock, $0.001 par value:			
10,000,000 shares authorized, actual and pro forma; shares authorized pro forma as adjusted; 910,000 shares issued and outstanding, actual; 910,000 shares issued and outstanding, pro forma; and shares issued and outstanding, pro forma as adjusted	970	970	
Deficit accumulated during the development stage	(59,154)	(59,168)	
Total stockholders' (deficit) equity	(58,184)	(58,198)	
Total capitalization	$ 2,472	$ 22,458	$

DILUTION

The historical net tangible book value of our common stock as of June 30, 2003 was $(58.2) million, or $(63.94) per share, based on the number of shares of common stock outstanding as of June 30, 2003. Historical net tangible book value per share is determined by dividing our total tangible assets less total liabilities by the actual number of outstanding shares of our common stock. The pro forma net tangible book value of our common stock as of June 30, 2003 was $22.5 million, or $10.20 per share. Pro forma net tangible book value per share is determined by dividing our total tangible assets less total liabilities after giving effect to the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock in August 2003 and the conversion of all of our outstanding shares of preferred stock and dividends accrued thereon through June 30, 2003 into common stock by the actual number of shares of our common stock plus the number of shares issuable upon conversion of all of our outstanding shares of preferred stock and dividends accrued thereon through June 30, 2003 into common stock after giving effect to the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock in August 2003 as if such conversion had occurred on June 30, 2003.

After giving effect to the sale of common stock offered in this offering at the assumed public offering price of $ per share, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2003 would have been approximately $ million, or $ per share of common stock. This represents an immediate increase in pro forma net tangible book value of $ per share to existing stockholders and an immediate dilution of $ per share to new investors purchasing our common stock in this offering. The following table illustrates this per share dilution to the new investors:

Assumed initial public offering price		$
Historical net tangible book value per share as of June 30, 2003	$(63.94)	
Pro forma net tangible book value per share as of June 30, 2003	$ 10.20	
Increase in pro forma net tangible book value per share attributable to this offering		
Pro forma as adjusted net tangible book value per share after offering		
Dilution per share to new investors in this offering		$

The following table summarizes, on a pro forma as adjusted basis as of June 30, 2003, the differences between the number of shares of common stock purchased from us, the total consideration and the average price per share paid by existing stockholders and by the new investors, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, at an assumed initial public offering price of $ per share:

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					
Total		100.0%		$100.0%	

If the underwriters exercise their option to purchase additional shares of our common stock in full in this offering, the pro forma as adjusted net tangible book value per share after the offering would be $ per share, the increase in pro forma net tangible book value per share to existing stockholders would be $ per share and the dilution to new investors purchasing shares in this offering would be $ per share.

If the underwriters exercise their over-allotment option in full, the number of shares held by new investors will increase to , or approximately % of the total number of shares of our common stock outstanding after this offering.

The existing stockholders amounts in the table above have been calculated on a pro forma basis, which includes shares outstanding as of June 30, 2003 and excludes:

- 45,750 shares of common stock issuable upon exercise of options issued under our current stock option plans, at a weighted average exercise price of $48.79 per share; and

- 105,150 shares of common stock reserved for future issuance under our current stock option plans and shares of common stock reserved for future issuance under our 2003 Equity Incentive Plan, 2003 Non-Employee Directors' Stock Option Plan and 2003 Employee Stock Purchase Plan, which we plan to adopt before the completion of this offering.

After this offering and assuming the exercise in full of all of the foregoing options, our pro forma as adjusted net tangible book value per share as of June 30, 2003 would be $ per share, representing an immediate increase in net tangible book value of $ per share to existing stockholders and an immediate dilution in net tangible book value of $ per share to new investors.

SELECTED FINANCIAL DATA

The selected financial data below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements, notes thereto and other financial information included elsewhere in this prospectus. The selected financial data for each of the five fiscal years in the period ended December 31, 2002 are derived from our financial statements which have been examined and reported upon by Ernst & Young LLP, independent public accountants. See "Experts." The data presented for the six-month periods ended June 30, 2002 and June 30, 2003 are derived from unaudited financial statements and include, in the opinion of management, all adjustments, consisting only of normal recurring accruals, necessary to present fairly the data for such periods. The results for the six-month period ended June 30, 2003 are not necessarily indicative of the results to be expected for the full fiscal year.

Pro forma net loss per share for the year ended December 31, 2002 and the six months ended June 30, 2003 is computed using the weighted average number of shares of common stock outstanding, including the pro forma effects of the automatic conversion of our preferred stock and dividends accrued thereon into shares of common stock effective upon the closing of the offering as if such conversion occurred on January 1, 2002 and January 1, 2003 or at the date of the original issuance, if later. The calculation of pro forma net loss per share attributable to common stockholders excludes incremental common stock issuable upon exercise of options, as its effect would be antidilutive.

	Year Ended December 31,					Six Months Ended June 30,		Cumulative Period from September 24, 1997 (date of inception) to June 30, 2003
	1998	1999	2000	2001	2002	2002	2003	
					(unaudited)			(unaudited)
					(in thousands, except share and per share data)			
Statement of Operations Data:								
Operating expenses:								
Research and development	$ 185	$ 518	$ 2,679	$ 5,744	$ 9,285	$ 3,975	$ 4,703	$ 22,298
General and administrative	179	256	1,203	2,187	2,405	1,105	1,411	8,457
Depreciation	19	45	80	215	332	153	175	865
Total operating expenses	383	819	3,962	8,146	12,022	5,233	6,289	31,620
Other income:								
Research and development income	225	—	—	—	—	—	—	225
Interest income	42	69	150	83	156	55	43	543
Total other income	267	69	150	83	156	55	43	768
Net loss	(116)	(750)	(3,812)	(8,063)	(11,866)	(5,178)	(6,246)	(30,852)
Accrued preferred stock dividends	—	(82)	(297)	(790)	(2,147)	(858)	(1,366)	(4,684)
Adjustment to preferred stock redemption value	—	—	(21,077)	(57)	(7,220)	(7,036)	4,736	(23,618)
Net loss attributable to common stockholders	$ (116)	$ (832)	$ (25,186)	$ (8,910)	$ (21,233)	$ (13,072)	$ (2,876)	$(59,154)
Net loss per share attributable to common stockholders:								
Basic	$ (.13)	$ (.91)	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.16)	
Diluted	$ (.13)	$ (.91)	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.34)	
Weighted average shares used in computing net loss per share attributable to common stockholders:								
Basic	910,000	910,000	910,000	910,000	910,000	910,000	910,000	
Diluted	910,000	910,000	910,000	910,000	910,000	910,000	1,869,021	
Pro forma net loss per share attributable to common stockholders — basic and diluted					$ (6.81)		$ (3.34)	
Shares used in computing pro forma net loss per share attributable to common stockholders — basic and diluted					1,742,563		1,869,021	

With respect to June 30, 2003, the following table presents a summary of our balance sheet:

- on an actual basis; and
- on a pro forma basis to give effect to the issuance of 329,536 shares of Series E cumulative redeemable convertible preferred stock on August 7, 2003 for net proceeds of approximately $20.0 million.

	As of December 31,					As of June 30, 2003	
	1998	1999	2000	2001	2002	Actual	Pro Forma
				(in thousands)		(unaudited)	
Balance Sheet Data (at period end):							
Cash and cash equivalents	$ 748	$1,542	$ 2,667	$ 8,834	$ 8,925	$ 3,112	$ 23,098
Working capital	742	1,434	2,241	8,544	7,654	1,544	21,530
Total assets	871	1,677	3,201	10,117	10,030	4,064	24,050
Cumulative redeemable convertible preferred stock	—	1,537	27,912	43,702	64,026	60,656	80,656
Deficit accumulated during development stage	(116)	(866)	(26,135)	(35,045)	(56,278)	(59,154)	(59,168)
Total stockholders' (deficit) equity	854	21	(25,165)	(34,075)	(55,308)	(58,184)	(58,198)

MANAGEMENT'S DISCUSSION AND ANALYSIS OF

FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with our financial statements and related notes included elsewhere in this prospectus. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this prospectus.

GTx is a biopharmaceutical company dedicated to the discovery, development and commercialization of therapeutics primarily related to the treatment of serious men's health conditions. Our drug discovery and development programs are focused on small molecules that selectively modulate the effects of estrogens and androgens, two essential classes of hormones. We currently have two product candidates that are in human clinical trials. We are developing Acapodene, our most advanced product candidate, through clinical trials for two separate indications: (1) a Phase IIb clinical trial for the reduction in the incidence of prostate cancer in men with precancerous prostate lesions and (2) a planned pivotal Phase III clinical trial for the treatment of serious side effects of advanced prostate cancer therapy. We are initially developing our second product candidate, Andarine, for the treatment of cachexia from various types of cancer. Andarine is the most advanced of our internally discovered portfolio of compounds designed to modulate the effects of hormones. We plan to build a specialized sales and marketing capability to market our product candidates directly to the relatively small and concentrated community of urologists and medical oncologists in the United States and seek collaborators to commercialize our product candidates where the target physician market is broader than urologists and medical oncologists and outside the United States.

To date, we have not generated any product revenue, and we have financed our operations and internal growth almost exclusively through private placements of preferred stock. We are a development stage company and have incurred significant losses since our inception in 1997 as we have devoted substantially all of our resources to research and development, including our clinical trials. As of June 30, 2003, we had a deficit accumulated during the development stage of $59.2 million. Our accumulated deficit resulted primarily from:

- our research and development activities associated with Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN, including our Phase IIb clinical trial; Acapodene for the treatment of side effects of androgen deprivation therapy, including two Phase II clinical trials; Andarine for the treatment of cachexia from various forms of cancer, including three Phase I clinical trials; and other product candidates;

- general and administrative expenses; and

- non-cash dividends and adjustments to the preferred stock redemption value of $28.3 million related to our cumulative redeemable convertible preferred stock. See "Critical Accounting Policies — Adjustment to Preferred Stock Redemption Value."

We expect to continue to incur net losses over the next several years as we continue our clinical development and research and development activities, apply for regulatory approvals, establish sales and marketing capabilities and expand our operations.

Research and Development

Since our inception, we have been focused on drug discovery and development programs. Research and development expenses represented approximately 75% of our total operating

expenses for the six-month period ended June 30, 2003. Research and development expenses include our expenses for:

- personnel associated with our research activities;
- screening and identification of product candidates;
- formulation and synthesis activities;
- manufacturing;
- preclinical studies, including toxicology studies;
- clinical trials;
- regulatory affairs; and
- quality assurance activities.

The following table identifies for each of our major drug discovery and development programs our lead product candidates, the development phase of each lead product candidate, the status of each lead product candidate and research and development spending for each lead product candidate for each of the periods presented. Research and development spending for past periods is not indicative of spending in future periods.

Research & Development Spending

(in thousands)

Program/ Product Candidate/ Indication	Development Phase	Status	Year Ended December 31,			Six Months Ended June 30,		Inception Through June 30,
			2000	2001	2002	2002	2003	2003
SERM Program								
Acapodene								
• Reduction in the incidence of prostate cancer in men with high grade PIN	Phase IIb clinical trial	Enrollment complete; last patient scheduled to complete trial in May 2004; final results expected in the third quarter of 2004	$1,984	$2,436	$3,168	$1,221	$1,643	$9,934
• Side effects of androgen deprivation therapy	Pivotal Phase III clinical trial planned	Pivotal Phase III clinical trial expected to commence in November 2003	$ —	$ —	$ 807	$ 421	$ 364	$1,171
SARM Program								
Andarine								
• Cachexia from various types of cancer	Three Phase I clinical trials completed	Phase II clinical trials for treatment of cachexia from non-small cell lung cancer scheduled to begin in the first half of 2004	$ 141	$2,430	$4,134	$1,654	$2,213	$8,918

There is a risk that any drug discovery and development program may not produce revenue. Moreover, because of uncertainties inherent in drug discovery and development, including those factors described in the "Risk Factors" section of this prospectus, we may not be able to successfully develop and commercialize any of the product candidates included in the table above.

Drug development in the United States is a process that includes several steps defined by the FDA. The FDA approval process for a new drug involves completion of preclinical studies and the submission of the results of these studies to the FDA, together with proposed clinical protocols, manufacturing information, analytical data and other information in an Investigational New Drug application, or IND, which must become effective before human clinical trials may begin. Clinical development typically involves three phases of study: Phase I, II and III. The most significant costs associated with clinical development are the Phase III clinical trials as they tend to be the longest and largest studies conducted during the drug development process. After completion of clinical trials, a New Drug application, or NDA, may be submitted to the FDA. In responding to an NDA, the FDA may refuse to file the application, or if accepted for filing, the FDA may grant marketing approval, request additional information or deny the application if it determines that the application does not provide an adequate basis for approval.

The successful development of our product candidates is highly uncertain. We cannot reasonably estimate or know the nature, timing and estimated costs of the efforts necessary to complete the development of, or the period in which material net cash inflows are expected to commence from, any of our product candidates due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

- the scope, rate of progress and cost of our clinical trials and other research and development activities;
- future clinical trial results;
- the terms and timing of any collaborative, licensing and other arrangements that we may establish;
- the cost and timing of regulatory approvals;
- the cost and timing of establishing sales, marketing and distribution capabilities;
- the cost of establishing clinical and commercial supplies of our product candidates and any products that we may develop;
- the effect of competing technological and market developments; and
- the cost of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights.

Any failure to complete the development of our product candidates in a timely manner could have a material adverse effect on our operations, financial position and liquidity. A discussion of the risks and uncertainties associated with completing our projects on schedule, or at all, and some consequences of failing to do so, are set forth in the "Risk Factors" section of this prospectus.

Results of Operations

Comparison of Six Months Ended June 30, 2003 and June 30, 2002

Research and Development. Research and development expenses increased 17.5% to $4.7 million for the six months ended June 30, 2003 from $4.0 million for the six months ended June 30, 2002. This increase was primarily due to an increase in clinical trial expenses for the Phase IIb clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN of approximately $422,000, as enrollment in the clinical trial was completed in May

2003 and Phase I clinical trial expenses for Andarine of approximately $559,000. These increases were offset in part by a reduction in research and development spending on other product candidates by approximately $195,000.

We expect that research and development expenditures will continue to increase substantially during 2003 and subsequent years due to (1) the planned commencement in November 2003 of a pivotal Phase III clinical trial of Acapodene for the treatment of side effects of androgen deprivation therapy, (2) the completion of the current Phase IIb clinical trial in 2004 and planned commencement of a pivotal Phase III clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN and (3) the continued development of Andarine, including a Phase II clinical trial scheduled to begin in the first half of 2004. We expect to expand the scope of our drug discovery and development programs in future periods, which may result in substantial increases in research and development expenses.

General and Administrative. General and administrative expenses consist primarily of the costs of administrative personnel and related facilities and legal, accounting, human resources, information technology, public relations and other professional services. In the future, general and administrative expenses will also include the costs of sales and marketing. General and administrative costs increased 27% to $1.4 million for the six months ended June 30, 2003 from $1.1 million for the six months ended June 30, 2002. The increase was primarily due to an increase in salary and benefits expense of approximately $111,000 resulting from increases in staffing levels, annual salary increases and increased health insurance costs and an approximate $69,000 increase in legal fees.

We expect that general and administrative expenditures will increase during 2003 and subsequent years due to increasing payroll, public company expenses, our initial commercialization expenses, business development costs and expanded operational infrastructure.

Interest Income. Interest income for the six months ended June 30, 2003 was $43,000 and decreased from the corresponding period in 2002 as a result of a decrease in the average cash and cash equivalents balance and overall interest rates.

Adjustment to Preferred Stock Redemption Value. The adjustment to preferred stock redemption value consists of the amount of the change in the redemption value, which is the greater of the liquidation value and fair value, of the preferred stock. For the six months ended June 30, 2003, the amount of the adjustment was a decrease of $4.7 million. For the six months ended June 30, 2002, the amount of the adjustment was an increase of $7.0 million. See “Critical Accounting Policies — Adjustment to Preferred Stock Redemption Value.”

Comparison of Years Ended December 31, 2002 and December 31, 2001

Research and Development. Research and development expenses increased 62% to $9.3 million for the year ended December 31, 2002 from $5.7 million for the year ended December 31, 2001. This increase was primarily due to an increase in clinical trial expenses for the Phase IIb clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN of approximately $732,000 and an increase in clinical trial expenses for two Phase II clinical trials of Acapodene for the treatment of side effects of androgen deprivation therapy of approximately $807,000. In addition, preclinical toxicology studies, formulation and synthesis activities, manufacturing activities and clinical development activities for Andarine increased research and development expenses by approximately $1.7 million. Research and development expenses related to other product candidates increased by approximately $297,000 for the year ended December 31, 2002 as compared to the prior year.

General and Administrative. General and administrative expenses increased 10% to $2.4 million for the year ended December 31, 2002 from $2.2 million for the year ended December 31, 2001. This increase was primarily due to an increase in salary and benefits expense

by approximately $419,000 associated with increases in staffing levels, offset by a reduction in legal fees of approximately $72,000 and travel expenses of approximately $40,000. In addition, general and administrative expenses for the year ended December 31, 2001 included interest expense on notes payable of approximately $71,000. There were no notes outstanding in the year ended December 31, 2002.

Interest Income. Interest income increased 87% to approximately $156,000 for the year ended December 31, 2002 from approximately $83,000 for the year ended December 31, 2001. The increase was principally attributable to higher average cash and cash equivalents balances during the year ended December 31, 2002 as compared to the prior year.

Adjustment to Preferred Stock Redemption Value. For the year ended December 31, 2002, the adjustment to preferred stock redemption value was an increase of $7.2 million compared to an increase of $57,000 for the year ended December 31, 2001. The adjustments were due to a change in the redemption value of the preferred stock.

Comparison of Years Ended December 31, 2001 and December 31, 2000

Research and Development. Research and development expenses increased 114% to $5.7 million for the year ended December 31, 2001 from $2.7 million for the year ended December 31, 2000. This increase was primarily due to an increase in research and development expenses for Andarine of approximately $2.3 million, which included preclinical toxicology studies, formulation and synthesis activities, manufacturing activities and clinical development activities, and an increase in clinical trial expenses for the Phase IIb clinical trial of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN of approximately $450,000. Research and development expenses on other product candidates increased by approximately $325,000 for the year ended December 31, 2001 compared to the prior year.

General and Administrative. General and administrative expenses increased 83% to $2.2 million for the year ended December 31, 2001 from $1.2 million for the year ended December 31, 2000. This increase was primarily due to an increase in salary and benefits expense by approximately $460,000 associated with increases in staffing levels, an increase of occupancy expense of approximately $105,000, an increase in legal fees of approximately $112,000, as well as increases in other general and administrative expenses. In addition, general and administrative expenses for the year ended December 31, 2001 included interest expense on notes payable of approximately $71,000. There were no notes outstanding in the year ended December 31, 2000.

Interest Income. Interest income decreased 45% to $83,000 for the year ended December 31, 2001 from $150,000 for the year ended December 31, 2000. The decrease was principally attributable to lower average cash and cash equivalents balances during the year ended December 31, 2001 as compared to the prior year.

Adjustment to Preferred Stock Redemption Value. For the year ended December 31, 2001, the adjustment to preferred stock redemption value was an increase of $57,000 compared to an increase of $21.1 million for the year ended December 31, 2000. The adjustments were due to a change in the redemption value of the preferred stock.

Liquidity and Capital Resources

We have not generated any product revenue, and we have financed our operations and internal growth almost exclusively through private placements of preferred stock. We have incurred significant losses since our inception in 1997. As of June 30, 2003, we had a deficit accumulated during the development stage of $59.2 million.

The following table summarizes our issuances of preferred stock through August 31, 2003.

Series	Date	Number of Shares	Approximate Gross Proceeds
			(in thousands)
A	May 1999	200,000	$ 1,455
B	July 2000	277,500	5,000
C	October 2001	260,154	15,000
D	July 2002	164,765	11,000
E	August 2003	329,536	20,000

At August 31, 2003, we had cash and cash equivalents of $21.4 million. At June 30, 2003, we had cash and cash equivalents of $3.1 million, compared to $8.9 million at December 31, 2002, $8.8 million at December 31, 2001 and $2.7 million at December 31, 2000.

Net cash used in operating activities was $10.6 million and $5.8 million for the year ended December 31, 2002 and the six months ended June 30, 2003. The use of cash in both periods resulted primarily from funding our net losses.

Net cash used in investing activities was $313,000 and $39,000 for the year ended December 31, 2002 and the six months ended June 30, 2003. This was primarily for the purchase of research and development equipment.

Net cash provided by financing activities, which resulted from the sale of preferred stock, was $11.0 million for the year ended December 31, 2002. There were no financing activities during the six months ended June 30, 2003. On August 7, 2003, we sold 329,536 shares of Series E preferred stock and received gross proceeds of $20.0 million.

We believe that the net proceeds from this offering, our current cash resources and interest on these funds will be sufficient to meet our projected operating requirements through the end of 2005. In addition to the net proceeds of this offering, we estimate that we will need to raise additional funds in the amount of approximately $70 million, assuming that we do not enter into collaborative arrangements for any of our product candidates, in order to commercialize Acapodene and Andarine for the indications currently being tested.

Our forecast of the period of time through which our financial resources will be adequate to support our projected operating requirements is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors, including the factors discussed in the “Risk Factors” section of this prospectus. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. Because of the numerous risks and uncertainties associated with the development of our product candidates and other research and development activities, including risks and uncertainties that could impact the rate of progress of our development activities, we are unable to estimate with certainty the amounts of increased capital outlays and operating expenditures associated with our current and anticipated clinical trials and other research and development activities. Our future funding requirements will depend on many factors, including:

- the scope, rate of progress and cost of our clinical trials and other research and development activities;
- future clinical trial results;
- the terms and timing of any collaborative, licensing and other arrangements that we may establish;
- the cost and timing of regulatory approvals;
- the cost and timing of establishing sales, marketing and distribution capabilities;

- the cost of establishing clinical and commercial supplies of our product candidates and any products that we may develop;
- the effect of competing technological and market developments;
- the cost of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights; and
- the extent to which we acquire or invest in businesses, products and technologies, although we currently have no commitments or agreements relating to any of these types of transactions.

We do not anticipate that we will generate product revenue for a number of years. Until we can generate a sufficient amount of product revenue, if ever, we expect to finance future cash needs through public or private equity offerings, debt financings or corporate collaboration and licensing arrangements, as well as through interest income earned on cash balances. We do not currently have any commitments for future external funding. We cannot be certain that additional funding will be available on acceptable terms, or at all. To the extent that we raise additional funds by issuing equity securities, our stockholders may experience dilution, and debt financing, if available, may involve restrictive covenants. To the extent that we raise additional funds through collaboration and licensing arrangements, it may be necessary to relinquish some rights to our technologies or product candidates, or grant licenses on terms that are not favorable to us. If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate one or more of our research or development programs or to obtain funds through collaborations with others that are on unfavorable terms or that may require us to relinquish rights to some of our technologies or product candidates that we would otherwise seek to develop on our own.

We have no long-term debt, and, as of June 30, 2003, we had contractual obligations related to a facilities lease as follows:

		Payments Due by Period (in thousands)			
	Total	Less than 1 year	1-3 years	4-5 years	After 5 years
Contractual obligations	$422	$ 94	$328	$ —	$ —

Our long-term commitments under the operating lease shown above consist of payments relating to a lease for laboratory and office space at 3 North Dunlap Street, Memphis, Tennessee. This lease expires on September 30, 2005. This lease is terminable by either party on 90 days' notice. The table above excludes contingent payments under the license agreements to which we are a party.

Critical Accounting Policies

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures. Actual results could differ from those estimates. We believe that the following critical accounting policies affect the more significant judgments and estimates used in the preparation of our financial statements.

Accounting for Income Taxes

Our income tax policy records the estimated future tax effects of temporary differences between the tax basis of assets and liabilities and amounts reported in the accompanying balance sheets, as well as operating loss and tax credit carryforwards. We have recorded a full valuation allowance to reduce our deferred tax assets as, based on available objective evidence, it is more likely than not that the deferred tax asset will not be realized. In the event that we determine that we will be able to

realize our deferred tax assets in the future, an adjustment to the valuation allowance would increase net income in the period such determination is made.

Stock-Based Compensation

In accordance with Accounting Principles Board Opinion No. 25 and related interpretations, we do not recognize compensation expense when we issue stock options to employees and non-employee directors, unless the exercise price is below the fair market value of the stock on the date of grant. Our compensation expense would have been approximately $111,000 higher and our diluted net loss per share would have been approximately $0.13 higher in 2002 had we recognized an expense equal to the estimated fair market value of employee stock options granted through December 31, 2002 amortized over the vesting period of the options. For more information on this subject, you should refer to Note 11 to our financial statements included elsewhere in this prospectus.

Adjustment to Preferred Stock Redemption Value

We recognize changes in the redemption value of our preferred stock immediately as they occur and adjust the carrying value of the preferred stock to equal the redemption value at the end of each reporting period. The preferred stock is subject to redemption on or after August 31, 2006 at a price per share equal to the greater of (1) the liquidation value, which includes accrued dividends or (2) the fair value calculated on an as-if converted to common stock basis. We determine fair value considering factors such as the share price of preferred stock issuances, achievement of significant milestones in the clinical trials and general market conditions. Although we consider these factors in determining fair value, this determination is, by its nature, subjective and subject to change in the future based upon a number of factors. The changes in redemption value affect the loss attributable to common stockholders, the preferred stock carrying values and the deficit accumulated during the development stage.

Quantitative and Qualitative Disclosures about Market Risk

Our exposure to market risk for changes in interest rates relates to our cash equivalents on deposit in highly liquid money market funds. The primary objective of our cash investment activities is to preserve principal while at the same time maximizing the income we receive from our invested cash without significantly increasing risk of loss. We do not use derivative financial instruments in our investment portfolio. Our cash and investments policy emphasizes liquidity and preservation of principal over other portfolio considerations.

We have operated primarily in the United States. Accordingly, we do not have any material exposure to foreign currency rate fluctuations. However, if we are successful in our efforts to commercialize Acapodene, our exposure to foreign currency rate fluctuations may increase because we are obligated to pay Orion in Euros.

Recent Accounting Pronouncements

In December 2002, the Financial Accounting Standards Board, or FASB, issued SFAS No. 148 “Accounting for Stock-Based Compensation — Transition and Disclosure,” which provides alternative methods of transition for a voluntary change to the fair value based method of accounting for stock-based employee compensation. SFAS No. 148 also requires that disclosures of the pro forma effect of using the fair value method of accounting for stock-based employee compensation be displayed more prominently and in a tabular format. Additionally, SFAS No. 148 requires disclosure of the pro forma effect in interim financial statements. The transition and annual disclosure requirements of SFAS No. 148 are effective for fiscal years ended after December 15, 2002. The interim disclosure

requirements are effective for interim periods beginning after December 15, 2002. The adoption of this standard did not have a material impact on our financial statements.

In January 2003, the FASB issued FASB Interpretation No. 46, “Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51.” FIN 46 requires certain variable interest entities to be consolidated by the primary beneficiary of the entity if the equity investors in the entity do not have the characteristics of a controlling financial interest or do not have sufficient equity at risk for the entity to finance its activities without additional subordinated financial support from other parties. FIN 46 is effective immediately for all new variable interest entities created or acquired after January 31, 2003. For variable interest entities created or acquired prior to February 1, 2003, the provisions of FIN 46 must be applied for the first interim or annual period ending after December 15, 2003. We did not have any ownership in any variable interest entities as of December 31, 2002. We will apply the consolidation requirement of FIN 46 in future periods if we own any interest in any variable interest entity.

In May 2003, the FASB issued SFAS No. 150, “Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity.” SFAS No. 150 requires that certain financial instruments, which under previous guidance could be accounted for as equity, be classified as liabilities in the statement of financial position. SFAS No. 150 is effective for financial instruments entered into or modified after May 31, 2003. We do not expect the adoption of SFAS No. 150 to have a significant impact on our financial statements.

BUSINESS

Overview

GTx is a biopharmaceutical company dedicated to the discovery, development and commercialization of therapeutics primarily related to the treatment of serious men's health conditions. Our drug discovery and development programs are focused on small molecules that selectively modulate the effects of estrogens and androgens, two essential classes of hormones. We currently have two product candidates that are in human clinical trials. We are developing Acapodene, our most advanced product candidate, through clinical trials for two separate indications: (1) a Phase IIb clinical trial for the reduction in the incidence of prostate cancer in men with precancerous prostate lesions and (2) a planned pivotal Phase III clinical trial for the treatment of serious side effects of advanced prostate cancer therapy. We are initially developing our second product candidate, Andarine, for the treatment of cachexia from various types of cancer. Andarine is the most advanced of our internally discovered portfolio of compounds designed to modulate the effects of hormones.

Our most advanced product candidate is Acapodene, which we are developing to reduce the incidence of prostate cancer in men with precancerous prostate lesions. We have licensed from Orion Corporation the right to develop, market and distribute toremifene, the active pharmaceutical ingredient in Acapodene, worldwide in the field of the prevention and treatment of prostate cancer and the treatment of the principal side effects of prostate cancer therapies. Scientific evidence has established that men who have high grade, or advanced, prostatic intraepithelial neoplasia, a precancerous prostate lesion referred to as high grade PIN, are at high risk of developing prostate cancer. Currently, there is no therapy for the treatment of high grade PIN. We are conducting a Phase IIb clinical trial in which we have enrolled 515 patients to determine the efficacy and safety of Acapodene in reducing the incidence of prostate cancer in men with high grade PIN. The last patient is scheduled to complete this trial in May 2004, with final results expected in the third quarter of 2004.

We are also developing Acapodene for the treatment of side effects of androgen deprivation therapy, which reduces blood levels of testosterone and is the only medical treatment for men who have advanced, recurrent or metastatic prostate cancer. Androgen deprivation therapy has serious side effects, including: severe bone loss, or osteoporosis, leading to skeletal fractures; hot flashes; and breast pain and enlargement, or gynecomastia. There are no drugs approved by the FDA for the treatment of these side effects of androgen deprivation therapy. We have completed two Phase II clinical trials of Acapodene for this indication and expect to commence a pivotal Phase III clinical trial in November 2003.

Our second product candidate is Andarine, which we are initially developing for the treatment of cachexia from various types of cancer, a potentially life-threatening complication of many cancers. There are no drugs that have been approved by the FDA for the treatment of cancer cachexia. Although there are two commercially available drugs that are being prescribed off-label for the treatment of some types of cancer cachexia, chronic use of these drugs may result in bleeding liver cysts and liver cell tumors. We discovered Andarine internally through our drug discovery program. We have completed three Phase I clinical trials of Andarine, and we plan to commence a placebo-controlled, dose-finding Phase II clinical trial for the treatment of cachexia from non-small cell lung cancer in the first half of 2004.

We have a robust preclinical product candidate pipeline of small molecules that modulate the effects of hormones. Our current preclinical product candidate pipeline focuses on the treatment of major indications in men's health, including:

- Prostarine for the treatment of benign prostatic hyperplasia, or BPH, a benign prostate enlargement that results in obstruction of the urinary tract;
- Ostarine for the treatment of osteoporosis and andropause; and
- Andromustine for the treatment of prostate cancer that is not responsive to androgen deprivation therapy.

We believe that our drug discovery capabilities position us well to sustain our clinical pipeline through the design and development of nonsteroidal small molecule drugs that modulate the effects of hormones.

Scientific Background on Estrogens and Androgens

Both estrogens and androgens are hormones that play critical roles in men's health, regulating not only the reproductive system, but also having important effects on the muscular, skeletal, cardiovascular and central nervous systems. In order for the body to function properly, a balance must exist between estrogens and androgens.

Estrogens prevent bone loss and osteoporosis and reduce the risk of skeletal fractures. In aging men, there is a gradual increase in estrogen levels in the blood, which may promote BPH, initiate prostate cancer and cause gynecomastia.

Testosterone is the predominant androgen in men. Testosterone is important for mental well-being and for masculine physical characteristics, such as muscle size and strength, bone strength and male pattern hair growth and loss. Testosterone also stimulates sebaceous glands, which can cause acne. Male reproductive health is also dependent on testosterone to maintain sexual interest, fertility, erectile function and normal prostate growth. In aging men, there is a gradual decrease in testosterone levels, leading to loss of muscle mass and strength, reduced bone mineralization resulting in osteoporosis and bone fractures, erectile dysfunction, decreased sexual interest, depression and mood changes.

In order for estrogens and androgens to perform their physiologic functions, they must interact with and activate their hormone receptors. Hormone receptors are sites located in tissues where hormones bind. Once a hormone binds with its receptor, a series of cellular events is activated, resulting in estrogenic or androgenic tissue effects.

Pharmaceuticals that target hormone receptors for estrogens or androgens have been prescribed for over 50 years. The drugs that have been used to stimulate androgen receptors are natural or synthetic hormones, known as steroids. Steroids activate hormone receptors in all tissue types in a non-selective manner. The absence of selectivity may result in unwanted side effects, such as the potential stimulation of latent prostate cancer, aggravation of existing BPH, acne, hair growth and gynecomastia. Testosterone products also have many pharmacologic limitations, such as an inability to administer them orally. Instead, they must be given by intramuscular injections, patches or gels. The delivery methods of testosterone products are inconvenient for patients and in some cases result in inconsistent levels of testosterone in the blood.

There are also classes of small molecules that are not steroids, but which bind to hormone receptors. These small molecules may either stimulate or block hormone receptors depending on the type of tissue in which the receptor is found. A drug that can either block or stimulate the same hormone receptor is called a receptor modulator. A drug that can either block or stimulate a receptor in a tissue-selective manner may be able to mimic the beneficial, and at the same time minimize the unwanted, effects of natural or synthetic hormones.

A selective estrogen receptor modulator, or SERM, is a small molecule that binds to and selectively modulates estrogen receptors. SERMs have the ability to either stimulate or block estrogen's activity in different tissue types. SERMs have been shown to stimulate estrogen's beneficial action in bone and block estrogen's harmful activity in the breast. In addition, we believe that SERMs have the potential to block estrogen's harmful activity in the prostate. Examples of SERMs currently on the market include tamoxifen, which has been prescribed to treat female and male breast cancer, and raloxifene, which is used to prevent and treat female post-menopausal osteoporosis.

Similarly, a selective androgen receptor modulator, or SARM, is a small molecule that binds to and selectively modulates androgen receptors. In men, we believe that SARMs will be able to

stimulate testosterone's beneficial action in bone, muscle and brain, while blocking testosterone's harmful action in the prostate and skin. We further believe that SARMs will have the ability to either cross or not cross into the central nervous system and to selectively modulate receptors depending on tissue type. As a result, although no SARMs have been commercialized to date, we believe that SARMs could be developed to treat a range of medical conditions and physiological functions, including: (1) low testosterone conditions, such as hypogonadism and andropause; (2) muscle wasting conditions of chronic diseases, such as cancer, AIDS, end stage renal disease, or ESRD, and neurodegenerative disorders, as well as muscle wasting from trauma and burns; (3) disorders of the central nervous system, such as low libido, depression and other mood disorders; (4) male reproductive functions, such as infertility, male contraception and erectile dysfunction; (5) prostate disorders, such as high grade PIN, BPH and prostate cancer; and (6) other conditions, such as anemia, hair loss and male osteoporosis.

Product Candidates

The following table summarizes key information about our product candidates:

Program	Product Candidate/Indication	Development Phase	Status
SERM	**Acapodene**		
	- Reduction in the incidence of prostate cancer in men with high grade PIN	Phase IIb clinical trial	Enrollment complete; last patient scheduled to complete trial in May 2004; final results expected in the third quarter of 2004
	- Side effects of androgen deprivation therapy	Pivotal Phase III clinical trial planned	Pivotal Phase III clinical trial expected to commence in November 2003
SARM	**Andarine**		
	- Cachexia from various types of cancer	Three Phase I clinical trials completed	Phase II clinical trials for treatment of cachexia from non- small cell lung cancer scheduled to begin in the first half of 2004
	Prostarine		
	- BPH	Preclinical	Preclinical studies to support IND in progress
	Ostarine		
	- Male osteoporosis and andropause	Preclinical	Preclinical studies to support IND in progress
Anticancer	**Andromustine**		
	- Prostate cancer that is not responsive to androgen deprivation therapy	Preclinical	Preclinical studies to support IND in progress

Acapodene

Our most advanced product candidate, Acapodene, is a SERM. Acapodene is taken orally and is being developed for a once-a-day dosing schedule. We have licensed from Orion the right to develop, market and distribute toremifene, the active pharmaceutical ingredient in Acapodene, worldwide in the field of the prevention and treatment of prostate cancer and the prevention and treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy for prostate cancer. Toremifene is an FDA-approved SERM product for the treatment of

advanced breast cancer in post-menopausal women that has been marketed in the United States as Fareston by Shire Pharmaceuticals Group since 1999 and by other companies in other countries for over 10 years. We licensed rights to toremifene based on our belief that a SERM potentially could reduce the incidence of prostate cancer in men with high grade PIN and the established safety and efficacy record of toremifene in the treatment of post-menopausal women with advanced breast cancer. Orion manufactures commercial quantities of toremifene for Shire and is supplying us with Acapodene under a supply agreement.

The two indications for which we are developing Acapodene target different patient populations: (1) patients who have been diagnosed with high grade PIN, but do not yet have prostate cancer; and (2) patients who have been diagnosed with advanced, recurrent or metastatic prostate cancer and are being treated with androgen deprivation therapy.

Acapodene for the Reduction in the Incidence of Prostate Cancer in Men with High Grade PIN

Scientific Overview. Patients who have an abnormal result from a serum PSA test, a prostate cancer blood test that is commonly administered to men as part of physical examinations, or an abnormal digital rectal examination undergo a prostate biopsy to determine whether they have prostate cancer. High grade PIN, rather than prostate cancer, is detected in approximately 10% of the patients who undergo prostate biopsies. Over the last 17 years, scientific evidence has established that men who have high grade PIN are at high risk of developing prostate cancer. Scientific studies have shown that prostate cancer is found in approximately 30% to 71% of high grade PIN patients within one year of a high grade PIN diagnosis and in 45% to 80% of high grade PIN patients within five years of a high grade PIN diagnosis. Because of this correlation between high grade PIN and prostate cancer, we believe that treating high grade PIN may reduce the incidence of prostate cancer.

Estrogens play an important role in the initiation of prostate cancer. One way estrogens may influence the initiation of prostate cancer is by stimulating high grade PIN and causing it to progress into prostate cancer. Estrogen receptors are found in the prostate and in high grade PIN lesions. In animal models of prostate cancer, blocking estrogens' action has been shown to regress high grade PIN and reduce the incidence of prostate cancer. Because Acapodene is designed to directly block estrogen receptors, we believe that it has the potential to reduce the incidence of prostate cancer in men with high grade PIN.

Potential Market. Prostate cancer is one of the most commonly diagnosed cancers in men and the second leading cause of cancer-related deaths in the United States. There are 400,000 new cases of prostate cancer diagnosed and 239,000 prostate cancer deaths annually worldwide. In the United States, there are over 115,000 new cases of high grade PIN diagnosed each year, and an estimated 9.4 million men unknowingly harbor high grade PIN.

Because there is currently no therapy for the treatment of high grade PIN, patients who are diagnosed with high grade PIN are subjected to repeat biopsies immediately after diagnosis and then every three to six months in order to detect the progression of high grade PIN into prostate cancer. Prostate biopsies are performed through an ultrasound probe placed in the rectum. Hollow needles are then inserted into the prostate to obtain a core of tissue. Complications from this procedure include bleeding, pain, prostate infection and life-threatening blood infection. Because the prostate biopsy technique randomly samples the prostate gland with a relatively thin needle, both prostate cancer and high grade PIN may be missed by the biopsy. Patients with high grade PIN are exposed to the potential complications and the discomfort of invasive, repeat prostate biopsies and suffer the mental anguish of fearing that a diagnosis of prostate cancer may be imminent.

Clinical Trials. In 2000, we completed a Phase IIa clinical trial of Acapodene in 21 patients with high grade PIN. The trial was conducted at the University of Tennessee. The primary endpoint of the trial was the presence of high grade PIN. Each participant in the trial received a daily oral dose of Acapodene for four months. The trial was open label and not placebo-controlled, and we did

not perform long-term follow-up on the patients in the trial. Each patient underwent a prostate biopsy to detect high grade PIN at the beginning and end of the four-month trial period. Results showed that 72% of the trial participants had no detectable high grade PIN in the prostate biopsy performed at the end of the trial period. Based on studies reported in scientific literature, only approximately 18% of patients with untreated high grade PIN would be expected to have no high grade PIN detected in their repeat biopsy. There were no serious adverse events attributable to Acapodene in this trial.

Based on the results from our Phase IIa clinical trial, in 2001, we began a placebo-controlled, randomized Phase IIb clinical trial in men with recently diagnosed high grade PIN to determine the efficacy and safety of a daily dose of Acapodene at three dose levels for 12 months. The primary endpoint of the trial is the incidence of prostate cancer, and the secondary endpoint of the trial is the presence of high grade PIN. Study patients undergo a series of eight core prostate biopsies at six months and again at 12 months. In order to minimize the inclusion of patients who have, at the time of their enrollment in the trial, prostate cancer that was missed in their initial biopsy, patients in whom prostate cancer is detected six months after enrollment are removed from the trial. Therefore, the prostate cancer incidence will be determined based only on patients who receive Acapodene or the placebo for the entire 12 months. The trial is being conducted at 64 clinical sites across the United States and is fully enrolled with approximately 515 patients.

A planned interim analysis of the first 120 patients in this clinical trial who underwent prostate biopsies at six and again at 12 months was conducted in April 2003. Results of the interim analysis showed that patients who received Acapodene had a 10% to 17% incidence of prostate cancer 12 months after being diagnosed with high grade PIN, depending on the dose of Acapodene, compared to a 23% incidence in the placebo group. This represents an approximately 26% to 57% reduction in prostate cancer incidence in those patients who received Acapodene compared to the placebo group.

To date, three serious adverse events have been reported in the 515 patients participating in this Phase IIb clinical trial. Because the safety results are blinded, we do not know whether these events were experienced by participants receiving Acapodene or the placebo. However, we have not observed any trend relating these three serious adverse events to Acapodene.

The last patient is scheduled to complete this Phase IIb clinical trial in May 2004, with final results expected in the third quarter of 2004. We believe that our Phase IIb clinical trial for the reduction in the incidence of prostate cancer in men with high grade PIN will support a single pivotal Phase III clinical trial of Acapodene for this indication. We are evaluating the protocol and timing of this pivotal Phase III trial.

Acapodene for the Treatment of Side Effects of Androgen Deprivation Therapy

Scientific Overview. The standard medical treatment for patients who have advanced, recurrent or metastatic prostate cancer is androgen deprivation, which is accomplished either surgically by removal of the testes, or chemically by treatment with luteinizing hormone releasing hormone agonists, known as LHRH agonists. LHRH agonists work by shutting off luteinizing hormone secretion by the pituitary gland, which stops testosterone production by the testes. Examples of commercially marketed LHRH agonists are Lupron and Zoladex.

Side effects associated with LHRH agonists include bone loss leading to osteoporosis and skeletal fractures, muscle weakness, hot flashes, gynecomastia, depression, loss of libido and erectile dysfunction. In particular, of the patients treated with LHRH agonists, approximately 60% experience osteoporosis, 22% develop bone fractures, 55% to 80% experience hot flashes and 25% experience gynecomastia. Bone loss leading to osteoporosis and skeletal fractures is a significant clinical problem because prostate cancer patients who develop skeletal fractures have shorter survival rates compared to patients who do not develop skeletal fractures, with the median survival time shortened by 39 months. Hot flashes occur because of the lack of testosterone in the brain. Hot

flashes experienced by prostate cancer patients taking LHRH agonists tend to be severe, frequent and protracted.

Based on the results of our Phase II clinical trials and our preclinical testing of Acapodene, as well as known information about toremifene, we believe that Acapodene has estrogenic activity both in bone, which may prevent osteoporosis, and in the brain, which may reduce hot flashes. In addition, based on the same data and information, we believe that Acapodene can block estrogen's action in the male breast, which may prevent and treat gynecomastia. As a consequence, we believe that Acapodene has the potential to treat three serious side effects of LHRH agonists: osteoporosis, hot flashes and gynecomastia.

Potential Market. In the United States, more than 675,000 men are currently being treated with androgen deprivation therapy for advanced, recurrent or metastatic prostate cancer, with over 120,000 new patients started on this therapy each year. An increasing number of prostate cancer patients are being treated by androgen deprivation with LHRH agonists earlier than in the past because of two main factors. First, medical studies have shown that early androgen deprivation therapy prolongs the survival of prostate cancer patients. Second, the serum PSA test is detecting disease earlier than in the past. However, the effect of this trend is that the side effects of androgen deprivation therapy now contribute significantly to the morbidity, and in some cases the mortality, of men with prostate cancer. Physicians are prescribing some drugs on an off-label basis to help ameliorate some of the individual side effects of androgen deprivation therapy. These drugs include bisphosphonates for osteoporosis, Megace and antidepressants for hot flashes and tamoxifen for gynecomastia. Radiation is also used to treat gynecomastia. However, no single therapy is available to treat multiple side effects of androgen deprivation therapy.

Clinical Trials. We have completed two Phase II clinical trials of Acapodene for the treatment of osteoporosis and hot flashes in patients with advanced, recurrent or metastatic prostate cancer. The first Phase II trial was conducted at five clinical sites across the United States and treated 43 patients with advanced, recurrent or metastatic prostate cancer shortly after initiation of treatment with LHRH agonists. The second of these trials was conducted at three clinical sites across the United States and treated 46 patients with advanced, recurrent or metastatic prostate cancer who had been receiving LHRH agonists for more than 12 months. In each trial, participants were randomized to either a daily oral dose of Acapodene or a placebo for six months. The primary endpoint of both trials was bone mineral density. The secondary endpoint of both trials was the incidence of hot flashes. We measured bone mineral density and hot flash symptoms at entry into each of the clinical trials and at six months. We did not evaluate the effects of Acapodene on gynecomastia in either of these trials. There were no serious adverse events attributable to Acapodene in either of our Phase II clinical trials.

In our first Phase II clinical trial, which evaluated 43 patients shortly after initiation of treatment with LHRH agonists, patients who received Acapodene at the highest tested dose on average experienced an approximately 2% decrease in lumbar vertebral spine bone mineral density at six months, while the patients who received the placebo on average experienced an approximately 4% decrease in lumbar vertebral spine bone mineral density at six months. At the lower tested doses, Acapodene, as compared to the placebo, did not have a meaningfully different effect on lumbar vertebral spine bone mineral density. There was no significant difference between Acapodene and the placebo in the incidence of hot flashes at any tested dose.

In our second Phase II clinical trial, which evaluated 46 patients who had been receiving LHRH agonists for more than 12 months, patients who received Acapodene at the highest tested dose on average experienced a 3.5% increase in lumbar vertebral spine bone mineral density, while the patients who received the placebo on average experienced a 0.5% decrease in lumbar vertebral spine bone mineral density. Only 12.5% of the patients in this trial who received Acapodene at the highest tested dose, compared to 50% of the patients who received the placebo, reported experiencing an increase in the frequency of hot flashes during the clinical trial. The magnitude of

the bone changes seen in treated patients in this Phase II clinical trial were similar to those reported for each of raloxifene and bisphosphonates in post-menopausal women with osteoporosis and bisphosphonates being prescribed off-label to men with prostate cancer. However, bisphosphonates have not been shown to have any effect on hot flashes. At the lower tested doses, Acapodene, as compared to the placebo, did not have a meaningfully different effect on lumbar vertebral spine bone mineral density or frequency of hot flashes.

We expect to commence in November 2003 a pivotal Phase III clinical trial of Acapodene in patients undergoing androgen deprivation therapy for advanced, recurrent or metastatic prostate cancer. We are designing this pivotal Phase III clinical trial principally based on the results of our Phase II clinical trial that evaluated patients who had been receiving LHRH agonists for more than 12 months. The primary endpoint of the trial will be the incidence of skeletal fractures. The secondary endpoints of the trial will include the measurement of bone loss and the incidence of hot flashes and gynecomastia. We expect that over 60 clinical sites across the United States will participate in this study. Approximately 1,200 patients with advanced, recurrent or metastatic prostate cancer who have been receiving androgen deprivation therapy for at least 24 months and who have significant existing bone loss, or osteopenia, will be randomized to receive either a placebo or a daily dose of Acapodene for 24 months.

Andarine

Our second product candidate, Andarine, a SARM, is the most advanced of our internally discovered portfolio of compounds designed to target hormone receptors. Andarine is taken orally and is being developed for a once-a-day dosing schedule. We believe that Andarine has the potential to treat andropause and related diseases, including male osteoporosis and muscle wasting. Our strategy is to develop Andarine initially for the treatment of a cachexia from various types of cancer. We selected this indication because it represents a potentially large market and, we believe, has a relatively well-defined clinical and regulatory process. Depending on the results of our initial development efforts, we may also develop Andarine for other andropause-related conditions. For cachexia from various types of cancer, we are developing Andarine for the treatment of both men and women.

Andarine for the Treatment of Cancer Cachexia

Scientific Overview. Cachexia is defined as the loss of over 5% of a patient's original body weight. Most of the weight loss attributable to cachexia comes from the loss of lean body weight, resulting from muscle wasting. Cancer causes the body to go into a starvation-like state that causes cachexia. Cancer cachexia is diagnosed in approximately one-third of newly-diagnosed cancer patients and accounts for approximately 20% of cancer deaths. Weight loss is one of the most important indicators of how long a cancer patient will live since the survival of a patient with cancer is greatly impacted by the degree and rate of muscle wasting. A cancer patient's response to cancer chemotherapy is diminished by weight loss. Cachexia results in weakness, fatigue and immobility. A greater lean body weight may increase activity levels, quality of life, response to chemotherapy and, ultimately, survival time.

Testosterone increases lean body weight in both men and women. One of the causes of cancer cachexia may be reduced levels of testosterone. Testosterone therapy, however, is not used for the treatment of cancer cachexia for two reasons. First, the delivery methods for testosterone are inconvenient for patients and in some cases result in inconsistent levels of testosterone in the blood. Testosterone cannot be given orally, but rather is given only by intramuscular injections, patches or gels. Second, testosterone has a number of undesirable side effects, such as the potential stimulation of latent prostate cancer, aggravation of existing BPH and gynecomastia in men and masculinizing effects in women such as acne and facial hair.

We believe that Andarine is similar to testosterone in activating androgen receptors in muscle, thereby promoting lean body weight, but that it does not stimulate sebaceous glands, the cause of hair growth and acne, or the prostate, which exacerbates BPH. In addition, Andarine is taken orally, which makes it convenient to administer.

Potential Market. There are approximately 1.3 million patients diagnosed with cancer each year in the United States. Cancer cachexia afflicts approximately one-third of newly-diagnosed cancer patients. Over 30 clinical trials of supplemental nutritional support alone have reported little or no benefit in counteracting cachexia in cancer patients receiving chemotherapy or radiation. There are no drugs that have been approved by the FDA for the treatment of cancer cachexia. Although there are two commercially available drugs, both steroids, that are being prescribed off-label for the treatment of some types of cancer cachexia, chronic use of these drugs may result in bleeding liver cysts and liver cell tumors.

Clinical Trials. We have completed three Phase I clinical trials of Andarine in a total of 86 healthy male and female volunteers. We tested Andarine for safety and tolerance in single and multiple doses. Results from our Phase I trials support once-a-day oral dosing, and no serious adverse events were observed at any single or multiple dose tested. We observed preliminary indications in the multiple-dose Phase I clinical trial in men that Andarine promoted growth activity, as measured by levels of a growth factor in the blood known as IGF-1, without affecting the sebaceous glands. We believe that these observations support the potential ability of Andarine to selectively modulate androgen receptors in a tissue-specific manner.

We plan to commence a placebo-controlled dose-finding Phase II clinical trial of Andarine in the first half of 2004 for the treatment of cachexia from non-small cell lung cancer. Cancer cachexia occurs frequently with lung cancer, and the ensuing loss of lean body weight cannot be attributed solely to reduced dietary intake. There are a large number of patients, both male and female, with advanced lung cancer and cancer cachexia, and lung cancer is representative of several other types of cancer. As a result, we selected this patient population to determine the safety and efficacy of Andarine in the treatment of cachexia from non-small cell lung cancer. In our planned Phase II clinical trial, we anticipate that approximately 150 patients who have non-small cell lung cancer and cancer cachexia will be randomized to receive either a daily oral dose of Andarine or a placebo for 12 weeks. The primary endpoint of the trial will be muscle performance, and the secondary endpoints will be lean body weight and other body composition measurements.

Prostarine and Ostarine

We are also developing other SARM product candidates, including:

- Prostarine for the treatment of BPH; and
- Ostarine for the treatment of osteoporosis and andropause.

In animal models, Prostarine shrinks the prostate gland, and Ostarine prevents bone loss and builds bone and muscle. We are conducting preclinical and toxicology studies to support the commencement of clinical trials.

Andromustine

Patients who have advanced, recurrent or metastatic prostate cancer are initially treated with androgen deprivation therapy. Since prostate cancer is dependent on androgens, including testosterone, to grow, the reduction in testosterone forces prostate cancer into remission. Unfortunately, with time, prostate cancer circumvents the need for testosterone and comes out of remission. Once prostate cancer no longer responds to androgen deprivation, it is referred to as hormone refractory.

Building on the technology of our SARM discovery program, we have designed and are developing a small molecule, Andromustine, that is designed to specifically target androgen receptors and kill cancer cells. The Andromustine molecule has two components: (1) the SARM part of the molecule, which is designed to bind to the androgen receptor located on prostate cancer cells; and (2) the chemotherapeutic part of the molecule, which is designed to damage the DNA of prostate cancer cells. In cell culture, Andromustine selectively kills human metastatic prostate cancer cells. Because advanced prostate cancers, including hormone refractory prostate cancer, have more androgen receptors than the normal prostate, Andromustine is designed to bind to and selectively kill advanced prostate cancer cells.

There are over 675,000 men in the United States being treated with LHRH agonists and other hormonal therapies for prostate cancer. Hormone refractory prostate cancer will eventually occur in a majority of these patients. There is currently no effective chemotherapy for hormone refractory prostate cancer. Once a patient develops hormone refractory prostate cancer, his prognosis is poor.

We are in the process of conducting preclinical and animal toxicology studies to support the commencement of clinical trials of Andromustine.

Drug Discovery

Steroid hormone therapies, which include estrogen and testosterone therapies, have been used to treat humans for many years. Steroid hormones cannot, by their nature, have selective effects in various tissues. As a result, they have unintended side effects, which limit their clinical value.

SERM drugs, such as tamoxifen and raloxifene, have achieved commercial success in treating women as nonsteroidal small molecules that modulate hormone receptors in a tissue selective way and minimize some of the side effects of natural hormones. We believe that the success of SERMs indicates that it is possible to design and develop classes of nonsteroidal small molecule drugs to modulate hormone receptors in addition to estrogen receptors.

We believe that our drug discovery expertise positions us well to sustain our clinical pipeline through the design and development of nonsteroidal small molecule drugs that modulate hormone receptors. Our 19 in-house medicinal chemists and scientists provide us with significant discovery and development expertise. Using our capabilities in hormone receptor biology and medicinal chemistry, we are able to target many hormone receptors and generate compounds that are designed to address the shortcomings of natural hormone therapies. We augment our internal drug discovery capabilities through agreements with two universities that provide for our close collaboration with an additional 15 scientists, whose research is largely dedicated to our drug discovery program.

We design and synthesize new compounds based on computer, or *in silico,* models of a hormone receptor's binding sites. We continually modify and improve these *in silico* models to reflect our study of the activity of new compounds in the laboratory, in which we determine the link between chemical structures and biological activity, or structure-activity relationships.

We also have significant medicinal scale-up capabilities, which facilitate our rapid synthesis and evaluation of new compounds. Throughout our discovery process, we build diversity into our chemistry structures in order to improve our likelihood of success in developing novel compounds that have the potential to treat multiple indications. Through this approach, we have generated a clinical product candidate for the androgen receptor, Andarine, as well as additional preclinical compounds of the SARM class and other structurally diverse classes.

Our Strategy

Our objective is to develop and commercialize small molecule drugs to target serious men's health conditions. Key elements of our strategy to achieve this objective are to:

Maximize Commercial Potential of Acapodene

Obtain Regulatory Approval of Acapodene. We are focused on completing clinical trials, obtaining regulatory approval and preparing for the potential commercial launch of Acapodene.

Retain Commercial Rights to Acapodene and Establish Sales and Marketing Infrastructure. We intend to retain all commercial rights to Acapodene in the United States. We believe that we can effectively market Acapodene to the target physician audience of urologists and medical oncologists, principally urological oncologists, in the United States through a small, specialty sales force that we plan to build. We plan to collaborate with pharmaceutical companies to commercialize, market and sell Acapodene in Europe and Asia.

Extend Life Cycle of Acapodene. We intend to reformulate Acapodene with the goals of seeking longer intellectual property protection in the European and Asian markets and extending its life cycle in the United States.

Develop Noninvasive Diagnostic Test for High Grade PIN. We plan to collaborate with a large diagnostics company to develop a noninvasive, accurate blood test to detect high grade PIN. We believe that men would be more willing to be tested for high grade PIN if the diagnostic test were less invasive than a prostate biopsy. Given the large number of patients with undiagnosed high grade PIN, we believe that the development of a noninvasive test will increase the detection of high grade PIN and thereby expand the already large potential market for Acapodene.

Maximize Commercial Potential of Andarine

Pursue Clinical Development of Andarine. We intend to continue to aggressively pursue the clinical development of Andarine for the treatment of cachexia from various types of cancer. In addition, we may develop Andarine for the treatment of other causes of cachexia, including ESRD, which represents a large potential market with unmet medical needs. Andarine could also potentially be developed and commercialized for other men's health indications.

Strategically Seek Collaborators. Because it would require a large sales force to address the cancer cachexia market and because of the risks and costs of developing Andarine for cachexia from various types of cancer, we plan to seek one or more collaborators for the development and commercialization of Andarine for cancer cachexia resulting from all types of cancer other than urological cancers. We also plan to seek a collaborator for potential Andarine indications requiring a large sales force. For Andarine indications for which the target physician market is likely to overlap with that of Acapodene, including cancer cachexia resulting from urological cancers and indications related to andropause, our plan is to market and sell Andarine ourselves or to co-promote it with a collaborator in the United States, and, in the rest of the world, to seek a collaborator.

Build upon Our SARM and other Drug Discovery Capabilities to Sustain Our Small Molecule Product Candidate Pipeline

We intend to develop additional SARMs and other small molecule products to treat diseases that affect large numbers of patients and that are underserved by available alternatives. While our drug discovery efforts to date have focused on SERM and SARM technologies, we believe that we have the capability to discover additional drug candidates that target other hormone receptors. We plan to further strengthen our drug discovery, medicinal chemistry and preclinical pharmacology groups to sustain our pipeline of nonsteroidal small molecules designed to modulate a range of hormone receptors.

Licenses and Collaborative Relationships

We have established and intend to continue to pursue licenses from and collaborative relationships with pharmaceutical companies and academic institutions.

Orion Corporation

Under a license and supply agreement with Orion, we have a license from Orion to develop, use, market and distribute toremifene, the active pharmaceutical ingredient of Acapodene, under Orion's patents covering the composition of matter of toremifene. This license is limited to the fields of the prevention and treatment of prostate cancer and the prevention and treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy in the treatment of prostate cancer. We have a right of first negotiation on a country-by-country basis to negotiate further agreements with Orion for the development, sale and distribution of specified products containing toremifene that are therapeutic equivalents of Acapodene for other indications excluding breast cancer.

Under the terms of the agreement, we paid Orion an initial license fee and have agreed to pay Orion a royalty based on net sales of Acapodene and a share of any consideration we receive for sublicensing our rights under the agreement. We also are required to pay Orion up to $1.0 million if we are acquired before we receive marketing approval for the use of Acapodene in the licensed field.

The agreement requires us to achieve specified minimum sales requirements of Acapodene in the United States or pay Orion royalties on the shortfall amount. Orion may require us to modify our final Acapodene development plans for specified major markets if such plans could adversely affect Fareston or toremifene outside of the licensed field. We have granted Orion a right of first negotiation for Scandinavian marketing rights to Acapodene and to European rights if we do not have a sublicensee in the United States to whom we have granted European marketing rights. We have also agreed to negotiate with Orion for a limited period of time the terms of an agreement granting Orion the exclusive right to distribute Acapodene in Japan, South Korea, China and Taiwan for use in the licensed field. We and our affiliates are prohibited from selling a product that competes with toremifene in the licensed field in major countries located outside the European Union during the term of the agreement and in major countries in the European Union through October 2006.

The term of our license from Orion continues on a country-by-country basis until the date of expiration or invalidation of the last to expire or be invalidated of our licensed patent rights. Each party has the right to terminate the license under specified circumstances, including in the event of a material breach by the other party that is not cured, bankruptcy of the other party or if the other party is acquired by a direct competitor with respect to toremifene. We also have the right to terminate the agreement in any country if we decide to discontinue the applications or withdraw the applications for regulatory approval of Acapodene due to adverse reactions or safety issues.

The license includes a right for us to use toremifene for research required to obtain regulatory approval. The results of such research are jointly owned by us and Orion, and may be exploited by Orion outside our licensed field.

University of Tennessee Research Foundation

We have exclusive, worldwide licenses from the University of Tennessee Research Foundation under its method of use patents relating to toremifene for the reduction in the incidence of prostate cancer in men with high grade PIN and its composition of matter and method of use patents and patent applications relating to Andarine to market, distribute and sell licensed products. We also have exclusive, worldwide licenses from the University of Tennessee Research Foundation under its composition of matter and method of use patent applications relating to Prostarine and Ostarine to market, distribute and sell licensed products.

Under the terms of these license agreements, we have agreed to pay the University of Tennessee Research Foundation a royalty based on net sales of licensed products and sublicense income. We are also obligated to pay the University of Tennessee Research Foundation an annual license maintenance fee under each license agreement. The term of each of the license agreements is the longer of 20 years or the term of any licensed patent having a valid claim covering the licensed technology. After the term of each license agreement expires, we will have a perpetual, royalty-free license to the technology licensed under that agreement. The University of Tennessee Research Foundation has the right to terminate each of the agreements under specified circumstances, including in the event that we breach the agreement and do not cure the breach or in the case of our bankruptcy. We are obligated to use commercially reasonable efforts to develop and commercialize products based on the licensed patents and patent applications.

Pursuant to the license agreements, we assign to the University of Tennessee Research Foundation specified patentable inventions arising out of or related to the licensed patents. Upon our request, the University of Tennessee Research Foundation will amend the license agreements to confirm our exclusive licenses to such inventions assigned by us to the University of Tennessee Research Foundation.

National Cancer Institute

We are providing the National Cancer Institute with Acapodene for their use in an independent Phase II clinical trial of Acapodene at the University of Pittsburgh. The objective of the trial is to assess the biological effects of Acapodene on the prostate gland. In this trial, 80 patients who have been diagnosed with prostate cancer will be given a single oral daily dose of Acapodene for 12 weeks prior to surgical removal of their cancerous prostate.

Manufacturing

We do not currently own or operate manufacturing facilities for the production of clinical or commercial quantities of Acapodene or Andarine. We currently rely and expect to continue to rely on third parties for the manufacture of Acapodene, Andarine and any other product candidates or products that we may develop.

We purchase Acapodene from Orion under a license and supply agreement providing for clinical and commercial supply of Acapodene. Orion has agreed to supply us with, and we have agreed to purchase from Orion, our worldwide requirements of Acapodene in finished tablet form at specified transfer prices. Orion's manufacturing facility also produces commercial quantities of toremifene tablets for Fareston and complies with cGMP regulations. The methods used to manufacture Acapodene are similar to those used to produce the 60 mg toremifene tablet that has been approved by the FDA for the treatment of advanced breast cancer and is marketed in the United States as Fareston. The raw materials necessary to manufacture toremifene are readily available, but Orion is our only supplier of toremifene tablets.

Orion may terminate its obligation to supply us with toremifene if:

- marketing approval for Acapodene for use in the licensed field is not granted in the United States by December 31, 2007 or upon the expiration or invalidation of the last valid claim of the licensed Orion patent rights in the United States; or

- subject to a prior notice requirement, if Orion permanently ceases the manufacture of toremifene.

Our license and supply agreement with Orion does not provide us with the current right to manufacture toremifene. However, there are a number of circumstances in which Orion is required to grant manufacturing rights to us, including following termination of its supply obligation as set forth above, failure by Orion to supply product for 90 days or to supply product in dosages or formulations

other than the dosages and formulations specified in the agreement or termination of the agreement by us following a breach by Orion. We would also be able to manufacture Acapodene after expiration of the license agreement as a result of the expiration of Orion's patents with respect to the composition of matter of toremifene. However, in the event that Orion terminates the license agreement as a result of a material breach of the agreement by us that is not cured, our bankruptcy or the acquisition of us by a direct competitor of Orion with respect to toremifene, we would not obtain the right to manufacture Acapodene and could not do so until Orion's patents or related market exclusivity with respect to the composition of matter of toremifene expire.

We have entered into an agreement with ChemSyn Laboratories, a department of EaglePicher Technologies, LLC, under which ChemSyn has agreed to manufacture Andarine for us in a quantity that we believe is sufficient to supply clinical trials of Andarine for the treatment of cachexia from various types of cancer and initial commercialization of Andarine for this indication. We do not have a contract with ChemSyn for the supply of Andarine for full-scale commercialization. The active ingredient in Andarine is manufactured using a four-step synthetic process that uses commercially available starting materials and raw materials for each step. There are no complicated chemistries or unusual equipment required in the manufacturing process.

Competition

The biotechnology and biopharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. We face competition from many different sources, including commercial pharmaceutical and biotechnology enterprises, academic institutions, government agencies and private and public research institutions.

Many of our competitors have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, clinical trials, regulatory approvals and marketing approved products than we do. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. Our commercial opportunity will be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer side effects or are less expensive than Acapodene, Andarine or any other products that we may develop. These third parties compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies and technology licenses complementary to our programs or advantageous to our business.

Acapodene for the Reduction in the Incidence of Prostate Cancer in Men with High Grade PIN

Currently, there are no products that would compete with Acapodene for the treatment of high grade PIN to reduce the incidence of prostate cancer.

Acapodene for the Treatment of Side Effects of Androgen Deprivation Therapy

Currently, there are no products that have been approved by the FDA to treat multiple side effects of androgen deprivation therapy. We are aware of a number of marketed drugs that are prescribed off-label for the treatment of single side effects. For example, Evista, Eli Lilly's trade name for raloxifene, Fosamax, a bisphosphonate marketed by Merck, and Actonel, a bisphosphonate marketed by Aventis and Proctor & Gamble, are each prescribed off-label for the treatment of osteoporosis. Effexor, marketed by Wyeth Pharmaceuticals, Catapres, marketed by Boehringer Ingelheim, and Megace, marketed by Bristol Myers Squibb, are prescribed off-label to treat hot flashes caused by androgen deprivation therapy. External beam radiation is used to treat male gynecomastia. There are significant side effects associated with the off-label use of these drugs and radiation treatment. Most patients would need to take several different drugs and potentially receive radiation treatments to treat multiple side effects of androgen deprivation therapy. In contrast, we

believe that Acapodene, as a single product candidate, has the potential to treat multiple side effects.

Andarine for the Treatment of Cancer Cachexia

There are no drugs that have been approved by the FDA for the treatment of cancer cachexia. Although there are two commercially available drugs, Nandrolone and Oxandrin, that are being prescribed off-label for the treatment of some types of cancer cachexia, chronic use of these drugs may result in bleeding liver cysts and liver cell tumors. Nandrolone is an oral steroid that is available from Steris Laboratories, a subsidiary of Watson Pharmaceuticals. Oxandrin, marketed by Savient Pharmaceuticals, is prescribed for the treatment of involuntary weight loss associated with severe trauma, chronic infection or intensive surgery, as well as off-label for cancer cachexia. Oxandrin is a tissue non-selective steroid that has the potential to stimulate latent prostate cancer and breast cancer and cause virilization in women. Both Nandrolone and Oxandrin, as steroid drugs, have the potential to cause severe liver toxicities. Andarine is not a steroid, and we believe that it will be tissue-selective.

In addition, as to both Acapodene and Andarine, there may be product candidates of which we are not aware at an earlier stage of development. If any are successfully developed and approved, they could compete directly with our product candidates, if approved for commercial sale.

Sales and Marketing

We do not currently have any sales and marketing capabilities. In order to commercialize any products that are approved for commercial sale, we must either develop a sales and marketing infrastructure or collaborate with third parties with sales and marketing experience. We plan to build a small, highly-focused, specialty sales and marketing infrastructure, which we expect to include 50 to 80 sales representatives, to market Acapodene to the relatively small and concentrated community of urologists and medical oncologists, principally urological oncologists, in the United States. We believe that the urology and medical oncology market in the United States is readily accessible by a limited sales and marketing presence due to the concentration of prescribing physicians. We plan to establish collaborations with pharmaceutical companies to commercialize Acapodene in Europe and Asia for prostate cancer-related conditions.

Because it would require a large sales force to address the cancer cachexia market and because of the risks and costs of developing Andarine for cachexia from various types of cancer, we plan to seek one or more collaborators for the development and commercialization of Andarine for cancer cachexia resulting from all types of cancer other than urological cancers. We also plan to seek a collaborator for potential Andarine indications requiring a large sales force. For Andarine indications for which the target physician market is likely to overlap with that of Acapodene, including cancer cachexia resulting from urological cancers and indications related to andropause, our plan is to market and sell Andarine ourselves or to co-promote it with a collaborator in the United States, and, in the rest of the world, to seek a collaborator.

Intellectual Property

We will be able to protect our technology from unauthorized use by third parties only to the extent it is covered by valid and enforceable patents or is effectively maintained as trade secrets. Accordingly, patents and other proprietary rights are an essential element of our business.

For Acapodene, in the United States and internationally we have a license from Orion under its patent covering the composition of matter of toremifene, the active pharmaceutical ingredient in Acapodene. The patent will expire in the United States in 2009 in Europe in 2003 or 2008, depending on the country, and in Japan in 2005. Market exclusivity will continue to be available for toremifene in the European Union until 2006 based on marketing approval that has been granted to

Fareston. Under current European Union law, a period of exclusivity is provided to marketing authorization holders whose products meet the criteria for exclusivity and whose product applications go through the central approval procedure administered by the European Agency for the Evaluation of Medicinal Products, or EMEA. Current European Union law does not provide for an additional period of exclusivity where the holder of a marketing authorization obtains approval by the EMEA or a member state regulatory body of a new indication. This European Union exclusivity protection period operates independently of any patent protection that a product might enjoy and bars anyone from applying for approval, within the European Union, of a medicinal product that is "essentially similar" to toremifene.

We have licensed from the University of Tennessee Research Foundation method of use patents in the United States and pending patent applications internationally related to the use of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN. The method of use patents issued in the United States related to the use of Acapodene for this indication will expire in 2019.

We have our own pending method of use patent applications in the United States and internationally related to the use of Acapodene for the treatment of osteoporosis, gynecomastia and hot flashes as side effects of androgen deprivation therapy.

In all countries in which we hold or have licensed rights to patents or patent applications related to Acapodene, the composition of matter patents will expire before the method of use patents. Furthermore, with respect to the method of use of Acapodene for the treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy worldwide and the method of use of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN outside the United States, we have only pending patent applications. Method of use patents are more difficult to enforce than composition of matter patents because of the risk of off-label sale or use of the subject compounds.

In the event that patents issue in respect of our pending method of use patent applications, after the expiration of the patent covering the composition of matter of toremifene in a particular country, competitors could market and sell generic versions of toremifene at doses and in formulations that are bioequivalent to Acapodene for uses other than the indications for Acapodene covered by these pending method of use patent applications, and physicians would be permitted to prescribe generic versions of toremifene for indications that are protected by our or our licensors' method of use patents and pending patent applications. After the expiration of the patent covering the composition of matter of toremifene in a particular country, if patents do not issue in respect of our pending method of use patent applications related to the use of Acapodene for the treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy worldwide and the method of use of Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN outside the United States, competitors could market and sell generic versions of toremifene at doses and in formulations that are bioequivalent to Acapodene for these indications.

Our license from Orion is limited to the use of toremifene for the prevention and treatment of prostate cancer and the prevention and treatment of osteoporosis, hot flashes and gynecomastia as side effects of androgen deprivation therapy in the treatment of prostate cancer. Orion has licensed Shire Pharmaceuticals Group in the United States and other parties elsewhere in the world to market, sell and distribute toremifene for the treatment of advanced breast cancer and could license other parties to market, sell and distribute toremifene for other indications in the United States and elsewhere. Shire's product is marketed as Fareston and is currently available only in a 60 mg dose. While we believe that the doses of Acapodene for the indications for which we are developing Acapodene will be different from the dose currently approved by the FDA for Fareston, there may be off-label use of Fareston in place of Acapodene for the indications for which we intend to seek regulatory approval of Acapodene. Additionally, after the expiration of the patent covering the

composition of matter of toremifene in some countries and the expiration of market exclusivity rights that have been granted for toremifene in Europe, competitors could market and sell generic versions of Fareston in a 60 mg dose. Therefore, if Fareston becomes available at competitive prices and in doses that are appropriate for the indications for which we are developing Acapodene, off-label sales of Fareston or generic versions of Fareston could reduce sales of Acapodene.

For Andarine, in the United States we have a license from the University of Tennessee Research Foundation under its patents related to the composition of matter and formulations of, and methods of using, the active pharmaceutical ingredient in Andarine. In the United States, the patents covering the composition of matter and formulations of the active pharmaceutical ingredient in Andarine will expire in 2021. We also have a license from the University of Tennessee Research Foundation to its pending patent applications in the United States related to methods of synthesizing the active pharmaceutical ingredient in Andarine and methods for treating cancer cachexia with Andarine. We also have a license from the University of Tennessee Research Foundation to pending patent applications internationally covering the composition of matter of the active pharmaceutical ingredient of Andarine, pharmaceutical compositions of Andarine, formulations of the active pharmaceutical ingredient in Andarine, methods of synthesis of the active pharmaceutical ingredient in Andarine, methods for treating cancer cachexia with Andarine and some other methods of using Andarine. We also have our own pending patent applications in the United States and internationally related to methods of using Andarine.

For Prostarine, we have a license from the University of Tennessee Research Foundation under its pending patent applications in the United States and internationally covering the composition of matter of the active pharmaceutical ingredient in Prostarine, pharmaceutical compositions and formulations of Prostarine and methods of synthesizing the active pharmaceutical ingredient in Prostarine. We also have our own pending patent applications in the United States and internationally related to methods for treating BPH using Prostarine.

For Ostarine, we have a license from the University of Tennessee Research Foundation under its pending patent applications in the United States and internationally covering the composition of matter of the active pharmaceutical ingredient in Ostarine, pharmaceutical compositions and formulations of Ostarine and methods of synthesizing the active pharmaceutical ingredient in Ostarine. We also have our own pending patent applications in the United States and internationally related to methods for treating male osteoporosis and andropause using Ostarine.

For Andromustine, we have pending patent applications of our own in the United States and internationally covering the composition of matter of the active pharmaceutical ingredient in Andromustine, pharmaceutical compositions of Andromustine, methods of synthesizing the active pharmaceutical ingredient in Andromustine and methods for treating prostate cancer that is not responsive to androgen deprivation therapy using Andromustine.

We also rely on trade secrets, technical know-how and continuing innovation to develop and maintain our competitive position. We seek to protect our proprietary information by requiring our employees, consultants, contractors, outside scientific collaborators and other advisors to execute non-disclosure and assignment of invention agreements on commencement of their employment or engagement, through which we seek to protect our intellectual property. Agreements with our employees also prevent them from bringing the proprietary rights of third parties to us. We also require confidentiality or material transfer agreements from third parties that receive our confidential data or materials.

Government Regulation

New Drug Development and Approval Process

Numerous governmental authorities in the United States and other countries extensively regulate the testing, clinical development, manufacturing and marketing of pharmaceutical products and ongoing research and development activities. In the United States, the FDA rigorously reviews pharmaceutical products under the Federal Food, Drug, and Cosmetic Act and regulations. Non-compliance with applicable requirements can result in administrative and judicial sanctions, including warning letters, clinical holds, fines, recall or seizure of products, injunctions, total or partial suspension of production, refusal of the government to approve marketing applications or allow entry into supply contracts, refusal to permit import or export of products, civil penalties, criminal prosecution and other actions affecting a company and its products. The FDA also has the authority to revoke previously granted marketing authorizations.

To secure FDA approval, an applicant must submit extensive preclinical and clinical data, as well as information about product manufacturing processes and facilities and other supporting information to the FDA for each indication to establish a product candidate's safety and effectiveness. The development and approval process takes many years, requires the expenditure of substantial resources and may be subject to delays or limitations of approval or rejection of the application. Even if the FDA approves a product, the approval is subject to post-marketing surveillance, adverse drug experience and other recordkeeping and reporting obligations, and may involve ongoing requirements for post-marketing studies. The FDA also may place conditions on any approvals that could restrict the commercial applications, advertising, promotion or distribution of these products. Product approvals may be withdrawn if compliance with regulatory standards is not maintained or if problems occur following initial marketing.

Preclinical and Clinical Testing

Preclinical studies involve laboratory evaluation of product characteristics and animal studies to assess the biological activity and safety of the product. In some cases, long-term preclinical studies are conducted while clinical studies are ongoing. The FDA, under its Good Laboratory Practices regulations, regulates preclinical studies. Violations of these regulations can, in some cases, lead to invalidation of the studies, requiring these studies to be replicated. When the preclinical testing is considered adequate by the sponsor to demonstrate the safety and scientific rationale for initial human studies, the results of the preclinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an Investigational New Drug application, or IND. The IND becomes effective, if not rejected by the FDA, within 30 days after FDA receives the IND. The FDA may, at any time during the 30-day period after filing of an IND or at any future time, impose a clinical hold on proposed or ongoing clinical trials, on various grounds, including that the study subjects are or would be exposed to an unreasonable and significant health risk. If the FDA imposes a clinical hold, clinical trials cannot commence or recommence without FDA authorization and then only under terms authorized by the FDA.

Clinical trials involve the administration of the investigational product candidates to humans under the supervision of a qualified principal investigator. Clinical trials must be conducted in accordance with Good Clinical Practice, or GCP, under protocols submitted to the FDA as part of the IND. In addition, each clinical trial must be approved and conducted under the auspices of an Investigational Review Board, or IRB, and with patient informed consent. The IRB will consider, among other things, ethical factors and the safety of human subjects.

Clinical trials are conducted in three sequential phases, but the phases may overlap. Phase I clinical trials usually involve between 20 and 80 healthy human subjects or more, depending on the disease. The goal of the Phase I clinical trial is to establish initial data about the safety and tolerance of the product candidates in humans. In Phase II clinical trials, controlled studies are

conducted on an expanded population of patients with the targeted disease. The primary purpose of these tests is to evaluate the effectiveness of the drug candidate on the volunteer patients as well as to determine if there are any side effects or other risks associated with the drug. Phase III trials involve even larger patient populations, often with several hundred or even several thousand patients depending on the use for which the drug is being studied. Phase III trials are intended to establish the overall risk-benefit ratio of the drug and provide, if appropriate, an adequate basis for product labeling. During all clinical trials, physicians monitor the patients to determine effectiveness and to observe and report any reactions or other safety risks that may result from use of the drug candidate.

Product Formulation and Manufacture

Concurrent with clinical trials and preclinical studies, companies must develop information about the chemistry and physical characteristics of the drug and finalize a process for manufacturing the product. In addition, manufacturers, including contract manufacturers, are required to comply with the applicable FDA cGMP regulations. The cGMP regulations include requirements relating to quality control and quality assurance, as well as the corresponding maintenance of records and documentation. The manufacturing process must be capable of consistently producing quality batches of the product and the manufacturer must develop methods for testing the quality, purity and potency of the final drugs. Additionally, appropriate packaging must be selected and tested and chemistry stability studies must be conducted to demonstrate that the product does not undergo unacceptable deterioration over its shelf-life.

Compliance with cGMP regulations also is a condition of new drug application approval. The FDA must approve manufacturing facilities before they can be used in the commercial manufacture of drug products. In addition, manufacturing establishments are subject to preapproval inspections and unannounced periodic inspections.

New Drug Application Process

After the completion of the clinical trial phases of development, if the sponsor concludes that there is substantial evidence that the drug candidate is safe and effective for its intended use, the sponsor may submit a new drug application, or NDA, to the FDA. The application must contain all of the information on the drug candidate gathered to that date, including data from the clinical trials, and be accompanied by a user fee.

The FDA determines whether an NDA as submitted is acceptable for filing. The FDA may refuse to file an application, in which case the FDA retains one-half of the user fee. If the submission is accepted for filing, the FDA begins an in-depth review of the application. As part of this review, the FDA may refer the application to an appropriate advisory committee, typically a panel of clinicians, for review, evaluation and a recommendation. The FDA is not bound by the recommendation of an advisory committee. Under the Prescription Drug User Fee Act, or PDUFA, submission of an NDA with clinical data requires payment of a fee, with some exceptions. In return, FDA assigns a goal of six or 12 months from filing of the application to return of a first “complete response,” in which the FDA may approve the product or request additional information. There can be no assurance that an application will be approved within the performance goal timeframe established under PDUFA.

If the FDA evaluations of the NDA and the manufacturing facilities are favorable, the FDA may issue an approval letter authorizing commercial marketing of the drug candidate for specified indications. The FDA could also issue an approvable letter, which usually contains a number of conditions that must be met in order to secure final approval of the new drug application. When and if those conditions have been met to the FDA’s satisfaction, the FDA will issue an approval letter. On the other hand, if the FDA’s evaluation of the NDA submission or manufacturing facilities is not favorable, the FDA may refuse to approve the NDA or issue a non-approvable letter.

Marketing Approval and Post-marketing Obligations

If the FDA approves an application, the drug becomes available for physicians to prescribe. Periodic reports must be submitted to the FDA, including descriptions of any adverse reactions reported. The FDA may require post-marketing studies, also known as Phase IV studies, as a condition of approval. In addition to studies required by the FDA after approval, trials and studies are often conducted to explore new indications. The purpose of these trials and studies and related publications is to develop data to support additional indications for the drug, which must be approved by the FDA, and to increase its acceptance in the medical community. In addition, some post-marketing studies are done at the request of the FDA to develop additional information regarding the safety of a product.

Any products manufactured or distributed pursuant to FDA approvals are subject to continuing regulation by the FDA, including recordkeeping requirements, reporting of adverse experiences with the drug, drug sampling and distribution requirements, notifying the FDA and gaining its approval of certain manufacturing or labeling changes, complying with certain electronic records and signature requirements, and complying with FDA promotion and advertising requirements. Drug manufacturers and their subcontractors are required to register their establishments and are subject to periodic unannounced inspections for compliance with good manufacturing practice requirements. Also, newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications, or even in some instances revocation or withdrawal of the approval.

Drug Price Competition and Patent Term Restoration Act of 1984

Under the Drug Price Competition and Patent Term Restoration Act of 1984, known as the Hatch-Waxman Act, a portion of a product's patent term that was lost during clinical development and application review by the FDA may be restored. The Hatch-Waxman Act also provides for a statutory protection, known as exclusivity, against the FDA's acceptance or approval of certain competitor applications. The Hatch-Waxman Act also provides the legal basis for the approval of abbreviated new drug applications, or ANDAs.

Patent term restoration can compensate for time lost during product development and the regulatory review process by returning up to five years of patent life for a patent that covers a new product or its use. This period is generally one-half the time between the effective date of an IND and the submission date of an NDA, plus the time between the submission date of an NDA and the approval of that application. Patent term restorations, however, are subject to a maximum extension of five years, and the patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years. The application for patent term extension is subject to approval by the United States Patent and Trademark Office in conjunction with the FDA. It takes at least six months to obtain approval of the application for patent term extension.

The Hatch-Waxman Act also provides for a period of statutory protection for new drugs that receive NDA approval from the FDA. If a new drug receives NDA approval as a new chemical entity, meaning that the FDA has not previously approved any other new drug containing the same active entity, then the Hatch-Waxman Act prohibits an ANDA or a 505(b)(2) NDA, an NDA where the applicant does not own or have a legal right of reference to all of the data required for approval, to be submitted by another company for a generic version of such drug, with some exceptions, for a period of five years from the date of approval of the NDA. The statutory protection provided pursuant to the Hatch-Waxman Act will not prevent the filing or approval of an NDA, as opposed to an ANDA or 505(b)(2) NDA, for any drug, including, for example, a drug with the same active ingredient, dosage form, route of administration, strength and conditions of use. In order to obtain an NDA, however, a competitor would be required to conduct its own clinical trials. If NDA approval is received for a new drug containing an active ingredient that was previously approved by the FDA but the NDA is for a drug that includes an innovation over the previously approved drug, for example, an

NDA approval for a new indication or formulation of the drug with the same active ingredient, and if such NDA approval was dependent upon the submission to the FDA of new clinical investigations, other than bioavailability studies, then the Hatch-Waxman Act prohibits the FDA from making effective the approval of an ANDA or 505(b)(2) NDA for a generic version of such drug for a period of three years from the date of the NDA approval. This three year exclusivity, however, only covers the innovation associated with the NDA to which it attaches. Thus, the three year exclusivity does not prohibit the FDA, with limited exceptions, from approving ANDAs or 505(b)(2) NDAs for drugs containing the same active ingredient but without the new innovation.

While the Hatch-Waxman Act provides certain patent restoration and exclusivity protections to innovator drug manufacturers, it also permits the FDA to approve ANDAs for generic versions of their drugs. The ANDA process permits competitor companies to obtain marketing approval for a drug with the same active ingredient for the same uses but does not require the conduct and submission of clinical studies demonstrating safety and effectiveness for that product. Instead of safety and effectiveness data, an ANDA applicant needs only to submit data demonstrating that its product is bioequivalent to the innovator product as well as relevant chemistry, manufacturing and product data.

Finally, the Hatch-Waxman Act requires, in some circumstances, an ANDA or 505(b)(2) NDA applicant to notify the patent owner and the holder of the approved NDA of the factual and legal basis of the applicant's opinion that the patent is not valid or will not be infringed. Upon receipt of this notice, the patent owner and the NDA holder have 45 days to bring a patent infringement suit in federal district court and obtain a 30 month stay against the company seeking to reference the NDA the NDA holder could still file a patent suit after the 45 days, but if they did, they would not have the benefit of the 30 month stay. The discovery, trial and appeals process in such suits can take several years. If such a suit is commenced, the Hatch-Waxman Act provides a 30-month stay on the approval of the competitor's ANDA or 505(b)(2) NDA. If the litigation is resolved in favor of the competitor or the challenged patent expires during the 30-month period, unless otherwise extended by court order, the stay is lifted and the FDA may approve the application. Under regulations recently issued by the FDA, the patent owner and the NDA holder have the opportunity to trigger only a single 30-month stay per ANDA or 505(b)(2) NDA. Once the ANDA or 505(b)(2) NDA applicant has notified the patent owner and the NDA holder of the infringement, the applicant cannot be subjected to another 30-month stay, even if the applicant becomes aware of additional patents that may be infringed by its product.

Pharmaceutical Pricing and Reimbursement

In both domestic and foreign markets, sales of any products for which we receive regulatory approval for commercial sale will depend in part on the availability of reimbursement from third-party payors. Third-party payors include government health administrative authorities, managed care providers, private health insurers and other organizations. These third-party payors are increasingly challenging the price and examining the cost-effectiveness of medical products and services. In addition, significant uncertainty exists as to the reimbursement status of newly approved healthcare product candidates. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the cost-effectiveness of our products. Our product candidates may not be considered cost-effective. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development. The United States and state governments continue to propose and pass legislation designed to reduce the cost of healthcare. Adoption of new legislation could further limit reimbursement for pharmaceuticals.

The marketability of any products for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, an increasing emphasis on managed care in the United States has and will continue to increase the pressure on pharmaceutical pricing.

Facilities

We sublease approximately 18,500 square feet of laboratory and office space in Memphis, Tennessee, under an operating lease through September 2005. This lease is terminable by either party on 90 days' notice. We believe that our existing facilities will be sufficient to meet our requirements through 2005.

Employees

As of September 30, 2003, we had 43 employees, of whom 13 were Ph.D.s and 4 were M.D.s. None of our employees is subject to a collective bargaining agreement. We believe that we have good relations with our employees.

Legal Proceedings

We are not currently involved in any material legal proceedings.

MANAGEMENT

Directors, Executive Officers and Other Key Employees

The following table sets forth information about our directors, executive officers and other key employees as of August 31, 2003.

Name	Age	Position(s)
Directors and Executive Officers		
J.R. Hyde, III(1)(2)(3)	60	Chairman of the Board of Directors
Mitchell S. Steiner, M.D., F.A.C.S.	42	Chief Executive Officer and Vice-Chairman of the Board of Directors
Marc S. Hanover	40	President, Chief Operating Officer and Director
Henry P. Doggrell	55	General Counsel and Secretary
Mark E. Mosteller	40	Chief Financial Officer
Rosemary Mazanet, M.D., Ph.D.(1)(2)(3)	47	Director
John H. Pontius(1)(2)(3)	48	Director
Other Key Employees		
K. Gary Barnette, Ph.D.	36	Director of Regulatory Affairs
Robert S. Boger, M.D.	56	Director of Clinical Development
Karen A. Veverka Ph.D.	35	Director of Preclinical Development
Michael A. Whitt, Ph.D.	44	Director of Molecular Biology

(1) Member of the Compensation Committee

(2) Member of the Audit Committee

(3) Member of the Nominating and Corporate Governance Committee

J.R. Hyde, III has served as the Chairman of our Board of Directors since November 2000. Since 1989, Mr. Hyde has been the sole stockholder and President of Pittco Holdings, Inc., a private, institutional investment company. Since 1996, when Mr. Hyde made a substantial contribution to support Dr. Steiner's research, Mr. Hyde has been instrumental in forming and financing GTx and is our largest stockholder. Mr. Hyde was the Chairman of the Board of Directors of AutoZone, Inc. from 1986 to 1997 and the Chief Executive Officer of AutoZone from 1986 to 1996. He was also Chairman and Chief Executive Officer of Malone & Hyde, AutoZone's former parent company, from 1972 until 1988. Mr. Hyde is a director of AutoZone, Inc. and FedEx Corporation.

Mitchell S. Steiner, M.D., F.A.C.S., a co-founder of GTx, has served as our Chief Executive Officer and Vice-Chairman of our Board of Directors since our inception in September 1997. Prior to founding GTx, Dr. Steiner held numerous academic appointments, including Chairman and Professor of Urology, Director of Urologic Oncology and Research and the Chair of Excellence in Urologic Oncology at the University of Tennessee. Dr. Steiner holds a B.A. in Molecular Biology from Vanderbilt University and an M.D. from the University of Tennessee, and performed his surgery and urologic training at The Johns Hopkins Hospital.

Marc S. Hanover, a co-founder of GTx, has served as our President and Chief Operating Officer and a director since our inception in September 1997. Prior to joining GTx, Mr. Hanover was a founder of Equity Partners International, Inc., a private equity firm in Memphis, Tennessee, and participated as a founder and investor in three healthcare companies. From 1985 to 1997, Mr. Hanover was a Senior Vice President and a member of the Executive Management Committee of National Bank of Commerce, now National Commerce Financial Corporation, in Memphis, Tennessee. Mr. Hanover holds a B.S. in Biology from the University of Memphis and an M.B.A. in Finance from the University of Memphis.

Henry P. Doggrell has served as our General Counsel and Secretary since October 2001. From April 1998 to August 2001, Mr. Doggrell was Senior Vice President, Corporate Affairs at Buckeye Technologies, Inc., a specialty cellulose company, where he was responsible for matters including corporate finance, investor relations, mergers and acquisitions, intellectual property and licensing and strategic development. From 1996 to 1998, Mr. Doggrell served as General Counsel and Secretary of Buckeye Technologies. Prior to joining Buckeye Technologies, Mr. Doggrell was a partner of the Baker, Donelson, Bearman, Caldwell and Berkowitz law firm from 1988 to 1996, where he served as a member of the law firm management committee and Chair of the firm's Corporate Securities department. Mr. Doggrell holds a B.S. in Commerce from the University of Virginia and a J.D. from Vanderbilt University.

Mark E. Mosteller has served as our Chief Financial Officer since August 2001. From April 1997 to August 2001, Mr. Mosteller was an Executive Vice President of Union Planters Bank National Association, a subsidiary of Union Planters Corporation, a bank holding company, and Chief Operating Officer of Union Planters Mortgage, the mortgage division of Union Planters Bank National Association. From 1994 to 1997, Mr. Mosteller was the Chief Financial Officer of Boatmen's National Mortgage, Inc., the mortgage subsidiary of Boatmen's Bancshares, Inc. From 1984 to 1994, Mr. Mosteller was employed as an audit senior manager with Ernst & Young LLP. Mr. Mosteller is a certified public accountant and holds a B.S. in Accounting from the University of Tennessee.

Rosemary Mazanet, M.D., Ph.D. has served as a director since October 2001. Dr. Mazanet has served as Chief Scientific Officer and a General Partner of Oracle Partners, L.P., a private equity fund, since 1998. Prior to joining Oracle Partners, Dr. Mazanet served as the Director of Clinical Research at Amgen, Inc., a pharmaceutical company. Dr. Mazanet is a member of the Board of Directors of the University of Pennsylvania School of Medicine. She trained in internal medicine at the Brigham and Women's Hospital and in oncology at the Dana Farber Cancer Institute, both part of the Harvard Medical system, where she was a staff physician prior to joining Amgen. Dr. Mazanet holds a B.A. in Biology from the University of Virginia and an M.D. and a Ph.D. in Anatomy from the University of Pennsylvania.

John H. Pontius has served as a director since April 1999. Mr. Pontius has been the President of Pittco Management, LLC, since 1991. From 1986 to 1991, Mr. Pontius served as the chief financial officer of the City of Memphis, Tennessee. Mr. Pontius is a certified public accountant and holds a B.S. in Accounting from the University of Tennessee. Mr. Pontius has served as a member of the Board of Trustees of the University of Tennessee since 2002.

K. Gary Barnette, Ph.D. has served as our Director of Regulatory Affairs since December 2001. From May 1998 to December 2001, Dr. Barnette was Assistant Director and then Director, Regulatory Affairs at Solvay Pharmaceuticals, Inc., a specialty pharmaceutical company. From March 1995 to May 1998, Dr. Barnette was a Clinical Pharmacology and Biopharmaceutics Reviewer at the FDA, where he reviewed in the Divisions of Reproductive and Urologic Drug Products, Metabolic and Endocrine Drug Products and Gastrointestinal and Coagulation Drug Products. Dr. Barnette holds a B.S. in Biology from Salem College, and a Ph.D. in Basic Pharmaceutical Sciences from West Virginia University.

Robert S. Boger, M.D. has served as our Director of Clinical Development since May 2003. From January 2002 until he joined GTx, Dr. Boger was a private consultant specializing in medicine, pharmacology and clinical research. From 1997 to January 2002, Dr. Boger was Director of Clinical Research for Transplantation and Immunology for Novartis Pharmaceuticals. From 1996 to 1997, Dr. Boger served as Director of Medical Research and Clinical Science Leader of Roche's CellCeptTransplant program. Prior to joining Roche, Dr. Boger served as both Associate Director, Clinical Research and Medical Director, Renin Inhibitor Venture for Abbott Laboratories. Dr. Boger holds a B.A. in Biophysics from Amherst College and an M.D. from Harvard Medical School. Dr. Boger is board certified in internal medicine, nephrology and clinical pharmacology.

Karen A. Veverka, Ph.D. has served as our Director of Preclinical Development since August 2000. Dr. Veverka is a co-inventor of several patents held by GTx in the area of medical applications of SARMs. From 1996 to September 2000, Dr. Veverka was a post-doctoral research fellow at St. Jude Children's Research Hospital. Dr. Veverka holds a B.S. in Biochemistry from Kansas State University and a Ph.D. from Mayo Graduate School/The Mayo Foundation.

Michael A. Whitt, Ph.D. has served as our Director of Molecular Biology since April 2001. Dr. Whitt is the co-inventor of several patents licensed to GTx. Dr. Whitt has been on the faculty in the Department of Molecular Sciences at the University of Tennessee Health Sciences since 1991. Dr. Whitt holds a B.A. in Microbiology from the University of Kansas and a Ph.D. in Microbiology from the University of California, Davis. Dr. Whitt received his post-doctoral training at the Yale University School of Medicine.

Board Composition

Upon the completion of this offering, we will have an authorized Board of Directors consisting of five members. In accordance with the terms of our certificate of incorporation and bylaws, which will become effective upon completion of this offering, the Board of Directors will be divided into three classes, Class I, Class II and Class III, with each class serving staggered three-year terms. Upon the completion of this offering, the members of the classes will be divided as follows:

- the class I director will be Dr. Mazanet, and her term will expire at the annual meeting of stockholders to be held in 2004;
- the class II directors will be Mr. Hanover and Mr. Pontius, and their term will expire at the annual meeting of stockholders to be held in 2005; and
- the class III directors will be Dr. Steiner and Mr. Hyde, and their term will expire at the annual meeting of stockholders to be held in 2006.

Our certificate of incorporation that will become effective upon the completion of this offering provides that the authorized number of directors may be changed only by resolution of the Board of Directors. Any additional directorships resulting from an increase in the number of directors will be distributed between the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of the Board of Directors may have the effect of delaying or preventing changes in the control or management of GTx.

Our directors may be removed only for cause by the affirmative vote of the holders of a majority of our voting stock.

Board Committees

Our Board of Directors has an audit committee, a compensation committee and a nominating and corporate governance committee.

Audit Committee

Our audit committee consists of Mr. Hyde, Dr. Mazanet and Mr. Pontius. The functions of the audit committee include:

- meeting with our management periodically to consider the adequacy of our internal controls, the objectivity of our financial reporting and our accounting policies and practices;
- meeting with our independent auditors and with internal financial personnel regarding these matters;
- selecting and engaging our independent auditors;

- reviewing our financial statements and reports and discussing the statements and reports with our management, including any significant adjustments, management judgments and estimates, new accounting policies and disagreements with management; and

- reviewing our financial plans and reporting recommendations to our full board for approval and to authorize action.

Both our independent auditors and internal financial personnel will regularly meet privately with our audit committee and have unrestricted access to this committee.

Compensation Committee

Our compensation committee consists of Mr. Hyde, Dr. Mazanet and Mr. Pontius. The functions of the compensation committee include:

- reviewing and, as it deems appropriate, recommending to our Board of Directors, policies, practices and procedures relating to the compensation of our directors and executive officers and the establishment and administration of our employee benefit plans;

- exercising administrative authority under our stock plans and employee benefit plans; and

- advising and consulting with our officers regarding managerial personnel and development.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee consists of Mr. Hyde, Dr. Mazanet and Mr. Pontius. The functions of the nominating and corporate governance committee include:

- reviewing and recommending nominees for election as directors;

- assessing the performance of the Board of Directors;

- developing guidelines for board composition; and

- reviewing and administering our corporate governance guidelines and considering other issues relating to corporate governance.

Compensation Committee Interlocks and Insider Participation

During 2002, Mr. Pontius, Dr. Steiner, our Chief Executive Officer, and Mr. Hanover, our President and Chief Operating Officer, served as the members of our Compensation Committee. In October 2003, Mr. Hyde and Dr. Mazanet replaced Dr. Steiner and Mr. Hanover as members of our Compensation Committee. None of our executive officers currently serves, or in the past year has served, as a member of the Board of Directors or compensation committee of any entity that has one or more executive officers serving on our Board of Directors or compensation committee.

Director Compensation

We have not provided cash compensation to any director for his or her service as a director. However, following the completion of this offering, we intend to provide cash compensation at a rate of $ per regular meeting of the Board of Directors and $ per committee meeting to all non-employee directors. In addition, we will reimburse directors for their reasonable expenses incurred in attending meetings of the Board of Directors.

Following the completion of this offering, all employee directors will be eligible to participate in our 2003 Employee Stock Purchase Plan, as more fully described in the section entitled “Benefit Plans — 2003 Employee Stock Purchase Plan.”

Our 2003 Non-Employee Directors’ Stock Option Plan, which will become effective upon completion of this offering, provides for the automatic grant of options to purchase shares of

common stock to our non-employee directors. Prior to adoption of our 2003 Non-Employee Directors' Stock Option Plan, we did not make option grants to our non-employee directors. Upon completion of this offering, each of our non-employee directors will receive an initial option to purchase shares of common stock and annual option grants to purchase shares of common stock starting at the annual stockholders meeting to be held in 2004. Please refer to the section entitled "Benefit Plans — 2003 Non-Employee Directors' Stock Option Plan" for a more detailed explanation of the terms of these stock options.

Executive Compensation

The following table shows the compensation awarded or paid to, or earned by, our chief executive officer and our three other most highly compensated executive officers for the fiscal year ended December 31, 2002 whose total annual salary and bonus exceeded $100,000. We refer to these executive officers in this prospectus as our "named executive officers."

Summary Compensation Table

	Annual Compensation
Name and Principal Position	**Salary**
Mitchell S. Steiner, M.D., F.A.C.S. Chief Executive Officer	$175,000
Marc S. Hanover President and Chief Operating Officer	$180,000
Henry P. Doggrell General Counsel and Secretary	$178,750
Mark E. Mosteller Chief Financial Officer	$135,417

Stock Option Grants in Last Fiscal Year

We have granted and will continue to grant options to our executive officers and employees under our benefit plans. In 2002, we granted options to purchase a total of 4,500 shares of our common stock to our employees; none of these grants was made to our named executive officers.

Fiscal Year End Option Values

The following table sets forth the number of shares of common stock subject to vested and unvested stock options held as of December 31, 2002 by each of our named executive officers. Because there was no public market for our common stock as of December 31, 2002, amounts described in the following table under the heading "Value of Unexercised In-the-Money Options at December 31, 2002" are determined by multiplying the number of shares underlying the options by

the difference between an assumed initial public offering price of $ per share and the per share option exercise price. None of our named executive officers exercised any stock options during 2002.

Name	Number of Securities Underlying Unexercised Options at December 31, 2002 (#)		Value of Unexercised In-the-Money Options at December 31, 2002 ($)	
	Exercisable	Unexercisable	Exercisable	Unexercisable
Mitchell S. Steiner, M.D., F.A.C.S.	—	—	—	—
Marc S. Hanover	—	—	—	—
Henry P. Doggrell	3,000	12,000	$	$
Mark E. Mosteller	—	5,000		

Change in Control Arrangements

Our 1999 Stock Option Plan, 2000 Stock Option Plan, 2001 Stock Option Plan and 2002 Stock Option Plan provide that in the event of a change in control of us, all shares subject to option awards under the plans will immediately vest and be converted into cash, options or stock of equivalent value in the surviving organization under terms and conditions that substantially preserve the economic status of plan participants. For this purpose, a change in control includes (1) a sale or disposition of more than 50% of our issued and outstanding voting stock; (2) a merger or consolidation in which our stockholders immediately before the transaction own less than 50% of the outstanding voting securities of the surviving entity immediately after the transaction; or (3) a sale or disposition of all or substantially all of our assets.

Our employment agreements with our executive officers and other key employees contain provisions triggered by a change of control. See “Employment Agreements.”

Our 2003 Equity Incentive Plan provides that in the event of specified corporate transactions, all outstanding options and stock appreciation rights under the incentive plan will be assumed, continued or substituted for by any surviving or acquiring entity. If the surviving or acquiring entity elects not to assume, continue or substitute for such awards, the vesting provisions of such equity awards will be accelerated and such equity awards will be terminated if not exercised prior to the effective date of the corporate transaction. Other forms of equity awards, such as restricted stock awards, may have their repurchase or forfeiture rights assigned to the surviving or acquiring entity. If such repurchase or forfeiture rights are not assigned, then such equity awards will become fully vested. Following specified change in control transactions, the vesting and exercisability of specified equity awards generally will be accelerated only if the awardee’s award agreement so specifies.

Our 2003 Non-Employee Directors’ Stock Option Plan provides that in the event of specified corporate transactions, all outstanding options under the plan will be either assumed, continued or substituted for by any surviving entity. If the surviving or acquiring entity elects not to assume, continue or substitute for such options, the vesting and exercisability of such options will be accelerated in full and such options will be terminated if not exercised prior to the effective date of such corporate transaction. In the event of specified changes of control, the vesting and exercisability of outstanding options under the Plan granted to non-employee directors whose service has not terminated prior to such change in control, other than as a condition of such change in control, shall be accelerated in full.

Our 2003 Employee Stock Purchase Plan provides that in the event of specified corporate transactions, any then outstanding rights to purchase our stock under the 2003 Employee Stock Purchase Plan will be assumed, continued or substituted for by the surviving or acquiring entity. If the surviving or acquiring entity elects not to assume, continue or substitute rights, then the participants’ accumulated contributions will be used to purchase shares of our common stock within

ten days prior to such corporate transaction and such purchase rights will terminate immediately thereafter.

Employment Agreements

Each of our named executive officers has entered into an employment agreement with us. These employment agreements provide for salary as well as other customary benefits and terms. Pursuant to their employment agreements, Dr. Steiner, Mr. Hanover, Mr. Doggrell and Mr. Mosteller are entitled to receive an annual salary of $240,000, $180,000, $190,000 and $160,000. In addition, our Board of Directors has the discretion to award bonus compensation to our named executive officers. Each employment agreement is terminable by either us or the named executive officer at any time. If we experience a change of control and the named executive officer's employment is terminated without cause, or if the named executive officer terminates his employment for good reason, at any time within six months after the change of control, then such named executive officer will receive continued payment of his then base salary for a period of one year after the termination date. Dr. Steiner and Mr. Hanover have each agreed not to compete with us during the term of their employment and for a period of two years after their employment ends. If we undergo a change of control, the two year period will be shortened to one year.

Benefit Plans

1999 Stock Option Plan and 2000 Stock Option Plan

We adopted the 1999 Stock Option Plan in August 1999 and the 2000 Stock Option Plan in November 2000. Neither the 1999 Stock Option Plan nor the 2000 Stock Option Plan has a stated termination date. However, the committee of the Board of Directors that administers the 1999 Stock Option Plan and 2000 Stock Option Plan may terminate or suspend the 1999 Stock Option Plan and 2000 Stock Option Plan at any time. The 1999 Stock Option Plan and 2000 Stock Option Plan provide for the grant of nonstatutory stock options to directors, officers and employees.

Share Reserve. An aggregate of 3,000 shares of common stock are reserved for issuance under the 1999 Stock Option Plan. Options to purchase an aggregate of 3,000 shares of common stock were outstanding under the 1999 Stock Option Plan as of August 31, 2003. An aggregate of 12,750 shares of common stock are reserved for issuance under the 2000 Stock Option Plan. Options to purchase an aggregate of 9,750 shares of common stock were outstanding under the 2000 Stock Option Plan as of August 31, 2003.

Shares subject to stock options that have expired or otherwise terminated under the 1999 Stock Option Plan or 2000 Stock Option Plan without having been exercised in full and grants that are settled in cash rather than stock again become available for the grant of awards under the 1999 Stock Option Plan or 2000 Stock Option Plan. Shares issued under the 1999 Stock Option Plan or 2000 Stock Option Plan may be previously unissued shares or reacquired shares bought on the market or otherwise.

Administration. The 1999 Stock Option Plan and 2000 Stock Option Plan are administered by a committee of our Board of Directors. Subject to the terms of the 1999 Stock Option Plan and 2000 Stock Option Plan, the committee determines recipients, the number of stock options to be granted and the terms and conditions of the stock options. Subject to the limitations set forth below, the committee also determines the exercise price of options granted.

Stock Options. Stock options under the 1999 Stock Option Plan and 2000 Stock Option Plan are granted pursuant to stock option agreements. The exercise price for a stock option cannot be less than the fair market value of the common stock on the date of grant. Options granted under the 1999 Stock Option Plan and 2000 Stock Option Plan vest one-third on the third anniversary of the date of grant, one-third on the fourth anniversary of the date of grant, and one-third on the fifth

anniversary of the date of grant. If the 1999 Stock Option Plan or the 2000 Stock Option Plan is terminated, all outstanding options will become fully vested and exercisable.

The term of stock options granted under the 1999 Stock Option Plan and 2000 Stock Option Plan may not exceed 10 years. If an optionee's service relationship with us ceases due to voluntary retirement, at or after age 65 or after age 55 with no fewer than 10 years of service, death, disability or involuntary termination, other than a termination for cause, but including any involuntary termination as a result of a change of control, any vested shares may be exercised at any time within 10 years following the date of grant of the option. If an optionee's relationship with us ceases for any other reason, any unvested option shall be forfeited immediately and the date of such termination will be the last date on which a vested option can be exercised. Any vested but unexercised options will terminate upon the optionee competing with us.

Acceptable consideration for the purchase of common stock issued under the 1999 Stock Option Plan and 2000 Stock Option Plan include cash or, at the discretion of the committee, common stock, a deferred payment arrangement or other legal consideration approved by the committee. Generally, an optionee may not transfer a stock option other than by will or the laws of descent and distribution unless the optionee holds a nonstatutory stock option that provides otherwise.

Changes in Control. The 1999 Stock Option Plan and 2000 Stock Option Plan provide that in the event of a change in control of us, all shares subject to option awards under the plans shall immediately vest and be converted into cash, options or stock of equivalent value in the surviving organization under terms and conditions that substantially preserve the economic status of plan participants. For this purpose, a change in control includes (1) a sale or disposition of more than 50% of our issued and outstanding voting stock; (2) a merger or consolidation in which our stockholders immediately before the transaction own less than 50% of the outstanding voting securities of the surviving entity immediately after the transaction; or (3) a sale or disposition of all or substantially all of our assets.

2001 Stock Option Plan and 2002 Stock Option Plan

In October 2001, we adopted the 2001 Stock Option Plan. Our Board of Directors amended the 2001 Stock Option Plan in November 2001. The 2001 Stock Option Plan will terminate in October 2011 unless the Board of Directors terminates it earlier. In August 2002, we adopted the 2002 Stock Option Plan. The 2002 Stock Option Plan will terminate in August 2012 unless the Board of Directors terminates it earlier. The 2001 Stock Option Plan and the 2002 Stock Option Plan provide for the grant of options that are:

- incentive stock options, as defined under the Internal Revenue Code of 1986, as amended, or the Code, which may be granted solely to employees, including officers; and

- nonstatutory stock options, which may be granted to directors, employees, including officers, or consultants.

Share Reserve. An aggregate of 35,150 shares of common stock are reserved for issuance under the 2001 Stock Option Plan. Options to purchase an aggregate of 32,250 shares of common stock were outstanding under the 2001 Stock Option Plan as of August 31, 2003. An aggregate of 100,000 shares of common stock are reserved for issuance under the 2002 Stock Option Plan. Options to purchase an aggregate of 22,000 shares of common stock were outstanding under the 2002 Stock Option Plan as of August 31, 2003.

Shares subject to stock options that have expired or otherwise terminated under the 2001 Stock Option Plan or 2002 Stock Option Plan without having been exercised in full again become available for the grant of awards under the 2001 Stock Option Plan or 2002 Stock Option Plan. Shares issued under the 2001 Stock Option Plan or 2002 Stock Option Plan may be previously unissued shares or reacquired shares bought on the market or otherwise.

Administration. The 2001 Stock Option Plan and 2002 Stock Option Plan are administered by a committee of our Board of Directors. Subject to the terms of the 2001 Stock Option Plan and 2002 Stock Option Plan, the committee determines the recipients, the number and type of stock options to be granted and the terms and conditions of the stock options. Subject to the limitations set forth below, the committee also determines the exercise price of options granted.

Stock Options. Stock options are granted under the 2001 Stock Option Plan and 2002 Stock Option Plan pursuant to stock option agreements. The exercise price for an incentive stock option cannot be less than the fair market value of the common stock on the date of grant. There is no restriction on the exercise price for a nonstatutory stock option. Unless otherwise specified in an option agreement, options granted under the 2001 Stock Option Plan or 2002 Stock Option Plan vest one-third on the third anniversary of the date of grant, one-third on the fourth anniversary of the date of grant, and one-third on the fifth anniversary of the date of grant.

The term of stock options granted under the 2001 Stock Option Plan or 2002 Stock Option Plan may not exceed 10 years. Unless otherwise provided for in the stock option agreement, options granted under the 2001 Stock Option Plan or 2002 Stock Option Plan terminate three months after termination of the optionee's employment or service as a director of GTx or an affiliate unless (1) the termination is due to the optionee's disability, in which case the option may provide that it may be exercised at any time within one year following termination of employment or relationship; (2) the termination is due to the death of optionee or death occurs within three months after the termination of the optionee, in which case the option may provide that it may be exercised at any time within 18 months following the death of optionee; or (3) the termination is due to voluntary retirement, subject to some conditions, in which case the option may be exercised at any time within five years of the date of retirement subject to the express term of the option. Any vested but unexercised options will terminate upon the optionee competing with us.

Acceptable consideration for the purchase of common stock issued under the 2001 Stock Option Plan or 2002 Stock Option Plan include cash or, at the discretion of the committee, common stock, a deferred payment arrangement or other legal consideration approved by the committee.

Generally, an optionee may not transfer a stock option other than by will or the laws of descent and distribution unless the optionee holds a nonstatutory stock option that provides otherwise.

Tax Limitations on Stock Option Grants. Incentive stock options may be granted only to our employees. The aggregate fair market value, determined at the time of grant, of shares of our common stock with respect to incentive stock options that are exercisable for the first time by an optionee during any calendar year under all of our stock plans may not exceed $100,000. The options or portions of options that exceed this limit are treated as nonstatutory stock options. No incentive stock option, and before our stock is publicly traded, no nonstatutory stock option, may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or any affiliate unless the following conditions are satisfied:

- the option exercise price must be at least 110% of the fair market value of the stock subject to the option on the date of grant; and

- the term of any incentive stock option award must not exceed five years from the date of grant.

Changes in Control. The 2001 Stock Option and 2002 Stock Option Plan provide that in the event of a change in control of us, all shares subject to option awards under the plans shall immediately vest and be converted into cash, options or stock of equivalent value in the surviving organization under terms and conditions that substantially preserve the economic status of plan participants. For this purpose, a change in control includes (1) a sale or disposition of more than 50% of our issued and outstanding voting stock; (2) a merger or consolidation in which our stockholders immediately before the transaction own less than 50% of the outstanding voting

securities of the surviving entity immediately after the transaction; or (3) a sale or disposition of all or substantially all of our assets.

2003 Equity Incentive Plan

We adopted and our stockholders approved our 2003 Equity Incentive Plan in 2003 to become effective upon the closing of this offering. The 2003 Equity Incentive Plan will terminate when the Board of Directors terminates the plan. The 2003 Equity Incentive Plan provides for the grant of nonstatutory stock options, restricted stock awards, stock appreciation rights, phantom stock rights and other forms of equity compensation, which may be granted to employees, including officers, non-employee directors and consultants.

Share Reserve. An aggregate of shares of common stock will be reserved for issuance under the 2003 Equity Incentive Plan, which amount will be increased annually on January 1st of each year, from 2004 until 2013, by five percent of the number of shares of common stock outstanding on such date. However, the Board of Directors has the authority to designate a smaller number of shares by which the authorized number of shares of common stock will be increased on such date. As of the date hereof, no shares of common stock have been issued under the 2003 Equity Incentive Plan.

The following types of shares issued under the 2003 Equity Incentive Plan may again become available for the grant of new awards under the 2003 Equity Incentive Plan: restricted stock that is repurchased prior to it becoming fully vested; shares withheld for taxes; shares used to pay the exercise price of an option in a net exercise; and shares tendered to the company to pay the exercise price of an option. In addition, shares subject to stock options that have expired or otherwise terminated without having been exercised in full may again become available for the grant of new awards under the 2003 Equity Incentive Plan. Shares issued under the 2003 Equity Incentive Plan may be previously unissued shares or reacquired shares bought on the market or otherwise.

Administration. Our Board of Directors will administer the 2003 Equity Incentive Plan. The Board of Directors may delegate authority to administer the 2003 Equity Incentive Plan to a committee. Subject to the terms of the 2003 Equity Incentive Plan, our Board of Directors or its authorized committee, the plan administrator determines recipients, grant dates, the numbers and types of equity awards to be granted and the terms and conditions of the equity awards, including the period of their exercisability and vesting. Subject to the limitations set forth below, the plan administrator will also determine the exercise price of options granted, the purchase price for rights to purchase restricted stock and, if applicable, phantom stock and the strike price for stock appreciation rights.

Nonstatutory Stock Options. Nonstatutory stock options will be granted pursuant to nonstatutory stock option agreements. The 2003 Equity Incentive Plan administrator determines the exercise price for a nonstatutory stock option. Options granted under the incentive plan vest at the rate specified in the option agreement.

Generally, the plan administrator determines the term of nonstatutory stock options granted under the 2003 Equity Incentive Plan. Unless the terms of an optionee's nonstatutory stock option agreement provide otherwise, if an optionee's service relationship with us, or any affiliate or ours, ceases due to disability or death, the optionee, or his or her beneficiary, may exercise any vested options up to 12 months in the event of disability, or 18 months in the event of death, after the date such service relationship ends. If an optionee's relationship with us, or any affiliate of ours, ceases for any reason other than disability or death, the optionee may exercise any vested options up to three months from cessation of service, unless the terms of the stock option agreement provide for earlier or later termination.

Acceptable consideration for the purchase of common stock issued upon the exercise of a nonstatutory stock option will be determined by the Board of Directors and may include cash,

common stock previously owned by the optionee, a deferred payment arrangement, a broker assisted exercise, the net exercise of the option and other legal consideration approved by the plan administrator.

Generally, an optionee may not transfer a nonstatutory stock option other than by will or the laws of descent and distribution unless the nonstatutory stock option agreement provides otherwise. However, an optionee may designate a beneficiary who may exercise the option following the optionee's death.

Restricted Stock Awards. Restricted stock awards are purchased through a restricted stock award agreement. The purchase price for restricted stock awards must be at least the par value of the stock. The purchase price for a restricted stock award may be payable in cash, the recipient's past services performed for us, or any other form of legal consideration. Rights to acquire shares under a restricted stock award may not be transferred other than by will or by the laws of descent and distribution.

Stock Appreciation Rights. Stock appreciation rights are granted pursuant to stock appreciation rights agreements. The plan administrator determines the strike price for a stock appreciation right. A stock appreciation right granted under the incentive plan vests at the rate specified in the stock appreciation right agreement.

The plan administrator determines the term of stock appreciation rights granted under the incentive plan. Unless the terms of an optionee's stock appreciation right agreement provide otherwise, if an awardee's service relationship with us, or any affiliate or ours, ceases due to disability or death, the awardee, or his or her beneficiary, may exercise any vested stock appreciation right up to 12 months in the event of disability, and 18 months in the event of death, after the date such service relationship ends. If an awardee's relationship with us, or any affiliate of ours, ceases for any reason other than disability or death, the awardee may exercise any vested stock appreciation rights up to three months from cessation of service, unless the terms of the stock appreciation right agreement provide for earlier or later termination.

Phantom Stock Awards. Phantom stock awards are granted pursuant to phantom stock award agreements. A phantom stock award may require the payment of at least par value. Payment of any purchase price may be made in cash, the recipient's past services performed for us or any other form of legal consideration acceptable to the plan administrator. Rights to acquire shares under a phantom stock agreement may not be transferred other than by will or by the laws of descent and distribution.

Other Equity Awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the award, the purchase price, if any, the timing of exercise and vesting and any repurchase rights associated with such awards. Unless otherwise specifically provided for in the award agreement, such awards may not be transferred other than by will or by the laws of descent and distribution.

Changes in Control. In the event of specified corporate transactions, all outstanding options and stock appreciation rights under the incentive plan either will be assumed, continued or substituted for by any surviving or acquiring entity. If the surviving or acquiring entity elects not to assume, continue or substitute for such awards, the vesting provisions of such equity awards will be accelerated and such equity awards will be terminated if not exercised prior to the effective date of the corporate transaction. Other forms of equity awards such as restricted stock awards may have their repurchase or forfeiture rights assigned to the surviving or acquiring entity. If such repurchase or forfeiture rights are not assigned, then such equity awards will become fully vested. Following specified change in control transactions, the vesting and exercisability of specified equity awards generally will be accelerated only if the awardee's award agreement so specifies.

2003 Non-Employee Directors' Stock Option Plan

We adopted and our stockholders approved our 2003 Non-Employee Directors' Stock Option Plan in 2003 to become effective upon the closing of this offering. The Non-Employee Directors' Plan provides for the automatic grant of nonstatutory stock options to purchase shares of common stock to our non-employee directors.

Share Reserve. The aggregate number of shares of common stock that may be issued pursuant to options granted under the Non-Employee Directors' Plan is shares, which amount will be increased annually on January 1st of each year, from 2004 and until 2013, by the number of shares of common stock subject to options granted during the prior calendar year. However, the Board of Directors has the authority to designate a smaller number of shares by which the authorized number of shares of common stock will be increased. As of the date hereof, no shares of common stock have been issued under the Non-Employee Directors' Plan.

Administration. Our Board of Directors will administer the Non-Employee Directors' Plan. The exercise price of the options granted under the Non-Employee Directors' Plan will be equal to the fair market value of the common stock on the date of grant. No option granted under the Non-Employee Directors' Plan may be exercised after the expiration of ten years from the date it was granted. Options granted under the Non-Employee Directors' Plan are not transferable other than by will or by the laws of descent and distribution and are exercisable during the life of the optionee only by the optionee. However, an optionee may designate a beneficiary who may exercise the option following the optionee's death. An optionee whose service relationship with the us or any of our affiliates, whether as a non-employee director of the company or subsequently as an employee, director or consultant of either the company or an affiliate, ceases for any reason may exercise vested options for the term provided in the option agreement, three months generally, 12 months in the event of disability and 18 months in the event of death.

Automatic Grants. Pursuant to the terms of the Non-Employee Directors' Plan, upon the completion of this offering, each non-employee director will automatically be granted an option to purchase shares of common stock, the initial grant. Any individual who becomes a non-employee director after this offering will automatically be granted the initial grant upon election to the Board of Directors. Any person who is a non-employee director on the date of an annual meeting of our stockholders automatically will be granted an option to purchase shares of common stock, the annual grant, on such date; *provided, however,* that each non-employee director who has been a non-employee director for less than 12 months at the time of the annual meeting of our stockholders will receive an annual grant that has been reduced *pro rata* for each full quarter prior to the date of grant during which such person did not serve as a non-employee director. On the date of each annual meeting of our stockholders, each non-employee director will receive an option to purchase shares for each membership on a committee of the Board of Directors such non-employee director will be on for the upcoming year, the committee grant. Committee grants vest and become exercisable in equal monthly installments. Initial grants and annual grants vest in equal monthly installments.

Changes in Control. In the event of specified corporate transactions, all outstanding options under the Non-Employee Directors' Plan will be either assumed, continued or substituted for by any surviving entity. If the surviving or acquiring entity elects not to assume, continue or substitute for such options, the vesting and exercisability of such options will be accelerated in full and such options will be terminated if not exercised prior to the effective date of such corporate transaction. In the event of specified changes of control, the vesting and exercisability of outstanding options under the Non-Employee Directors' Plan granted to non-employee directors whose service has not terminated prior to such change in control, other than as a condition of such change in control, shall be accelerated in full.

2003 Employee Stock Purchase Plan

We adopted and our stockholders approved our 2003 Employee Stock Purchase Plan in 2003 to become effective upon the closing of this offering.

Share Reserve. The purchase plan authorizes the issuance of shares of common stock pursuant to purchase rights granted to our employees or to employees of any of our affiliates, which amount will be increased on January 1st of each year, from 2004 until 2023, by the lesser of shares or % of the number of shares of common stock outstanding on that date. However, the Board of Directors has the authority to designate a smaller number of shares by which the authorized number of shares of common stock will be increased on each date. The 2003 Employee Stock Purchase Plan is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code. As of the date hereof, no shares of common stock have been purchased under the 2003 Employee Stock Purchase Plan.

Administration. Our Board of Directors will administer the 2003 Employee Stock Purchase Plan, but such administration may be delegated to a committee of the Board of Directors. The 2003 Employee Stock Purchase Plan provides a means by which employees may purchase our common stock. The 2003 Employee Stock Purchase Plan is implemented by offerings of rights to eligible employees. Under the 2003 Employee Stock Purchase Plan, we may specify offerings with a duration of not more than 27 months, and may specify shorter purchase periods within each offering. The first offering under the 2003 Employee Stock Purchase Plan will begin on the effective date of this offering and will be approximately months in duration with purchases occurring every six months. Unless otherwise determined by the Board of Directors, common stock is purchased for accounts of employees participating in the Employee Stock Purchase Plan at a price per share equal to 85% of the fair market value of a share of our common stock on the date of purchase. Generally, all regular employees, including executive officers, who customarily work more than 20 hours per week and are customarily employed by us or by any of our affiliates for more than five months per calendar year may participate in the 2003 Employee Stock Purchase Plan and may contribute, normally through payroll deductions, up to % of their earnings for the purchase of common stock under the 2003 Employee Stock Purchase Plan.

Limitations. Eligible employees may be granted rights only if the rights, together with any other rights granted under the 2003 Employee Stock Purchase Plan, do not permit such employee's rights to purchase our stock to accrue at a rate which exceeds $25,000 of the fair market value of such stock for each calendar year in which such rights are outstanding. No employee shall be eligible for the grant of any rights under the 2003 Employee Stock Purchase Plan if immediately after such rights are granted, such employee has voting power over five percent or more of our outstanding capital stock measured by vote or value.

Changes in Control. In the event of specified corporate transactions, any then outstanding rights to purchase our stock under the 2003 Employee Stock Purchase Plan will be assumed, continued or substituted for by the surviving or acquiring entity. If the surviving or acquiring entity elects not to assume, continue or substitute rights, then the participants' accumulated contributions will be used to purchase shares of our common stock within ten days prior to such corporate transaction and such purchase rights will terminate immediately thereafter.

401(k) Plan

We maintain a retirement and deferred savings plan for our employees. The retirement and deferred savings plan is intended to qualify as a tax-qualified plan under Section 401 of the Code. The retirement and deferred savings plan provides that each participant may contribute up to 15% of his or her pre-tax compensation, up to a statutory limit, which is $12,000 in 2003. Under the plan, each employee is fully vested in his or her deferred salary contributions. Employee contributions are held and invested by the plan's trustee. The retirement and deferred savings plan also permits us to make discretionary contributions and matching contributions, subject to established limits and a vesting schedule. To date, we have not made any discretionary contributions to the retirement and deferred savings plan on behalf of participating employees.

Limitations on Directors' Liability and Indemnification Agreements

As permitted by Delaware law, we have adopted provisions in our certificate of incorporation and bylaws, both of which will become effective upon the completion of this offering, that limit or eliminate the personal liability of directors for a breach of their fiduciary duty of care as a director. The duty of care generally requires that, when acting on behalf of the corporation, a director exercise an informed business judgment based on all material information reasonably available to him or her. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any act related to unlawful stock repurchases, redemptions or other distributions or payments of dividends; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not limit or eliminate our rights or any stockholder's rights to seek non-monetary relief, such as injunctive relief or rescission. These provisions will not alter a director's liability under federal securities laws. Our certificate of incorporation that will become effective upon the completion of this offering also authorizes us to indemnify our officers, directors and other agents to the fullest extent permitted under Delaware law.

As permitted by Delaware law, our bylaws also provide that:

- we will indemnify our directors, officers, employees and other agents to the fullest extent permitted by law;
- we may advance expenses to our directors, officers, employees and other agents in connection with a legal proceeding to the fullest extent permitted by law; and
- the rights provided in our bylaws are not exclusive.

We believe that indemnification under our bylaws covers at least negligence and gross negligence on the part of indemnified parties. Our bylaws also permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether our bylaws permit such indemnification. We have obtained such insurance.

In addition to the indemnification provided for in our certificate of incorporation and bylaws, we have entered, and intend to continue to enter, into separate indemnification agreements with each of our directors and executive officers which may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements may require us, among other things, to indemnify our directors and executive officers for some expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of his service as one of our directors or executive officers, or any of our subsidiaries or any other company or enterprise to which the person provides services at our request. We believe that these provisions and agreements are necessary to attract and retain qualified individuals to serve as directors and executive officers. There is no pending litigation or proceeding involving any of our directors or executive officers to which indemnification is required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The following is a description of transactions since May 1999 to which we have been a party, in which the amount involved in the transaction exceeds $60,000, and in which any of our directors, executive officers or holders of more than 5% of our capital stock had or will have a direct or indirect material interest, other than the employment agreements, which are described elsewhere.

Preferred Stock Issuances

We sold shares of our preferred stock in private financings as follows:

- 200,000 shares of our Series A preferred stock at a price of $7.275 per share in May 1999;
- 277,500 shares of our Series B preferred stock at a price of $18.018 per share in July 2000;
- 260,154 shares of our Series C preferred stock at a price of $57.658 per share in October 2001;
- 164,765 shares of our Series D preferred stock at a price of $66.762 per share in July 2002; and
- 329,536 shares of our Series E preferred stock at a price of $60.692 per share in August 2003.

The investors in these financings included the following executive officers, directors, holders of more than 5% of our securities and the immediate family members and affiliated entities of each:

Investors	Series A Preferred Stock	Series B Preferred Stock	Series C Preferred Stock	Series D Preferred Stock	Series E Preferred Stock
Directors					
J.R. Hyde, III	200,000	277,500	77,718	74,894	283,777
John H. Pontius	—	—	—	—	1,648
Executive Officers					
Mark E. Mosteller	—	—	—	—	824
Henry P. Doggrell	—	—	—	—	1,236
Immediate Family Members					
Patricia B. Pontius	—	—	—	—	1,648
Kathryn K. Mosteller	—	—	—	—	824
Beverly R. Doggrell	—	—	—	—	412
5% Stockholders					
Entities affiliated with Oracle Partners, L.P.	—	—	173,436	74,894	16,478
Affiliated Entities					
Pittco Associates, L.P.(1)	—	—	9,000	—	—
Memphis Biomed Ventures I, L.P.(2)	—	—	—	14,977	16,477
Equity Partners XII, LLC(3)	—	—	—	—	6,212

(1) Pittco Associates, L.P. is affiliated with both Mr. Hyde and Mr. Pontius.

(2) Memphis Biomed Ventures I, L.P. is affiliated with Mr. Hyde.

(3) Mr. Hanover is the sole managing member of Equity Partners XII, LLC.

Registration Rights Agreements

We have entered into registration rights agreements with three of our preferred stockholders and their affiliates and transferees. Pursuant to the registration rights agreements, if we propose to register any of our securities under the Securities Act either for our own account or for the account of other security holders after this offering, the holders of registration rights will be entitled to include their 1,310,076 shares of common stock. In addition, holders of approximately 1,276,970 shares of common stock may require us, on not more than two occasions at any time beginning approximately six months from the date of the closing of this offering, to file a registration statement under the Securities Act with respect to their shares of common stock. For more information concerning the registration rights agreements, please see "Description of Capital Stock — Registration Rights Agreements."

Indemnification Agreements

We have entered into separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our bylaws. See "Management — Limitations on Directors' Liability and Indemnification Agreements."

Transactions with Mr. Hyde

In July 2001, we borrowed $4.25 million from Mr. Hyde pursuant to the terms of a promissory note that bore interest at a rate of 9% per annum. All amounts due under the note were paid in full in October 2001. We paid Mr. Hyde $71,000 of interest in 2001.

PRINCIPAL STOCKHOLDERS

The following table sets forth information as of August 31, 2003 regarding the beneficial ownership of our common stock by:

- each person, or group of affiliated persons, who is known by us to own beneficially five percent or more of our common stock;
- each of our directors;
- each of our named executive officers; and
- all our directors and executive officers as a group.

The number of shares owned and percentage ownership in the following table is based on 910,000 shares of common stock outstanding on August 31, 2003, the conversion of all outstanding shares of our preferred stock and the dividends accrued thereon through August 31, 2003 into 1,322,944 shares of common stock and the issuance of shares in this offering. The information assumes no exercise of the underwriters' over-allotment option.

Each individual or entity shown on the table has furnished information with respect to beneficial ownership. Except as otherwise indicated below, the address of each officer, director and five percent stockholder listed below is c/o GTx, Inc., 3 N. Dunlap Street, 3rd Floor, Van Vleet Building, Memphis, Tennessee 38163.

We have determined beneficial ownership in accordance with the rules of the Securities and Exchange Commission. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. In addition, the rules include shares of common stock issuable pursuant to the exercise of stock options that are either immediately exercisable or exercisable within 60 days of August 31, 2003. These shares are deemed to be outstanding and beneficially owned by the person holding those options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them.

Beneficial Owner (Name and Address)	Number of Shares Owned	Percentage of Shares Outstanding	
		Before Offering	After Offering
5% Stockholders			
Entities affiliated with Oracle Partners, L.P.(1) 200 Greenwich Avenue Greenwich, CT 06830	299,971	13.4%	%
Directors and Named Executive Officers			
J.R. Hyde, III(2)	1,010,986	45.3	
Mitchell S. Steiner, M.D., F.A.C.S.(3)	618,975	27.7	
Marc S. Hanover(4)	197,269	8.8	
Mark E. Mosteller(5)	828	*	
Henry P. Doggrell(6)	18,342	*	
John H. Pontius(7)	72,561	3.3	
Rosemary Mazanet, M.D., Ph.D.	—	—	
All executive officers and directors as a group (7 persons)(8)	1,901,861	85.2	

* Represents beneficial ownership of less than 1% of our outstanding common stock.

(1) Includes 79,436 shares held by Oracle Partners, L.P., 200,674 shares held by Oracle Investment Management, Inc. and 19,860 shares held by Oracle Institutional Partners, L.P. Larry N. Feinberg is the managing member of the general partner of Oracle Partners, L.P. and Oracle Institutional Partners, L.P. and

the President of Oracle Investment Management, Inc. Mr. Feinberg disclaims beneficial ownership of these shares except to the extent of his pecuniary interest in the named entities.

(2) Includes 10,422 shares held by Pittco Associates, L.P., an entity controlled by Mr. Hyde, 22,200 shares held by trusts of which Mr. Hyde is the trustee or co-trustee and 33,106 shares held by Memphis Biomed Ventures I, L.P., an entity controlled by Mr. Hyde. Does not include 21,420 shares beneficially owned by Mr. Hyde's wife of which Mr. Hyde disclaims beneficial ownership.

(3) Consists of shares held by LD, Jr., LLC, an entity owned by Dr. Steiner.

(4) Includes 96,244 shares held by Equity Partners XII, LLC, an entity controlled by Mr. Hanover, and 59,540 shares held by trusts of which Mr. Hanover is the trustee.

(5) Does not include 828 shares beneficially owned by Mr. Mosteller's wife of which Mr. Mosteller disclaims beneficial ownership.

(6) Includes 11,100 shares held by a trust of which Mr. Doggrell is the co-trustee with Mr. Hyde and 6,000 shares that Mr. Doggrell has the right to acquire within 60 days of August 31, 2003 through the exercise of stock options. Does not include 414 shares beneficially owned by Mr. Doggrell's wife of which Mr. Doggrell disclaims beneficial ownership.

(7) Includes 66,600 shares held by trusts of which Mr. Pontius is the trustee. Does not include 7,341 shares beneficially owned by Mr. Pontius' wife of which Mr. Pontius disclaims beneficial ownership.

(8) For purposes of determining the number of shares beneficially owned by directors and executive officers as a group, any shares held in trusts to which both Mr. Doggrell and Mr. Hyde are co-trustees are counted only once.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock gives effect to the amendment and restatement of our certificate of incorporation and bylaws, which will occur before the closing of this offering, and the conversion of our preferred stock and dividends accrued thereon through August 31, 2003 into 1,322,944 shares of common stock, which will occur upon the closing of this offering, as if such conversion had occurred on August 31, 2003.

Upon completion of this offering, our authorized capital stock will consist of shares of common stock, par value $0.001 per share, and 5,000,000 shares of preferred stock, par value $0.001 per share.

Common Stock

Outstanding Shares

As of August 31, 2003, we had 910,000 shares of common stock issued and outstanding and 1,231,955 shares of preferred stock issued and outstanding that, together with dividends accrued thereon through August 31, 2003, are convertible into 1,322,944 shares of common stock held by 30 stockholders. In addition, as of August 31, 2003, options to purchase 67,000 shares of common stock were issued and outstanding. Based on our outstanding capital stock as of August 31, 2003, upon completion of this offering, there will be shares of common stock outstanding, assuming no exercise of the underwriters' over-allotment option or exercise of outstanding stock options.

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Under our certificate of incorporation and bylaws, our stockholders will not have cumulative voting rights. Because of this, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they should so choose.

Dividends

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends, if any, as may be declared from time to time by the Board of Directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Rights and Preferences

Holders of common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to the common stock. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are, and the shares of common stock to be issued pursuant to this offering will be, fully paid and nonassessable.

Preferred Stock

Upon the closing of this offering, the Board of Directors will have the authority, without further action by the stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding. The Board of Directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of GTx and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock.

Registration Rights

Demand Registration Rights

As of August 31, 2003, at any time after the closing of this offering, the holders of 1,276,970 shares of our common stock and their transferees may require us, on not more than two occasions from each holder of demand rights, to file a registration statement under the Securities Act with respect to their shares of common stock, and we will be required to use our best efforts to effect the registration.

Piggyback Registration Rights

As of August 31, 2003, at any time after the closing of this offering, if we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders, the holders of approximately 1,310,076 shares of common stock will be entitled to notice of the registration and will be entitled to include their shares of common stock in the registration statement. These registration rights are subject to specified conditions and limitations, including the right of the underwriters to limit the number of shares included in any such registration under some circumstances.

Expenses of Registration

We will pay all expenses relating to any demand or piggyback registration, other than underwriting discounts and commissions.

Expiration

These registration rights expire only upon the sale of all shares of common stock that have registration rights. However, we are not required to maintain the effectiveness of a registration statement if the shares of common stock included in such registration statement may be sold without restriction pursuant to Rule 144(k) under the Securities Act.

Delaware Anti-Takeover Law and Certain Provisions of

our Certificate of Incorporation and Bylaws

Delaware Law

We are governed by Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A "business combination" includes mergers, asset sales or other transactions resulting in a financial benefit to the stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years, did own, 15% or more of the corporation's outstanding voting stock. These provisions may have the effect of delaying, deferring or preventing a change in our control.

Certificate of Incorporation and Bylaw Provisions

Our certificate of incorporation that will become effective upon the completion of this offering provides that our Board of Directors will be divided into three classes of directors, with each class serving a staggered three-year term. The classification system of electing directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us and may maintain the composition of our current Board of Directors, as the classification of the Board of Directors generally increases the difficulty of replacing a majority of directors. In addition, our certificate of incorporation will:

- provide that any action required or permitted to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and may not be effected by any consent in writing;
- provide that the authorized number of directors may be changed only by resolution of the Board of Directors; and
- eliminate cumulative voting for directors.

In addition, our bylaws that will become effective upon completion of this offering will provide that special meetings of our stockholders may be called only by the chairman of the Board of Directors, our chief executive officer or by the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors. Without cumulative voting, holders of a majority of our common stock may be able to elect all of the members of our Board of Directors if they so chose.

These and other provisions contained in our certificate of incorporation and bylaws could delay or discourage some types of transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares over then current prices, and may limit the ability of stockholders to remove current management or approve transactions that stockholders may deem to be in their best interests and, therefore, could adversely affect the price of our common stock.

Nasdaq National Market Listing

We have applied to quote our common stock on the Nasdaq National Market under the proposed trading symbol "GTXI."

Transfer Agent and Registrar

The Transfer Agent and Registrar for our common stock is expected to be . The transfer agent's address is .

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. Market sales of shares or the availability of shares for sale may decrease the market price of our common stock prevailing from time to time. As described below, only a portion of our outstanding shares of common stock will be available for sale shortly after this offering due to contractual and legal restrictions to resale. Nevertheless, sales of substantial amounts of common stock in the public market after these restrictions lapse, or the perception that such sales could occur, could adversely affect the market price of the common stock and could impair our future ability to raise capital through the sale of our equity securities.

Future sales of our common stock and the availability of our common stock for sale may depress the market price for our common stock. Upon completion of this offering, shares of common stock will be outstanding, assuming no exercise of the underwriters' over-allotment option and no exercise of options. All of the shares sold in this offering will be freely tradable. Except as set forth below, the remaining shares of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements. These remaining shares will be available for sale in the public market roughly as follows:

Date of Availability of Sale	Approximate Number of Shares
As of the date of this prospectus	
90 days after the date of the prospectus	
180 days after the date of this prospectus, although a portion of such shares will be subject to volume limitations pursuant to Rule 144	

Rule 144

In general, under Rule 144 under the Securities Act of 1933, as currently in effect, a person who has beneficially owned shares of our common stock for at least one year would be entitled to sell within any three-month period a number of shares that does not exceed the greater of:

- one percent of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume of our common stock on the Nasdaq National Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales under Rule 144 are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 144(k)

Under Rule 144(k), a person who is not deemed to have been one of our affiliates at any time during the 90 days preceding a sale, and who has beneficially owned the shares proposed to be sold for at least two years, including the holding period of any prior owner other than an affiliate, is entitled to sell the shares without complying with the manner of sale, public information, volume limitation or notice provisions of Rule 144. Shares of our common stock will qualify as "144(k)" shares within 180 days of the date of this prospectus.

Rule 701

Rule 701, as currently in effect, permits resales of shares in reliance upon Rule 144 but without compliance with some restrictions of Rule 144, including the holding period requirement. Most of our employees, officers, directors or consultants who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares.

Lock-Up Agreements

Each of our officers, directors and stockholders and the holders of substantially all of our outstanding options have agreed, subject to specified exceptions, that, without the prior written consent of Goldman, Sachs & Co., they will not, directly or indirectly, sell, offer, contract to sell, transfer the economic risk of ownership in, make any short sale, pledge or otherwise dispose of any shares of our capital stock or any securities convertible into or exchangeable or exercisable for or any other rights to purchase or acquire our capital stock for a period of 180 days from the date of this prospectus. Goldman, Sachs & Co. may, in its sole discretion, permit early release of shares subject to the lock-up agreements.

Registration Rights

Upon completion of this offering, the holders of 1,310,076 shares of our common stock, or their transferees, will be entitled to rights with respect to the registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares purchased by affiliates, immediately upon the effectiveness of this registration. See “Description of Capital Stock — Registration Rights.”

Stock Options

Immediately after this offering, we intend to file with the SEC a registration statement under the Securities Act covering the shares of common stock reserved for issuance under our stock option plans and employee stock purchase plan. The registration statement is expected to be filed and become effective as soon as practicable after the closing of this offering. Accordingly, shares registered under the registration statement will, subject to Rule 144 volume limitations applicable to affiliates and the lock-up agreements described above, be available for sale in the open market.

UNDERWRITING

GTx and the underwriters named below have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman, Sachs & Co., SG Cowen Securities Corporation and Lazard Frères & Co. LLC are the underwriters.

Underwriters	Number of Shares
Goldman, Sachs & Co.	
SG Cowen Securities Corporation	
Lazard Frères & Co. LLC	
Total	

The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

If the underwriters sell more shares than the total number set forth in the table above, the underwriters have an option to buy up to an additional shares from GTx to cover such sales. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by GTx. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Paid By GTx	
	No Exercise	Full Exercise
Per Share	$	$
Total	$	$

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to $ per share from the initial public offering price. Any such securities dealers may resell any shares purchased from the underwriters to certain other brokers or dealers at a discount of up to $ per share from the initial public offering price. If all the shares are not sold at the initial public offering price, the representatives may change the offering price and the other selling terms.

GTx's stockholders have agreed with the underwriters not to dispose of or hedge any of their common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of the representatives. This agreement does not apply to any existing employee benefit plans. See "Shares Eligible for Future Sale" for a discussion of certain transfer restrictions.

Prior to the offering, there has been no public market for the shares. The initial public offering price has been negotiated among GTx and the representatives. Among the factors to be considered in determining the initial public offering price of the shares, in addition to prevailing market conditions, will be GTx's historical performance, estimates of the business potential and earnings prospects of GTx, an assessment of GTx's management and the consideration of the above factors in relation to market valuation of companies in related businesses.

An application has been made to quote the common stock on the Nasdaq National Market under the symbol "GTXI".

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. “Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares from GTx in the offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the option granted to them. “Naked” short sales are any sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions may have the effect of preventing or retarding a decline in the market price of our GTx’s stock, and together with the imposition of a penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued at any time. These transactions may be effected on the Nasdaq National Market, in the over-the-counter market or otherwise.

Each underwriter has represented that: (1) it has not offered or sold and, prior to the expiry of a period of six months from the closing date, will not offer or sell any shares to persons in the United Kingdom except to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments, as principal or agent, for the purposes of their businesses or otherwise in circumstances which have not resulted and will not result in an offer to the public in the United Kingdom within the meaning of the Public Offers of Securities Regulations 1995; (2) it has only communicated or caused to be communicated and will only communicate or cause to be communicated any invitation or inducement to engage in investment activity, within the meaning of section 21 Financial Services and Markets Act of 2000, or the FSMA, received by it in connection with the issue or sale of any shares in circumstances in which section 21(1) of the FSMA does not apply to GTx; and (3) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

The underwriters do not expect sales to discretionary accounts to exceed five percent of the total number of shares offered.

GTx estimates that its share of the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately $.

GTx has agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

Certain of the underwriters and their respective affiliates may in the future perform various financial advising and investment banking services for GTx, for which they may receive customary fees and expenses.

VALIDITY OF THE COMMON STOCK

The validity of the shares of common stock offered hereby and certain other legal matters will be passed upon for us by Cooley Godward LLP, Palo Alto, California. Certain legal matters will also be passed upon for us by Bass, Berry & Sims PLC, Memphis, Tennessee. Certain legal matters will be passed upon for the underwriters by Hale and Dorr LLP, Boston, Massachusetts.

EXPERTS

The financial statements of GTx, Inc. as of December 31, 2002 and 2001 and for each of the three years in the period ended December 31, 2002 appearing in this prospectus and registration statement, have been audited by Ernst & Young LLP, independent auditors, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report, given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Securities and Exchange Commission, or SEC, a registration statement on Form S-1 under the Securities Act of 1933 with respect to the shares of common stock offered under this prospectus. This prospectus does not contain all of the information in the registration statement and the exhibits. For further information with respect to us and our common stock, we refer you to the registration statement and to the exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the Internet at the SEC's web site at www.sec.gov. You may also read and copy any document we file with the SEC at its public reference facility at 450 Fifth Street, N.W., Washington, D.C. 20549. You may also obtain copies of the document at prescribed rates by writing to the Public Reference Section of the SEC at 450 Fifth Street, N.W., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facility.

Upon completion of this offering, we will be subject to the information reporting requirements of the Securities Exchange Act of 1934, as amended, and we will file reports, proxy statements and other information with the SEC. We also intend to furnish our stockholders with annual reports containing our financial statements audited by an independent public accounting firm and quarterly reports containing our unaudited financial information.

GTx, Inc.

(a development stage company)

INDEX TO FINANCIAL STATEMENTS

REPORT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS

Board of Directors and Stockholders

GTx, Inc.

We have audited the accompanying balance sheets of GTx, Inc. (a development stage company) as of December 31, 2002 and 2001, and the related statements of operations, cumulative redeemable convertible preferred stock and stockholders' equity (deficit) and cash flows for each of the three years in the period ended December 31, 2002. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

Since the date of completion of our audit of the accompanying financial statements and initial issuance of our report thereon dated May 9, 2003, which report contained an explanatory paragraph regarding the Company's ability to continue as a going concern, the Company, as discussed in the second paragraph of Note 2, has completed an issuance of preferred stock with net proceeds of approximately $20 million and plans, if additional funding efforts are unsuccessful, to reduce its cash expenditures such that it will continue its operations beyond December 31, 2004. Therefore, the conditions that raised substantial doubt about whether the Company will continue as a going concern no longer exist.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of GTx, Inc. (a development stage company) at December 31, 2002 and 2001, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2002, in conformity with accounting principles generally accepted in the United States.

Ernst & Young LLP

Memphis, Tennessee

May 9, 2003,
Except Note 13, as to which the date is
October 14, 2003.

The foregoing report is in the form that will be signed upon the completion of the reincorporation of GTx, Inc. as described in Note 13 to the financial statements.

/s/ Ernst & Young LLP

Memphis, Tennessee

October 14, 2003

GTx, Inc.

(a development stage company)

BALANCE SHEETS

(in thousands, except share data)

	December 31,		June 30,	Pro Forma Stockholders' Equity at
	2001	2002	2003	June 30, 2003
			(unaudited)	(unaudited)
ASSETS				
Current assets:				
Cash and cash equivalents	$ 8,834	$ 8,925	$ 3,112	
Acapodene inventory	154	—	—	
Prepaid expenses and other current assets	46	41	24	
Total current assets	9,034	8,966	3,136	
Property and equipment, net	1,083	1,064	928	
Total assets	$ 10,117	$ 10,030	$ 4,064	
LIABILITIES, CUMULATIVE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)				
Current liabilities:				
Accounts payable	$ 261	$ 601	$ 136	
Accrued expenses	229	711	1,456	
Total current liabilities	490	1,312	1,592	
8% Cumulative Redeemable Convertible Preferred Stock, at redemption value:				
Series A, no par value; 200,000 shares authorized, issued and outstanding at all periods, no shares outstanding pro forma; liquidation value of $1,770 at December 31, 2001, $1,889 at December 31, 2002 and $1,952 at June 30, 2003 (unaudited)	11,847	13,855	12,661	
Series B, no par value; 277,500 shares authorized, issued and outstanding at all periods, no shares outstanding pro forma; liquidation value of $5,581 at December 31, 2001, $5,989 at December 31, 2002 and $6,204 at June 30, 2003 (unaudited)	16,581	19,671	18,110	
Series C, no par value; 450,000 shares authorized, 260,154 issued and outstanding at all periods, no shares outstanding pro forma; liquidation value of $15,274 at December 31, 2001, $16,496 at December 31, 2002 and $17,144 at June 30, 2003 (unaudited)	15,274	19,102	18,047	
Series D, no par value; 300,000 shares authorized, 164,765 issued and outstanding at December 31, 2002 and June 30, 2003, no shares outstanding pro forma; liquidation value of $0 at December 31, 2001, $11,398 at December 31, 2002 and $11,838 at June 30, 2003 (unaudited)	—	11,398	11,838	
Total cumulative redeemable convertible preferred stock	43,702	64,026	60,656	
Stockholders' equity (deficit):				
Common stock, no par value: 10,000,000 shares authorized; 910,000 shares issued and outstanding at December 31, 2001 and 2002 and June 30, 2003 (unaudited); 1,891,681 shares outstanding on a pro forma basis (unaudited)	970	970	970	$ 61,626
Deficit accumulated during the development stage	(35,045)	(56,278)	(59,154)	(59,154)
Total stockholders' (deficit) equity	(34,075)	(55,308)	(58,184)	$ 2,472
Total liabilities and stockholders' deficit	$ 10,117	$ 10,030	$ 4,064	

The accompanying notes are an integral part of these financial statements.

GTx, Inc.

(a development stage company)

STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)

	Year Ended December 31,			Six Months Ended June 30,		Cumulative Period from September 24, 1997 (date of inception) to June 30, 2003
	2000	2001	2002	2002	2003	
				(unaudited)	(unaudited)	(unaudited)
Operating expenses:						
Research and development	$ 2,679	$ 5,744	$ 9,285	$ 3,975	$ 4,703	$ 22,298
General and administrative	1,203	2,187	2,405	1,105	1,411	8,457
Depreciation	80	215	332	153	175	865
Total operating expenses	3,962	8,146	12,022	5,233	6,289	31,620
Other income:						
Research and development income	—	—	—	—	—	225
Interest income	150	83	156	55	43	543
Total other income	150	83	156	55	43	768
Net loss	(3,812)	(8,063)	(11,866)	(5,178)	(6,246)	(30,852)
Accrued preferred stock dividends	(297)	(790)	(2,147)	(858)	(1,366)	(4,684)
Adjustments to preferred stock redemption value	(21,077)	(57)	(7,220)	(7,036)	4,736	(23,618)
Net loss attributable to common stockholders	$ (25,186)	$ (8,910)	$ (21,233)	$ (13,072)	$ (2,876)	$ (59,154)
Net loss per share attributable to common stockholders:						
Basic	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.16)	
Diluted	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.34)	
Weighted average shares used in computing net loss per share attributable to common stockholders:						
Basic	910,000	910,000	910,000	910,000	910,000	
Diluted	910,000	910,000	910,000	910,000	1,869,021	
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)			$ (6.81)		$ (3.34)	
Shares used in computing pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)			1,742,563		1,869,021	

The accompanying notes are an integral part of these financial statements.

GTx, Inc.

(a development stage company)

STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND

STOCKHOLDERS' EQUITY (DEFICIT)
For the Period From September 24, 1997 (date of inception) To June 30, 2003
(in thousands, except share and per share data)

	Cumulative Redeemable Convertible Preferred Stock		Stockholders' Equity (Deficit)			
			Common Stock		Deficit Accumulated During the Development Stage	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount		
Balances at September 24, 1997	—	$ —	—	$ —	$ —	$ —
Issuance of common stock	—	—	900,000	—	—	—
Net loss	—	—	—	—	—	—
Balances at December 31, 1997	—	—	900,000	—	—	—
Issuance of common stock	—	—	100,000	970	—	970
Net loss	—	—	—	—	(116)	(116)
Balances at December 31, 1998	—	—	1,000,000	970	(116)	854
Sale of Series A Redeemable Convertible Preferred Stock at $7.275	200,000	1,455	—	—	—	—
Preferred stock dividends	—	83	—	—	(83)	(83)
Net loss	—	—	—	—	(750)	(750)
Balances at December 31, 1999	200,000	1,538	1,000,000	970	(949)	21
Sale of Series B Redeemable Convertible Preferred Stock at $18.018	277,500	5,000	—	—	—	—
Preferred stock dividends	—	297	—	—	(297)	(297)
Preferred stock adjustment to redemption value	—	21,077	—	—	(21,077)	(21,077)
Common stock redemption	—	—	(90,000)	—	—	—
Net loss	—	—	—	—	(3,812)	(3,812)
Balances at December 31, 2000	477,500	27,912	910,000	970	(26,135)	(25,165)
Sale of Series C Redeemable Convertible Preferred Stock at $57.658, net of issuance costs of $57	260,154	14,943	—	—	—	—
Preferred stock dividends	—	790	—	—	(790)	(790)
Preferred stock adjustment to redemption value	—	57	—	—	(57)	(57)
Net loss	—	—	—	—	(8,063)	(8,063)
Balances at December 31, 2001	737,654	43,702	910,000	970	(35,045)	(34,075)
Sale of Series D Redeemable Convertible Preferred Stock at $66.762, net of issuance costs of $43	164,765	10,957	—	—	—	—
Preferred stock dividends	—	2,147	—	—	(2,147)	(2,147)
Preferred stock adjustment to redemption value	—	7,220	—	—	(7,220)	(7,220)
Net loss	—	—	—	—	(11,866)	(11,866)
Balances at December 31, 2002	902,419	64,026	910,000	970	(56,278)	(55,308)
Preferred stock dividends	—	1,366	—	—	(1,366)	(1,366)
Preferred stock adjustment to redemption value	—	(4,736)	—	—	4,736	4,736
Net loss	—	—	—	—	(6,246)	(6,246)
Balances at June 30, 2003 (unaudited)	902,419	$60,656	910,000	$970	$(59,154)	$(58,184)

The accompanying notes are an integral part of these financial statements.

GTx, Inc.

(a development stage company)

STATEMENTS OF CASH FLOWS

(in thousands, except share and per share data)

	Year Ended December 31,			Six Months Ended June 30,		Cumulative Period from September 24, 1997 (date of inception) to June 30, 2003
	2000	2001	2002	2002	2003	
				(unaudited)	(unaudited)	(unaudited)
Cash flows from operating activities:						
Net loss	$ (3,812)	$ (8,063)	$ (11,866)	$(5,178)	$(6,246)	$(30,852)
Adjustments to reconcile net loss to net cash used in operating activities:						
Depreciation	80	215	332	153	175	865
Changes in assets and liabilities:						
Acapodene inventory	—	(154)	154	—	—	—
Prepaid expenses and other assets	(18)	(17)	5	20	17	(24)
Accounts payable	(5)	260	340	(178)	(465)	136
Accrued expenses	342	(225)	482	505	745	1,456
Net cash used in operating activities	(3,413)	(7,984)	(10,553)	(4,678)	(5,774)	(28,419)
Cash flows from investing activities:						
Purchase of property and equipment	(462)	(792)	(313)	(145)	(39)	(1,794)
Net cash used in investing activities	(462)	(792)	(313)	(145)	(39)	(1,794)
Cash flows from financing activities:						
Proceeds from issuance of notes payable — related party	—	4,250	—	—	—	4,250
Payment of notes payable — related party	—	(4,250)	—	—	—	(4,250)
Proceeds from issuance of common stock	—	—	—	—	—	970
Proceeds from issuance of preferred stock, net	5,000	14,943	10,957	—	—	32,355
Net cash provided by financing activities	5,000	14,943	10,957	—	—	33,325
Net increase (decrease) in cash and cash equivalents	1,125	6,167	91	(4,823)	(5,813)	3,112
Cash and cash equivalents, beginning of period	1,542	2,667	8,834	8,834	8,925	—
Cash and cash equivalents, end of period	$ 2,667	$ 8,834	$ 8,925	$ 4,011	$ 3,112	$ 3,112
Supplemental schedule of non-cash investing and financing activities:						
Preferred stock dividends	$ 297	$ 790	$ 2,147	$ 858	$ 1,366	$ 4,684
Preferred stock adjustment to redemption value	$21,077	$ 57	$ 7,220	$ 7,036	$(4,736)	$ 23,618

The accompanying notes are an integral part of these financial statements.

1. Organization

GTx, Inc. (the "Company") is a biopharmaceutical company dedicated to the discovery, development and commercialization of therapeutics primarily related to the treatment of serious men's health conditions. The Company's drug discovery and development programs are focused on small molecules that selectively modulate the effects of estrogens and androgens, two essential classes of hormones. The Company currently has two product candidates that are in human clinical trials. The Company is developing Acapodene, its most advanced product candidate, through clinical trials for two separate indications: (1) a Phase IIb clinical trial for the reduction in the incidence of prostate cancer in men with precancerous prostate lesions and (2) a planned pivotal Phase III clinical trial for the treatment of serious side effects of advanced prostate cancer therapy. The Company is initially developing its second product candidate, Andarine, for the treatment of cachexia from various types of cancer. Andarine is the most advanced of its internally discovered portfolio of compounds designed to modulate the effects of hormones. The Company plans to build a specialized sales and marketing capability to market its product candidates directly to the relatively small and concentrated community of urologists and medical oncologists in the United States and seek collaborators to commercialize its product candidates where the target physician market is broader than urologists and medical oncologists and outside the United States.

2. Significant Accounting Policies

Basis of Presentation

From September 24, 1997 (inception) through December 31, 2002, the Company has been primarily engaged in research and development, clinical development, and raising capital and is still in a development stage. The Company operates as one business segment.

The accompanying financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. The Company has experienced negative cash flows from operations since inception and had an accumulated deficit at December 31, 2002 and June 30, 2003 (unaudited) of approximately $56,278 and 59,154, respectively. The Company's accumulated deficit at June 30, 2003 (unaudited) resulted primarily from funding its operating losses as well as non-cash dividends and adjustments to preferred stock redemption value of $28,302. The Company has funded its activities to date almost exclusively from debt and equity financings. In August 2003, the Company issued additional preferred stock (see Note 13) for proceeds of approximately $20,000. The Company will continue to require substantial funds to continue research and development, including preclinical studies and clinical trials of its product candidates, and to commence sales and marketing efforts, if the FDA or other regulatory approvals are obtained. Management's plans in order to meet its operating cash flow requirements include an initial public offering of its common stock, as well as entering into research collaborations through licensing opportunities, which will provide funding for certain research projects. While the Company believes that it will be successful in obtaining the necessary financing to fund its operations, there are no assurances that such additional funding will be achieved. In that event, the Company has the intent and ability to reduce its cash expenditures by delaying its initiation of certain research and development efforts such that it will continue its operations beyond December 31, 2004.

Unaudited Interim Financial Information

The interim financial statements for the six months ended June 30, 2002 and June 30, 2003 and the cumulative period from September 24, 1997 to June 30, 2003, together with the related notes, are unaudited and have been prepared on the same basis as the annual financial statements. In the opinion of management, all adjustments, consisting of normal recurring adjustments necessary for the fair presentation of the financial statements, have been included. The results of operations of any interim period are not necessarily indicative of the results of operations for the full year or any other interim period.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual amounts and results could differ from those estimates.

Preferred Stock Redemption Value

In connection with the public filing for an initial registration of its common stock, the Company changed its accounting policy to recognize changes in the redemption value of its preferred stock immediately as they occur and adjust the carrying value of the preferred stock to equal the redemption value at the end of each reporting period. Previously, the Company had adjusted the carrying value of its preferred stock to its liquidation value at the end of each reporting period.

The preferred stock is subject to redemption on or after August 31, 2006, at a price per share equal to the greater of the liquidation value, which includes accrued dividends, or the fair value calculated on an as-if converted to common stock basis. The Company determines redemption value (fair value) considering factors such as the share price of preferred stock issuances, achievement of significant milestones in clinical trials and general market conditions. The changes in redemption value affect the loss attributable to common stockholders.

Cash and Cash Equivalents

The Company considers highly liquid investments with initial maturities of three months or less to be cash equivalents.

Acapodene Inventory

Acapodene inventory consists of a drug that is manufactured by a third-party and delivered to the Company as a finished good. Inventories are stated at the lower of cost (first-in, first-out method) or market. The inventory is expensed by the Company at the time it is sent to clinical trial facilities.

Property and Equipment

Property and equipment is recorded at cost. Depreciation of equipment and furniture and fixtures is computed based on the straight-line method over estimated useful lives of three to five years. Amortization of leasehold improvements is recognized over the shorter of the lease term or the estimated useful life of the leasehold improvement.

Impairment

The Company accounts for long-lived assets in accordance with Statement of Financial Accounting Standards ("SFAS") No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets and for Long-Lived Assets to be Disposed of*, which requires that companies consider whether events or changes in facts and circumstances, both internally and externally, may indicate that an impairment of long-lived assets held for use are present. Management periodically evaluates the carrying value of long-lived assets and has determined that there was no impairment as of December 31, 2001 and December 31, 2002. Should there be impairment in the future, the Company would recognize the amount of the impairment based on the expected future cash flows from the impaired assets. The cash flow estimates would be based on management's best estimates, using appropriate and customary assumptions and projections at the time.

Fair Value of Financial Instruments

Financial instruments consist of cash and cash equivalents, accounts payable and preferred stock. The carrying values of cash and cash equivalents and accounts payable approximate the fair value due to the short-term nature of such instruments. Preferred stock is carried at redemption value which approximates fair value.

Concentration of Risks

Financial instruments that potentially subject the Company to a concentration of credit risk consist of cash and cash equivalents. The Company maintains its cash and cash equivalents in accounts with several major financial institutions in the United States. Deposits in these institutions may exceed the amount of insurance provided on such deposits. The amounts in excess of FDIC insurance amounts are $8,734 and $8,625 at December 31, 2001 and December 31, 2002, respectively.

The Company faces competition from established pharmaceutical and biotechnology companies, as well as from academic institutions, government agencies and private and public research institutions. Various products are currently marketed or sold and used off-label for some of the diseases and conditions that the Company is targeting, and a number of companies are or may be developing new treatments. In addition, physicians are permitted to prescribe legally available drugs for uses that are not described in the drug's labeling and that differ from those uses tested and approved by the FDA. Such off-label uses are common across medical specialties. The occurrence of such off-label uses could significantly reduce the Company's ability to market and sell any products that it may develop.

Currently, the Company relies on Orion Corporation as a single source supplier for Acapodene, and the Company is currently purchasing Andarine from ChemSyn Laboratories, a department of EaglePicher Technologies, LLC, as a single supplier. Establishing additional or replacement suppliers for Acapodene or Andarine may take a substantial amount of time, and in some circumstances the Company's agreement with Orion may prevent it from obtaining an alternate supplier with respect to Acapodene. If the Company has to switch to a replacement supplier, the Company may face additional regulatory delays, and the manufacture and delivery of Acapodene or Andarine could be interrupted for an extended period of time, which may delay completion of the Company's clinical trials or commercialization of Acapodene or Andarine. If the Company is unable to obtain an adequate supply of Acapodene or Andarine, its clinical trials will be delayed. As a result, regulatory approval of Acapodene or Andarine could be delayed, or may not be received at all.

Research and Development Costs

The Company expenses research and development costs in the period in which they are incurred. These costs consist of direct and indirect costs associated with specific projects as well as fees paid to various entities that perform research and clinical trial studies on behalf of the Company.

Patent Costs

The Company expenses patent costs, including legal expenses, in the period in which they are incurred. Patent expenses are included in general and administrative expenses in the Company's statements of operations.

Income Taxes

The Company accounts for deferred taxes by recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse.

Research and Development Income

Indigo, a Johnson & Johnson subsidiary, and Johnson & Johnson Development Corporation, ("JJDC") entered into an option agreement with the Company on March 9, 1998. The option agreement was established to allow Indigo and JJDC to determine their level of interest in establishing an exclusive worldwide license with respect to the Company's gene therapy products and related technology. The agreement required the Company during the period of the agreement, which ended in June 1998, to not negotiate with other third parties related to gene therapy products and related technology. Upon expiration of the option, the Company recognized research and development income of $225 for the option proceeds. The Company is no longer pursuing any research and development related to gene therapy products or technology.

Stock Compensation

Accounting Principles Board Opinion No. 25, *Accounting for Stock Issued to Employees* ("APB No. 25"), and its related interpretations are applied to measure compensation expense for stock-based compensation plans. The Company complies with the disclosure provisions of Statement of Financial Accounting Standards No. 123., *Accounting for Stock-Based Compensation* ("SFAS No. 123"), as amended by SFAS No. 148, *Accounting for Stock-Based Compensation, Transition and Disclosure.* Under APB No. 25, unearned stock compensation is based on the difference, if any, on the date of grant, between the fair value of the Company's common stock and the exercise price. No employee compensation cost has been recognized because all options granted under the plans had an exercise price not less than the fair value of the common stock on the date of grant. See Note 11 for a description of the plans and the assumptions underlying the pro forma calculations below.

If compensation cost for stock-based compensation plans had been determined under SFAS 123, pro forma stock option compensation expense and net loss attributable to common

shareholders, assuming all options were valued using the minimum value option pricing model, would have been as follows:

	Years Ended December 31,			Six Months Ended June 30,	
	2000	2001	2002	2002	2003
				(unaudited)	
Net loss attributable to common stockholders, as reported	$(25,186)	$(8,911)	$(21,233)	$(13,072)	$(2,876)
Deduct: Employee stock-based compensation determined under fair value method	(5)	(38)	(116)	(93)	(181)
Adjusted net loss attributable to common stockholders	$(25,191)	$(8,949)	$(21,349)	$(13,165)	$(3,057)
Pro forma SFAS 123 disclosure:					
Net loss attributable to common stockholders per common share:					
As reported:					
Basic	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.16)
Diluted	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.34)
As adjusted:					
Basic	$ (27.68)	$ (9.83)	$ (23.46)	$ (14.47)	$ (3.36)
Diluted	$ (27.68)	$ (9.83)	$ (23.46)	$ (14.47)	$ (3.44)

Net Loss Per Share

Basic net loss per share attributable to common stockholders is calculated based on the weighted average number of common shares outstanding during the period. Diluted net loss per share attributable to common stockholders would give effect to the dilutive effect of potential common stock consisting of stock options and convertible preferred stock.

The 90,000 common shares that were redeemed in 2000 were excluded from the weighted average common shares outstanding because the shares were contingently returnable to the Company if the holder’s employment terminated prior to a certain date. These shares were treated as stock options in the earnings per share calculation.

A reconciliation of shares used in the calculation is as follows:

	Years Ended December 31,			Six Months Ended June 30,	
	2000	2001	2002	2002	2003
				(unaudited)	
Basic net loss per share attributable to common shareholders:					
Numerator					
Net loss attributable to common stockholders	$ (25,186)	$ (8,911)	$ (21,233)	$ (13,072)	$ (2,876)
Denominator					
Weighted average common shares outstanding	910,000	910,000	910,000	910,000	910,000
Basic net loss per share attributable to common stockholders	$ (27.68)	$ (9.79)	$ (23.33)	$ (14.36)	$ (3.16)
Diluted net loss per share attributable to common stockholders:					
Numerator					
Net loss as reported					(6,246)
Denominator					
Weighted average common shares outstanding					910,000
Assumed weighted average effect of conversion of preferred stock					959,021
					1,869,021
Diluted net loss per share attributable to common stockholders	(27.68)*	(9.79)*	(23.33)*	(14.36)*	(3.34)
* Data in table not presented for these periods because dilutive securities have an antidilutive effect.					
Pro Forma					
Net loss as reported			$ (11,866)		$ (6,246)
Shares used above			910,000		910,000
Pro forma adjustments to reflect assumed weighted average effect of conversion of preferred stock			832,563		959,021
Shares used in computing pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)			1,742,563		1,869,021
Pro forma basic and diluted net loss per share			$ (6.81)		$ (3.34)

Pro forma net loss per share for the year ended December 31, 2002, and the six months ended June 30, 2003, is computed using the weighted average number of shares of common stock outstanding, including the pro forma effects of the automatic conversion of the Company's preferred stock into shares of common stock effective upon the closing of the offering as if such conversion occurred on January 1, 2002 and January 1, 2003 or at the date of the original issuance, if later. The resulting pro forma adjustments include an increase in the weighted average shares used to compute basic and diluted net loss per share attributable to common stockholders of 832,563 shares and 959,021 shares for the year ended December 31, 2002 and for the six months ended June 30, 2003, respectively. The calculation of pro forma net loss per share attributable to common stockholders excludes incremental common stock issuable upon exercise of options, as their effect would be antidilutive.

The following outstanding stock options and convertible preferred stock (on an as converted to common stock basis) were excluded from the computation of diluted net loss per share attributable to common stockholders as they had an antidilutive effect:

	Years Ended December 31,			Six Months Ended June 30,	
	2000	2001	2002	2002	2003
				(unaudited)	
Shares issuable upon exercise of stock options	15,750	38,700	42,750	41,500	45,750
Shares issuable upon conversion of convertible preferred stock	484,090	757,960	959,021	937,609	—
	499,840	796,660	1,001,771	979,109	45,750

Comprehensive Loss

The Company has adopted the provisions of SFAS No. 130, *Comprehensive Income*. SFAS 130 establishes standards for the reporting and display of comprehensive income and its components for general purpose financial statements. For all periods presented, there were no differences between net loss and comprehensive loss.

Recent Accounting Pronouncements

In December 2002, the FASB issued SFAS No. 148, which provides alternative methods of transition for a voluntary change to the fair value based method of accounting for stock-based employee compensation. SFAS No. 148 also requires that disclosures of the pro forma effect of using the fair value method of accounting for stock-based employee compensation be displayed more prominently and in a tabular format. Additionally, SFAS No. 148 requires disclosure of the pro forma effect in interim financial statements. The transition and annual disclosure requirements of SFAS No. 148 are effective for fiscal years ended after December 15, 2002. The interim disclosure requirements are effective for interim periods beginning after December 15, 2002. The adoption of this standard did not have a material impact on the Company's financial statements.

In January 2003, the FASB issued FASB Interpretation No. 46 ("FIN 46"), *Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51*. FIN 46 requires certain variable interest entities to be consolidated by the primary beneficiary of the entity if the equity investors in the entity do not have the characteristics of a controlling financial interest or do not have sufficient equity at risk for the entity to finance its activities without additional subordinated financial support from other parties. FIN 46 is effective immediately for all new variable interest entities created or acquired after January 31, 2003. For variable interest entities created or acquired prior to February 1, 2003, the provisions of FIN 46 must be applied for the first interim or annual period ending after December 15, 2003. The Company does not have any ownership in any variable interest entities as of December 31, 2002. The Company will apply the consolidation requirement of FIN 46 in future periods if it should own any interest in a variable interest entity.

In May 2003, the FASB issued SFAS No. 150, *Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity*. SFAS No. 150 establishes standards for how an issuer classifies and measures certain financial instruments with characteristics of both liability and equity. SFAS No. 150 is effective for the Company's financial instruments entered into or modified after May 31, 2003, and otherwise is effective on July 1, 2003. The Company has evaluated the

impact of SFAS No. 150 and has determined that its financial instruments (common stock and preferred stock) will not be affected unless the terms of these financial instruments are modified.

3. Property and Equipment

Property and equipment consist of the following:

	December 31,	
	2001	2002
Leasehold improvements	$ 108	$ 113
Equipment	1,198	1,494
Furniture and fixtures	102	114
	1,408	1,721
Less: accumulated depreciation and amortization	325	657
	$1,083	$1,064

Depreciation expense for the years ended December 31, 2000, 2001, and 2002 was $80, $215, and $332, respectively.

4. Accrued Expenses

Accrued expenses consist of the following:

	December 31,	
	2001	2002
Travel	$ 27	$ –
Professional fees	109	–
Research and development	71	246
Clinical trial	14	449
Other	8	16
	$229	$711

5. Cumulative Redeemable Convertible Preferred Stock

In 1999, the Company authorized and issued 200,000 shares of 8% Series A Cumulative Redeemable Convertible Preferred Stock (“Series A”) to a common stockholder of the Company for $1,455. In 2000, the Company authorized and issued 277,500 shares of 8% Series B Cumulative Convertible Redeemable Preferred Stock (“Series B”) to the same common stockholder of the Company for $5,000. In 2001, the Company authorized 450,000 shares and issued 260,154 shares (86,718 shares were issued to a common and preferred stockholder of the Company) of 8% Series C Cumulative Convertible Redeemable Preferred Stock (“Series C”) for $14,943. In 2002, the Company authorized 300,000 and issued 164,765 shares (74,894 shares were issued to a common and preferred stockholder of the Company) of 8% Series D Cumulative Convertible Redeemable Preferred Stock (“Series D”) for $10,957.

The Company is authorized to issue 140,000 shares of a series of preferred stock designated as Series A-2 Convertible Preferred Stock (“Series A-2”). No shares of the Series A-2 are currently outstanding. Series A-2 will be issued only in payment of dividends accrued on Series A.

The Company is authorized to issue 157,500 shares of a series of preferred stock designated as Series B-2 Convertible Preferred Stock ("Series B-2"). No shares of Series B-2 are currently outstanding. Series B-2 will be issued only in payment of dividends accrued on Series B.

Significant terms of the Series A, Series A-2, Series B, Series B-2, Series C and Series D are as follows:

- Shares of Series A, Series A-2, Series B, Series B-2, Series C and Series D shall be redeemed at the election of the respective holders at any time on or after August 31, 2006 at a price per share equal to the greater of the liquidation value, which includes accrued dividends, or the fair value calculated on an if converted to common stock basis. The per share liquidation value of Series A and Series A-2 is $7.275, Series B and Series B-2 is $18.018, Series C is $57.658 and Series D is $66.762, in each case, plus accrued dividends. If for any reason, the Company defaults on its obligation to pay all or any of the redemption price, then the unpaid principal portion will bear interest at a rate of 14% per year. The default provisions were amended upon the issuance of the Series E Cumulative Convertible Redeemable Preferred Stock ("Series E") (see Note 13).

- Shares of Series A, Series A-2, Series B, Series B-2, Series C and Series D shall be converted into shares of common stock at the election of the respective holders at any time or automatically upon the closing of a Qualified Public Offering (as defined in the Company's certificate of incorporation). The number of shares issuable upon conversion will be determined by dividing the applicable aggregate liquidation value by the applicable conversion price. The per share conversion price for shares of Series A, Series B, Series C and Series D is equal to their initial per share liquidation value. As a result of the issuance of Series E in August 2003, the conversion price of the Series D was reduced to $65.894 per share (see Note 13). The per share conversion price for Series A-2 and Series B-2 is equal to the per share liquidation value of Series C, or $57.658.

- Shares of Series A, Series B, Series C and Series D have voting rights equivalent to the number of shares of common stock into which they are convertible.

- Dividends on shares of Series A, Series B, Series C and Series D accrue, compound annually after the date of issuance of Series C, which was October 5, 2001, are cumulative at the annual rate of 8% of the respective liquidation value and are payable at such time as such shares are converted or redeemed (including liquidation). Each such dividend will be payable solely in shares of Series A-2 for Series A, Series B-2 for Series B, Series C for Series C and Series D for Series D at the time of conversion or redemption with the number of shares determined by dividing the amount of accrued dividends by the per share liquidation value of the applicable preferred stock.

- In the event of a liquidation, dissolution, or winding up of the Company, prior to the holders of common stock, the holders of Series A, Series A-2, Series B, Series B-2, Series C and Series D shall receive an amount equal to the aggregate liquidation value including all accrued dividends. If the funds available for distribution to the holders of Series A, Series A-2, Series B, Series B-2, Series C or Series D are insufficient, then the assets to be distributed shall be distributed ratably among the preferred stockholders based upon the aggregate liquidation value.

- In accordance with the Company's certificate of incorporation, on or after the Series C or the Series D issuance dates, as applicable, if the Company issues or sells, or is deemed to have issued or sold any shares of its common stock for a consideration per share less than the

conversion price with respect to Series C or Series D, then immediately upon such issue or sale, or deemed issue or sale, the conversion price shall be reduced to the conversion price determined by multiplying the conversion price in effect immediately prior to such issuance or sale by a price adjustment factor. The price adjustment factor causes the holders of the Series C and/or Series D stock to hold an adjusted number of shares equal to their total ownership before such issuance. If such a transaction occurs, the increase in preferred shares for the Series C and/or Series D holders will be accounted for as a deemed dividend by the Company. As a result of the issuance of Series E in August 2003, the conversion price of the Series D was reduced to $65.894 per share (see Note 13).

6. Common Stock

The Company's certificate of incorporation authorizes the Company to issue 10,000,000 shares of common stock with no par value as of December 31, 2002. The Company's certificate of incorporation authorizes no other classes of common stock. The Company is prohibited from declaring dividends on common stock while any shares of preferred stock are outstanding.

The Company had reserved shares of its authorized common stock for future issuance as summarized in the table below:

	December 31, 2002	June 30, 2003 (Unaudited)
For conversion of Series A	207,525	208,615
For conversion of Series B	294,647	298,393
For conversion of Series C	286,116	297,349
For conversion of Series D	164,765	177,324
Outstanding employee stock options	42,750	45,750
Possible future issuance under stock option plans	108,150	105,150
	1,103,953	1,132,581

7. Notes Payable-Related Party

Demand notes of $4,250 were issued in 2001 to a holder of common stock of the Company to fund working capital needs. In October 2001, a portion of the proceeds from the issuance of Series C was used to repay all outstanding principal and accrued interest on the notes payable-related party. Interest expense incurred on the notes payable-related party based on an annual interest rate of 9% was $71 in 2001, which was included in general and administrative expenses in the Company's Statement of Operations.

8. License, Research and Development Agreements

License Agreements

In August 2002, the Company executed an Amended and Restated Exclusive License Agreement with The University of Tennessee Research Foundation ("UTRF") granting the Company a worldwide exclusive license under its method of use patents relating to Acapodene to market, distribute and sell licensed products, licensed processes or generic products. Under the terms of the agreement, the Company is required (i) to make annual maintenance fee payments and (ii) to make future royalty payments.

The amended license agreement with UTRF superseded a 1998 license agreement related to chemoprevention of prostate cancer between the Company and UTRF. Under the 1998 license agreement, the Company reimbursed UTRF for certain patent expenses incurred by UTRF and agreed to make sublicense fee payments and future royalty payments.

In June 2002, the Company executed two Amended and Restated Exclusive License Agreements with UTRF granting the Company worldwide exclusive licenses under its method of use patents relating to Andarine to market, distribute and sell licensed products, licensed processes or generic products. Under the terms of the agreements, the Company is required (i) to make annual maintenance fee payments and (ii) to make future royalty payments.

The amended license agreement with UTRF superseded a 2000 license agreement related to ARTA between the Company and UTRF. Under the 2000 license agreement, the Company reimbursed UTRF for certain patent expenses incurred by UTRF and agreed to make sublicense fee payments and future royalty payments.

Sponsored Research Agreement

The Company entered into a series of sponsored research agreements with the research foundation of a major university for one of the Company's programs. Under the terms of the agreements, the Company will reimburse the research foundation for the cost of research performed on the Company's behalf, in accordance with the terms of the agreements. The estimated cost of the research to be performed over a four-year period is approximately $4,000. The Company incurred expenses of $1,638, $956, $682, and 3,276 under these agreements for the years ended December 31, 2000, December 31, 2001, December 31, 2002, and from inception to December 31, 2002, respectively, which were included in research and development costs in the Company's Statements of Operations. The Company has the right to terminate the sponsored research agreement at any time. Upon termination, the Company will reimburse the research foundation for all research costs incurred on the Company's behalf not yet reimbursed by the Company.

Contract Research Organization ("CRO")

In 2000, the Company began a Phase IIb clinical trial for Acapodene for the reduction in the incidence of prostate cancer in men with high grade PIN. The last patient is scheduled to complete the trial in May 2004. The Company incurred expenses related to the Phase IIb clinical trial for the years ended December 31, 2000, 2001 and 2002 of approximately $1,290, $2,299 and $2,802, respectively, and approximately $6,391 from inception to December 31, 2002. The Company has specified rights to terminate the clinical trial and pay the CROs for fees incurred for the clinical trial not yet reimbursed by the Company.

In 2002, the Company began two additional Phase II clinical trials for Acapodene. These Phase II clinical trials are expected to be completed in 2003. The Company incurred expenses related to the Phase II clinical trials for the year ended December 31, 2002 of approximately $680, which was included in research and development costs in the Company's Statements of Operations. The Company estimates the total cost of these clinical trials to be approximately $936.

In 2002, the Company completed a Phase I clinical trial for Andarine. The Company incurred expenses related to the clinical trial for the year ended December 31, 2002 of approximately $370, which was included in research and development costs in the Company's Statements of Operations.

License and Supply Agreement

In 2000, the Company entered into a license and supply agreement with Orion Corporation for one of the Company's products. Under the terms of the agreement, the Company paid an initial license fee of $400 and is required to make future sublicense fee payments in the event the Company grants a sublicense under the licensed patents and future royalty payments in the event the Company sells products developed from the licensed patents.

9. Income Taxes

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

The principal components of the Company's net deferred income taxes consist of the following:

	December 31,	
	2002	2001
Deferred income tax assets:		
Net operating loss carryforwards	$ 9,134	$ 4,906
Research credits	783	390
Cash basis method	496	84
Total deferred tax assets	10,413	5,380
Deferred income tax liabilities:		
Depreciation	50	31
Total deferred tax liabilities	50	31
Net deferred income tax assets	10,363	5,349
Valuation allowance	(10,363)	(5,349)
	$ —	$ —

At December 31, 2002, the Company has net operating loss carryforwards of approximately $23,420, which expire for federal purposes from 2020 through 2022 and for state purposes from 2015 to 2017, and research credits, which expire from 2013 through 2022. Utilization of the net operating loss carryforwards and credits may be subject to a substantial annual limitation due to an ownership change as provided by the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization.

10. Operating Leases

The Company leases laboratory facilities and office space pursuant to leases accounted for as operating leases. Rent expense was approximately $34, $155, $170 and $401 for the years ended December 31, 2000, December 31, 2001, December 31, 2002, and from inception to December 31, 2002, respectively.

11. Stock Option Plans

In 1999, 2000, 2001 and 2002, the Company adopted the Genotherapeutics, Inc. Stock Option Plan ("1999 Plan"), the GTx, Inc. 2000 Stock Option Plan ("2000 Plan"), the GTx, Inc. 2001 Stock

Option Plan ("2001 Plan") and the GTx, Inc. 2002 Stock Option Plan ("2002 Plan"), respectively (collectively, the "Plans"). The Plans provide for the Company to issue options to directors, officers and employees of the Company. The options are granted with an exercise price per share as determined by the Board of Directors. The exercise price per share will not be less than the fair market value of the stock on the date of grant. The Board of Directors cannot issue more than 3,000 options under the 1999 Plan, 12,750 options under the 2000 Plan, 35,150 options under the 2001 Plan and 100,000 options under the 2002 Plan in the aggregate at any time. The options generally vest one-third on the third anniversary, one-third on the fourth anniversary, and one-third on the fifth anniversary of the grant date. However, 15,000 of the 2001 options vest one-fifth per year beginning on the first anniversary of the date the options were granted. All options expire no later than the tenth anniversary of the grant date. In the event of a change in control of the Company, all stock options will become fully vested and be converted to cash, options or stock of equivalent value. None of the Company's stock options were exercisable at December 31, 2001 or 2000. At December 31, 2002, 4,000 of the Company's stock options were exercisable.

The following is a summary of option transactions:

	Options	Weighted Average Exercise Price Per Share
Balances at December 31, 1997 and 1998	—	
Options granted	3,000	$ 8.00
Balances at December 31, 1999	3,000	8.00
Options granted	12,750	19.00
Balances at December 31, 2000	15,750	16.90
Options granted	28,450	57.66
Options forfeited	(5,500)	22.51
Balances at December 31, 2001	38,700	46.07
Options granted	5,500	58.07
Options forfeited	(1,450)	31.00
Balances at December 31, 2002	42,750	48.12
Options granted (unaudited)	3,000	53.00
Balances at June 30, 2003 (unaudited)	45,750	$48.44

The following table summarizes information about stock options outstanding at December 31, 2002:

Exercise Price	Options Outstanding	Weighted Average Remaining Contractual Life (years)	Weighted Average Exercise Price	Options Exercisable
$ 8.00	3,000	6.92	$ 8.00	1,000
19.00	6,750	7.92	19.00	—
57.66	32,750	8.91	57.66	3,000
66.76	250	9.58	66.76	—
	42,750	8.62	$48.12	4,000

The Company accounts for its Plans in accordance with APB Opinion No. 25. The Company has not recognized compensation expense for stock options because the exercise price of the stock options equals or exceeds the market price of the underlying stock on the date of grant, which is the measurement date. If the alternative method of accounting for stock incentive plans prescribed by SFAS No. 123 had been followed, the Company's net loss would have increased by approximately, $5, $38, and $116 for the years ended December 31, 2000, 2001, and 2002, respectively. The pro forma disclosures may not be representative of that to be expected in future years. The weighted average fair value of options granted was determined using the minimum value option pricing model assuming no expected dividends, a risk-free interest rate of 6.0% and a weighted average expected life of 10 years for the 1999 and 2000 grants, a risk-free interest rate of 4.24% and a weighted average expected life of 8 years for the 2001 grants, and a risk-free interest rate of 4.99% and a weighted average expected life of 8 years for the 2002 grants. The weighted average grant date fair value of options granted were $6.95, $13.91, and $14.67 for the years ended December 31, 2000, December 31, 2001, and December 31, 2002, respectively.

12. Employee Benefit Plan

In 2000, the Company established a 401(k) retirement savings plan that is available to all regular employees who have reached age 21. The plan is intended to qualify under Section 401(k) of the Internal Revenue Code of 1986, as amended. The plan provides that each participant may contribute up to 15% of their pre-tax compensation (up to a statutory limit, which was $11 in calendar year 2002). Employee contributions are held in the employees' name and invested by the plan's trustee. The plan also permits the Company to make matching contributions, subject to established limits. To date, the Company has not made any matching contributions to the plan on behalf of participating employees.

13. Subsequent Events

Issuance of Series E

On August 7, 2003, the Company authorized 450,000 shares and issued 329,536 shares of Series E at a purchase price of $60.692 per share resulting in gross cash proceeds of $20,000. The Company incurred issuance costs of $14 related to this series. Upon the issuance of Series E, the default provisions of all outstanding preferred stock were amended. If for any reason the Company defaults on its obligation to pay all or any portion of the redemption price, then the unpaid principal portion will bear interest at the greater of the prime rate plus 4% or 8%. Series E has similar terms to the other series of preferred stock. As a result of the issuance of Series E, the conversion price of the Series D was reduced to $65.894 per share as a result of the anti-dilution provisions of the Company's certificate of incorporation.

Initial Public Offering

In October 2003, the Board of Directors authorized the Company to file a Registration Statement with the Securities and Exchange Commission ("SEC") permitting the Company to sell shares of common stock in an initial public offering ("IPO"). If the IPO is consummated as presently anticipated, all shares of the Series A, Series A-2, Series B, Series B-2, Series C and Series E preferred stock will automatically convert into shares of common stock at a 1-for-1 conversion ratio and all shares of the Series D preferred stock will automatically convert into shares of common stock at a 1.013-for-1 conversion ratio. The unaudited pro forma stockholders' equity at June 30, 2003 reflects the conversion of the Series A, Series A-2, Series B, Series B-2, Series C and Series D

preferred stock and accrued dividends into 981,681 shares of the common stock as if conversion had occurred as of June 30, 2003.

Based on the Company's outstanding shares as of August 31, 2003, if the initial public offering is closed under the terms presently anticipated, all of the cumulative redeemable convertible preferred stock outstanding will automatically convert into approximately 1,322,944 shares of common stock on August 31, 2003.

Issuance of Stock Options

On May 21, 2003, the Company issued 3,000 stock options under the 2001 stock option plan. The shares were issued at an exercise price of $53.00 a share. The shares vest one-third on the third anniversary, one-third on the fourth anniversary and one-third on the fifth anniversary of the grant date. The weighted average fair value of options granted was $14.48. The weighted average fair value was determined using the minimum value option pricing model assuming no expected dividends, a risk-free interest rate of 3.15% and a weighted average expected life of 8 years.

On August 1, 2003, the Company issued 22,000 stock options under the 2002 stock option plan. The shares were issued at an exercise price of $53.00 a share. The shares vest one-third on the third anniversary, one-third on the fourth anniversary and one-third on the fifth anniversary of the grant date. The weighted average fair value of options granted was $14.91. The weighted average fair value was determined using the minimum value option pricing model assuming no expected dividends, a risk-free interest rate of 4.36% and a weighted average expected life of 8 years.

On September 1, 2003, the Company issued 28,000 stock options under the 2002 stock option plan. The shares were issued at an exercise price of $53.00 a share. The shares vest one-third on the third anniversary, one-third on the fourth anniversary and one-third on the fifth anniversary of the grant date. The weighted average fair value of options granted was $15.12. The weighted average fair value was determined using the minimum value option pricing model assuming no expected dividends, a risk-free interest rate of 4.36% and a weighted average expected life of 8 years.

Reincorporation

In September 2003, the Company formed a wholly-owned subsidiary of the Company in the State of Delaware. Prior to the completion of the proposed initial public offering, the Company will merge into the subsidiary to effect a reincorporation into the State of Delaware.

No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representations. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

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Through and including , 2003 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

Shares

GTx, Inc.

Common Stock

Goldman, Sachs & Co.

SG Cowen

Lazard

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. ***Other Expenses of Issuance and Distribution***

The following table sets forth the costs and expenses to be paid by us in connection with the sale of the shares of common stock being registered hereby. All amounts are estimates except for the SEC registration fee, the NASD filing fee and the Nasdaq National Market filing fee.

	Amount to be Paid
SEC registration fee	$6,977
NASD filing fee	9,125
Nasdaq National Market filing fee	*
Printing and engraving expenses	*
Blue sky qualification fees and expenses	*
Accounting fees and expenses	*
Legal fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous expenses	*
Total	$ *

* To be provided by amendment.

Item 14. ***Indemnification of Directors and Officers***

Our certificate of incorporation, which will become effective upon the completion of this offering, contains provisions permitted under Delaware law relating to the liability of directors. These provisions eliminate a director's personal liability for monetary damages resulting from a breach of fiduciary duty, except in circumstances involving wrongful acts, such as:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of the law;
- any act related to unlawful stock repurchases, redemptions or other distribution or payments of dividends; or
- any transaction from which the director derived an improper personal benefit.

These provisions do not limit or eliminate our rights or any stockholder's rights to seek non-monetary relief, such as an injunction or rescission, in the event of a breach of director's fiduciary duty. These provisions will not alter a director's liability under federal securities laws.

As permitted by Section 145 of the Delaware General Corporation Law, our bylaws, which will become effective upon the closing of this offering, require us to indemnify our directors and executive officers to the fullest extent not prohibited by the Delaware law. We may limit the extent of such indemnification by individual contracts with our directors and executive officers. Further, we may decline to indemnify any director or executive officer in connection with any proceeding initiated by such person or any proceeding by such person against us or our directors, officers, employees or other agents, unless such indemnification is expressly required to be made by law or the proceeding was authorized by our Board of Directors.

We have entered into indemnity agreements with each of our current directors and certain of our executive officers to give such directors and officers additional contractual assurances regarding the scope of the indemnification set forth in our certificate of incorporation and bylaws and to provide additional procedural protections. At present, there is no pending litigation or proceeding involving

any of our directors, officers or employees for which indemnification is sought, nor are we aware of any threatened litigation that may result in claims for indemnification.

We have the power to indemnify our other officers, employees and other agents, as permitted by Delaware law, but we are not required to do so.

The Registrant maintains a directors' and officers' insurance and registrant reimbursement policy. The policy insures directors and officers against unindemnified losses arising from certain wrongful acts in their capacities as directors and officers and reimburses the registrant for those losses for which the registrant has lawfully indemnified the directors and officers. The policy contains various exclusions, none of which apply to this offering.

Reference is made to the following documents filed as exhibits to this registration statement regarding relevant indemnification provisions described above and elsewhere herein:

Exhibit Document	Number
Form of Underwriting Agreement	1.1
Amended and Restated Certificate of Incorporation	3.3
Amended and Restated Bylaws	3.4
Registration Rights Agreement with Oracle Partners, L.P.	4.3
Registration Rights Agreement with J.R. Hyde, III	4.4
Registration Rights Agreement with Memphis Biomed Ventures I, L.P.	4.5
Form of Indemnification Agreement	10.12

Item 15. ***Recent Sales of Unregistered Securities***

1. In July 2000, we issued and sold an aggregate of 277,500 shares of our 8% Series B Cumulative Convertible Preferred Stock to one accredited investor at $18.018 per share, for an aggregate offering price of $4,999,995.

2. In October 2001, we issued and sold an aggregate of 260,154 shares of our 8% Series C Cumulative Convertible Preferred Stock to three accredited investors at $57.658 per share, for an aggregate offering price of $14,999,959.

3. In July 2002, we issued and sold an aggregate of 164,765 shares of our 8% Series D Cumulative Convertible Preferred Stock to four accredited investors at $66.762 per share for an aggregate offering price of $11,000,041.

4. In August 2003, we issued and sold an aggregate of 329,536 shares of our 8% Series E Cumulative Convertible Preferred Stock to 11 accredited investors at $60.692 per share for an aggregate offering price of $20,000,199.

We claimed exemption from registration under the Securities Act for the sales and issuances of securities in the transactions described in paragraphs (1) through (3) above by virtue of Section 4(2) of the Securities Act in that such sales and issuances did not involve a public offering. The recipients of securities in each of these transactions represented their intention to acquire the securities for investment only and not with view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the share certificates and instruments issued in such transactions. All recipients had adequate access, through their relationships with us, to information about us.

We claimed exemption from registration under the Securities Act for the sales and issuances of securities in the transactions described in paragraph (4) by virtue of Section 4(2) of the Securities Act and Rule 506 of Regulation D. Such sales and issuances did not involve any public offering, were made without general solicitation or advertising and each purchaser was a sophisticated investor with access to all relevant information necessary to evaluate the investment and represented to us that the shares were being acquired for investment.

Item 16. ***Exhibits and Financial Statement Schedules***

(a) Exhibits

Number	Description
1.1*	Underwriting Agreement
3.1	Certificate of Incorporation of GTx, Inc.
3.2	Bylaws of GTx, Inc.
3.3*	Form of Amended and Restated Certificate of Incorporation of GTx, Inc. to be effective upon completion of this offering
3.4*	Form of Amended and Restated Bylaws of GTx, Inc. to become effective upon completion of this offering
3.5	Second Amended and Restated Voting and Shareholder Agreement dated August 7, 2003
4.1	Reference is made to Exhibits 3.1, 3.2, 3.3 and 3.4
4.2*	Specimen of Common Stock Certificate
4.3	Amended and Restated Registration Rights Agreement between Registrant and Oracle Partners, L.P. dated August 7, 2003
4.4	Amended and Restated Registration Rights Agreement between Registrant and J. R. Hyde, III dated August 7, 2003
4.5	Amended and Restated Registration Rights Agreement between Registrant and Memphis Biomed Ventures dated August 7, 2003
5.1*	Opinion of Cooley Godward LLP
10.1	Genotherapeutics, Inc. 1999 Stock Option Plan
10.2	GTx, Inc. 2000 Stock Option Plan
10.3	GTx, Inc. 2001 Stock Option Plan
10.4	GTx, Inc. 2002 Stock Option Plan
10.5*	2003 Equity Incentive Plan and Form of Stock Option Agreement
10.6*	2003 Non-Employee Directors' Stock Option Plan and Form of Stock Option Agreement
10.7*	2003 Employee Stock Purchase Plan
10.8	Employment Agreement dated October 1, 2003, between Registrant and Mitchell S. Steiner, M.D.
10.9	Employment Agreement dated October 1, 2003, between Registrant and Marc S. Hanover
10.10	Employment Agreement dated October 1, 2003, between Registrant and Mark E. Mosteller
10.11	Employment Agreement dated October 1, 2003, between Registrant and Henry P. Doggrell
10.12*	Form of Indemnification Agreement
10.13	Lease Agreement, dated March 7, 2001, between The University of Tennessee and TriStar Enterprises, Inc.
10.14	Sublease Agreement dated October 1, 2000, as amended, between Registrant and TriStar Enterprises, Inc.
10.15†	Amended and Restated License and Supply Agreement dated October 22, 2001, between Registrant and Orion Corporation
10.16†	Amendment No. 1 to the License and Supply Agreement dated March 5, 2003, between Registrant and Orion Corporation
10.17†	Production and Manufacturing Agreement dated September 9, 2002, between Registrant and ChemSyn Laboratories (Department of EaglePicher Technologies, LLC)

Number	Description
10.18†	Amendment No. 1 to the Production and Manufacturing Agreement dated September 30, 2003, between Registrant and ChemSyn Laboratories (Department of EaglePicher Technologies, LLC)
10.19†	Quotation Agreement dated August 8, 2003 between Registrant and EaglePicher Pharmaceutical Services
10.20†	Amended and Restated Exclusive License Agreement dated June 3, 2002, between Registrant and University of Tennessee Research Foundation
10.21†	Amended and Restated Exclusive License Agreement dated June 14, 2002, between Registrant and University of Tennessee Research Foundation
10.22†	Amended and Restated Exclusive License Agreement dated August 30, 2002, between Registrant and University of Tennessee Research Foundation
23.1	Consent of Ernst & Young LLP
23.2*	Consent of Cooley Godward LLP (included in Exhibit 5.1)
24.1	Power of attorney. Reference is made to the signature page.

* To be filed by amendment.

† Confidential treatment requested. The redacted portions have been filed separately with the SEC as required by Rule 406 of Regulation C.

Item 17. ***Undertakings***

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the Underwriting Agreement, certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, GTx, Inc. has duly caused this Registration Statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Memphis, State of Tennessee, on the 14th day of October, 2003.

GTX, INC.

By: /s/ MITCHELL S. STEINER

Mitchell S. Steiner, M.D., F.A.C.S.
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Dr. Mitchell S. Steiner and Mr. Marc S. Hanover, and each of them, his true and lawful attorneys-in-fact and agents with full power of substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by the registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his or their substitute or substitutes, may lawfully do or cause to be done or by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ MITCHELL S. STEINER Mitchell S. Steiner, M.D., F.A.C.S.	Chief Executive Officer, Vice-Chairman and Director	October 14, 2003
/s/ MARK E. MOSTELLER Mark E. Mosteller	Chief Financial Officer	October 14, 2003
/s/ J. R. HYDE, III J.R. Hyde, III	Chairman of the Board of Directors	October 14, 2003
/s/ MARC S. HANOVER Marc S. Hanover	Director	October 14, 2003

Signature	Title	Date
/s/ JOHN H. PONTIUS	Director	October 14, 2003
John H. Pontius		
/s/ ROSEMARY MAZANET	Director	October 14, 2003
Rosemary Mazanet, M.D., Ph.D.		

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10.12*	Form of Indemnification Agreement
10.13	Lease Agreement, dated March 7, 2001, between The University of Tennessee and TriStar Enterprises, Inc.
10.14	Sublease Agreement dated October 1, 2000, as amended, between Registrant and TriStar Enterprises, Inc.
10.15†	Amended and Restated License and Supply Agreement dated October 22, 2001, between Registrant and Orion Corporation
10.16†	Amendment No. 1 to the License and Supply Agreement dated March 5, 2003, between Registrant and Orion Corporation
10.17†	Production and Manufacturing Agreement dated September 9, 2002, between Registrant and ChemSyn Laboratories (Department of EaglePicher Technologies, LLC)
10.18†	Amendment No. 1 to the Production and Manufacturing Agreement dated September 30, 2003, between Registrant and ChemSyn Laboratories (Department of EaglePicher Technologies, LLC)

Number	Description
10.19†	Quotation Agreement dated August 8, 2003 between Registrant and EaglePicher Pharmaceutical Services
10.20†	Amended and Restated Exclusive License Agreement dated June 3, 2002, between Registrant and University of Tennessee Research Foundation
10.21†	Amended and Restated Exclusive License Agreement dated June 14, 2002, between Registrant and University of Tennessee Research Foundation
10.22†	Amended and Restated Exclusive License Agreement dated August 30, 2002, between Registrant and University of Tennessee Research Foundation
23.1	Consent of Ernst & Young LLP
23.2*	Consent of Cooley Godward LLP (included in Exhibit 5.1)
24.1	Power of Attorney. Reference is made to the signature page.

* To be filed by amendment.

† Confidential treatment requested. The redacted portions have been filed separately with the SEC as required by Rule 406 of Regulation C.

EXHIBIT 3.1

CERTIFICATE OF INCORPORATION

OF

GTX, INC.

The undersigned natural person, acting as an incorporator of a corporation under the Delaware General Corporation Law, hereby adopts the following Certificate of Incorporation for such corporation:

FIRST: The name of the corporation is GTx, Inc.

SECOND: The address of its registered office in the State of Delaware is 2711 Centerville Road, Suite 400 in the city of Wilmington, County of New Castle, Delaware 19808. The name of its registered agent at such address is The Prentice-Hall Corporation System, Inc.

THIRD: The purpose of the corporation is to engage in any lawful act or activity for which corporations may be organized under the Delaware General Corporation Law.

FOURTH: The total number of shares of stock which the corporation shall have authority to issue is one hundred (100) shares of Common Stock, par value $0.001 per share.

FIFTH: The name and mailing address of the sole incorporator are as follows:

Robert J. DelPriore
Bass, Berry & Sims PLC
100 Peabody Place, Suite 900
Memphis, Tennessee 38103

SIXTH: The corporation is to have perpetual existence.

SEVENTH: In furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the corporation is expressly authorized to make, alter or repeal the bylaws of the corporation.

EIGHTH: To the fullest extent permitted by the Delaware General Corporation Law, as the same now exists or may hereafter be amended, a director of the corporation shall not be liable to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director. Any repeal or modification of this ARTICLE EIGHTH shall not adversely affect any right or protection of a director of the corporation existing at the time of such repeal or modification.

NINTH: The corporation shall indemnify its officers, directors, employees and agents to the fullest extent permitted by the Delaware General Corporation Law.

TENTH: The corporation reserves the right to amend, alter, change or repeal any provision contained in this Certificate of Incorporation in the manner now or hereafter prescribed herein and by the laws of the State of Delaware, and all rights conferred upon stockholders herein are granted subject to this reservation.

I, Robert J. DelPriore, being the incorporator herein before named, for the purpose of forming a corporation pursuant to the Delaware General Corporation Law, do make this certificate, hereby declaring and certifying that this is my act and deed and the facts herein stated are true, and accordingly have hereunto set my hand this 4th day of September, 2003.

/s/ Robert J. DelPriore
Robert J. DelPriore, Sole Incorporator

EXHIBIT 3.2

BYLAWS
OF
GTX, INC.
(the "Corporation")

ARTICLE I.
OFFICES

The Corporation may have such offices, either within or without the State of Delaware, as the Board of Directors may designate or as the business of the Corporation may require from time to time.

ARTICLE II.
STOCKHOLDERS

2.1 Annual Meeting. An annual meeting of the stockholders of the Corporation shall be held on the 1st day of June of each year, or on such other date as may be determined by the Board of Directors. The business to be transacted at such meeting shall be the election of directors and such other business as shall be properly brought before the meeting.

2.2 Special Meetings. The Corporation shall hold a special meeting of stockholders only in the event of a call by the Board of Directors, the Chief Executive Officer, the President or the Chief Financial Officer of the Corporation or (b) the holders of at least fifty percent (50%) of all the votes entitled to be cast on any issue proposed to be considered at the proposed special meting sign, date, and deliver to the Corporation's Secretary one or more written demands for the meeting describing the purpose or purposes for which it is to be held, including all statements necessary to make any statement of such purpose not incomplete, false or misleading. Only business within the purpose or purposes described in the meeting notice may be conducted at a special stockholders' meeting.

2.3 Place of Meetings. The Board of Directors may designate any place, either within or without the State of Delaware, as the place of meeting for any annual meeting or for any special meeting. If no place is fixed by the Board of Directors, the meeting shall be held at the principal office of the Corporation.

2.4 Notice of Meetings; Adjournment; and Waiver.

(a) Notice. Whenever stockholders are required or permitted to take any action at a meeting, a written notice of the meeting shall be given which shall state the place, date and hour of the meeting, and, in the case of a special meeting, the purpose or purposes for which the meeting is called. Unless otherwise provided in the DGCL, the written notice shall be given not less than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on

the records of the corporation. An affidavit of the secretary or an assistant secretary or of the transfer agent of the corporation that the notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

(b) Adjournment. When a meeting is adjourned to another time or place, notice need not be given of the adjourned meeting if the time and place thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting the Corporation may transact any business that might have been transacted at the original meeting. If the adjournment is for more than 30 days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

(c) Waiver. Whenever notice is required to be given under any provision of the DGCL, the certificate of incorporation or these bylaws, a written waiver, signed by the person entitled to notice, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders need be specified in any written waiver of notice unless so required by the certificate of incorporation or the bylaws.

(d) Record Date. In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than 60 nor less than 10 days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the board of directors may fix a new record date for the adjourned meeting.

2.5 Stockholders' List. The officer who has charge of the stock ledger of the Corporation shall prepare and make, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least 10 days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present.

2.6 Quorum and Required Vote. A majority of the shares entitled to vote, present in person or represented by proxy, shall constitute a quorum at a meeting of stockholders. In all matters other than the election of directors, the affirmative vote of the majority of the shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter shall be the act of the stockholders. Subject to the right of any series of preferred stock, Directors shall be elected by a plurality of the votes of the shares present in person or represented by proxy at the meeting and entitled to vote on the election of directors. Where a separate vote by a class or series or classes or series is required, a majority of the outstanding shares of such class or series or classes or series, present in person or represented by proxy, shall constitute a quorum entitled to take action with respect to that vote on that matter and the affirmative vote of the majority of such class or series or classes or series present in person or represented by proxy at the meeting shall be the act of such class or series or classes or series.

2.7 Voting of Stocks. Unless otherwise required by the Certificate of Incorporation, each stockholder shall be entitled to 1 vote for each share of capital stock held by such stockholder.

2.8 Proxies. Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by proxy, but no such proxy shall be voted or acted upon after 3 years from its date, unless the proxy provides for a longer period.

2.9 Consent of Stockholders in Lieu of Meeting. Any action required by the DGCL to be taken at any annual or special meeting of stockholders, or any action which may be taken at any annual or special meeting of stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to the Corporation's registered office shall be by hand or by certified or registered mail, return receipt requested.

Each written consent shall bear the date of signature of each stockholder who signs the consent, and no written consent shall be effective to take the corporate action referred to therein unless, within 60 days of the earliest dated consent delivered in the manner required by this section to the Corporation, written consents signed by a sufficient number of holders to take action are delivered to the Corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the Corporation having custody of the book in which proceedings of meeting of stockholders are recorded. Delivery made to the Corporation's registered office shall be by hand or by certified or registered mail, return receipt requested. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by

a sufficient number of holders to take the action were delivered to the Corporation as provided herein. In the event that the action which is consented to is such as would have required the filing of a certificate under the DGCL, if such action had been voted on by stockholders at a meeting thereof, the certificate filed shall state, in lieu of any statement required concerning any vote of stockholders, that written consent has been given in accordance with the DGCL.

2.10 Presiding Officer and Secretary. At every meeting of the stockholders, the Chairman of the Board, if there be one, shall conduct the meeting or, in the case of vacancy in office or absence of the Chairman of the Board, one of the following officers present shall conduct the meeting in the order stated: the President, Vice Presidents in their order of rank and seniority, or a chairman chosen by the stockholders entitled to cast a majority of the votes which all stockholders present in person or by proxy are entitled to cast, shall act as chairman, and the Secretary or, in his absence, an assistant secretary, or in the absence of both the Secretary and assistant secretaries a person appointed by the chairman of the meeting shall act as secretary of the meeting.

ARTICLE III.
DIRECTORS

3.1 Powers and Duties. All corporate powers shall be exercised by or under the authority of and the business and affairs of the Corporation managed under the direction of the Board of Directors.

3.2 Number and Term. The Board of Directors shall consist of no less than one (1) and no more than fifteen (15) members. The exact number of directors, within the minimum and maximum, or the range for the size of the Board of Directors, or whether the size of the Board of Directors shall be fixed or variable shall be determined from time to time by majority vote of the Board of Directors. However, the number of directors shall never be less than the minimum number required by the DGCL. A director need not be a stockholder. Directors shall initially be appointed by the incorporator and shall stand for re-election at the first annual stockholders' meeting and each annual meeting thereafter. The term of directors appointed by the incorporator shall expire at the first annual meeting of stockholders. The term of directors elected by the stockholders shall expire at the first annual meeting of stockholders occurring after the election of such directors. Despite the expiration of a director's term, he shall continue to serve until his successor is elected and qualifies or until there is a decrease in the number of directors.

3.3 Meetings; Notice. The Board of Directors may hold regular and special meetings either within or without the State of Delaware. The Board of Directors may permit any or all directors to participate in a regular or special meeting by, or conduct the meeting through the use of, any means of communication by which all directors participating may simultaneously hear each other during the meeting. A director participating in a meeting by this means is deemed to be present in person at the meeting.

(a) Annual Meetings. The annual meeting of the Board of Directors shall be held immediately following the stockholders' meeting and may be held without notice of the date, time, place or purpose of the meeting.

(b) Regular Meetings. Regular meetings of the Board of Directors may be held without notice of the date, time, place or purpose of the meeting.

(c) Special Meetings. Special meetings of the Board of Directors may be called by the Chairman of the Board, if any, the Chief Executive Officer, President or any two (2) directors. Special meetings must be preceded by at least twenty-four (24) hours' notice of the date, time and place of the meeting but need not describe the purpose of such meeting.

(d) Adjourned Meetings. Notice of an adjourned meeting need not be given if the time and place to which the meeting is adjourned are fixed at the meeting at which the adjournment is taken, and if the period of adjournment does not exceed one (1) month in any one (1) adjournment.

(e) Waiver of Notice. A director may waive any required notice before or after the date and time stated in the notice. Except as provided in the next sentence, the waiver must be in writing, signed by the director and filed with the minutes or corporate records. A director's attendance at or participation in a meeting waives any required notice to him of such meeting unless the director at the beginning of the meeting (or promptly upon his arrival) objects to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting.

3.4 Quorum. A quorum of the Board of Directors consists of a majority of the fixed number of directors if the Corporation has a fixed board size or a majority of the number of directors prescribed, or if no number is prescribed, the number in office immediately before the meeting begins, if the Corporation has a variable range board.

3.5 Voting. If a quorum is present when a vote is taken, the affirmative vote of a majority of directors present is the act of the Board of Directors, unless the DGCL, the Certificate of Incorporation or these Bylaws require the vote of a greater number of directors. A director who is present at a meeting of the Board of Directors when corporate action is taken is deemed to have assented to such action unless:

(i) he objects at the beginning of the meeting (or promptly upon his arrival) to holding the meeting or transacting business at the meeting;

(ii) his dissent or abstention from the action taken is entered in the minutes of the meeting; or

(iii) he delivers written notice of his dissent or abstention to the presiding officer of the meeting before its adjournment or to the Corporation immediately after adjournment of the meeting. The right of dissent or abstention is not available to a director who votes in favor of the action taken.

3.6 Action Without Meeting. Any action required or permitted to be taken at a Board of Directors meeting may be taken without a meeting if all members of the Board of Directors consent thereto in writing, and the writing or writings are filed with the minutes of the proceedings of the Board of Directors. Action taken by consent is effective when the last director signs the consent, unless the consent specifies a different effective date.

3.7 Compensation. Directors shall be entitled to such reasonable compensation for their services as directors as shall be fixed from time to time by the Board of Directors, and shall also be entitled to reimbursement for any reasonable expenses incurred in attending meetings of the Board of Directors. Any director receiving such compensation shall not be barred from serving the Corporation in any other capacity and receiving reasonable compensation for such other services.

3.8 Resignation. A director may resign at any time by delivering written notice to the Board of Directors, President or to the Corporation. A resignation is effective when the notice is delivered unless the notice specifies a later effective date.

3.9 Vacancies. Subject to applicable law, and unless the Board of Directors otherwise determines, vacancies resulting from death, resignation, retirement, disqualification, removal from office or other cause, and newly created directorships resulting from any increase in the authorized number of directors, may be filled only by the affirmative vote of a majority of the remaining directors, though less than a quorum of the Board of Directors. The directors chosen to fill vacancies shall hold office for a term expiring at the end of the next annual meeting of stockholders.

3.10 Removal of Directors. Any director or the entire Board of Directors may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote in an election of directors.

ARTICLE IV.
COMMITTEES

The Board of Directors may create one or more committees, each consisting of one or more members. To the extent permitted by the DGCL and specified by the Board of Directors, each committee may exercise the authority of the Board of Directors. All such committees and their members shall be governed by the same requirements regarding meetings, action without meetings, notice and waiver of notice, compensation, quorum and voting requirements, and removal as are applicable to the Board of Directors and its members as more fully described in Article III above.

ARTICLE V.
OFFICERS

5.1 Number. The officers of the Corporation shall be chosen by the Board of Directors and shall be a Chief Executive Officer, President, Chief Financial Officer, General Counsel and Secretary. The Board of Directors may also appoint one or more Vice Presidents, a Treasurer, and such other officers in accordance with the provisions of Section 5.5(h) of this Article V. Any number of offices may be held by the same person, except as otherwise set forth in the DGCL. Except as otherwise set forth herein, officers may, but need not, be directors or stockholders of the Corporation. The Board of Directors may elect from among the members of the Board a Chairman of the Board who may be an officer of the Corporation if so designated by the Board. All officers elected by the Board of Directors shall each have such powers and duties as generally pertain to their respective offices, subject to the specific provisions of this Article 5. Such officers shall also have such powers and duties as from time to time may be conferred by the Board of Directors or by any committee hereof.

5.2 Appointment. The principal officers shall be appointed annually by the Board of Directors at the first meeting of the Board following the annual meeting of the stockholders, or as soon thereafter as is conveniently possible. Subject to the terms of any employment or similar agreement to the contrary, each officer shall serve at the pleasure of the Board of Directors and until his successor shall have been appointed, or until his death, resignation or removal.

5.3 Resignation and Removal. An officer may resign at any time by delivering notice to the Corporation. Such resignation is effective when such notice is delivered unless such notice specifies a later effective date. An officer's resignation does not affect the Corporation's contract rights, if any, with the officer.

The Board of Directors may remove any officer at any time with or without cause, but such removal shall not prejudice the contract rights, if any, of the person so removed.

5.4 Vacancies. Any vacancy in an office for any cause may be filled for the unexpired portion of the term by the Board of Directors.

5.5 Duties.

(a) The Chairman and Vice Chairman of the Board. The Chairman of the Board, if there be one, or in the absence of the Chairman, the Vice Chairman of the Board, if there be one, shall preside at all meetings of the shareholders and of the Board of Directors, and shall perform such other duties as may from time to time be assigned to them by the Board of Directors. To be eligible to serve, the Chairman of the Board and the Vice Chairman must be directors of the Corporation.

(b) The Chief Executive Officer. The Chief Executive Officer shall have responsibility for implementation of the policies of the Corporation, as determined and directed by the Board of Directors and for the administration of the business affairs of the Corporation.

(c) The President. The President shall have responsibility for general supervision over the business, operations and affairs of the Corporation, subject, however, to the supervision by the Chief Executive Officer (if other than the President) and control of the Board of Directors. The President shall, in general, perform all duties incident to the officer of president, and such other duties as from time to time may be assigned by the Chief Executive Officer and/or Board of Directors.

(d) The Chief Financial Officer. The Chief Financial Officer will have responsibility for the financial affairs of the Corporation, including the financing of the Corporation's business, accounting for its assets, liabilities and operations, and the implementation and maintenance of internal accounting controls, subject to direction and control by the Chief Executive Officer, President and the Board of Directors (including any audit committee).

(e) General Counsel. The General Counsel shall serve as the Corporation's primary in-house legal counsel and shall discharge such other duties as may from time to time be assigned by the Board of Directors, the Chief Executive Officer or the President.

(f) The Vice Presidents. The Vice Presidents shall perform such duties as may from time to time be assigned to them by the Board of Directors or by the President and Chief Executive Officer.

(g) The Secretary. The Secretary, or an Assistant Secretary, shall attend all meetings of the stockholders and of the Board of Directors and shall record the proceedings of the stockholders and of the directors and of committees of the Board in a book or books to be kept for that purpose; shall see that notices are given and records and reports properly kept and filed by the Corporation as required by law; if the Corporation has a seal, shall be the custodian of the seal of the Corporation and see that it is affixed to all documents to be executed on behalf of the Corporation under its seal, and, in general, shall perform all duties incident to the office of secretary, and such other duties as may from time to time be assigned by the Board of Directors, the Chairman thereof, or the President.

(h) Other Officers. Other officers appointed by the Board of Directors shall exercise such powers and perform such duties as may be delegated to them.

(i) Delegation of Duties. In case of the absence or disability of any officer of the Corporation or of any person authorized to act in his place, the Board of Directors may from time to time delegate the powers and duties of such officer to any officer, or any director, or any other person whom it may select, during such period of absence or disability.

5.6 Indemnification, Advancement of Expenses and Insurance.

(a) Indemnification and Advancement of Expenses. The Corporation shall indemnify every person who is or was a party or is or was threatened to be made a party to any action, suit or proceeding, whether civil, criminal, administratively, or investigative, by reason of the fact that he or she is or was a director or officer or is or was serving at the request of the

Corporation as a director, officer, employee, agent or trustee of another corporation or partnership, joint venture, trust, employee benefit plan, limited liability company or other enterprise, including service on a committee formed for any purpose (and, in each case, his or her heirs, executors, and administrators), against all expenses, liability, and loss (including counsel fees, judgments, fines, ERISA excise taxes, penalties, and amounts paid in settlement) actually and reasonably incurred or suffered in connection with such action, suit or proceeding, to the fullest extent permitted by applicable law, as in effect on the date hereof and as hereafter amended. Such indemnification may include advancement of expenses in advance of final disposition of such action, suit or proceeding, subject to the provisions of any applicable statute. The Corporation may indemnify and advance expenses to any employee or agent of the Corporation who is not a director or officer (and his heirs, executors and administrators) to the same extent as to a director or officer, if the Board of Directors determines that to do so is in the best interests of the Corporation.

(b) Non-Exclusivity of Rights. The indemnification and advancement of expenses provisions of subsection (a) of this Section 5.6 shall not be exclusive of any other right which any person (and his heirs, executors and administrators) may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, provision of these Bylaws, resolution adopted by the stockholders, resolution adopted by the Board of Directors, agreement, insurance, purchased by the Corporation or otherwise, both as to action in his official capacity and as to action in another capacity.

(c) Insurance. The Corporation may maintain insurance, at its expense, to protect itself and any individual who is or was a director, officer, employee or agent of the Corporation, or who, while a director, officer, employee or agent of the Corporation, is or was serving at the request of the Corporation's Board of Directors as a director, officer, partner, trustee, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise against any expense, liability or loss whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under this Article or the DGCL.

ARTICLE VI.
SHARES OF STOCK

6.1 Shares with or without Certificates. The Board of Directors may authorize that some or all of the shares of any or all of the Corporation's classes or series of stock be evidenced by a certificate or certificates of stock. The Board of Directors may also authorize the issuance of some or all of the shares of any or all of the Corporation's classes or series of stock without certificates. The rights and obligations of stockholders with the same class and/or series of stock shall be identical whether or not their shares are represented by certificates.

(a) Stocks with Certificates. If the Board of Directors chooses to issue shares of stock evidenced by a certificate or certificates, each individual certificate shall include the following on its face: (i) the Corporation's name, (ii) the fact that the Corporation is organized under the laws of the State of Delaware, (iii) the name of the person to whom the certificate is

issued, (iv) the number of shares represented thereby, (v) the class of shares and the designation of the series, if any, which the certificate represents, and (vi) such other information as applicable law may require or as may be lawful.

If the Corporation is authorized to issue different classes of shares or different series within a class, the designations, relative rights, preferences and limitations determined for each series (and the authority of the Board of Directors to determine variations for future series) shall be summarized on the front or back of each certificate. Alternatively, each certificate shall state on its front or back that the Corporation will furnish the stockholder this information in writing, without charge, upon request.

Each certificate of stock issued by the Corporation shall be signed (either manually or in facsimile) by the President or a Vice President, and by the Secretary, an Assistant Secretary, the Treasurer or an Assistant Treasurer. If the person who signed a certificate no longer holds office when the certificate is issued, the certificate is nonetheless valid.

(b) Shares without Certificates. If the Board of Directors chooses to issue shares of stock without certificates, the Corporation, if required by the DGCL, shall, within a reasonable time after the issue or transfer of shares without certificates, send the stockholder a written statement of the information required on certificates by Section 6.1(a) of these Bylaws and any other information required by the DGCL.

6.2 Subscriptions for Shares. Subscriptions for shares of the Corporation shall be valid only if they are in writing. Unless the subscription agreement provides otherwise, subscriptions for shares, regardless of the time when they are made, shall be paid in full at such time, or in such installments and at such periods, as shall be determined by the Board of Directors. All calls for payment on subscriptions shall be uniform as to all shares of the same class or of the same series, unless the subscription agreement specifies otherwise.

6.3 Transfers. Transfers of shares of the capital stock of the Corporation shall be made only on the books of the Corporation by (i) the holder of record thereof, (ii) his legal representative, who, upon request of the Corporation, shall furnish proper evidence of authority to transfer, or (iii) his attorney, authorized by a power of attorney duly executed and filed with the Secretary of the Corporation or a duly appointed transfer agent. Such transfers shall be made only upon surrender, if applicable, of the certificate or certificates for such stocks properly endorsed and with all taxes thereon paid.

6.4 Lost, Destroyed or Stolen Certificates. No certificate for shares of stock of the Corporation shall be issued in place of any certificate alleged to have been lost, destroyed or stolen except on production of evidence, satisfactory to the Board of Directors, of such loss, destruction or theft, and, if the Board of Directors so requires, upon the furnishing of an indemnity bond in such amount and with such terms and such surety as the Board of Directors may in its discretion require.

ARTICLE VII.
CORPORATE ACTIONS

7.1 Contracts. Unless otherwise required by the Board of Directors, the President and Chief Executive Officer, the Chief Financial Officer and Secretary or any Vice President shall execute contracts or other instruments on behalf of and in the name of the Corporation. The Board of Directors may from time to time authorize any other officer, assistant officer or agent to enter into any contract or execute any instrument in the name of and on behalf of the Corporation as it may deem appropriate, and such authority may be general or confined to specific instances.

7.2 Loans. No loans shall be contracted on behalf of the Corporation and no evidence of indebtedness shall be issued in its name unless authorized by the President or the Board of Directors. Such authority may be general or confined to specific instances. With respect to any loan so authorized, the Board of Directors may from time to time authorize any officer, assistant officer or agent to enter into any contract or execute any instrument in the name of and on behalf of the Corporation as it may deem appropriate, and such authority may be general or confined to specific instances.

7.3 Checks, Drafts, Etc. Unless otherwise required by the Board of Directors, all checks, drafts, bills of exchange and other negotiable instruments of the Corporation shall be signed by either President, the Chief Financial Officer, a Vice President or such other officer, assistant officer or agent of the Corporation as may be authorized so to do by the Board of Directors. Such authority may be general or confined to specific business, and, if so directed by the Board, the signatures of two or more such officers may be required.

7.4 Deposits. All funds of the Company not otherwise employed shall be deposited from time to time to the credit of the Corporation in such banks or other depositories as the Board of Directors may authorize.

7.5 Voting Securities Held by the Corporation. Unless otherwise required by the Board of Directors, the President shall have full power and authority on behalf of the Corporation to attend any meeting of security holders, or to take action on written consent as a security holder, of other corporations in which the Corporation may hold securities. In connection therewith, the President shall possess and may exercise any and all rights and powers incident to the ownership of such securities which the Corporation possesses. The Board of Directors may, from time to time, confer like powers upon any other person or persons.

7.6 Dividends. The Board of Directors may, from time to time, declare, and the Corporation may pay, dividends on its outstanding stocks of capital stock in the manner and upon the terms and conditions provided by applicable law. The record date for the determination of stockholders entitled to receive the payment of any dividend shall be determined by the Board of Directors, but which in any event shall not be less than ten (10) days prior to the date of such payment.

ARTICLE VIII.
FISCAL YEAR

The fiscal year of the Corporation shall be determined by the Board of Directors, and in the absence of such determination, shall be the calendar year.

ARTICLE IX.
CORPORATE SEAL

The Corporation shall not have a corporate seal.

ARTICLE X.
AMENDMENT OF BYLAWS

In furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation is expressly authorized from time to time to make, adopt, alter, amend, supplement and repeal the Bylaws of the Corporation in any respect, subject to the right of the stockholders entitled to vote with respect thereto to adopt, alter, amend and repeal Bylaws made by the Board of Directors; provided, however, that Bylaws shall not be made, adopted, altered, amended or repealed by the stockholders of the Corporation except by the vote of the holders of not less than sixty-six and two-thirds (66-2/3%) of the outstanding stocks of stock of each class and series entitled to vote upon such matter.

ARTICLE XI.
NOTICE

Unless otherwise provided for in these Bylaws, all notices, claims, demands and other communications hereunder shall be in writing and shall be deemed given upon (a) confirmation of receipt of a facsimile transmission; (b) confirmed delivery by a standard overnight carrier or when delivered by hand; or (c) the expiration of two (2) business days after the day when mailed by registered or certified mail (postage prepaid, return receipt requested), addressed to such director or stockholder at his address as it appears on the records of the Corporation.

ATTEST:

/s/ Henry P. Doggrell

Henry P. Doggrell
Secretary

Exhibit 3.5

SECOND AMENDED AND RESTATED VOTING AND SHAREHOLDER AGREEMENT

THIS SECOND AMENDED AND RESTATED VOTING AND SHAREHOLDER AGREEMENT ("Agreement") made this 7th day of August, 2003, by and among all of the shareholders of GTx, Inc., including holders of the Company's common stock and preferred stock (such shareholders are sometimes individually referred to as a "Shareholder" or collectively as the "Shareholders") and GTx, Inc., a Tennessee corporation (the "Corporation").

RECITALS

A. The Shareholders collectively own 910,000 shares of the Corporation's no par value per share common stock (the "Common Stock"), being all of the issued and outstanding shares of the Common Stock; 200,000 shares, of the Corporation's 8% Series A Cumulative Convertible Preferred Stock (the "Series A Preferred Stock"), being all of the issued and outstanding shares of Series A Preferred Stock; 277,500 shares of the Corporation's 8% Series B Cumulative Convertible Preferred Stock (the "Series B Preferred Stock"), being all of the issued and outstanding shares of Series B Preferred Stock; 260,154 shares of the Corporation's 8% Series C Cumulative Convertible Preferred Stock (the "Series C Preferred Stock"), being all of the issued and outstanding shares of Series C Preferred Stock; 164,765 shares of the Corporation's 8% Series D Cumulative Convertible Preferred Stock (the "Series D Preferred Stock"), being all of the issued and outstanding shares of Series D Preferred Stock; and 329,536 shares of the Corporation's 8% Series E Cumulative Convertible Preferred Stock (the "Series E Preferred Stock"), being all of the issued and outstanding shares of Series E Preferred Stock (collectively the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, and Series E Preferred Stock are hereafter referred to as the "Preferred Stock").

B. In order to provide for continuity and harmony in the management and policies of the Corporation, the Shareholders and the Corporation desire to enter into an agreement (i) restricting the ability of the Shareholders to dispose of the Common Stock and the Preferred Stock, (ii) to provide for the purchase of the Common Stock and the Preferred Stock held by a Shareholder upon the occurrence of certain events hereinafter set forth; and (iii) to confer upon holders of the Preferred Stock certain rights more specifically set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein and for other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree on their own behalf and on behalf of their respective heirs, legal representatives, successors and assigns as follows:

1. Transferability. The Shareholders may not sell, transfer, assign, pledge, hypothecate, give, or otherwise dispose of or transfer, whether voluntary or involuntary, all, or any portion, of the Common Stock or the Preferred Stock presently held, or hereafter acquired except to a Permitted Transferee (as hereafter defined) or in accordance with the provisions of Paragraph 4. For purposes of this Agreement, a "Permitted Transferee" shall be affiliated entities under common control with the transferring Shareholder entity or the spouse, children, lineal

descendants of the transferring Shareholder or a trust or other entity for the benefit of such family members.

2. Agreement of Transferees. Notwithstanding the provisions of Paragraph 1, legal or beneficial ownership of any shares of Common Stock or Preferred Stock may not be transferred to, or acquired by, any person unless and until such person has signed and delivered to the Secretary of the Corporation a counterpart to this Agreement agreeing to join in and be bound by the provisions hereof.

3. Effect of Purported Transfer. No transfer of shares of Common Stock or Preferred Stock in violation of this Agreement shall be of any force or effect, and no such transfer shall be made or recorded on the books of the Corporation. Each Shareholder agrees that monetary damages for violation of this Agreement is not an adequate remedy, and, therefore, any transfer or threatened transfer in violation of this Agreement may and should be enjoined. Any purported transfer in violation of this Agreement will not affect the beneficial ownership of shares of Common Stock or Preferred Stock and the Shareholder making the purported transfer shall retain the right to vote and the right to receive dividends and liquidation proceeds on or with respect to said shares of Common Stock or Preferred Stock.

4. Buy-Sell Provisions.

4.01 Legal Proceedings Against The Shareholders.

(a) Prohibited Events. The parties agree that the interests of the Corporation and its Shareholders would be seriously affected by any sale or disposition of any shares of Common Stock or Preferred Stock by any legal or equitable proceedings against the Shareholders. Accordingly, it is hereby covenanted and agreed that in the event that (i) a Shareholder shall be adjudicated a bankrupt or make an assignment for the benefit of creditors, or (ii) bankruptcy, insolvency, reorganization, arrangement, debt adjustment, liquidation or receivership proceedings in which a Shareholder is alleged to be insolvent or unable to pay its debts as they mature are instituted by or against a Shareholder and, if instituted against a Shareholder, such Shareholder shall consent thereto or admit in writing the material allegations of the petitions filed in said proceedings, or said proceedings shall remain undismissed for sixty (60) days, or (iii) any of the shares of Common Stock or Preferred Stock of a Shareholder are attached, or (iv) any judgment is obtained in any legal or equitable proceedings against a Shareholder and the sale of a Shareholder's shares of Common Stock or Preferred Stock is contemplated or threatened under legal process as a result of such judgment, or (v) any execution process is issued against a Shareholder or against a Shareholder's shares of Common Stock or Preferred Stock, or (vi) there is instituted by or against a Shareholder any other form of legal proceeding or process by which any of the shares of Common Stock or Preferred Stock of a Shareholder may be sold either voluntarily or involuntarily (collectively, the "Triggering Events"), then and in any such event the Corporation and the other Shareholders who are not involved in any of the Triggering Events (in which case, such Shareholders who are not involved shall sometimes be hereinafter in this Paragraph 4.01 referred to as the "Non-Selling Shareholders") shall have an option to purchase all, or any portion, of the shares of Common Stock or Preferred Stock of the

Shareholder who is involved in one or more of the Triggering Events (in which case, such Shareholder who is involved in one or more of the Triggering Events shall sometimes be hereinafter in this Paragraph 4.01 referred to as the "Selling Shareholder"), in accordance with this Paragraph 4.01. Upon the occurrence of any Triggering Event, the Shareholder subject to such Triggering Event shall immediately give notice to the Corporation of the occurrence of such Triggering Event.

(b) Option of the Corporation. For a period of thirty (30) days after the date on which the Corporation receives notice of a Triggering Event, the Corporation shall have the option, (with any vote in this regard to exclude the vote of the Selling Shareholder), exercisable by written notice to the Selling Shareholder (with a copy to each of the Non-Selling Shareholders) to purchase all, or any portion, of the Selling Shareholder's shares of Common Stock and Preferred Stock at the purchase price and upon the terms set forth in Paragraph 4.03 hereof; provided, however, that if the Corporation is not permitted under applicable corporate law to purchase all of the Selling Shareholder's shares of Common Stock and Preferred Stock, the Corporation may purchase the maximum number of shares of Common Stock and Preferred Stock (including a fractional share) permitted under applicable corporate law.

(c) Option of Non-Selling Shareholders. In the event the Corporation does not exercise its option with respect to all of the shares of Common Stock and Preferred Stock in accordance with the preceding Paragraph 4.01(b) hereof, then the Selling Shareholder shall be deemed to have offered in writing to sell all, or any portion, of its remaining shares of Common Stock and Preferred Stock (those not to be sold to the Corporation) pro rata based on the number of shares of Common Stock held by the Non-Selling Shareholders (as if the Preferred Stock was converted into shares of Common Stock immediately prior thereto at the then applicable conversion ratio) to the Non-Selling Shareholders at the Purchase Price and upon the terms set forth in Paragraph 4.03 hereof. For a period of thirty (30) days after such offer (which shall be deemed to have been made on the date of expiration of the 30-day option described in Paragraph 4.01(b)) by the Selling Shareholder to the Non-Selling Shareholders, the Non-Selling Shareholders shall have the option, exercisable by written notice to the Selling Shareholder with a copy to the Corporation, to accept the Selling Shareholder's Offer as to the Selling Shareholder's remaining shares of stock to be sold. If one or more Non-Selling Shareholders declines to purchase its pro rata share, the Selling Shareholder shall deliver written notice to the remaining Non-Selling Shareholders (who exercised their option), if any, of the number of shares available to be purchased, and the provisions of this Paragraph 4.01(c), and the rights accorded to the Shareholders hereunder, shall become applicable to the Non-Selling Shareholders who exercised their option, with respect to such additional shares, except that the Non-Selling Shareholders who exercised their option shall have only ten (10) additional days following delivery of the notice to exercise their option as to such additional shares.

4.02 Shareholders' Limited Right to Sell Shares.

(a) Bona Fide Offer to Purchase Shares. If a Shareholder shall, at any time during its existence or his lifetime, desire to sell all, but not less than all of his or its

shares of Common Stock and Preferred Stock, such Shareholder (hereinafter in this Paragraph 4.02 sometimes called the "Selling Shareholder") shall first obtain a bona fide unconditional written offer which it or he desires to accept (hereinafter called the "Offer") to purchase all but not less than all, of such Selling Shareholder's shares of Common Stock and Preferred Stock for a fixed cash price (which may be payable over time). The Offer shall set forth its date, the proposed price per share, and the other terms and conditions upon which the purchase is proposed to be made, as well as the name and address of the Prospective Purchaser. "Prospective Purchaser" as used herein shall mean the prospective record owner or owners of the shares of Common Stock and Preferred Stock subject to the Offer and all other persons and entities proposed to have a beneficial interest in such shares of Common Stock and Preferred Stock. The Selling Shareholder shall transmit copies of the Offer to the Corporation and to the other Shareholders (hereinafter in this Paragraph 4.02 sometimes called the "Non-Selling Shareholders") within seven (7) days after receipt of the Offer by such Selling Shareholder.

(b) Option of the Corporation. Transmittal of the Offer to the Corporation by the Selling Shareholder shall constitute an offer by the Selling Shareholder to sell all but not less than all, of its shares of Common Stock and Preferred Stock to the Corporation at the price and upon the terms set forth in the Offer (the "Selling Shareholder's Offer"). For a period of thirty (30) days after the submission of the Selling Shareholder's Offer to the Corporation, the Corporation shall have the option, (with any vote in this regard to exclude the vote of the Selling Shareholder), exercisable by written notice to the Selling Shareholder with a copy to each of the Non-Selling Shareholders, to accept the Selling Shareholder's Offer as to all or any part of the Selling Shareholder's shares of Common Stock and Preferred Stock. provided, however, that if the Corporation is not permitted under applicable corporate law to purchase all of the Selling Shareholder's shares of Common Stock and Preferred Stock, the Corporation may purchase the maximum number of shares of Common Stock and Preferred Stock (including a fractional share) permitted under applicable corporate law.

(c) Option of Non-Selling Shareholders. In the event that the Corporation does not exercise its option with respect to all of the shares of Common Stock and Preferred Stock in accordance with Paragraph 4.02(b) hereof, then the Selling Shareholder, upon notice from the Corporation of the Corporation's decision not to accept the Selling Shareholder's Offer as to all of its shares of Common Stock and Preferred Stock (or upon expiration of the thirty (30) days option referred to in Paragraph 4.02(b) hereof, if the Corporation fails to give notice as aforesaid), shall be deemed to have offered in writing to sell all, but not less than all, of its remaining shares of Common Stock and Preferred Stock pro rata based on the number of shares of Common Stock held by the Non-Selling Shareholders (as if the Preferred Stock was converted into shares of Common Stock immediately prior thereto at the then applicable conversion ratio) to the Non-Selling Shareholders at the price and upon the terms set forth in the Selling Shareholder's Offer. For a period of thirty (30) days after such offer by the Selling Shareholder to the Non-Selling Shareholders, the Non-Selling Shareholders shall have the option, exercisable by written notice to the Selling Shareholder, with a copy to the Corporation, to accept the Selling Shareholder's Offer as to the Selling Shareholder's remaining shares of Common Stock and/or Preferred Stock to be sold. If one or more

Non-Selling Shareholders declines to purchase its pro rata share, the Selling Shareholder shall deliver written notice to the remaining Non-Selling Shareholders (who exercised their option), if any, of the number of shares available to be purchased, and the provisions of this Paragraph 4.02(c), and the rights accorded to the Shareholders hereunder, shall become applicable to the Non-Selling Shareholders who exercised their option, with respect to such additional shares, except that the Non-Selling Shareholders who exercised their option shall have only ten (10) additional days following delivery of the notice to exercise their option as to such additional shares.

(d) Acceptance of the Bona Fide Offer. If, at the end of the option periods described in Paragraph 4.02(b) through Paragraph 4.02(c) hereof, options have not been exercised by the Corporation and/or the Non-Selling Shareholders to purchase all of the Selling Shareholder's shares of Common Stock and Preferred Stock, then any options so exercised shall be null and void and the Selling Shareholder shall be free for a period of forty-five (45) days thereafter, to sell all, but not less than all, of his or its shares of Common Stock and Preferred Stock to the Prospective Purchaser at the price and upon the terms and conditions set forth in the Offer. If the Selling Shareholders' shares of Common Stock and Preferred Stock are not sold within the aforesaid forty-five (45) day period, the Selling Shareholder shall not be permitted to sell such shares of Common Stock and Preferred Stock without again complying with this Paragraph 4.02.

4.03 Payment. Except as otherwise provided herein, in the event that the Corporation or the Non-Selling Shareholders elect to purchase any shares of Common Stock and Preferred Stock pursuant to Paragraph 4.01 of this Agreement, the purchase price of the shares of Common Stock and Preferred Stock shall be calculated and paid as follows:

(a) Purchase Price. The "Purchase Price" for a Shareholder's shares of Common Stock and Preferred Stock shall be the "Fair Value Per Share", which means, as of the date of determination, the fair value of each share of Common Stock or Preferred Stock: (i) determined in good faith by a majority of the disinterested members of the Board of Directors of the Corporation or, (ii) if the Shareholder owning the stock (the "Valuee") notifies the Corporation in writing within five (5) business days after receiving notice of the Board of Directors' determination of Fair Value Per Share that it or he disagrees with the Fair Value Per Share determined by the Board, the Valuee and the Corporation shall then select an independent nationally recognized accounting firm having substantial experience in preparing valuations of entities similar to the size and nature of the Corporation and the shares of Common Stock and Preferred Stock as herein contemplated (a "Valuator") who shall make a written determination of Fair Value Per Share of Common Stock and/or Preferred Stock setting forth reasons therefor (which determination shall be binding on the Valuee and the Corporation), such report to be delivered to the Corporation and the Valuee within thirty (30) calendar days after the date on which the notice is delivered to the Corporation pursuant to this clause (ii), and (iii) in the event that the Corporation and the Valuee are unable to agree on the selection of the Valuator, the Corporation and the Valuee shall each select a Valuator who shall jointly select a third Valuator and the third Valuator shall deliver a written report within thirty (30) days after such selection setting forth such Valuator's determination of Fair Value Per Share (which determination shall be binding on the Valuee and the Corporation),

which valuation shall be the Fair Value Per Share. All expenses of such written reports of any and all Valuators shall be borne equally by the Corporation and the Valuee.

(b) Payment of Purchase Price. Unless otherwise provided herein, for any shares of Common Stock or Preferred Stock purchased by the Corporation or the Shareholders pursuant to this Agreement, the Purchase Price shall be paid in cash at closing.

5. [Intentionally Omitted].

6. Rights to Purchase New Issue Stock.

6.01 After the date of this Agreement, the Corporation shall not offer, issue or sell any shares of Common Stock of the Corporation, or any warrants or options to purchase, or rights to subscribe for, or any securities convertible into or exchangeable for, shares of Common Stock of the Corporation, or enter into any agreements or commitments pursuant to which the Corporation may become obligated to issue any shares of Common Stock, warrants, options, rights or securities convertible into or exchangeable for shares of Common Stock of the Corporation (except for the issuance of shares of the Excluded Securities as defined in Paragraph 6.05 below) unless the Corporation shall first offer to the Shareholders the option to purchase their pro rata share based upon the number of shares of Common Stock held by the Shareholders (as if the Preferred Stock had been converted into Common Stock immediately prior thereto at the then applicable conversion ratio) of the securities proposed to be offered by the Corporation at the price and on the terms that the Corporation proposes to offer, issue, or sell such securities to any other person or entity. Written notice of each such offer required pursuant to this Paragraph 6.01 (the "New Securities Offer") shall be delivered by the Corporation to the Shareholders.

6.02 Notice of a Shareholder's intention to accept in whole or in part any New Securities Offer shall be evidenced by a Notice of Acceptance delivered to the Corporation prior to the end of 15 days after delivery to such Shareholder of the New Securities Offer setting forth such portion of the securities offered as such Shareholder elects to purchase. The Notice of Acceptance shall be irrevocable. If one or more of the Shareholders declines to purchase its pro rata share, the Corporation shall deliver written notice to the remaining Shareholders, if any, of the number of such shares available to be purchased and the provisions of Paragraph 6.01 hereof, and the rights accorded the Shareholders thereunder, shall become applicable to the remaining Shareholders, if any, with respect to such additional shares, except that the remaining Shareholders shall have only 10 additional days following delivery of the Corporation's notice within which to deliver their Notice of Acceptance as to such additional securities.

6.03 In the event that Notices of Acceptance are not given by the Shareholders with respect to all the securities offered, the Corporation shall have 90 days from the expiration of the 15-day and 10-day periods required by Paragraph 6.02 to sell all or any part of such securities offered as to which a Notice of Acceptance has not been given by the Shareholders to any other person or persons, but only for cash and otherwise in all respects upon terms and conditions, including, without limitation, unit price and interest rates, which are no more favorable, in the aggregate, to such other person or persons or less favorable to the Corporation

than those set forth in the New Securities Offer.

6.04 Whenever any securities shall be offered but not purchased in accordance with Paragraph 6.03, then such securities may not be sold or otherwise disposed of until they are again offered under the procedures specified in this Paragraph 6.

6.05 The rights of the Shareholders under this Paragraph 6 shall not apply to the following securities (the "Excluded Securities"):

(a) Common Stock or Preferred Stock issued as a stock dividend on any class of capital stock or upon any subdivision or combination of shares of Common Stock or Preferred Stock;

(b) shares of Common Stock, Preferred Stock, options or other similar rights granted or issued pursuant to an "employee benefit plan" (as such term is defined in Rule 405, promulgated under the Securities Act of 1933, as amended) that has been approved by the Board of Directors of the Corporation and such of its shareholders as are required by the Fifth Amended and Restated Charter of the Corporation (the "Restated Charter");

(c) Any stock issued to any nationally recognized company having extensive experience in the research, development, marketing or other commercialization of products and services contemplated by the Corporation; and

(d) shares of Common Stock issued upon conversion of shares of Preferred Stock.

6.06 Notwithstanding the foregoing, in the event Common Stock or securities convertible to Common Stock (other than Excluded Securities) are issued by the Corporation based on a valuation lower than the valuation for which the investment of J. R. Hyde III ("Hyde") was based for his purchase of 100,000 shares of Common Stock on February 24, 1998 (100 shares originally prior to stock split) but not Preferred Stock, then in such event the Corporation will issue to Hyde, at no further cost, shares of Common Stock in an amount that results in Hyde suffering no dilution in his equity investment in Common Stock.

7. Election of Directors and Appointment of Committee Members.

7.01 Beginning on the date of this Agreement, the Board of Directors of the Corporation shall consist of at least five (5) members. At each annual meeting of the Shareholders of the Corporation, and at each meeting of the Shareholders of the Corporation called for the purpose of electing directors of the Corporation, and at any time at which Shareholders of the Corporation shall have the right to, or shall, vote for directors of the Corporation, then and in each event, the Shareholders shall vote all shares of Common Stock or Preferred Stock owned by them for the election of, and take any and all such other actions which shall be necessary for the election of, a Board of Directors which shall include one (1) director designated by LD, Jr., LLC; one (1) director designated by Hyde; one (1) director designated by Equity Partners XII, LLC; one (1) director designated by the holders of Series A Preferred Stock and Series B Preferred Stock, considered as a single class, as required by the Restated Charter;

and one (1) director designated by the holders of Series C Preferred Stock, all as set forth in and required by the Restated Charter.

7.02 The directors so elected shall serve as members of the Board of Directors until the earlier of their death, resignation, expiration of term of office, or removal pursuant to this Shareholders Agreement. In lieu of any provision of the Tennessee Business Corporation Act, as amended, regarding removal of directors, the directors so elected may be removed at any time, with or without cause, only by the person or entity that designated them. Upon request of the person or entity that designated a particular director, each of the Shareholders shall vote his Shares of Common Stock and Preferred Stock for the removal of such director at the next annual or special meeting of the Shareholders called for such purpose. If a director elected as set out above shall no longer be serving on the Board of Directors for any reason, the person or entity that designated such director shall designate a successor, and all Shareholders shall elect any successor so designated at the next annual or special meeting of the Shareholders called for that purpose. Any vacancy that occurs shall be filled as promptly as possible.

7.03 Meetings of the Board of Directors shall be held at least quarterly. The Corporation shall pay to members of the Board of Directors all reasonable out of pocket expenses incurred by such directors in performing their duties. The Corporation will indemnify the directors to the fullest extent permitted by the Tennessee Business Corporation Act.

8. Certain Voting Requirements as to Shareholders and Board of Directors.

8.01 In addition to any rights created in Section 10.6 of the Restated Charter, the following shall be approved or adopted by or on behalf of the Corporation only upon the affirmative vote of the holders of a majority of the issued and outstanding shares of the Common Stock and the holders of a majority of the aggregate issued and outstanding shares of Preferred Stock:

(i) Any amendment to the Charter or By-Laws of the Corporation;

(ii) Sale, pledge, mortgage or other encumbrance of all or substantially all of the Corporation's assets, or any merger share exchange or other business combination involving the Corporation;

(iii) Dissolution and/or liquidation of the Corporation;

(iv) Offering to sell, soliciting an offer to buy, or selling any of the Corporation's Common Stock;

(v) Creating any new employee benefit plan pursuant to which Common Stock of the Corporation may be issued or amending any existing employee benefit plan to increase the number of shares of Common Stock of the Corporation which may be issued thereunder;

(vi) Incurring any indebtedness in excess of $5 million, in the aggregate;

(vii) Acquiring any entity or all or substantially all of the assets of any entity, whether by merger, asset purchase, stock purchase or any other method of acquisition;

(viii) Authorizing any change in the size or election procedure of the Board of Directors of the Corporation or permitting the creation of a committee of the Board of Directors of the Corporation;

(ix) Undergoing any substantial change in the strategic direction of the business (i.e., change of core business focus);

(x) Undergoing any substantial change in the Corporation's contracts with professional employees;

(xi) Hiring any key management employees;

(xii) Amending or terminating the Confidentiality and Noncompetition Agreement between the Corporation and Dr. Mitch Steiner; or

(xiii) Entering into any agreement which transfers, licenses, or joint ventures any intellectual property of the Corporation with an entity in which Dr. Mitch Steiner owns a beneficial interest.

provided, however, that nothing contained in this Agreement shall in any way limit or adversely affect the rights, designations and preferences of the Preferred Stock which are set forth in the Restated Charter.

8.02 The following shall be approved or adopted by or on behalf of the Corporation only upon the affirmative vote of a majority of the directors of the Corporation then in office:

(i) Incurrence by the Corporation of any indebtedness in excess of $50,000.00 except in the ordinary course of business;

(ii) Issuing or redeeming any shares of the Corporation's capital stock, except as expressly authorized by the terms hereof;

(iii) Except as contemplated by this Agreement or as provided in the Restated Charter and further subject to Paragraphs 7.03 and Paragraph 8.03 hereof, paying any sums, whether as dividends, compensation, or otherwise, to any director or shareholder of the Corporation; or

(iv) Increasing or decreasing the number of directors of the Corporation except as necessary to give effect to Paragraph 7 hereof.

8.03 Any compensation payable to a Shareholder (or any affiliate of a Shareholder) who is an employee shall be approved by the directors of the Corporation.

9. Management. Management of the Corporation shall be vested in its Board of Directors.

10. Additional Shares of Stock.

10.01 In the event additional shares of stock are issued by the Corporation to a Shareholder at any time during the term of this Agreement, either directly or upon the exercise or exchange of securities of the Corporation exercisable for or exchangeable into shares of stock, such additional shares of stock shall, as a condition to such issuance, become subject to the terms and provisions of this Agreement.

10.02 The Corporation shall not issue any shares of capital stock to any person unless the person to whom such shares of capital stock are issued agrees in writing simultaneously therewith to become a party hereto and to be bound by and to comply with all applicable terms and provisions of this Agreement.

11. Rights of Co-Sale.

(a) Co-Sale Right. The Shareholders shall not enter into any transaction that would result in the sale by them of any shares of Common Stock or Preferred Stock now or hereafter owned by him, unless prior to such sale the Shareholder shall give notice to the holders of Preferred Stock of his intention to effect such sale in order that the holders of Preferred Shareholders may exercise their rights under this Paragraph 11 as hereinafter described. Such notice shall set forth (i) the number of shares to be sold by such Shareholder, (ii) the principal terms of the sale, including the price at which the shares are intended to be sold, and (iii) an offer by such Shareholder to use his best efforts to cause to be included with the shares to be sold by him in the sale, on a share-by-share basis and on the same terms and conditions, the shares of Preferred Stock owned by the Shareholders.

(b) Rejection of Co-Sale Offer. If a holder of Preferred Stock has not accepted such offer in writing within a period of ten (10) days from the date of receipt of the notice, then the offering Shareholder shall thereafter be free for a period of 120 days to sell the number of shares specified in such notice, at a price no greater than the price set forth in such notice and on otherwise no more favorable terms to the offering Shareholder than as set forth in such notice without any further obligation to the holders of Preferred stock in connection with such sale. In the event that such Shareholder fails to consummate such sale within such 120-day period, the shares specified in such notice shall continue to be subject to this Paragraph 11.

(c) Acceptance of Co-Sale Offer. If a holder of Preferred Stock accepts such offer in writing within the above stated ten (10) day period, such acceptance shall be irrevocable unless such Shareholder shall be unable to cause to be included in his sale the number of shares of Preferred Stock held by the accepting holder and set forth in the written acceptance. In that event, such Shareholder and the accepting holders shall participate in the sale equally, with such Shareholder and accepting holders each selling a pro rata portion of the total number of such shares to be sold in the sale.

12. Legend. Each Shareholder agrees that the following legend shall be placed upon all certificates representing issued shares of capital stock of the Corporation's stock:

> The sale, assignment, pledge, hypothecation, gift or other transfer or disposition, and the registration of any such transfer or disposition, of the shares of stock represented by this certificate are subject to a certain Second Amended and Restated Voting and Shareholder Agreement dated the 7th day of August, 2003, by and among the Shareholders of the Corporation and the Corporation. The shares may not be transferred or acquired except in accordance with the terms of the Agreement and any purported transfer or acquisition of legal or beneficial ownership of these shares in violation of the Agreement shall be null and void. The Agreement is binding upon any person who acquires shares of stock in the Corporation. The Corporation will furnish a copy of the Agreement to the record holder of this certificate, without charge upon written request to the Corporation at its principal office.

13. Duties of the Corporation. The Shareholders agree to cause the Corporation to maintain and effectuate corporate procedures governing the transfer and/or issuance of shares of capital stock in the Corporation designed to protect against transfers in violation of this Agreement. It is agreed that no shares of capital stock may he transferred on the books of the Corporation unless and until the restrictions and conditions imposed by this Agreement have been satisfied, at which time the Secretary will enter the transfer, or will instruct the transfer agent of the Corporation to enter the transfer, on the books of the Corporation. The Corporation shall place a counterpart of this Agreement on file at its principal office which shall be subject to the same right of examination by a shareholder of the Corporation, in person or by agent, attorney or accountant, as are the books and records of the Corporation.

14. Termination and Amendment. This Agreement may only be amended by an instrument in writing, duly executed by all of the parties to this Agreement. This Agreement shall terminate upon the occurrence of any one of the following events:

(i) Upon the adjudication of the Corporation as a bankrupt, the execution by it of an assignment for the benefit of creditors, the appointment of a receiver for the Corporation, or the voluntary or involuntary dissolution of the Corporation;

(ii) The voluntary agreement of the Shareholders owning a majority of the outstanding shares of the Common Stock and each series of Preferred Stock, which are bound by this Agreement;

(iii) When only one Shareholder remains or survives who is a party to or is bound by this Agreement; or

(iv) An initial public offering by the Corporation of the Corporation's capital stock.

Notwithstanding the foregoing, the term of this Agreement shall not exceed any maximum legal term allowed by applicable law.

15. Effective Date and Supersession of Prior Agreement. This Agreement shall become effective on the date indicated in the introductory paragraph. This Agreement amends and supercedes in all respects the Amended and Restated Voting and Shareholder Agreement dated October 5, 2001, as amended, which is hereby terminated and be superseded by this Agreement in all respects.

16. Notices. All notices, requests, demands, claims, and other communications hereunder shall be in writing and shall be given by registered or certified mail, return receipt requested, postage prepaid, by facsimile, telecopier or by national overnight delivery service, and addressed to the intended recipient at the address or number set forth in the Corporation's records or at any other address specified by such party in a notice given pursuant to this Paragraph 16 to all other parties to this Agreement. Any notice given in the manner aforesaid shall be deemed to have been served, and shall be effective for all purposes hereof (a) if sent by registered or certified mail, on the earlier of the second day following the day on which it is posted or the date of its receipt by the party to be notified, (b) if sent by facsimile or telecopier, the day actually received as evidenced by a written receipt of transmission; and (c) if sent by overnight delivery service, the day after such notice has been delivered by the party to said service.

17. Counterparts. This Agreement may be executed in one or more counterparts each of which shall constitute an original but all of which shall constitute one and the same document.

18. Severability. Unless otherwise provided herein, if any agreement, covenant, warranty or other provision of this Agreement is invalid, illegal, or incapable of being enforced by reason of any rule of law or public policy, all other agreements, covenants, warranties and other provisions of this Agreement shall, nevertheless, remain in full force and effect; and no agreements, covenants, warranties or other provisions shall be deemed dependent upon any other agreements, covenants, warranties or other provisions, whether predicated on this Agreement or any other contract now or hereafter entered into by and among the parties hereto.

19. Litigation Costs. The parties hereto agree that if any party is held by any court of competent jurisdiction to be in violation, breach or non-performance of any of the terms of this Agreement, said party shall pay all costs of such action or suit, including reasonable attorney's fees, incurred by the prevailing party in bringing or defending such action or suit.

20. Binding Effect. The terms and provisions of this Agreement shall be binding upon, may be enforced against and shall inure to the benefit of the parties hereto, their respective successors, assigns, heirs and personal representatives, including any executor, administrator, trustee, guardian, or other fiduciary of any party hereto.

21. Governing Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Tennessee.

22. Number and Gender. Throughout this Agreement, unless the context in which used clearly requires another construction, (i) the masculine gender shall be deemed to include the feminine, or neuter or both, the feminine gender shall be deemed to include the masculine, or neuter or both, and the neuter gender shall include the masculine or feminine or both; and (ii) the singular person shall include the plural, and the plural shall include the singular.

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first above written.

LD, JR., LLC	EQUITY PARTNERS XII, LLC
By: /s/ Mitchell S. Steiner	By: /s/ Marc S. Hanover
Mitchell S. Steiner, President	Marc S. Hanover, President
GTX, INC.	
By: /s/ Mitchell S. Steiner	/s/ Marc S. Hanover
Mitchell S. Steiner, Vice Chairman and Chief Executive Officer	Marc S. Hanover as Trustee of the Andrew Ronald Hanover Trust and the Adam Joshua Hanover Trust
/s/ J. R. Hyde, III	/s/ Marc S. Hanover
J. R. Hyde, III	Marc S. Hanover
/s/ J. R. Hyde, III	/s/ Marc S. Hanover
J. R. Hyde, III as Trustee of Margaret E. Hyde Trust u/a dated 5/5/76	Marc S. Hanover as Trustee of the Derek Isaac Steiner Trust, the Joshua David Steiner Trust, the Lauren Rose Steiner Trust and the Rachel Jessica Steiner Trust
	PITTCO ASSOCIATES, INC.
/s/ J. R. Hyde, III	
J. R. Hyde, III as Trustee of J. R. Hyde Irrevocable Trust f/b/a Allen B. Hyde u/a dated 6/1/90	By: /s/ J. R. Hyde, III
	J. R. Hyde, III, General Partner
/s/ John H. Pontius	/s/ John H. Pontius
John H. Pontius as Trustee of the Alexander Joseph Hyde Trust, the Claire Reeves Hyde Trust and the Susannah Maria Hyde Trust	John H. Pontius
/s/ Patricia B. Pontius	/s/ Patricia B. Pontius
Patricia B. Pontius	Patricia B. Pontius, as Trustee of the John H. Pontius, Jr. Trust and the David M. Pontius Trust
/s/ Wilson Sights	/s/ Mark E. Mosteller
Wilson Sights	Mark E. Mosteller

ORACLE INVESTMENT MANAGEMENT, INC.

By: /s/ Larry N. Feinberg
Larry N. Feinberg, President

ORACLE PARTNERS, L.P.,
a Delaware limited partnership

By: Oracle Associates, LLC, a Delaware limited liability company, its general partner

By: /s/ Larry N. Feinberg
Larry N. Feinberg, Managing Member

ORACLE INSTITUTIONAL PARTNERS, L.P., a Delaware limited partnership

By: Oracle Associates, LLC, a Delaware limited liability company, its general partner

By: /s/ Larry N. Feinberg
Larry N. Feinberg, Managing Member

MEMPHIS BIOMED VENTURES I, L.P.,
a Delaware limited partnership

By: MB Venture Partners, LLC, a Delaware limited partnership company, its general partner

By: /s/ Gary D. Stevenson
Gary D. Stevenson, President

/s/ Henry P. Doggrell
Henry P. Doggrell

/s/ Beverly R. Doggrell
Beverly R. Doggrell

/s/ Kathryn K. Mosteller
Kathryn K. Mosteller

EXHIBIT 4.3

AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this "Agreement") is made and entered into as of August 7, 2003 among GTX, INC., a Tennessee corporation (the "Company") and ORACLE PARTNERS, L.P., a Delaware limited partnership (the "Purchaser").

This Agreement is being entered into pursuant to that certain purchase agreement dated as of the date hereof between the Company and the Purchaser and the other purchasers described therein (the "Purchase Agreement") pursuant to which the Purchaser is acquiring shares of the Company's Series E Preferred Stock (as hereinafter defined).

The Company and the Purchaser hereby agree as follows:

1. Definitions.

(a) Capitalized terms used and not otherwise defined herein shall have the meanings given such terms in the Purchase Agreement. As used in this Agreement, the following terms shall have the following meanings:

"Advice" shall have the meaning set forth in Section 4(c).

"Affiliate" means, with respect to any Person, any other Person that directly or indirectly controls or is controlled by or under common control with such Person. For the purposes of this definition, "control," when used with respect to any Person, means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise; and the terms of "affiliated," "controlling" and "controlled" have meanings correlative to the foregoing.

"Business Day" means any day except Saturday, Sunday and any day which shall be a legal holiday or a day on which banking institutions in the State of Tennessee generally are authorized or required by law or other government actions to close.

"Commission" means the Securities and Exchange Commission.

"Common Stock" means the Company's common stock, no par value per share.

"Demand" has the meaning set forth in Section 2 hereof.

"Demand Date" means the last date of the Demand Period in which at least a majority of the Holders of Registrable Securities demand the registration of any Registrable Securities pursuant to Section 2 hereof.

"Demand Period" shall have that meaning set forth in Section 2.

"Effectiveness Date" means, with respect to the Registration Statement, the 180th day following the Demand Date.

"Effectiveness Period" shall have the meaning set forth in Section 2.

"Event" shall have the meaning set forth in Section 8(e).

"Exchange" means, at any time and from time to time hereafter, any securities exchange, automated interdealer quotation system or other over-the-counter market on which any of the Company's securities are listed or regularly traded or quoted.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Filing Date" shall mean the 60th day following the Demand Date.

"Holder" or "Holders" means the holder or holders, as the case may be, from time to time of Registrable Securities.

"Hyde Holders" means the holders of the Hyde Registrable Securities.

"Hyde Registrable Securities" means the "Registrable Securities" as defined in the Hyde Registration Rights Agreement.

"Hyde Registration Rights Agreement" means that certain amended and restated registration rights agreement between the Company and J.R. Hyde, III, dated as of the date of this Agreement.

"Indemnified Party" shall have the meaning set forth in Section 6(c).

"Indemnifying Party" shall have the meaning set forth in Section 6(c).

"Losses" shall have the meaning set forth in Section 6(a).

"MBV Holders" means the holders of the MBV Registrable Securities.

"MBV Registrable Securities" means the "Registrable Securities" as defined in the Registration Rights Agreement.

"MBV Registration Rights Agreement" means that certain amended and restated registration rights agreement between the Company and Memphis Biomed Ventures I, L.P., dated as of the date of this Agreement.

"Other Securities" has the meaning set forth in Section 8(d)(i).

"Person," whether or not capitalized, means a natural person, corporation, partnership, trust, incorporated or unincorporated association, joint venture, partnership (including a limited partnership), limited liability company, joint stock company, government (or an agency or political subdivision thereof) or other entity of any kind.

"Proceeding" means an action, claim, suit, investigation or proceeding (including, without limitation, an investigation or partial proceeding, such as a deposition), whether commenced or threatened.

"Prospectus" means the prospectus included in the Registration Statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated under the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by the Registration Statement, and all other amendments and supplements to the Prospectus, including post-effective amendments, and all material incorporated by reference in such Prospectus.

"Purchase Agreement" as the meaning set forth in the second introductory paragraph of this Agreement.

"Purchaser Stock" means (i) Series C Preferred Stock issued to Purchaser's Affiliate pursuant to that certain purchase agreement dated as of October 5, 2001, as amended, by and among the Company, the Purchaser, Oracle Investment Management, Inc., J. R. Hyde, III, and Pittco Associates, LP; (ii) Series D Preferred Stock issued to Purchaser or its Affiliates pursuant to that certain purchase agreement, dated as of July 17, 2002, by and among the Company, the Purchaser, Oracle Institutional Partners, L.P., J. R. Hyde, III, and Memphis Biomed Ventures, L.P.; (iii) Series E Preferred Stock and issued to Purchaser or its Affiliates pursuant to the Purchase Agreement; and (iv) any security issued as a dividend to a beneficial owner of the preferred stock identified in subsections (i), (ii) and (iii) above.

"Registrable Securities" means (i) the shares of Common Stock now or at any time hereafter issuable upon conversion of the Purchaser Stock and (ii) any other securities which may hereafter become receivable by the Holders upon conversion of the Purchaser Stock, including any dividend or other distribution with respect to, conversion or exchange of, or in replacement of, Registrable Securities.

"Registration Statement" means the registration statements and any additional registration statements contemplated by Section 2, including (in each case) the Prospectus, amendments and supplements to such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, and all material incorporated by reference in such registration statement.

"Rule 144" means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Rule 158" means Rule 158 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Rule 415" means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Securities Act" means the Securities Act of 1933, as amended.

"Series C Preferred Stock" means the 8% Series C Cumulative Convertible Preferred Stock of the Company.

"Series D Preferred Stock" means the 8% Series D Cumulative Convertible Preferred Stock of the Company.

"Series E Preferred Stock" means the 8% Series E Cumulative Convertible Preferred Stock of the Company.

"Special Counsel" means the special counsel designated by a majority of the Holders pursuant to Section 5.

"Unsold Securities" shall have the meaning set forth in Section 8(e).

(b) Use of the singular or of the plural shall be construed to include both the singular and the plural unless the context clearly indicates that only the singular or only the plural is intended. Use of any gender shall be construed to include all other genders unless the context clearly indicates that less than all the genders is intended.

2. Demand Registration. At any time after the Company has filed any Registration Statement under the Securities Act, during which there is no effective registration statement relating to the Registrable Securities, the Holders of not less than a majority of the Registrable Securities may make up to two (2) requests in writing (each a "Demand") requiring the Company to effect a registration under the Securities Act of Registrable Securities. Upon receipt of such a Demand, the Company shall, not later than the Filing Date, prepare and file with the Commission a "shelf" Registration Statement covering all Registrable Securities for which such Demand is made for an offering to be made on a continuous basis pursuant to Rule 415. The Registration Statement shall be on a form appropriate for such registration in accordance herewith; provided, however, that only the first Registration Statement (and amendments thereto) made pursuant to a Demand need be on Form S-1. The Company shall (i) not permit any securities other than the Registrable Securities to be included in the Registration Statement (unless such requirement is waived in writing by the Holders of a majority in interest of the Registrable Securities to be included in such Registration Statement, or as provided pursuant to Section 8(c)(ii) hereof) and (ii) use its best efforts to cause the Registration Statement to be declared effective under the Securities Act (including filing with the Commission a request for acceleration of effectiveness in accordance with Rule 461 promulgated under the Securities Act within five (5) Business Days of the date that the Company is notified (orally or in writing, whichever is earlier) by the Commission that a Registration Statement will not be "reviewed," or not be subject to further review, and to keep such Registration Statement continuously effective under the Securities Act until such date as is the earlier of (x) the date when all Registrable Securities covered by such Registration Statement have been sold or (y) the date on which the Registrable Securities may be

sold without any restriction pursuant to Rule 144(k) as determined by the counsel to the Company pursuant to a written opinion letter, addressed to the Company's transfer agent to such effect (the "Effectiveness Period"). If the Company receives a Demand from one or more Holders (whether or not such Holders constitute Holders of a majority of the Registrable Securities), the Company shall, not later than one business day thereafter, give notice thereof (the "Demand Notice") to all other Holders, who shall then have 30 days (the "Demand Period") to serve their own Demands for registration. At the end of the Demand Period, if the Holders of a majority in interest of the Registrable Securities have served Demands to the Company, the Company shall proceed with the registration of all the Registrable Securities for which such a Demand is made and keep such Registration Statement continuously effective throughout the Effectiveness Period as required by this Agreement. Notwithstanding the foregoing, the Company shall be entitled to postpone for up to 90 days the filing, effectiveness, supplementing or amending of any registration statement otherwise required to be prepared and filed pursuant to this Agreement, if the Board of Directors of the Company determines that such registration or the offer and sale of Registrable Securities contemplated thereby would interfere with, or require premature disclosure of, any material financing, acquisition, disposition, reorganization or other transaction involving the Company or any of its subsidiaries and the Company promptly gives the Holder notice of such determination. The Holders hereby acknowledge that any notice given by the Company pursuant to this Section 2 shall constitute material non-public information and that the United States securities laws prohibit any Person who has material non-public information about a company from purchasing or selling securities of such company or from communicating such information to any other Person under circumstances in which it is reasonably foreseeable that such Person is likely to purchase or sell such securities.

3. Registration Procedures. In connection with the Company's registration obligations pursuant to Section 2 hereof, the Company shall:

(a) Prepare and file with the Commission on or prior to the Filing Date, a Registration Statement in accordance with the method or methods of distribution thereof as specified by the majority of Holders that have served the Company with a Demand to include Registrable Securities on such Registration Statement, and cause the Registration Statement to become effective and remain effective during the Effectiveness Period; provided, however, that not less than five (5) Business Days prior to the filing of the Registration Statement or any related Prospectus or any amendment or supplement thereto (including any document that would be incorporated therein by reference), the Company shall (i) furnish to the Holders and the Special Counsel, copies of all such documents proposed to be filed, which documents (other than those incorporated by reference) will be subject to the review of such Holders and the Special Counsel, and (ii) at the request of the majority of Holders that have served the Company with a Demand cause its officers and directors, counsel and independent certified public accountants to respond to such inquiries as shall be necessary, in the reasonable opinion of the Special Counsel, to conduct a reasonable investigation within the meaning of the Securities Act. The Company shall not file the Registration Statement or any such Prospectus or any amendments or supplements thereto to which the Holders of a majority of the Registrable Securities or the Special Counsel shall reasonably object in writing within three (3) Business Days of their receipt thereof.

(b) (i) Prepare and file with the Commission such amendments, including post-effective amendments, to the Registration Statement as may be necessary to keep the Registration Statement continuously effective as to the applicable Registrable Securities for the Effectiveness Period; (ii) cause the related Prospectus to be amended or supplemented by any required Prospectus supplement, and as so supplemented or amended to be filed pursuant to Rule 424 (or any similar provisions then in force) promulgated under the Securities Act; and (iii) respond as promptly as practicable to any comments received from the Commission with respect to the Registration Statement or any amendment thereto and as promptly as practicable provide the Holders true and complete copies of all correspondence from and to the Commission relating to the Registration Statement.

(c) Notify the Holders of Registrable Securities to be sold and the Special Counsel as promptly as possible but in no event less than five (5) Business Days prior to such filing, and confirm such notice in writing no later than one (1) Business Day following the day when a Prospectus or any Prospectus supplement or post-effective amendment to the Registration Statement: (A) is proposed to be filed; (B) when the Commission notifies the Company whether there will be a "review" of such Registration Statement and whenever the Commission comments in writing on such Registration Statement; and (C) with respect to the Registration Statement or any post-effective amendment, when the same has become effective, and during the Effectiveness Period: (i) of any request by the Commission or any other Federal or state governmental authority for amendments or supplements to the Registration Statement or Prospectus or for additional information; (ii) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement covering any or all of the Registrable Securities or the initiation of any Proceedings for that purpose; (iii) of the receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction, or the initiation or threatening of any Proceeding for such purpose; and (iv) of the occurrence of any event that makes any statement made in the Registration Statement or Prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires any revisions to the Registration Statement, Prospectus or other documents so that, in the case of the Registration Statement or the Prospectus, as the case may be, it will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(d) Use its best efforts to avoid the issuance of, or, if issued, obtain the withdrawal of, (i) any order suspending the effectiveness of the Registration Statement or (ii) any suspension of the qualification (or exemption from qualification) of any of the Registrable Securities for sale in any jurisdiction, at the earliest practicable moment.

(e) If requested by the Holders of a majority in interest of the Registrable Securities to be sold pursuant to the Registration Statement, (i) promptly incorporate in a Prospectus supplement or post-effective amendment to the Registration Statement such information as the Company reasonably agrees should be included therein and (ii) make all required filings of such Prospectus supplement or such post-effective amendment as soon as practicable after the Company has received notification of the matters to be incorporated in such Prospectus supplement or post-effective amendment.

(f) Furnish to each Holder and the Special Counsel, without charge, at least one conformed copy of each Registration Statement and each amendment thereto, including financial statements and schedules, all documents incorporated or deemed to be incorporated therein by reference, and all exhibits to the extent reasonably requested by such Person (including those previously furnished or incorporated by reference) promptly after the filing of such documents with the Commission.

(g) Promptly deliver to each Holder and the Special Counsel, without charge, as many copies of the Prospectus or Prospectuses (including each form of prospectus) and each amendment or supplement thereto as such Persons may reasonably request; and the Company hereby consents to the use of such Prospectus and each amendment or supplement thereto by each of the selling Holders in connection with the offering and sale of the Registrable Securities covered by such Prospectus and any amendment or supplement thereto.

(h) Prior to any public offering of Registrable Securities, use its best efforts to register or qualify or cooperate with the selling Holders and the Special Counsel in connection with the registration or qualification (or exemption from such registration or qualification) of such Registrable Securities for offer and sale under the securities or Blue Sky laws of such jurisdictions within the United States as the Holders of a majority in interest of Registrable Securities included in the Registration Statement request in writing, to keep each such registration or qualification (or exemption therefrom) effective during the Effectiveness Period and to do any and all other acts or things reasonably necessary or advisable to enable the disposition in such jurisdictions of the Registrable Securities covered by a Registration Statement; provided, however, that the Company shall not be required to qualify generally to do business in any jurisdiction where it is not then so qualified or to take any action that would subject it to general service of process in any such jurisdiction where it is not then so subject or subject the Company to any material tax in any such jurisdiction where it is not then so subject.

(i) Cooperate with the Holders to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be sold pursuant to a Registration Statement, which certificates shall be free of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any Holder may request at least two (2) Business Days prior to any sale of Registrable Securities.

(j) Upon the occurrence of any event contemplated by Section 3(c)(iv), as promptly as practicable, prepare a supplement or amendment, including a post-effective amendment, to the Registration Statement or a supplement to the related Prospectus or any document incorporated or deemed to be incorporated therein by reference, and file any other required document so that, as thereafter delivered, neither the Registration Statement nor such Prospectus will contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(k) Use its best efforts to cause all Registrable Securities relating to such Registration Statement to be listed on each Exchange.

(l) Comply in all material respects with all applicable rules and regulations of the Commission and make generally available to its security holders earning statements satisfying the provisions of Section 11(a) of the Securities Act and Rule 158 not later than 45 days after the end of any 12-month period (or 90 days after the end of any 12-month period if such period is a fiscal year) commencing on the first day of the first fiscal quarter of the Company after the effective date of the Registration Statement, which statement shall conform to the requirements of Rule 158.

(m) Require each selling Holder to furnish to the Company information regarding such Holder and the distribution of such Registrable Securities as is required by law to be disclosed in the Registration Statement, and the Company may exclude from such registration the Registrable Securities of any such Holder who fails to furnish such information within a reasonable time prior to the filing of each Registration Statement, supplemented Prospectus and/or amended Registration Statement.

(n) If the Registration Statement refers to any Holder by the name or otherwise as the holder of any securities of the Company, then such Holder shall have the right to require (if such reference to such Holder by name or otherwise is not required by the Securities Act or any similar federal statute or regulation then in force) the deletion of the reference to such Holder in any amendment or supplement to the Registration Statement filed or prepared subsequent to the time that such reference ceases to be required.

4. Holder Obligations. In connection with the Company's registration obligations hereunder, each Holder:

(a) Covenants and agrees that it will not sell any Registrable Securities under the Registration Statement until it has received copies of the Prospectus as then amended or supplemented as contemplated in Section 3(g) and notice from the Company that such Registration Statement and any post-effective amendments thereto have become effective as contemplated by Section 3(c).

(b) Covenants and agrees that it and its officers, directors or Affiliates, if any, will comply with the prospectus delivery requirements of the Securities Act as applicable to them in connection with sales of Registrable Securities pursuant to the Registration Statement.

(c) Agrees by its acquisition of the Registrable Securities that, upon receipt of a notice from the Company of the occurrence of any event of the kind described in Section 3(c)(i), Section 3(c)(ii), Section 3(c)(iii) or Section 3(c)(iv), such Holder will forthwith discontinue disposition of such Registrable Securities under the Registration Statement until such Holder's receipt of the copies of the supplemented Prospectus and/or amended Registration Statement contemplated by Section 3(j), or until it is advised in writing (the "Advice") by the Company that the use of the applicable Prospectus may be resumed, and, in either case, has received copies of any additional or supplemental filings that are incorporated or deemed to be incorporated by reference in such Prospectus or Registration Statement.

5. Registration Expenses. All fees and expenses incident to the performance of or compliance with this Agreement by the Company shall be borne by the Company whether or not

the Registration Statement is filed or becomes effective and whether or not any Registrable Securities are sold pursuant to the Registration Statement. The fees and expenses referred to in the foregoing sentence shall include, without limitation, (i) all registration and filing fees (including, without limitation, fees and expenses (A) with respect to filings required to be made with any Exchange on which Registrable Securities are required hereunder to be listed, (B) with respect to filings required to be made with the Commission, (C) with respect to filings required to be made under the rules of any Exchange and (D) in compliance with state securities or Blue Sky laws (including, without limitation, reasonable fees and disbursements of the Special Counsel for the Holders in connection with Blue Sky qualifications of the Registrable Securities and determination of the eligibility of the Registrable Securities for investment under the laws of such jurisdictions as the Holders of a majority in interest of the Registrable Securities included in the Registration Statement may designate)), (ii) printing expenses (including, without limitation, expenses of printing certificates for Registrable Securities and of printing prospectuses if the printing of prospectuses is requested by the Holders of a majority of the Registrable Securities included in the Registration Statement), (iii) messenger, telephone and delivery expenses, (iv) Securities Act liability insurance, if the Company so desires such insurance, and (v) fees and expenses of all other Persons retained by the Company in connection with the consummation of the transactions contemplated by this Agreement, including, without limitation, the Company's independent public accountants (including the expenses of any comfort letters or costs associated with the delivery by independent public accountants of a comfort letter or comfort letters) and legal counsel. In addition, the Company shall be responsible for all of its internal expenses incurred in connection with the consummation of the transactions contemplated by this Agreement (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expense of any annual audit, the fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange as required hereunder. Notwithstanding the foregoing, the Company shall not be responsible for the payment of (i) underwriting discounts or commissions or (ii) any expenses of any registration proceeding began pursuant to Section 2 if the registration is subsequently withdrawn at the request of the Holder Representative (in which case all Holders shall bear all such expenses pro rata).

6. Indemnification.

(a) Indemnification by the Company. The Company shall, notwithstanding any termination of this Agreement, indemnify and hold harmless each Holder, the officers, directors, agents, brokers (including brokers who offer and sell Registrable Securities as principal as a result of a pledge or any failure to perform under a margin call of Common Stock), investment advisors and employees of each of them, each Person who controls any such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) and the officers, directors, agents and employees of each such controlling Person, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, costs (including, without limitation, reasonable costs of preparation and reasonable attorneys' fees) and expenses (collectively, "Losses"), as incurred, arising out of or relating to any untrue or alleged untrue statement of a material fact contained in the Registration Statement, any Prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case

of any Prospectus or form of prospectus or supplement thereto, in the light of the circumstances under which they were made) not misleading, except to the extent, but only to the extent, that such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, which information was reasonably relied on by the Company for use therein or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such Prospectus or such form of Prospectus or in any amendment or supplement thereto. The Company shall notify the Holders promptly of the institution, threat or assertion of any Proceeding of which the Company is aware in connection with the transactions contemplated by this Agreement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of an Indemnified Party (as defined in Section 6(c) to this Agreement) and shall survive the transfer of the Registrable Securities by the Holders.

(b) Indemnification by Holders. Each Holder shall, severally and not jointly, indemnify and hold harmless the Company, its directors, officers, agents and employees, each Person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and its directors, officers, agents or employees of such controlling Persons, to the fullest extent permitted by applicable law, from and against all Losses, as incurred, arising solely out of or based solely upon any untrue statement of a material fact contained in the Registration Statement, any Prospectus, or any form of prospectus, or arising solely out of or based solely upon any omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or form of prospectus or supplement thereto, in the light of the circumstances under which they were made) not misleading, to the extent, but only to the extent, that such untrue statement or omission is contained in or omitted from any information so furnished in writing by such Holder to the Company specifically for inclusion in the Registration Statement or such Prospectus and that such information was reasonably relied upon by the Company for use in the Registration Statement, such Prospectus or such form of prospectus or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such Prospectus or such form of Prospectus Supplement. Notwithstanding anything to the contrary contained herein, the Holder shall be liable under this Section 6(b) for only that amount as does not exceed the net proceeds to such Holder as a result of the sale of Registrable Securities pursuant to such Registration Statement.

(c) Conduct of Indemnification Proceedings. If any Proceeding shall be brought or asserted against any Person entitled to indemnity hereunder (an "Indemnified Party"), such Indemnified Party promptly shall notify the Person from whom indemnity is sought (the "Indemnifying Party") in writing, and the Indemnifying Party shall assume the defense thereof, including the employment of counsel reasonably satisfactory to the Indemnified Party and the payment of all fees and expenses incurred in connection with defense thereof; provided, that the failure of any Indemnified Party to give such notice shall not relieve the Indemnifying Party of its obligations or liabilities pursuant to this Agreement, except (and only) to the extent that it shall be finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) that such failure shall have proximately and materially adversely prejudiced the Indemnifying Party.

An Indemnified Party shall have the right to employ separate counsel in any such Proceeding and to participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party or Parties unless: (1) the Indemnifying Party has agreed in writing to pay such fees and expenses; or (2) the Indemnifying Party shall have failed promptly to assume the defense of such Proceeding and to employ counsel reasonably satisfactory to such Indemnified Party in any such Proceeding; or (3) the named parties to any such Proceeding (including any impleaded parties) include both such Indemnified Party and the Indemnifying Party, and such Indemnified Party shall have been advised by counsel that a conflict of interest is likely to exist if the same counsel were to represent such Indemnified Party and the Indemnifying Party (in which case, if such Indemnified Party notifies the Indemnifying Party in writing that it elects to employ separate counsel at the expense of the Indemnifying Party, the Indemnifying Party shall not have the right to assume the defense thereof and such counsel shall be at the expense of the Indemnifying Party). The Indemnifying Party shall not be liable for any settlement of any such Proceeding effected without its written consent, which consent shall not be unreasonably withheld. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any pending Proceeding in respect of which any Indemnified Party is a party, unless such settlement includes an unconditional release of such Indemnified Party from all liability on claims that are the subject matter of such Proceeding.

All fees and expenses of the Indemnified Party (including reasonable fees and expenses to the extent incurred in connection with investigating or preparing to defend such Proceeding in a manner not inconsistent with this Section) shall be paid to the Indemnified Party, as incurred, within ten (10) Business Days of written notice thereof to the Indemnifying Party (regardless of whether it is ultimately determined that an Indemnified Party is not entitled to indemnification hereunder; provided, that the Indemnifying Party may require such Indemnified Party to undertake to reimburse all such fees and expenses to the extent it is finally judicially determined that such Indemnified Party is not entitled to indemnification hereunder).

(d) Contribution. If a claim for indemnification under Section 6(a) or Section 6(b) is unavailable to an Indemnified Party because of a failure or refusal of a governmental authority to enforce such indemnification in accordance with its terms (by reason of public policy or otherwise), then each Indemnifying Party, in lieu of indemnifying such Indemnified Party, shall contribute to the amount paid or payable by such Indemnified Party as a result of such Losses, in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party and Indemnified Party in connection with the actions, statements or omissions that resulted in such Losses as well as any other relevant equitable considerations. The relative fault of such Indemnifying Party and Indemnified Party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission of a material fact, has been taken or made by, or relates to information supplied by, such Indemnifying, Party or Indemnified Party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action, statement or omission. The amount paid or payable by a party as a result of any Losses shall be deemed to include, subject to the limitations set forth in Section 6(c), any reasonable attorneys' or other reasonable fees or expenses incurred by such party in connection with any Proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section 6 was available to such party in

accordance with its terms. Notwithstanding anything to the contrary contained herein, the Holder shall be liable or required to contribute under this Section 6(d) for only that amount as does not exceed the net proceeds to such Holder as a result of the sale of Registrable Securities pursuant to such Registration Statement.

The parties hereto agree that it would not be just and equitable if contribution pursuant to this Section 6(d) were determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to in the immediately preceding paragraph. No Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation.

The indemnity and contribution agreements contained in this Section are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties

7. Rule 144. The Company covenants to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to Section 13(a) or 15(d) of the Exchange Act and to promptly furnish the Holders with true and complete copies of all such filings. Upon the request of any Holder, the Company shall deliver to such Holder a written certification of a duly authorized officer as to whether it has complied with such requirements.

8. Miscellaneous.

(a) Remedies. In the event of a breach by the Company or by a Holder, of any of their obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, will be entitled to specific performance of its rights under this Agreement. The Company and each Holder agree that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agrees that, in the event of any action for specific performance in respect of such breach, it shall waive the defense that a remedy at law would be adequate.

(b) No Inconsistent Agreements. Except for the Hyde Registration Rights Agreement and the MBV Registration Rights Agreement, the Company has not, as of the date hereof, entered into any agreement currently in effect, nor shall the Company, on or after the date of this Agreement, enter into any agreement with respect to its securities that is inconsistent with the rights granted to the Holders in this Agreement or otherwise conflicts with the provisions hereof. Except for the Hyde Registration Rights Agreement and the MBV Registration Rights Agreement, the Company has not previously entered into any agreement currently in effect granting any registration rights with respect to any of its securities to any Person. Without limiting the generality of the foregoing, the Company shall not, without the written consent of the Holders of a majority of the then outstanding Registrable Securities, grant to any Person the right to request the Company to register any securities of the Company under the Securities Act or any state securities laws unless the rights so granted are subject in all respects to the prior rights in full of the Holders set forth herein, and are not otherwise in conflict with the provisions

of this Agreement. The Company shall give prompt notice to the Holders of (i) the Company's receipt of any demand for registration of any of its securities (including without limitation a demand under the Hyde Registration Rights Agreement), whether or not the Company considers such demand to be binding upon the Company, and (ii) any decision by the Company (whether or not pursuant to any demand) to register any of its securities for sale under the Securities Act or any state securities laws.

(c) Piggyback on Holder Registrations.

(i) Except as set forth in Section 8(c)(ii) below, neither the Company nor any of its security holders (other than the Holders in such capacity pursuant hereto) may include securities of the Company or such security holder in a Registration Statement filed pursuant to a Demand, and the Company shall not after the date hereof enter into any agreement providing such right to any of its security holders, unless the right so granted is subject in all respects to the prior rights in full of the Holders set forth herein, and is not otherwise in conflict with the provisions of this Agreement.

(ii) Notwithstanding the foregoing, any Registration Statement filed pursuant to the demand of the Holders of the Registrable Securities pursuant to Section 2 hereof, may, subject to the provisions hereof, include shares of Hyde Registrable Securities and MBV Registrable Securities. In the case of an underwritten public offering, if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of Hyde Registrable Securities and/or MBV Registrable Securities would materially adversely affect the offering contemplated in such Registration Statement, and based on such determination recommends inclusion in such Registration Statement of fewer or none of the Registrable Securities, the Hyde Registrable Securities and/or the MBV Registrable Securities, then fewer or none of Hyde Registrable Securities and MBV Registrable Securities shall be included in such Registration Statement unless all of the Registrable Securities requested to be included in such Registration Statement are so included.

(d) Piggy-Back Registrations.

(i) Except as provided in (Section 8(d)(ii)) below, if, at any time when there is not an effective Registration Statement covering the Registrable Shares, the Company shall determine to prepare and file with the Commission a registration statement relating to an offering for its own account or the account of others under the Securities Act of any of its equity securities ("Other Securities"), other than on Form S-4 or Form S-8 (each as promulgated under the Securities Act) or its then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection with stock option or other employee benefit plans, then the Company shall send to each Holder of Registrable Securities written notice of such determination and, if within thirty (30) days after receipt of such notice, any such Holder shall so request in writing (which request shall specify the number of Registrable Securities intended to be disposed of by the Holders), the Company will cause the registration under the Securities Act of all Registrable Securities which the Company has been so requested to register by the Holders, to the extent

required to permit the disposition of the Registrable Securities so to be registered, provided, however, that if at any time after giving written notice of its intention to register Other Securities and prior to the effective date of the registration statement filed in connection with such registration, the Company shall determine for any reason not to register or to delay registration of the Other Securities, the Company may, at its election, give written notice of such determination to such Holders and, thereupon, (i) in the case of a determination not to register, shall be relieved of its obligation to register any Registrable Securities in connection with such registration (but not from its obligation to pay expenses in accordance with Section 5 hereof), and (ii) in the case of a determination to delay registering, shall be permitted to delay registering any Registrable Securities being registered pursuant to this Section 8(d) for the same period as the delay in registering the Other Securities. The Company shall include in such registration statement all or any part of the Registrable Securities which a Holder requests to be registered; provided, however, that the Company shall not be required to register any Registrable Securities pursuant to this Section 8(d) that are eligible for sale pursuant to Rule 144(k) of the Securities Act. In the case of an underwritten public offering, if the managing underwriter(s) or underwriter(s) should reasonably object to the inclusion of the Registrable Securities in such registration statement, or if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of such Registrable Securities would materially adversely affect the offering contemplated in such registration statement, and based on such determination recommends inclusion in such registration statement of fewer or none of the Registrable Securities of the Holders, then (x) the number of Registrable Securities, Hyde Registrable Securities and MBV Registrable Securities included in such registration statement shall be reduced pro-rata among such Holders, any Hyde Holders and any MBV Holders seeking respectively to register Registrable Securities, Hyde Registrable Securities or MBV Registrable Securities, or (y) none of the Registrable Securities of the Holders shall be included in such registration statement, if the Company after consultation with the underwriter(s) recommends the inclusion of none of such Registrable Securities, Hyde Registrable Securities or MBV Registrable Securities; provided, however, that, in either case, if securities are being offered for the account of other persons or entities as well as the Company, such reduction shall not represent a greater fraction of the number of Registrable Securities intended to be offered by the Holders than the fraction of similar reductions imposed on such other persons or entities (other than the Company).

(ii) If, at any time when there is not an effective Registration Statement covering the Registrable Shares, the Company is required to prepare and file with the Commission a registration statement pursuant to the Hyde Registration Rights Agreement, then the Company shall send to each Holder of Registrable Securities written notice of such requirement and, if within thirty (30) days after receipt of such notice, any such Holder shall so request in writing (which request shall specify the number of Registrable Securities intended to be disposed of by the Holders), the Company will cause the registration under the Securities Act of all Registrable Securities which the Company has been so requested to register by the Holders, to the extent requisite to permit the disposition of the Registrable Securities so to be registered. The Company shall include in such registration statement all or any part of the Registrable Securities which a Holder requests to be registered; provided, however, that the Company shall not

be required to register any Registrable Securities pursuant to this Section 8(d) that are eligible for sale pursuant to Rule 144(k) of the Securities Act. In the case of an underwritten public offering, if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of such Registrable Securities would materially adversely affect the offering contemplated in such registration statement, and based on such determination recommend inclusion in such registration statement of fewer or none of the Registrable Securities of the Holders, then the number of Registrable Securities of the Holders included in such registration statement shall be reduced in accordance with the Hyde Registration Rights Agreement.

(e) Failure to File Registration Statement and Other Events. The Company and the Holders agree that the Holders will suffer damages if the Registration Statement is not filed on or prior to the Filing Date and not declared effective by the Commission on or prior to the Effectiveness Date and maintained in the manner contemplated herein during the Effectiveness Period. The Company and the Holders further agree that it would not be feasible to ascertain the extent of such damages with precision. Accordingly, if (i) the Registration Statement is not filed on or prior to the Filing Date, or is not declared effective by the Commission on or prior to the Effectiveness Date (or in the event an additional Registration Statement is filed because the actual number of shares of Common Stock into which the Preferred Stock is convertible exceeds the number of shares of Common Stock initially registered is not filed and declared effective within the time periods set forth in Section 2 (subject to the right of the Company under Section 2 to delay such filing), or (ii) the Company fails to file with the Commission a request for acceleration in accordance with Rule 461 promulgated under the Securities Act within five (5) Business Days of the date that the Company is notified (orally or in writing, whichever is earlier) by the Commission that a Registration Statement will not be "reviewed," or not subject to further review, or (iii) the Registration Statement is filed with and declared effective by the Commission but thereafter ceases to be effective for a period in excess of ten (10) Business Days as to the Registrable Securities for which such Registration Statement is filed at any time prior to the expiration of the Effectiveness Period, without being succeeded immediately by a subsequent Registration Statement filed with and declared effective by the Commission, or (iv) trading in the Common Stock shall be suspended or if the Common Stock is delisted from any Exchange for any reason for more than three (3) Business Days in the aggregate, or (any such failure or breach being referred to as an "Event"), the Company shall pay in cash as liquidated damages for such failure and not as a penalty to any Holder whose Registrable Securities are included on such Registration Statement (or for which a Demand was made during the Demand Period) remain unsold (such securities being "Unsold Securities") as a result of such Event, except as set forth below, an amount equal to two percent (2%) of such Holder's Unsold Securities' pro rata share of the purchase price paid by Purchaser and its Affiliates pursuant to the Purchase Agreement for the initial thirty (30) day period until the applicable Event has been cured, which shall be pro rated for such periods less than thirty (30) days and two percent (2%) of such Holder's Unsold Securities' pro rata share of the purchase price paid by Purchaser and its Affiliates for the Preferred Stock pursuant to the Purchase Agreement for each subsequent thirty (30) day period until the applicable Event has been cured which shall be pro rated for such periods less than thirty days (the "Periodic Amount"). Notwithstanding the foregoing, to the extent the Event occurs for any reason not within the control of the Company, the Company shall have an additional 60 days to cure any Event without penalty and upon failure to cure within such 60 day period, the 2% penalty

provided above shall then apply to such continued Event but the 2% penalty shall be reduced to 1%. Payments to be made pursuant to this Section 8(e) shall be due and payable immediately upon demand in immediately available cash funds. The parties agree that the Periodic Amount represents a reasonable estimate on the part of the parties, as of the date of this Agreement, of the amount of damages that may be incurred by the Holders if the Registration Statement is not filed on or prior to the Filing Date or has not been declared effective by the Commission on or prior to the Effectiveness Date (subject to the right of the Company under Section 2 to delay such filing) and maintained in the manner contemplated herein during the Effectiveness Period or if any other Event as described herein has occurred.

(f) Specific Enforcement, Consent to Jurisdiction.

(i) The Company and the Holders acknowledge and agree that irreparable damage would occur in the event that any of the provisions of this Agreement or the Purchase Agreement were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that the parties shall be entitled to an injunction or injunctions to prevent or cure breaches of the provisions of this Agreement or the Purchase Agreement and to enforce specifically the terms and provisions hereof or thereof, this being in addition to any other remedy to which any of them may be entitled by law or equity.

(ii) Each of the Company and the Holders (i) hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts located in New York City, New York for the purposes of any suit, action or proceeding arising out of or relating to this Agreement or the Purchase Agreement and (ii) hereby waives, and agrees not to assert in any such suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such court, that the suit, action or proceeding is brought in an inconvenient forum or that the venue of the suit, action or proceeding is improper. Each of the Company and the Holders consents to process being served in any such suit, action or proceeding by mailing a copy thereof to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing in this Section 8(f) shall affect or limit any right to serve process in any other manner permitted by law.

(g) Amendments and Waivers. The provisions of this Agreement, including the provisions of this sentence, may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given, unless the same shall be in writing and signed by the Company and a majority of the Holders.

(h) Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earlier of (i) the Business Day following the date of deposit with a nationally recognized overnight courier service or (ii) actual receipt by the party to whom such notice is required to be given. The addresses for such communications shall be, with respect to each Holder, at its address as set forth in the stock transfer records of the Company, and with respect to the Company, addressed to:

GTx, Inc.
3 North Dunlap Street - 3rd Floor
Van Vleet Building
Memphis, Tennessee 38163
Attn: Dr. Mitch S. Steiner
Fax No.: 901-523-9772

or to such other address or addresses as any such party may most recently have designated in writing to the other parties hereto by such notice. Copies of notices to the Company shall be sent to Henry P. Doggrell, General Counsel, GTx, Inc., 3 North Dunlap Street, 3rd Floor, Van Vleet Building, Memphis, Tennessee, 38163, Fax: 901-523-9772. Copies of notices to any Holder shall be sent to the addresses listed on Schedule 1 attached hereto, if applicable. Copies of notices to the Purchaser shall be sent to Kane Kessler, P.C., 1350 Avenue of the Americas, New York, New York 10019, Attn. Robert L. Lawrence, Esq.

(i) Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns and shall inure to the benefit of each Holder and its successors and assigns. The Company may not assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the majority of the Holders. Each Holder may assign its rights hereunder in the manner and to the Persons as permitted under the Purchase Agreement.

(j) Assignment of Registration Rights. The rights of each Holder hereunder shall be automatically assignable by each Holder to any transferee of such Holder of all or a portion of the Purchaser Stock or the Registrable Securities if: (i) the Holder agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company within a reasonable time after such assignment, (ii) the Company is, within a reasonable time after such transfer or assignment, furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such registration rights are being transferred or assigned, (iii) following such transfer or assignment the further disposition of such securities by the transferee or assignees is restricted under the Securities Act and applicable state securities laws, (iv) at or before the time the Company receives the written notice contemplated by clause (ii) of this Section 8(j), the transferee or assignee agrees in writing with the Company to be bound by all of the provisions of this Agreement, and (v) such transfer shall have been made in accordance with the applicable requirements of the Purchase Agreement. In addition, each Holder shall have the right to assign its rights hereunder to any other Person with the prior written consent of the Company, which consent shall not be unreasonably withheld. The rights to assignment shall apply to the Holders (and to subsequent) successors and assigns.

(k) Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and, all of which taken together shall constitute one and the same Agreement. In the event that any signature is delivered by facsimile transmission, such signature shall create a valid binding obligation of the party executing (or on whose behalf such signature is executed) the same with the same force and effect as if such facsimile signature were the original thereof.

(l) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to principles of conflicts of law thereof. The courts of the state of New York and the federal courts located in the Borough of Manhattan, New York City, New York, shall have exclusive jurisdiction with respect to any action or proceeding regarding this Agreement, and each party hereby consents to the jurisdiction of such courts and venue in the County of New York.

(m) Cumulative Remedies. The remedies provided herein are cumulative and not exclusive of any remedies provided by law.

(n) Severability. If any term, provision, covenant or restriction of this Agreement is held to be invalid, illegal, void or unenforceable in any respect, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

(o) Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

(p) Shares Held by the Company and its Affiliates. Whenever the consent or approval of Holders of a specified percentage of Registrable Securities is required hereunder, Registrable Securities held by the Company or its Affiliates (other than any Holder or transferees or successors or assigns thereof if such Holder is deemed to be an Affiliate solely by reason of its holdings of such Registrable Securities) shall not be counted in determining whether such consent or approval was given by the Holders of such required percentage.

(q) Notice of Effectiveness. Within two (2) business days after the Registration Statement which includes the Registrable Securities is ordered effective by the Commission, the Company shall deliver, and shall cause legal counsel for the Company to deliver, to the transfer agent for such Registrable Securities (with copies to the Holders whose Registrable Securities are included in such Registration Statement) confirmation that the Registration Statement has been declared effective by the Commission in the form attached hereto as Exhibit A.

(r) Cancellation of Previous Registration Rights Agreements. This Agreement replaces any and all existing registration rights agreements between the Company and Purchaser (the "Previous Agreements"). The Company and the Purchaser hereby cancel all Previous Agreements in their entirety. Both the Company and the Purchaser agree that as of the date hereof, neither party has any existing liability or continuing obligation or right under any of the Previous Agreements.

(s) Termination. Upon the sale of all the Registrable Securities under a registration statement or pursuant to Rule 144(k) (as determined by the counsel to the Company

pursuant to a written opinion letter, addressed to the Company's transfer agent) the registration obligations of the Company under this Agreement shall automatically terminate.

[Signature Pages Follow]

In Witness Whereof, the parties hereto have caused this Registration Rights Agreement to be duly executed by their respective authorized persons as of the date first indicated above.

GTx, INC.	ORACLE PARTNERS, L.P.
By: /s/ Marc S. Hanover	By: /s/ Larry Feinberg
Name: Marc S. Hanover	Name: Larry Feinberg
Title: President - COO	Title: Managing Member

EXHIBIT A
FORM OF NOTICE OF EFFECTIVENESS
OF REGISTRATION STATEMENT

[Name and Address of Counsel]

Re: GTx, Inc.

Dear [_____]:

We are counsel to GTx, Inc., a Tennessee corporation (the "Company"), and have represented the Company in connection with that certain purchase agreement (the "Purchase Agreement") dated as of _____ __, 2002 by and among the Company and the purchaser named therein (the "Holder," which term includes its successors and assigns) pursuant to which the Company issued to the Holder its 8% Series E Cumulative Convertible Preferred Stock, which is convertible into shares of the Company's common stock, no par value (the "Common Stock"). Pursuant to the Purchase Agreement, the Company has also entered into a Registration Rights Agreement with the Holders (the "Registration Rights Agreement") pursuant to which the Company agreed, among other things, to register the Registrable Securities (as defined in the Registration Rights Agreement) under the Securities Act of 1933, as amended (the "1933 Act"). In connection with the Company's obligations under the Registration Rights Agreement, on _____ ___, 200_, the Company filed a Registration Statement on Form [S-1] (File No. 333-_____) (the "Registration Statement") with the Securities and Exchange Commission (the "SEC") relating to the Registrable Securities which names each of the Holders as a selling stockholder thereunder.

In connection with the foregoing, we advise you that a member of the SEC's staff has advised us by telephone that the SEC has entered an order declaring the Registration Statement effective under the 1933 Act at [ENTER TIME OF EFFECTIVENESS] on [ENTER DATE OF EFFECTIVENESS] and we have no knowledge, after telephonic inquiry of a member of the SEC's staff, that any stop order suspending its effectiveness has been issued or that any proceedings for that purpose are pending before, or threatened by, the SEC and the Registrable Securities are available for resale under the 1933 Act pursuant to the Registration Statement.

Very truly yours,

By:_____

cc: [LIST NAMES OF HOLDERS]

EXHIBIT 4.4

AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this "Agreement") is made and entered into as of August 7, 2003 among GTX, INC., a Tennessee corporation (the "Company"), and J.R. HYDE, III (the "Purchaser").

This Agreement is being entered into pursuant to that certain purchase agreement dated as of the date hereof between the Company, the Purchaser and the other purchasers described therein (the "Purchase Agreement") pursuant to which the Purchaser is acquiring shares of the Company's Series E Preferred Stock (as hereinafter defined).

The Company and the Purchaser hereby agree as follows:

1. Definitions.

(a) Capitalized terms used and not otherwise defined herein shall have the meanings given such terms in the Purchase Agreement. As used in this Agreement, the following terms shall have the following meanings:

"Advice" shall have the meaning set forth in Section 4(c).

"Affiliate" means, with respect to any Person, any other Person that directly or indirectly controls or is controlled by or under common control with such Person. For the purposes of this definition, "control," when used with respect to any Person, means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise; and the terms of "affiliated," "controlling" and "controlled" have meanings correlative to the foregoing.

"Business Day" means any day except Saturday, Sunday and any day which shall be a legal holiday or a day on which banking institutions in the State of Tennessee generally are authorized or required by law or other government actions to close.

"Commission" means the Securities and Exchange Commission.

"Common Stock" means the Company's common stock, no par value per share.

"Demand" has the meaning set forth in Section 2 hereof.

"Demand Date" means the date on which the majority in interest of Holders request that the Company effect a registration statement pursuant to Section 2 hereof.

"Demand Period" shall have that meaning set forth in Section 2.

"Effectiveness Date" means, with respect to the Registration Statement, the 180th day following the Demand Date.

"Effectiveness Period" shall have the meaning set forth in Section 2.

"Event" shall have the meaning set forth in Section 8(e).

"Exchange" means, at any time and from time to time hereafter, any securities exchange, automated interdealer quotation system or other over-the-counter market on which any of the Company's securities are listed or regularly traded or quoted.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Filing Date" shall mean the 60th day following the Demand Date.

"Holder" or "Holders" means the holder or holders, as the case may be, from time to time of Registrable Securities.

"Holder Representative" shall have the meaning set forth in Section 2.

"Indemnified Party" shall have the meaning set forth in Section 6(c).

"Indemnifying Party" shall have the meaning set forth in Section 6(c).

"Losses" shall have the meaning set forth in Section 6(a).

"MBV Holders" means the holders of the MBV Registrable Securities.

"MBV Registrable Securities" means the "Registrable Securities" as defined in the MBV Registration Rights Agreement.

"MBV Registration Rights Agreement" means that certain registration rights agreement between the Company and Memphis Biomed Ventures I, L.P., dated as of the date of this Agreement.

"Oracle Holders" means the holders of the Oracle Registrable Securities.

"Oracle Registrable Securities" means the "Registrable Securities" as defined in the Oracle Registration Rights Agreement.

"Oracle Registration Rights Agreement" means that certain registration rights agreement between the Company and Oracle Partners, L.P., dated as of the date of this Agreement.

"Other Securities" has the meaning set forth in Section 8(d)(i).

"Person," whether or not capitalized, means a natural person, corporation, partnership, trust, incorporated or unincorporated association, joint venture, partnership (including a limited partnership), limited liability company, joint stock company, government (or an agency or political subdivision thereof) or other entity of any kind.

"Proceeding" means an action, claim, suit, investigation or proceeding (including, without limitation, an investigation or partial proceeding, such as a deposition), whether commenced or threatened.

"Prospectus" means the prospectus included in the Registration Statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated under the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by the Registration Statement, and all other amendments and supplements to the Prospectus, including post-effective amendments, and all material incorporated by reference in such Prospectus.

"Purchase Agreement" as the meaning set forth in the second introductory paragraph of this Agreement.

"Purchaser Stock" means (i) all Series A Preferred Stock and B Preferred Stock (ii) Series C Preferred Stock issued to J. R. Hyde, III, and Pittco Associates, LP pursuant to that certain purchase agreement dated as of October 5, 2001 by and among the Company, Oracle Partners, L.P., Oracle Investment Management, Inc., the Purchaser, and Pittco Associates, LP (iii) Series D Preferred Stock issued to Purchaser or his Affiliates pursuant to that certain purchase agreement, dated as of July 17, 2002, by and among the Company, the Purchaser, Oracle Partners, L.P., Oracle Institutional Partners, L.P., and Memphis Biomed Ventures, L.P.; (iv) Series E Preferred Stock issued to Purchaser pursuant to the Purchase Agreement; and (v) any security issued as a dividend to a beneficial owner of the preferred stock identified in subsections (i), (ii), (iii) and (iv).

"Registrable Securities" means (i) the shares of Common Stock now or at any time hereafter issuable upon conversion of the Purchaser Stock and (ii) any other securities which may hereafter become receivable by the Holders upon conversion of the Purchaser Stock, including any dividend or other distribution with respect to, conversion or exchange of, or in replacement of, Registrable Securities.

"Registration Statement" means the registration statement contemplated by Section 2, including (in each case) the Prospectus, amendments and supplements to such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, and all material incorporated by reference in such registration statement.

"Rule 144" means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Rule 158" means Rule 158 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Rule 415" means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Securities Act" means the Securities Act of 1933, as amended.

"Series A Preferred Stock" means the 8% Series A Cumulative Convertible Preferred Stock of the Company.

"Series B Preferred Stock" means the 8% Series B Cumulative Convertible Preferred Stock of the Company.

"Series C Preferred Stock" means the 8% Series C Cumulative Convertible Preferred Stock of the Company.

"Series D Preferred Stock" means the 8% Series D Cumulative Convertible Preferred Stock of the Company.

"Series E Preferred Stock" means the 8% Series E Cumulative Convertible Preferred Stock of the Company.

"Special Counsel" means any special counsel to the Holder Representative as designated by a majority of the Holders.

"Unsold Securities" shall have the meaning set forth in Section 8(e).

(b) Use of the singular or of the plural shall be construed to include both the singular and the plural unless the context clearly indicates that only the singular or only the plural is intended. Use of any gender shall be construed to include all other genders unless the context clearly indicates that less than all the genders is intended.

2. Demand Registration. At any time after the Company has filed any Registration Statement under the Securities Act, during which there is no effective registration statement relating to the Registrable Securities, the Holders of not less than a majority in interest of the Registrable Securities may make up to two (2) requests in writing (each a "Demand") requiring the Company to effect a registration under the Securities Act of Registrable Securities. Upon receipt of such a Demand, the Company shall, not later than the Filing Date, prepare and file with the Commission a "shelf" Registration Statement covering all Registrable Securities for which such Demand is made for an offering to be made on a continuous basis pursuant to Rule 415. Both Registration Statements made pursuant to a Demand shall be on a form appropriate for registration in accordance herewith; provided, however, that only one such Registration Statement need be on Form S-1. Included in such Demand from the Holders of not less than a majority of the Registrable Securities shall be a written designation of a person or entity to act as the agent representative for such Holders (the "Holder Representative"). The Holder Representative shall have exclusive authority to act for such Holders, and its action and consents shall be binding upon the Holders except as otherwise specifically provided herein. The Company shall (i) not permit any securities other than the Registrable Securities to be included in the Registration Statement (unless such requirement is waived in writing by the Holder Representative, or as provided pursuant to Section 8(c)(ii) hereof) and (ii) use its best efforts to cause the Registration Statement to be declared effective under the Securities Act (including filing with the Commission a request for acceleration of effectiveness in accordance with Rule 461 promulgated under the Securities Act within five (5) Business Days of the date that the Company is notified (orally or in writing, whichever is earlier) by the Commission that a Registration Statement will not be "reviewed," or not be subject to further review, and to keep

such Registration Statement continuously effective under the Securities Act until such date as is the earlier of (x) the date when all Registrable Securities covered by such Registration Statement have been sold or (y) the date on which the Registrable Securities may be sold without any restriction pursuant to Rule 144(k) as determined by the counsel to the Company pursuant to a written opinion letter, addressed to the Company's transfer agent to such effect (the "Effectiveness Period"). If the Company receives a Demand from one or more Holders constituting Holders of a majority of the Registrable Securities and the designation of a Holder Representative to act as their exclusive agent, the Company shall, not later than one business day thereafter, give notice thereof (the "Demand Notice") to all other Holders, who shall then have 30 days (the "Demand Period") to serve their own Demands for registration and their own agreement to appoint the Holder Representative as their exclusive agent. At the end of the Demand Period, (i) the Company shall proceed with the registration of all the Registrable Securities for which such a Demand is made and keep such Registration Statement continuously effective throughout the Effectiveness Period as required by this Agreement. Notwithstanding the foregoing, the Company shall be entitled to postpone for up to 90 days the filing, effectiveness, supplementing or amending of any registration statement otherwise required to be prepared and filed pursuant to this Agreement, if the Board of Directors of the Company determines that such registration or the offer and sale of Registrable Securities contemplated thereby would interfere with, or require premature disclosure of, any material financing, acquisition, disposition, reorganization or other transaction involving the Company or any of its subsidiaries and the Company promptly gives the Holder notice of such determination. The Holders hereby acknowledge that any notice given by the Company pursuant to this Section 2 shall constitute material non-public information and that the United States securities laws prohibit any Person who has material non-public information about a company from purchasing or selling securities of such company or from communicating such information to any other Person under circumstances in which it is reasonably foreseeable that such Person is likely to purchase or sell such securities.

3. Registration Procedures. In connection with the Company's registration obligations pursuant to Section 2 hereof, the Company shall:

(a) Prepare and file with the Commission on or prior to the Filing Date, a Registration Statement on Form S-1 (or on another form appropriate for such registration in accordance herewith) in accordance with the method or methods of distribution thereof as specified by the Holder Representative (except if otherwise directed by the Holder Representative), and cause the Registration Statement to become effective and remain effective during the Effectiveness Period; provided, however, that not less than five (5) Business Days prior to the filing of the Registration Statement or any related Prospectus or any amendment or supplement thereto (including any document that would be incorporated therein by reference), the Company shall (i) furnish to the Holder Representative and its Special Counsel, copies of all such documents proposed to be filed, which documents (other than those incorporated by reference) will be subject to the review of the Holders and the Special Counsel, and (ii) at the request of the Holder Representative, cause its officers and directors, counsel and independent certified public accountants to respond to such inquiries as shall be necessary, in the reasonable opinion of the Special Counsel to the Holder Representative, to conduct a reasonable investigation within the meaning of the Securities Act. The Company shall not file the Registration Statement or any such Prospectus or any amendments or supplements thereto to

which the Holder Representative or the Special Counsel shall reasonably object in writing within three (3) Business Days of their receipt thereof.

(b) (i) Prepare and file with the Commission such amendments including post-effective amendments, to the Registration Statement as may be necessary to keep the Registration Statement continuously effective as to the Registrable Securities for the Effectiveness Period; (ii) cause the related Prospectus to be amended or supplemented by any required Prospectus supplement, and as so supplemented or amended to be filed pursuant to Rule 424 (or any similar provisions then in force) promulgated under the Securities Act; and (iii) respond as promptly as practicable to any comments received from the Commission with respect to the Registration Statement or any amendment thereto and as promptly as practicable provide the Holder Representative true and complete copies of all correspondence from and to the Commission relating to the Registration Statement.

(c) Notify the Holder Representative and the Special Counsel as promptly as possible but in no event less than five (5) Business Days prior to such filing, and confirm such notice in writing no later than one (1) Business Day following the day when a Prospectus or any Prospectus supplement or post-effective amendment to the Registration Statement: (A) is proposed to be filed; (B) when the Commission notifies the Company whether there will be a "review" of such Registration Statement and whenever the Commission comments in writing on such Registration Statement; and (C) with respect to the Registration Statement or any post-effective amendment, when the same has become effective, and during the Effectiveness Period, (i) of any request by the Commission or any other Federal or state governmental authority for amendments or supplements to the Registration Statement or Prospectus or for additional information; (ii) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement covering any or all of the Registrable Securities or the initiation of any Proceedings for that purpose; (iii) of the receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction, or the initiation or threatening of any Proceeding for such purpose; and (iv) of the occurrence of any event that makes any statement made in the Registration Statement or Prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires any revisions to the Registration Statement, Prospectus or other documents so that, in the case of the Registration Statement or the Prospectus, as the case may be, it will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(d) Use its best efforts to avoid the issuance of, or, if issued, obtain the withdrawal of, (i) any order suspending the effectiveness of the Registration Statement or (ii) any suspension of the qualification (or exemption from qualification) of any of the Registrable Securities for sale in any jurisdiction, at the earliest practicable moment.

(e) If requested by the Holder Representative, (i) promptly incorporate in a Prospectus supplement or post-effective amendment to the Registration Statement such information as the Company reasonably agrees should be included therein and (ii) make all required filings of such Prospectus supplement or such post-effective amendment as soon as

practicable after the Company has received notification of the matters to be incorporated in such Prospectus supplement or post-effective amendment.

(f) Furnish the Holder Representative and the Special Counsel, without charge, at least one conformed copy of each Registration Statement and each amendment thereto, including financial statements and schedules, all documents incorporated or deemed to be incorporated therein by reference and all exhibits to the extent reasonably requested, promptly after the filing of such documents with the Commission.

(g) Promptly deliver to Holder Representative and the Special Counsel, without charge, as many copies of the Prospectus or Prospectuses (including each form of prospectus) and each amendment or supplement thereto as either may reasonably request; and the Company hereby consents to the use of such Prospectus and each amendment or supplement thereto by each of the selling Holders in connection with the offer and sale of the Registrable Securities covered by such Prospectus and any amendment or supplement thereto.

(h) Prior to any public offering of Registrable Securities, use its best efforts to register or qualify or cooperate with the Holder Representative and the Special Counsel in connection with the registration or qualification (or exemption from such registration or qualification) of such Registrable Securities for offer and sale under the securities or Blue Sky laws of such jurisdictions within the United States as any Holder requests in writing, to keep each such registration or qualification (or exemption therefrom) effective during the Effectiveness Period and to do any and all other acts or things reasonably necessary or advisable to enable the disposition in such jurisdictions of the Registrable Securities covered by a Registration Statement; provided, however, that the Company shall not be required to qualify generally to do business in any jurisdiction where it is not then so qualified or to take any action that would subject it to general service of process in any such jurisdiction where it is not then so subject or subject the Company to any material tax in any such jurisdiction where it is not then so subject.

(i) Cooperate with the Holders to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be sold pursuant to a Registration Statement, which certificates shall be free of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any Holder may request at least two (2) Business Days prior to any sale of Registrable Securities.

(j) Upon the occurrence of any event contemplated by Section 3(c)(iv), as promptly as practicable, prepare a supplement or amendment, including a post-effective amendment, to the Registration Statement or a supplement to the related Prospectus or any document incorporated or deemed to be incorporated therein by reference, and file any other required document so that, as thereafter delivered, neither the Registration Statement nor such Prospectus will contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(k) Use its best efforts to cause all Registrable Securities relating to such Registration Statement to be listed on each Exchange.

(l) Comply in all material respects with all applicable rules and regulations of the Commission and make generally available to its security holders earning statements satisfying the provisions of Section 11(a) of the Securities Act and Rule 158 not later than 45 days after the end of any 12-month period (or 90 days after the end of any 12-month period if such period is a fiscal year) commencing on the first day of the first fiscal quarter of the Company after the effective date of the Registration Statement, which statement shall conform to the requirements of Rule 158.

(m) Require each selling Holder to furnish to the Company information regarding such Holder and the distribution of such Registrable Securities as is required by law to be disclosed in the Registration Statement, and the Company may exclude from such registration the Registrable Securities of any such Holder who fails to furnish such information within a reasonable time prior to the filing of each Registration Statement, supplemented Prospectus and/or amended Registration Statement.

If the Registration Statement refers to any Holder by the name or otherwise as the holder of any securities of the Company, then such Holder shall have the right to require (if such reference to such Holder by name or otherwise is not required by the Securities Act or any similar federal statute or regulation then in force) the deletion of the reference to such Holder in any amendment or supplement to the Registration Statement filed or prepared subsequent to the time that such reference ceases to be required.

4. Holder Obligations. In connection with the Company's registration obligations hereunder, each Holder:

(a) Covenants and agrees that it will not sell any Registrable Securities under the Registration Statement until it has received copies of the Prospectus as then amended or supplemented as contemplated in Section 3(g) and notice from the Company that such Registration Statement and any post-effective amendments thereto have become effective as contemplated by Section 3(c).

(b) Covenants and agrees that it and its officers, directors or Affiliates, if any, will comply with the prospectus delivery requirements of the Securities Act as applicable to them in connection with sales of Registrable Securities pursuant to the Registration Statement.

(c) Agrees by its acquisition of the Registrable Securities that, upon receipt of a notice from the Company of the occurrence of any event of the kind described in Section 3(c)(i), Section 3(c)(ii), Section 3(c)(iii) or Section 3(c)(iv), such Holder will forthwith discontinue disposition of such Registrable Securities under the Registration Statement until such Holder's receipt of the copies of the supplemented Prospectus and/or amended Registration Statement contemplated by Section 3(j), or until it is advised in writing (the "Advice") by the Company that the use of the applicable Prospectus may be resumed, and, in either case, has received copies of any additional or supplemental filings that are incorporated or deemed to be incorporated by reference in such Prospectus or Registration Statement.

5. Registration Expenses. All fees and expenses incident to the performance of or compliance with this Agreement by the Company shall be borne by the Company whether or not

the Registration Statement is filed or becomes effective and whether or not any Registrable Securities are sold pursuant to the Registration Statement. The fees and expenses referred to in the foregoing sentence shall include, without limitation, (i) all registration and filing fees (including, without limitation, fees and expenses (A) with respect to filings required to be made with any Exchange on which Registrable Securities are required hereunder to be listed, (B) with respect to filings required to be made with the Commission, (C) with respect to filings required to be made under the rules of any Exchange and (D) in compliance with state securities or Blue Sky laws (including, without limitation, reasonable fees and disbursements of Special Counsel for the Holder Representative in connection with Blue Sky qualifications of the Registrable Securities and determination of the eligibility of the Registrable Securities for investment under the laws of such jurisdictions as the Holder Representative may reasonably designate)), (ii) printing expenses (including, without limitation, expenses of printing certificates for Registrable Securities and of printing prospectuses if the printing of prospectuses is requested by the Holder Representative), (iii) messenger, telephone and delivery expenses, (iv) Securities Act liability insurance, if the Company so desires such insurance, and (v) fees and expenses of all other Persons retained by the Company in connection with the consummation of the transactions contemplated by this Agreement, including, without limitation, the Company's independent public accountants (including the expenses of any comfort letters or costs associated with the delivery by independent public accountants of a comfort letter or comfort letters) and Special Counsel selected by the Holder Representative. In addition, the Company shall be responsible for all of its internal expenses incurred in connection with the consummation of the transactions contemplated by this Agreement (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expense of any annual audit, the fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange as required hereunder. Notwithstanding the foregoing, the Company shall not be responsible for the payment of (i) underwriting discounts or commissions or (ii) any expense of any registration proceeding began pursuant to Section 2 if the registration is subsequently withdrawn at the request of the Holder Representative (in which case all Holders shall bear all such expenses pro rata).

6. Indemnification.

(a) Indemnification by the Company. The Company shall, notwithstanding any termination of this Agreement, indemnify and hold harmless each Holder, the officers, directors, agents, brokers (including brokers who offer and sell Registrable Securities as principal as a result of a pledge or any failure to perform under a margin call of Common Stock), investment advisors and employees of each of them, each Person who controls any such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) and the officers, directors, agents and employees of each such controlling Person, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, costs (including, without limitation, reasonable costs of preparation and reasonable attorneys' fees) and expenses (collectively, "Losses"), as incurred, arising out of or relating to any untrue or alleged untrue statement of a material fact contained in the Registration Statement, any Prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or form of prospectus or supplement thereto, in the light of the circumstances

under which they were made) not misleading, except to the extent, but only to the extent, that such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, which information was reasonably relied on by the Company for use therein or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such Prospectus or such form of Prospectus or in any amendment or supplement thereto. The Company shall notify the Holders promptly of the institution, threat or assertion of any Proceeding of which the Company is aware in connection with the transactions contemplated by this Agreement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of an Indemnified Party (as defined in Section 6(c) to this Agreement) and shall survive the transfer of the Registrable Securities by the Holders.

(b) Indemnification by Holders. Each Holder shall, severally and not jointly, indemnify and hold harmless the Company, its directors, officers, agents and employees, each Person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and its directors, officers, agents or employees of such controlling Persons, to the fullest extent permitted by applicable law, from and against all Losses, as incurred, arising solely out of or based solely upon any untrue statement of a material fact contained in the Registration Statement, any Prospectus, or any form of prospectus, or arising solely out of or based solely upon any omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or form of prospectus or supplement thereto, in the light of the circumstances under which they were made) not misleading, to the extent, but only to the extent, that such untrue statement or omission is contained in or omitted from any information so furnished in writing by such Holder to the Company specifically for inclusion in the Registration Statement or such Prospectus and that such information was reasonably relied upon by the Company for use in the Registration Statement, such Prospectus or such form of prospectus or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such Prospectus or such form of Prospectus Supplement. Notwithstanding anything to the contrary contained herein, the Holder shall be liable under this Section 6(b) for only that amount as does not exceed the net proceeds to such Holder as a result of the sale of Registrable Securities pursuant to such Registration Statement.

(c) Conduct of Indemnification Proceedings. If any Proceeding shall be brought or asserted against any Person entitled to indemnity hereunder (an "Indemnified Party"), such Indemnified Party promptly shall notify the Person from whom indemnity is sought (the "Indemnifying Party) in writing, and the Indemnifying Party shall assume the defense thereof, including the employment of counsel reasonably satisfactory to the Indemnified Party and the payment of all fees and expenses incurred in connection with defense thereof; provided, that the failure of any Indemnified Party to give such notice shall not relieve the Indemnifying Party of its obligations or liabilities pursuant to this Agreement, except (and only) to the extent that it shall be finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) that such failure shall have proximately and materially adversely prejudiced the Indemnifying Party.

An Indemnified Party shall have the right to employ separate counsel in any such Proceeding and to participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party or Parties unless: (1) the Indemnifying Party has agreed in writing to pay such fees and expenses; or (2) the Indemnifying Party shall have failed promptly to assume the defense of such Proceeding and to employ counsel reasonably satisfactory to such Indemnified Party in any such Proceeding; or (3) the named parties to any such Proceeding (including any impleaded parties) include both such Indemnified Party and the Indemnifying Party, and such Indemnified Party shall have been advised by counsel that a conflict of interest is likely to exist if the same counsel were to represent such Indemnified Party and the Indemnifying Party (in which case, if such Indemnified Party notifies the Indemnifying Party in writing that it elects to employ separate counsel at the expense of the Indemnifying Party, the Indemnifying Party shall not have the right to assume the defense thereof and such counsel shall be at the expense of the Indemnifying Party). The Indemnifying Party shall not be liable for any settlement of any such Proceeding effected without its written consent, which consent shall not be unreasonably withheld. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any pending Proceeding in respect of which any Indemnified Party is a party, unless such settlement includes an unconditional release of such Indemnified Party from all liability on claims that are the subject matter of such Proceeding.

All fees and expenses of the Indemnified Party (including reasonable fees and expenses to the extent incurred in connection with investigating or preparing to defend such Proceeding in a manner not inconsistent with this Section) shall be paid to the Indemnified Party, as incurred, within ten (10) Business Days of written notice thereof to the Indemnifying Party (regardless of whether it is ultimately determined that an Indemnified Party is not entitled to indemnification hereunder; provided, that the Indemnifying Party may require such Indemnified Party to undertake to reimburse all such fees and expenses to the extent it is finally judicially determined that such Indemnified Party is not entitled to indemnification hereunder).

(d) Contribution. If a claim for indemnification under Section 6(a) or Section 6(b) is unavailable to an Indemnified Party because of a failure or refusal of a governmental authority to enforce such indemnification in accordance with its terms (by reason of public policy or otherwise), then each Indemnifying Party, in lieu of indemnifying such Indemnified Party, shall contribute to the amount paid or payable by such Indemnified Party as a result of such Losses, in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party and Indemnified Party in connection with the actions, statements or omissions that resulted in such Losses as well as any other relevant equitable considerations. The relative fault of such Indemnifying Party and Indemnified Party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission of a material fact, has been taken or made by, or relates to information supplied by, such Indemnifying Party or Indemnified Party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action, statement or omission. The amount paid or payable by a party as a result of any Losses shall be deemed to include, subject to the limitations set forth in Section 6(c), any reasonable attorneys' or other reasonable fees or expenses incurred by such party in connection with any Proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section 6 was available to such party in

accordance with its terms. Notwithstanding anything to the contrary contained herein, the Holder shall be liable or required to contribute under this Section 6(d) for only that amount as does not exceed the net proceeds to such Holder as a result of the sale of Registrable Securities pursuant to such Registration Statement.

The parties hereto agree that it would not be just and equitable if contribution pursuant to this Section 6(d) were determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to in the immediately preceding paragraph. No Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation.

The indemnity and contribution agreements contained in this Section are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties

7. Rule 144. The Company covenants to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to Section 13(a) or 15(d) of the Exchange Act and to promptly furnish the Holders with true and complete copies of all such filings. Upon the request of any Holder, the Company shall deliver to such Holder a written certification of a duly authorized officer as to whether it has complied with such requirements.

8. Miscellaneous.

(a) Remedies. In the event of a breach by the Company or by a Holder, of any of their obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, will be entitled to specific performance of its rights under this Agreement. The Company and each Holder agree that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agrees that, in the event of any action for specific performance in respect of such breach, it shall waive the defense that a remedy at law would be adequate.

(b) No Inconsistent Agreements. Except for the Oracle Registration Rights Agreement and the MBV Registration Rights Agreement, the Company has not, as of the date hereof entered into any agreement currently in effect, nor shall the Company, on or after the date of this Agreement, enter into any agreement with respect to its securities that is inconsistent with the rights granted to the Holders in this Agreement or otherwise conflicts with the provisions hereof. Except for the Oracle Registration Rights Agreement and the MBV Registration Rights Agreement, the Company has not previously entered into any agreement currently in effect granting any registration rights with respect to any of its securities to any Person. Without limiting the generality of the foregoing, the Company shall not, without the written consent of the Holders of a majority of the then outstanding Registrable Securities, grant to any Person the right to request the Company to register any securities of the Company under the Securities Act or any state securities laws unless the rights so granted are subject in all respects to the prior rights in full of the Holders set forth herein, and are not otherwise in conflict with the provisions

of this Agreement. The Company shall give prompt notice to the Holders of (i) the Company's receipt of any demand for registration of any of its securities (including without limitation a demand under the Oracle Registration Rights Agreement), whether or not the Company considers such demand to be binding upon the Company, and (ii) any decision by the Company (whether or not pursuant to any demand) to register any of its securities for sale under the Securities Act or any state securities laws.

(c) Piggyback on Holder Registrations.

(i) Except as set forth in Section 8(c)(ii) below, neither the Company nor any of its security holders (other than the Holders in such capacity pursuant hereto) may include securities of the Company in a Registration Statement filed pursuant to a demand under this Agreement, and the Company shall not after the date hereof enter into any agreement providing such right to any of its security holders, unless the right so granted is subject in all respects to the prior rights in full of the Holders set forth herein, and is not otherwise in conflict with the provisions of this Agreement.

(ii) Notwithstanding the foregoing, any Registration Statement filed pursuant to the demand of the Holders of the Registrable Securities pursuant to Section 2 hereof, may, subject to the provisions hereof, include shares of Oracle Registrable Securities and MBV Registrable Securities. In the case of an underwritten public offering, if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of Oracle Registrable Securities and/or MBV Registrable Securities would materially adversely affect the offering contemplated in such Registration Statement, and based on such determination recommends inclusion in such Registration Statement of fewer or none of the Registrable Securities, the Oracle Registrable Securities and/or the MBV Registrable Securities, then fewer or none of Oracle Registrable Securities and MBV Registrable Securities shall be included in such Registration Statement unless all of the Registrable Securities requested to be included in such Registration Statement are so included.

(d) Piggy-Back Registrations.

(i) Except as provided in Section 8(d)(ii) below, if, at any time when there is not an effective Registration Statement covering the Registrable Shares, the Company shall determine to prepare and file with the Commission a registration statement relating to an offering for its own account or the account of others under the Securities Act of any of its equity securities ("Other Securities"), other than on Form S-4 or Form S-8 (each as promulgated under the Securities Act) or its then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection with stock option or other employee benefit plans, then the Company shall send to each Holder of Registrable Securities written notice of such determination and, if within thirty (30) days after receipt of such notice, any such Holder shall so request in writing (which request shall specify the number of Registrable Securities intended to be disposed of by the Holders), the Company will cause the registration under the Securities Act of all Registrable Securities which the Company has been so requested to register by the Holders, to the extent

required to permit the disposition of the Registrable Securities so to be registered, provided, however, that if at any time after giving written notice of its intention to register Other Securities and prior to the effective date of the registration statement filed in connection with such registration, the Company shall determine for any reason not to register or to delay registration of the Other Securities, the Company may, at its election, give written notice of such determination to such Holders and, thereupon, (i) in the case of a determination not to register, shall be relieved of its obligation to register any Registrable Securities in connection with such registration (but not from its obligation to pay expenses in accordance with Section 5 hereof), and (ii) in the case of a determination to delay registering, shall be permitted to delay registering any Registrable Securities being registered pursuant to this Section 8(d) for the same period as the delay in registering the Other Securities. The Company shall include in such registration statement all or any part of the Registrable Securities which a Holder requests to be registered; provided, however, that the Company shall not be required to register any Registrable Securities pursuant to this Section 8(d) that are eligible for sale pursuant to Rule 144(k) of the Securities Act. In the case of an underwritten public offering, if the managing underwriter(s) or underwriter(s) should reasonably object to the inclusion of the Registrable Securities in such registration statement, or if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of such Registrable Securities would materially adversely affect the offering contemplated in such registration statement, and based on such determination recommends inclusion in such registration statement of fewer or none of the Registrable Securities of the Holders, then (x) the number of Registrable Securities, Oracle Registrable Securities and MBV Registrable Securities included in such registration statement shall be reduced pro-rata among such Holders, any Oracle Holders and any MBV Holders seeking respectively to register Registrable Securities, Oracle Registrable Securities or MBV Registrable Securities, or (y) none of the Registrable Securities of the Holders shall be included in such registration statement, if the Company after consultation with the underwriter(s) recommends the inclusion of none of such Registrable Securities, Oracle Registrable Securities or MBV Registrable Securities; provided, however, that, in either case, if securities are being offered for the account of other persons or entities as well as the Company, such reduction shall not represent a greater fraction of the number of Registrable Securities intended to be offered by the Holders than the fraction of similar reductions imposed on such other persons or entities (other than the Company).

(ii) If, at any time when there is not an effective Registration Statement covering the Registrable Shares, the Company is required to prepare and file with the Commission a registration statement pursuant to the Oracle Registration Rights Agreement, then the Company shall send to each Holder of Registrable Securities written notice of such requirement and, if within thirty (30) days after receipt of such notice, any such Holder shall so request in writing (which request shall specify the number of Registrable Securities intended to be disposed of by the Holders), the Company will cause the registration under the Securities Act of all Registrable Securities which the Company has been so requested to register by the Holders, to the extent requisite to permit the disposition of the Registrable Securities so to be registered. The Company shall include in such registration statement all or any part of the Registrable Securities which a Holder requests to be registered; provided, however, that the Company shall not

be required to register any Registrable Securities pursuant to this Section 8(d) that are eligible for sale pursuant to Rule 144(k) of the Securities Act. In the case of an underwritten public offering, if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of such Registrable Securities would materially adversely affect the offering contemplated in such registration statement, and based on such determination recommend inclusion in such registration statement of fewer or none of the Registrable Securities of the Holders, then the number of Registrable Securities of the Holders included in such registration statement shall be reduced in accordance with the Oracle Registration Rights Agreement.

(e) Failure to File Registration Statement and Other Events. The Company and the Holders agree that the Holders will suffer damages if the Registration Statement is not filed on or prior to the Filing Date and not declared effective by the Commission on or prior to the Effectiveness Date and maintained in the manner contemplated herein during the Effectiveness Period. The Company and the Holders further agree that it would not be feasible to ascertain the extent of such damages with precision. Accordingly, if (i) the Registration Statement is not filed on or prior to the Filing Date, or is not declared effective by the Commission on or prior to the Effectiveness Date (or in the event an additional Registration Statement is filed because the actual number of shares of Common Stock into which the Preferred Stock is convertible exceeds the number of shares of Common Stock initially registered is not filed and declared effective within the time periods set forth in Section 2 (subject to the right of the Company under Section 2 to delay such filing), or (ii) the Company fails to file with the Commission a request for acceleration in accordance with Rule 461 promulgated under the Securities Act within five (5) Business Days of the date that the Company is notified (orally or in writing, whichever is earlier) by the Commission that a Registration Statement will not be "reviewed," or not subject to further review, or (iii) the Registration Statement is filed with and declared effective by the Commission but thereafter ceases to be effective for a period in excess of ten (10) Business Days as to the Registrable Securities for which such Registration Statement is filed at any time prior to the expiration of the Effectiveness Period, without being succeeded immediately by a subsequent Registration Statement filed with and declared effective by the Commission, or (iv) trading in the Common Stock shall be suspended or if the Common Stock is delisted from any Exchange for any reason for more than three (3) Business Days in the aggregate, or (v) the conversion rights of the Holders are suspended for any reason (any such failure or breach being referred to as an "Event"), the Company shall pay in cash as liquidated damages for such failure and not as a penalty to any Holder whose Registrable Securities are included on such Registration Statement (or for which a Demand was made during the Demand Period) remain unsold (such securities being "Unsold Securities") as a result of such Event, except as set forth below, an amount equal to two percent (2%) of such Holder's Unsold Securities' pro rata share of the purchase price paid by Purchaser and its Affiliates pursuant to the Purchase Agreement for the initial thirty (30) day period until the applicable Event has been cured, which shall be pro rated for such periods less than thirty (30) days and two percent (2%) of such Holder's Unsold Securities' pro rata share of the purchase price paid by Purchaser and its Affiliates for the Preferred Stock pursuant to the Purchase Agreement for each subsequent thirty (30) day period until the applicable Event has been cured which shall be pro rated for such periods less than thirty days (the "Periodic Amount"). Notwithstanding the foregoing, to the extent the Event occurs for any reason not within the control of the Company, the Company shall have an additional 60 days to cure any

Event without penalty and upon failure to cure within such 60 day period, the 2% penalty provided above shall then apply to such continued Event but the 2% penalty shall be reduced to 1%. Payments to be made pursuant to this Section 8(e) shall be due and payable immediately upon demand in immediately available cash funds. The parties agree that the Periodic Amount represents a reasonable estimate on the part of the parties, as of the date of this Agreement, of the amount of damages that may be incurred by the Holders if the Registration Statement is not filed on or prior to the Filing Date (subject to the right of the Company under Section 2 to delay such filing) or has not been declared effective by the Commission on or prior to the Effectiveness Date and maintained in the manner contemplated herein during the Effectiveness Period or if any other Event as described herein has occurred.

(f) Specific Enforcement, Consent to Jurisdiction.

(i) The Company and the Holders acknowledge and agree that irreparable damage would occur in the event that any of the provisions of this Agreement or the Purchase Agreement were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that the parties shall be entitled to an injunction or injunctions to prevent or cure breaches of the provisions of this Agreement or the Purchase Agreement and to enforce specifically the terms and provisions hereof or thereof, this being in addition to any other remedy to which any of them may be entitled by law or equity.

(ii) Each of the Company and the Holders (i) hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts located in Shelby County, Tennessee for the purposes of any suit, action or proceeding arising out of or relating to this Agreement or the Purchase Agreement and (ii) hereby waives, and agrees not to assert in any such suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such court, that the suit, action or proceeding is brought in an inconvenient forum or that the venue of the suit, action or proceeding is improper. Each of the Company and the Holders consents to process being served in any such suit, action or proceeding by mailing a copy thereof to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing in this Section 8(f) shall affect or limit any right to serve process in any other manner permitted by law.

(g) Amendments and Waivers. The provisions of this Agreement, including the provisions of this sentence, may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given, unless the same shall be in writing and signed by the Company and a majority of the Holders.

(h) Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earlier of (i) the Business Day following the date of deposit with a nationally recognized overnight courier service or (ii) actual receipt by the party to whom such notice is required to be given. The addresses for such communications shall be, with respect to each Holder, at its address as set forth in the stock transfer records of the Company, and with respect to the Company, addressed to:

GTx, Inc.
3 North Dunlap Street - 3rd Floor
Van Vleet Building
Memphis, Tennessee 38163
Attn: Dr. Mitch S. Steiner
Fax No.: (901) 523-9772

or to such other address or addresses as any such party may most recently have designated in writing to the other parties hereto by such notice. Copies of notices to the Company shall be sent to Henry P. Doggrell, General Counsel, GTx, Inc., 3 North Dunlap Street, 3rd Floor, Van Vleet Building, Memphis, Tennessee, 38163. Fax: (901) 523-9772. Copies of notices to any Holder shall be sent to the addresses listed on Schedule 1 attached hereto, if applicable. Copies of notices to the Purchaser shall be sent to Baker Donelson Bearman & Caldwell, 165 Madison Avenue, Ste. 2100, Memphis, Tennessee 38103, Attn: Ben Adams, Jr.

(i) Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns and shall inure to the benefit of each Holder and its successors and assigns. The Company may not assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the majority of the Holders. Each Holder may assign its rights hereunder in the manner and to the Persons as permitted under the Purchase Agreement.

(j) Assignment of Registration Rights. The rights of each Holder hereunder shall be automatically assignable by each Holder to any transferee of such Holder of all or a portion of the Purchaser Stock or the Registrable Securities if: (i) the Holder agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company within a reasonable time after such assignment, (ii) the Company is, within a reasonable time after such transfer or assignment, furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such registration rights are being transferred or assigned, (iii) following such transfer or assignment the further disposition of such securities by the transferee or assignees is restricted under the Securities Act and applicable state securities laws, (iv) at or before the time the Company receives the written notice contemplated by clause (ii) of this Section 8(j), the transferee or assignee agrees in writing with the Company to be bound by all of the provisions of this Agreement, and (v) such transfer shall have been made in accordance with the applicable requirements of the Purchase Agreement. In addition, each Holder shall have the right to assign its rights hereunder to any other Person with the prior written consent of the Company, which consent shall not be unreasonably withheld. The rights to assignment shall apply to the Holders (and to subsequent) successors and assigns.

(k) Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and, all of which taken together shall constitute one and the same Agreement. In the event that any signature is delivered by facsimile transmission, such signature shall create a valid binding obligation of the party executing (or on whose behalf such signature is executed) the same with the same force and effect as if such facsimile signature were the original thereof.

(l) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Tennessee, without regard to principles of conflicts of law thereof. The courts of the state of Tennessee and the federal courts located in Shelby County, Tennessee, shall have exclusive jurisdiction with respect to any action or proceeding regarding this Agreement, and each party hereby consents to the jurisdiction of such courts and venue in the County of Shelby.

(m) Cumulative Remedies. The remedies provided herein are cumulative and not exclusive of any remedies provided by law.

(n) Severability. If any term, provision, covenant or restriction of this Agreement is held to be invalid, illegal, void or unenforceable in any respect, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

(o) Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

(p) Shares Held by the Company and its Affiliates. Whenever the consent or approval of Holders of a specified percentage of Registrable Securities is required hereunder, Registrable Securities held by the Company or its Affiliates (other than any Holder or transferees or successors or assigns thereof if such Holder is deemed to be an Affiliate solely by reason of its holdings of such Registrable Securities) shall not be counted in determining whether such consent or approval was given by the Holders of such required percentage.

(q) Notice of Effectiveness. Within two (2) business days after the Registration Statement which includes the Registrable Securities is ordered effective by the Commission, the Company shall deliver, and shall cause legal counsel for the Company to deliver, to the transfer agent for such Registrable Securities (with copies to the Holders whose Registrable Securities are included in such Registration Statement) confirmation that the Registration Statement has been declared effective by the Commission in the form attached hereto as Exhibit A.

(r) Cancellation of Previous Registration Rights Agreements. This Agreement replaces any and all existing registration rights agreements between the Company and Purchaser (the "Previous Agreement"). The Company and the Purchaser hereby cancel all Previous Agreements in their entirety. Both the Company and the Purchaser agree that as of the date hereof, neither party has any existing liability or continuing obligation or right under any of the Previous Agreements.

(s) Termination. Upon the sale of all the Registrable Securities, the registration obligations of the Company under this Agreement shall automatically terminate.

In witness whereof, the parties hereto have caused this Registration Rights Agreement to be duly executed by their respective authorized persons as of the date first indicated above.

GTx, INC.	J.R. HYDE, III
By: /s/ Marc Hanover	/s/ J.R. Hyde, III
Name: Marc Hanover	
Title: President - COO	

EXHIBIT A
FORM OF NOTICE OF EFFECTIVENESS
OF REGISTRATION STATEMENT

[Name and Address of Counsel]

Re: GTx, Inc.

Dear [_____]:

We are counsel to GTx, Inc., a Tennessee corporation (the "Company"), and have represented the Company in connection with that certain purchase agreement (the "Purchase Agreement") dated as of August 7, 2003 by and among the Company and the purchaser named therein (the "Holder," which term includes its successors and assigns) pursuant to which the Company issued to the Holder its Series E 8% Cumulative Convertible Preferred Stock, which is convertible into shares of the Company's common stock, no par value (the "Common Stock"). Pursuant to the Purchase Agreement, the Company has also entered into a Registration Rights Agreement with the Holders (the "Registration Rights Agreement") pursuant to which the Company agreed, among other things, to register the Registrable Securities (as defined in the Registration Rights Agreement) under the Securities Act of 1933, as amended (the "1933 Act"). In connection with the Company's obligations under the Registration Rights Agreement, on _____ ___, 200_, the Company filed a Registration Statement on Form [S-1] (File No. 333-_____) (the "Registration Statement") with the Securities and Exchange Commission (the "SEC") relating to the Registrable Securities which names each of the Holders as a selling stockholder thereunder.

In connection with the foregoing, we advise you that a member of the SEC's staff has advised us by telephone that the SEC has entered an order declaring the Registration Statement effective under the 1933 Act at [ENTER TIME OF EFFECTIVENESS] on [ENTER DATE OF EFFECTIVENESS] and we have no knowledge, after telephonic inquiry of a member of the SEC's staff, that any stop order suspending its effectiveness has been issued or that any proceedings for that purpose are pending before, or threatened by, the SEC and the Registrable Securities are available for resale under the 1933 Act pursuant to the Registration Statement.

Very truly yours,

By:_____

cc: [LIST NAMES OF HOLDERS]

EXHIBIT 4.5

AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this "Agreement") is made and entered into as of August 7, 2003 among GTX, INC., a Tennessee corporation (the "Company"), and MEMPHIS BIOMED VENTURES I, L.P., a Delaware limited partnership (the "Purchaser").

This Agreement is being entered into pursuant to that certain purchase agreement dated as of the date hereof between the Company, the Purchaser and the other purchasers set forth therein (the "Purchase Agreement") pursuant to which the Purchaser is acquiring shares of the Company's Series E Preferred Stock (as hereinafter defined).

The Company and the Purchaser hereby agree as follows:

1. Definitions.

(a) Capitalized terms used and not otherwise defined herein shall have the meanings given such terms in the Purchase Agreement. As used in this Agreement, the following terms shall have the following meanings:

"Advice" shall have the meaning set forth in Section 4(c).

"Affiliate" means, with respect to any Person, any other Person that directly or indirectly controls or is controlled by or under common control with such Person. For the purposes of this definition, "control," when used with respect to any Person, means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise; and the terms of "affiliated," "controlling" and "controlled" have meanings correlative to the foregoing.

"Business Day" means any day except Saturday, Sunday and any day which shall be a legal holiday or a day on which banking institutions in the State of Tennessee generally are authorized or required by law or other government actions to close.

"Commission" means the Securities and Exchange Commission.

"Common Stock" means the Company's common stock, no par value per share.

"Exchange" means, at any time and from time to time hereafter, any securities exchange, automated interdealer quotation system or other over-the-counter market on which any of the Company's securities are listed or regularly traded or quoted.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Holder" or "Holders" means the holder or holders, as the case may be, from time to time of Registrable Securities.

"Hyde Holders" means the holders of the Hyde Registrable Securities.

"Hyde Registrable Securities" means the "Registrable Securities" as defined in the Hyde Registration Rights Agreement.

"Hyde Registration Rights Agreement" means that certain registration rights agreement between the Company and J.R. Hyde, III, dated as of the date of this Agreement.

"Indemnified Party" shall have the meaning set forth in Section 6(c).

"Indemnifying Party" shall have the meaning set forth in Section 6(c).

"Losses" shall have the meaning set forth in Section 6(a).

"Oracle Holders" means the holders of the Oracle Registrable Securities.

"Oracle Registrable Securities" means the "Registrable Securities" as defined in the Oracle Registration Rights Agreement.

"Oracle Registration Rights Agreement" means that certain registration rights agreement between the Company and Oracle Partners, L.P., dated as of the date of this Agreement.

"Other Securities" has the meaning set forth in Section 2(a).

"Person," whether or not capitalized, means a natural person, corporation, partnership, trust, incorporated or unincorporated association, joint venture, partnership (including a limited partnership), limited liability company, joint stock company, government (or an agency or political subdivision thereof) or other entity of any kind.

"Proceeding" means an action, claim, suit, investigation or proceeding (including, without limitation, an investigation or partial proceeding, such as a deposition), whether commenced or threatened.

"Prospectus" means the prospectus included in a registration statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated under the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by the registration statement, and all other amendments and supplements to the Prospectus, including post-effective amendments, and all material incorporated by reference in such Prospectus.

"Purchase Agreement" as the meaning set forth in the second introductory paragraph of this Agreement.

"Purchaser Stock" means (i) Series D Preferred Stock issued to Purchaser pursuant to that certain purchase agreement, dated as of July 17, 2002, by and among the Company, Oracle Partners, L.P., Oracle Institutional Partners, L.P., J. R. Hyde, III, and the Purchaser; (ii) Series E Preferred Stock issued to the Purchaser pursuant to the Purchase Agreement; and (iii) any security issued as a dividend to a beneficial owner of the preferred stock identified in subsections (i) and (ii).

"Registrable Securities" means (i) the shares of Common Stock now or at any time hereafter issuable upon conversion of the Purchaser Stock and (ii) any other securities which may hereafter become receivable by the Holders upon conversion of the Purchaser Stock, including any dividend or other distribution with respect to, conversion or exchange of, or in replacement of, Registrable Securities.

"Rule 144" means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Rule 158" means Rule 158 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Rule 415" means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

"Securities Act" means the Securities Act of 1933, as amended.

"Series D Preferred Stock" means the 8% Series D Cumulative Convertible Preferred Stock of the Company.

"Series E Preferred Stock" means the 8% Series E Cumulative Convertible Preferred Stock of the Company.

(b) Use of the singular or of the plural shall be construed to include both the singular and the plural unless the context clearly indicates that only the singular or only the plural is intended. Use of any gender shall be construed to include all other genders unless the context clearly indicates that less than all the genders is intended.

2. Piggyback Registration Rights.

(a) Except as provided in Section 2(b) below, if, at any time when there is not an effective registration statement covering the Registrable Shares, the Company shall determine to prepare and file with the Commission a registration statement relating to an offering for its own account or the account of others under the Securities Act of any of its equity securities ("Other Securities"), other than on Form S-4 or Form S-8 (each as promulgated under the Securities Act) or its then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in

connection with stock option or other employee benefit plans, then the Company shall send to each Holder of Registrable Securities written notice of such determination and, if within thirty (30) days after receipt of such notice, any such Holder shall so request in writing (which request shall specify the number of Registrable Securities intended to be disposed of by the Holders), the Company will cause the registration under the Securities Act of all Registrable Securities which the Company has been so requested to register by the Holders, to the extent requisite to permit the disposition of the Registrable Securities so to be registered, provided, however, that if at any time after giving written notice of its intention to register Other Securities and prior to the effective date of the registration statement filed in connection with such registration, the Company shall determine for any reason not to register or to delay registration of the Other Securities, the Company may, at its election, give written notice of such determination to such Holders and, thereupon, (i) in the case of a determination not to register, shall be relieved of its obligation to register any Registrable Securities in connection with such registration (but not from its obligation to pay expenses in accordance with Section 5 hereof), and (ii) in the case of a determination to delay registering, shall be permitted to delay registering any Registrable Securities being registered pursuant to this Section 2(a) for the same period as the delay in registering the Other Securities. The Company shall include in such registration statement all or any part of the Registrable Securities which a Holder requests to be registered; provided, however, that the Company shall not be required to register any Registrable Securities pursuant to this Section 2(a) that are eligible for sale pursuant to Rule 144(k) of the Securities Act. In the case of an underwritten public offering, if the managing underwriter(s) or underwriter(s) should reasonably object to the inclusion of the Registrable Securities in such registration statement, or if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of such Registrable Securities would materially adversely affect the offering contemplated in such registration statement, and based on such determination recommends inclusion in such registration statement of fewer or none of the Registrable Securities of the Holders, then (x) the number of Registrable Securities of the Holders included in such registration statement shall be reduced pro-rata among such Holders, any Hyde Holders and any Oracle Holders seeking respectively to register Registrable Securities, Hyde Registrable Securities or Oracle Registrable Securities, or (y) none of the Registrable Securities, Hyde Registrable Securities or Oracle Registrable Securities shall be included in such registration statement, if the Company after consultation with the underwriter(s) recommends the inclusion of none of such Registrable Securities, Hyde Registrable Securities or Oracle Registrable Securities; provided, however, that, in either case, except as set forth below, if securities are being offered for the account of other persons or entities as well as the Company, such reduction shall not represent a greater fraction of the number of Registrable Securities intended to be offered by the Holders than the fraction of similar reductions imposed on such other persons or entities (other than the Company).

(b) If, at any time when there is not an effective registration statement covering the Registrable Shares, the Company is required to prepare and file with the Commission a registration statement pursuant to the Hyde Registration Rights Agreement or the Oracle Registration Rights Agreement, then the Company shall send to each Holder of Registrable Securities written notice of such requirement and, if within thirty (30) days after receipt of such notice, any such Holder shall so request in writing (which request shall specify the number of Registrable Securities intended to be disposed of by the Holders), the Company will cause the registration under the Securities Act of all Registrable Securities which the

Company has been so requested to register by the Holders, to the extent requisite to permit the disposition of the Registrable Securities so to be registered. The Company shall include in such registration statement all or any part of the Registrable Securities which a Holder requests to be registered; provided, however, that the Company shall not be required to register any Registrable Securities pursuant to this Section 2(b) that are eligible for sale pursuant to Rule 144(k) of the Securities Act. In the case of an underwritten public offering, if the Company after consultation with the managing underwriter should reasonably determine that the inclusion of such Registrable Securities would materially adversely affect the offering contemplated in such registration statement, and based on such determination recommend inclusion in such registration statement of fewer or none of the Registrable Securities, then the number of Registrable Securities included in such registration statement shall be reduced in accordance with the Hyde Registration Rights Agreement or the Oracle Registration Rights Agreement, as applicable.

3. Registration Procedures. In connection with the Company's registration obligations pursuant to Section 2 hereof, the Company shall:

(a) (i) Prepare and file with the Commission such amendments, including post-effective amendments, to the registration statement as may be necessary to keep the registration statement continuously effective as to the applicable Registrable Securities; (ii) cause the related Prospectus to be amended or supplemented by any required Prospectus supplement, and as so supplemented or amended to be filed pursuant to Rule 424 (or any similar provisions then in force) promulgated under the Securities Act; and (iii) respond as promptly as practicable to any comments received from the Commission with respect to the registration statement or any amendment thereto.

(b) Notify the Holders of Registrable Securities to be sold as promptly as possible but in no event less than five (5) Business Days prior to such filing, and confirm such notice in writing no later than one (1) Business Day following the day when a Prospectus or any Prospectus supplement or post-effective amendment to the registration statement: (A) is proposed to be filed; (B) when the Commission notifies the Company whether there will be a "review" of such registration statement and whenever the Commission comments in writing on such registration statement; and (C) with respect to the registration statement or any post-effective amendment, when the same has become effective, and during the Effectiveness Period, (i) of any request by the Commission or any other federal or state governmental authority for amendments or supplements to the registration statement or Prospectus or for additional information; (ii) of the issuance by the Commission of any stop order suspending the effectiveness of the registration statement covering any or all of the Registrable Securities or the initiation of any Proceedings for that purpose; (iii) of the receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction, or the initiation or threatening of any Proceeding for such purpose; and (iv) of the occurrence of any event that makes any statement made in the registration statement or Prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires any revisions to the registration statement, Prospectus or other documents so that, in the case of the registration statement or the Prospectus, as the case may be, it will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or

necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(c) Use its best efforts to avoid the issuance of, or, if issued, obtain the withdrawal of, (i) any order suspending the effectiveness of the registration statement or (ii) any suspension of the qualification (or exemption from qualification) of any of the Registrable Securities for sale in any jurisdiction, at the earliest practicable moment.

(d) If requested by the Holders of a majority in interest of the Registrable Securities, (i) promptly incorporate in a Prospectus supplement or post-effective amendment to the registration statement such information as the Company reasonably agrees should be included therein and (ii) make all required filings of such Prospectus supplement or such post-effective amendment as soon as practicable after the Company has received notification of the matters to be incorporated in such Prospectus supplement or post-effective amendment.

(e) Furnish to each Holder without charge, at least one conformed copy of each registration statement and each amendment thereto, including financial statements and schedules, all documents incorporated or deemed to be incorporated therein by reference, and all exhibits to the extent requested promptly after the filing of such documents with the Commission.

(f) Promptly deliver to each Holder, without charge, as many copies of the Prospectus or Prospectuses (including each form of prospectus) and each amendment or supplement thereto as such Persons may reasonably request.

(g) Prior to any public offering of Registrable Securities, use its best efforts to register or qualify or cooperate with the selling Holders in connection with the registration or qualification (or exemption from such registration or qualification) of such Registrable Securities for offer and sale under the securities or Blue Sky laws of such jurisdictions within the United States as any Holder reasonably requests in writing, to keep each such registration or qualification (or exemption therefrom) effective during the effectiveness period of the Registration Statement and to do any and all other acts or things necessary or advisable to enable the disposition in such jurisdictions of the Registrable Securities covered by a registration statement; provided, however, that the Company shall not be required to qualify generally to do business in any jurisdiction where it is not then so qualified or to take any action that would subject it to general service of process in any such jurisdiction where it is not then so subject or subject the Company to any material tax in any such jurisdiction where it is not then so subject.

(h) Cooperate with the Holders to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be sold pursuant to a registration statement, which certificates shall be free of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any Holder may request at least two (2) Business Days prior to any sale of Registrable Securities.

(i) Upon the occurrence of any event contemplated by Section 3(b)(v), as promptly as practicable, prepare a supplement or amendment, including a post-effective amendment, to the registration statement or a supplement to the related Prospectus or any

document incorporated or deemed to be incorporated therein by reference, and file any other required document so that, as thereafter delivered, neither the registration statement nor such Prospectus will contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(j) Use its best efforts to cause all Registrable Securities relating to such registration statement to be listed on each Exchange.

(k) Comply in all material respects with all applicable rules and regulations of the Commission and make generally available to its security holders earning statements satisfying the provisions of Section 11(a) of the Securities Act and Rule 158 not later than 45 days after the end of any 12-month period (or 90 days after the end of any 12-month period if such period is a fiscal year) commencing on the first day of the first fiscal quarter of the Company after the effective date of the registration statement, which statement shall conform to the requirements of Rule 158.

(l) Require each selling Holder to furnish to the Company information regarding such Holder and the distribution of such Registrable Securities as is required by law to be disclosed in the registration statement, and the Company may exclude from such registration the Registrable Securities of any such Holder who fails to furnish such information within a reasonable time prior to the filing of each registration statement, supplemented Prospectus and/or amended registration statement.

4. Holder Obligations. In connection with the Company's registration obligations hereunder, each Holder:

(a) Covenants and agrees that it will not sell any Registrable Securities under the registration statement until it has received copies of the Prospectus as then amended or supplemented as contemplated in Section 3(f) and notice from the Company that such registration statement and any post-effective amendments thereto have become effective as contemplated by Section 3(b).

(b) Covenants and agrees that it and its officers, directors or Affiliates, if any, will comply with the prospectus delivery requirements of the Securities Act as applicable to them in connection with sales of Registrable Securities pursuant to the registration statement.

(c) Agrees by its acquisition of the Registrable Securities that, upon receipt of a notice from the Company of the occurrence of any event of the kind described in Section 3(b)(i), Section 3(b)(ii), Section 3(b)(iii) or Section 3(b)(iv), such Holder will forthwith discontinue disposition of such Registrable Securities under the registration statement until such Holder's receipt of the copies of the supplemented Prospectus and/or amended registration statement contemplated by Section 3(i), or until it is advised in writing (the "Advice") by the Company that the use of the applicable Prospectus may be resumed, and, in either case, has received copies of any additional or supplemental filings that are incorporated or deemed to be incorporated by reference in such Prospectus or registration statement.

5. Registration Expenses. All fees and expenses incident to the performance of or compliance with this Agreement by the Company shall be borne by the Company whether or not a registration statement is filed or becomes effective and whether or not any Registrable Securities are sold pursuant to the registration statement. The fees and expenses referred to in the foregoing sentence shall include, without limitation, (i) all registration and filing fees (including, without limitation, fees and expenses (A) with respect to filings required to be made with any Exchange on which Registrable Securities are required hereunder to be listed, (B) with respect to filings required to be made with the Commission, (C) with respect to filings required to be made under the rules of any Exchange and (D) in compliance with state securities or Blue Sky laws, (ii) printing expenses (including, without limitation, expenses of printing certificates for Registrable Securities and of printing prospectuses if the printing of prospectuses is requested by the holders of a majority of the securities included in the registration statement), (iii) messenger, telephone and delivery expenses, (iv) Securities Act liability insurance, if the Company so desires such insurance, and (v) fees and expenses of all other Persons retained by the Company in connection with the consummation of the transactions contemplated by this Agreement, including, without limitation, the Company's independent public accountants (including the expenses of any comfort letters or costs associated with the delivery by independent public accountants of a comfort letter or comfort letters) and legal counsel. In addition, the Company shall be responsible for all of its internal expenses incurred in connection with the consummation of the transactions contemplated by this Agreement (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expense of any annual audit, the fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange as required hereunder. Notwithstanding the foregoing, the Company shall not be responsible for the payment of (i) underwriting discounts or commissions.

6. Indemnification.

(a) Indemnification by the Company. The Company shall, notwithstanding any termination of this Agreement, indemnify and hold harmless each Holder, the officers, directors, agents, brokers (including brokers who offer and sell Registrable Securities as principal as a result of a pledge or any failure to perform under a margin call of Common Stock), investment advisors and employees of each of them, each Person who controls any such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) and the officers, directors, agents and employees of each such controlling Person, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, reasonable costs (including, without limitation, costs of preparation and reasonable attorneys' fees) and expenses (collectively, "Losses"), as incurred, arising out of or relating to any untrue or alleged untrue statement of a material fact contained in the registration statement, any Prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or form of prospectus or supplement thereto, in the light of the circumstances under which they were made) not misleading, except to the extent, but only to the extent, that such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, which information was reasonably relied on by the Company for use therein or to the extent that such information

relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the registration statement, such Prospectus or such form of Prospectus or in any amendment or supplement thereto. The Company shall notify the Holders promptly of the institution, threat or assertion of any Proceeding of which the Company is aware in connection with the transactions contemplated by this Agreement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of an Indemnified Party (as defined in Section 6(c) to this Agreement) and shall survive the transfer of the Registrable Securities by the Holders.

(b) Indemnification by Holders. Each Holder shall, severally and not jointly, indemnify and hold harmless the Company, the directors, officers, agents and employees, each Person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, agents or employees of such controlling Persons, to the fullest extent permitted by applicable law, from and against all Losses, as incurred, arising solely out of or based solely upon any untrue statement of a material fact contained in the registration statement, any Prospectus, or any form of prospectus, or arising solely out of or based solely upon any omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or form of prospectus or supplement thereto, in the light of the circumstances under which they were made) not misleading, to the extent, but only to the extent, that such untrue statement or omission is contained in or omitted from any information so furnished in writing by such Holder to the Company specifically for inclusion in the registration statement or such Prospectus and that such information was reasonably relied upon by the Company for use in the registration statement, such Prospectus or such form of prospectus or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the registration statement, such Prospectus or such form of Prospectus Supplement.

(c) Conduct of Indemnification Proceedings. If any Proceeding shall be brought or asserted against any Person entitled to indemnity hereunder (an "Indemnified Party"), such Indemnified Party promptly shall notify the Person from whom indemnity is sought (the "Indemnifying Party) in writing, and the Indemnifying Party shall assume the defense thereof, including the employment of counsel reasonably satisfactory to the Indemnified Party and the payment of all fees and expenses incurred in connection with defense thereof; provided, that the failure of any Indemnified Party to give such notice shall not relieve the Indemnifying Party of its obligations or liabilities pursuant to this Agreement, except (and only) to the extent that it shall be finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) that such failure shall have proximately and materially adversely prejudiced the Indemnifying Party.

An Indemnified Party shall have the right to employ separate counsel in any such Proceeding and to participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party or Parties unless: (1) the Indemnifying Party has agreed in writing to pay such fees and expenses; or (2) the Indemnifying Party shall have failed promptly to assume the defense of such Proceeding and to employ counsel reasonably satisfactory to such Indemnified Party in any such Proceeding; or (3) the named parties to any such Proceeding (including any impleaded parties) include both such Indemnified Party and the

Indemnifying Party, and such Indemnified Party shall have been advised by counsel that a conflict of interest is likely to exist if the same counsel were to represent such Indemnified Party and the Indemnifying Party (in which case, if such Indemnified Party notifies the Indemnifying Party in writing that it elects to employ separate counsel at the expense of the Indemnifying Party, the Indemnifying Party shall not have the right to assume the defense thereof and such counsel shall be at the expense of the Indemnifying Party). The Indemnifying Party shall not be liable for any settlement of any such Proceeding effected without its written consent, which consent shall not be unreasonably withheld. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any pending Proceeding in respect of which any Indemnified Party is a party, unless such settlement includes an unconditional release of such Indemnified Party from all liability on claims that are the subject matter of such Proceeding.

All fees and expenses of the Indemnified Party (including reasonable fees and expenses to the extent incurred in connection with investigating or preparing to defend such Proceeding in a manner not inconsistent with this Section) shall be paid to the Indemnified Party, as incurred, within ten (10) Business Days of written notice thereof to the Indemnifying Party (regardless of whether it is ultimately determined that an Indemnified Party is not entitled to indemnification hereunder; provided, that the Indemnifying Party may require such Indemnified Party to undertake to reimburse all such fees and expenses to the extent it is finally judicially determined that such Indemnified Party is not entitled to indemnification hereunder).

(d) Contribution. If a claim for indemnification under Section 6(a) or Section 6(b) is unavailable to an Indemnified Party because of a failure or refusal of a governmental authority to enforce such indemnification in accordance with its terms (by reason of public policy or otherwise), then each Indemnifying Party, in lieu of indemnifying such Indemnified Party, shall contribute to the amount paid or payable by such Indemnified Party as a result of such Losses, in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party and Indemnified Party in connection with the actions, statements or omissions that resulted in such Losses as well as any other relevant equitable considerations. The relative fault of such Indemnifying Party and Indemnified Party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission of a material fact, has been taken or made by, or relates to information supplied by, such Indemnifying, Party or Indemnified Party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action, statement or omission. The amount paid or payable by a party as a result of any Losses shall be deemed to include, subject to the limitations set forth in Section 6(c), any reasonable attorneys' or other reasonable fees or expenses incurred by such party in connection with any Proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section 6 was available to such party in accordance with its terms.

The parties hereto agree that it would not be just and equitable if contribution pursuant to this Section 6(d) were determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to in the immediately preceding paragraph. No Person guilty of fraudulent misrepresentation (within the

meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation.

The indemnity and contribution agreements contained in this Section are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties

7. Rule 144. The Company covenants to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to Section 13(a) or 15(d) of the Exchange Act and promptly to furnish the Holders with true and complete copies of all such filings. Upon the request of any Holder, the Company shall deliver to such Holder a written certification of a duly authorized officer as to whether it has complied with such requirements.

8. Miscellaneous.

(a) Remedies. In the event of a breach by the Company or by a Holder, of any of their obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, will be entitled to specific performance of its rights under this Agreement. The Company and each Holder agree that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agrees that, in the event of any action for specific performance in respect of such breach, it shall waive the defense that a remedy at law would be adequate.

(b) Specific Enforcement, Consent to Jurisdiction.

(i) The Company and the Holders acknowledge and agree that irreparable damage would occur in the event that any of the provisions of this Agreement or the Purchase Agreement were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that the parties shall be entitled to an injunction or injunctions to prevent or cure breaches of the provisions of this Agreement or the Purchase Agreement and to enforce specifically the terms and provisions hereof or thereof, this being in addition to any other remedy to which any of them may be entitled by law or equity.

(ii) Each of the Company and the Holders (i) hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts located in Memphis, Tennessee for the purposes of any suit, action or proceeding arising out of or relating to this Agreement or the Purchase Agreement and (ii) hereby waives, and agrees not to assert in any such suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such court, that the suit, action or proceeding is brought in an inconvenient forum or that the venue of the suit, action or proceeding is improper. Each of the Company and the Holders consents to process being served in any such suit, action or proceeding by mailing a copy thereof to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and

sufficient service of process and notice thereof. Nothing in this Section 8(b) shall affect or limit any right to serve process in any other manner permitted by law.

(iii) If similar proceedings are instituted in courts located in New York City, New York the Holders (i) hereby irrevocably consent to the consolidation of proceedings in the state and federal courts located in New York City, New York for the purposes of any suit, action or proceeding arising out of or relating to this Agreement or the Purchase Agreement and (ii) hereby waive, and agree not to assert in any such suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such court, that the suit, action or proceeding is brought in an inconvenient forum or that the venue of the suit, action or proceeding is improper.

(c) Amendments and Waivers. The provisions of this Agreement, including the provisions of this sentence, may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given, unless the same shall be in writing and signed by the Company and each of the Holders. Notwithstanding the foregoing, a waiver or consent to depart from the provisions hereof with respect to a matter that relates exclusively to the rights of Holders and that does not directly or indirectly affect the rights of other Holders may be given by Holders of at least a majority of the Registrable Securities to which such waiver or consent relates; provided, however, that the provisions of this sentence may not be amended, modified, or supplemented except in accordance with the provisions of the immediately preceding sentence.

(d) Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earlier of (i) the Business Day following the date of deposit with a nationally recognized overnight courier service or (ii) actual receipt by the party to whom such notice is required to be given. The addresses for such communications shall be, with respect to each Holder, at its address as set forth in the stock transfer records of the Company, and with respect to the Company, addressed to:

GTx, Inc.
3 North Dunlap Street - 3rd Floor
Van Vleet Building
Memphis Tennessee 38163
Attn: Dr. Mitch S. Steiner
Fax No.: (901) 684-1344

or to such other address or addresses as any such party may most recently have designated in writing to the other parties hereto by such notice. Copies of notices to the Company shall be sent to Henry Doggrell, General Counsel, GTx, Inc. 3 North Dunlap Street - 3rd Floor Van Vleet, Building Memphis Tennessee 38163 Fax No.: (901) 684-1344. Copies of notices to the Purchaser shall be sent to Baker, Donelson, Bearman & Caldwell, 165 Madison Avenue, Memphis, Tennessee 38103, Attention: Ben Adams, Esq. Fax (901) 577-0714.

(e) Successors and Assigns. This Agreement shall be binding upon and inure to the

benefit of the parties and their successors and permitted assigns and shall inure to the benefit of each Holder and its successors and assigns. The Company may not assign this Agreement or any of its rights or obligations hereunder without the prior written consent of each Holder. Each Holder may assign its rights hereunder in the manner and to the Persons as permitted under the Purchase Agreement.

(f) Assignment of Registration Rights. The rights of each Holder hereunder, including the right to have the Company register for resale Registrable Securities in accordance with the terms of this Agreement, shall be automatically assignable by each Holder to any transferee of such Holder of all or a portion of the Purchaser Stock or the Registrable Securities if: (i) the Holder agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company within a reasonable time after such assignment, (ii) the Company is, within a reasonable time after such transfer or assignment, furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such registration rights are being transferred or assigned, (iii) following such transfer or assignment the further disposition of such securities by the transferee or assignees is restricted under the Securities Act and applicable state securities laws, (iv) at or before the time the Company receives the written notice contemplated by clause (ii) of this Section 8(f), the transferee or assignee agrees in writing with the Company to be bound by all of the provisions of this Agreement, and (v) such transfer shall have been made in accordance with the applicable requirements of the Purchase Agreement. In addition, each Holder shall have the right to assign its rights hereunder to any other Person with the prior written consent of the Company, which consent shall not be unreasonably withheld. The rights to assignment shall apply to the Holders (and to subsequent) successors and assigns.

(g) Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and, all of which taken together shall constitute one and the same Agreement. In the event that any signature is delivered by facsimile transmission, such signature shall create a valid binding obligation of the party executing (or on whose behalf such signature is executed) the same with the same force and effect as if such facsimile signature were the original thereof.

(h) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Tennessee, without regard to principles of conflicts of law thereof. The courts of the state of Tennessee and the federal courts located in the County of Shelby, Tennessee, shall have exclusive jurisdiction with respect to any action or proceeding regarding this Agreement, and each party hereby consents to the jurisdiction of such courts and venue in the County of Shelby.

(i) Cumulative Remedies. The remedies provided herein are cumulative and not exclusive of any remedies provided by law.

(j) Severability. If any term, provision, covenant or restriction of this Agreement is held to be invalid, illegal, void or unenforceable in any respect, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or

restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

(k) Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

(l) Shares Held by the Company and its Affiliates. Whenever the consent or approval of Holders of a specified percentage of Registrable Securities is required hereunder, Registrable Securities held by the Company or its Affiliates (other than any Holder or transferees or successors or assigns thereof if such Holder is deemed to be an Affiliate solely by reason of its holdings of such Registrable Securities) shall not be counted in determining whether such consent or approval was given by the Holders of such required percentage.

(m) Notice of Effectiveness. Within two (2) business days after the registration statement which includes the Registrable Securities is ordered effective by the Commission, the Company shall deliver, and shall cause legal counsel for the Company to deliver, to the transfer agent for such Registrable Securities (with copies to the Holders whose Registrable Securities are included in such registration statement) confirmation that the registration statement has been declared effective by the Commission in the form attached hereto as Exhibit A.

(n) Cancellation of Previous Registration Rights Agreements. This Agreement replaces any and all existing registration rights agreements between the Company and Purchaser (the "Previous Agreement"). The Company and the Purchaser agree that as of the date hereof, neither party has any existing liability or continuing obligation or right under any of the Previous Agreements.

(o) Termination. Upon the sale of all the Registrable Securities, the registration obligations of the Company under this Agreement shall automatically terminate.

[SIGNATURE PAGES FOLLOW]

In witness whereof, the parties hereto have caused this Registration Rights Agreement to be duly executed by their respective authorized persons as of the date first indicated above.

GTx, INC.

By: /s/ Mitchell S. Steiner
_____
Mitchell S. Steiner
Vice-Chairman and Chief Executive Officer

MEMPHIS BIOMED VENTURES I, L.P., a Delaware limited Partnership

By: MB VENTURE PARTNERS, LLC, a Delaware limited liability company, its General Partner

By: /s/ Gary D. Stevenson
_____
Gary D. Stevenson, President

EXHIBIT A
FORM OF NOTICE OF EFFECTIVENESS
OF REGISTRATION STATEMENT

[Name and Address of Counsel]

Re: GTx, Inc.

Dear [_____]:

We are counsel to GTx, Inc., a Tennessee corporation (the "Company"), and have represented the Company in connection with that certain purchase agreement (the "Purchase Agreement") dated as of _____ __, 2003 by and among the Company and the purchaser named therein (the "Holder," which term includes its successors and assigns) pursuant to which the Company issued to the Holder its Series D 8% Cumulative Convertible Preferred Stock, which is convertible into shares of the Company's common stock, no par value (the "Common Stock"). Pursuant to the Purchase Agreement, the Company has also entered into a Registration Rights Agreement with the Holders (the "Registration Rights Agreement") pursuant to which the Company agreed, among other things, to register the Registrable Securities (as defined in the Registration Rights Agreement) under the Securities Act of 1933, as amended (the "1933 Act"). In connection with the Company's obligations under the Registration Rights Agreement, on _____ ___, 200_, the Company filed a registration statement on Form [S-1] (File No. 333-_____) (the "Registration Statement") with the Securities and Exchange Commission (the "SEC") relating to the Registrable Securities which names each of the Holders as a selling stockholder thereunder.

In connection with the foregoing, we advise you that a member of the SEC's staff has advised us by telephone that the SEC has entered an order declaring the Registration Statement effective under the 1933 Act at [ENTER TIME OF EFFECTIVENESS] on [ENTER DATE OF EFFECTIVENESS] and we have no knowledge, after telephonic inquiry of a member of the SEC's staff, that any stop order suspending its effectiveness has been issued or that any proceedings for that purpose are pending before, or threatened by, the SEC and the Registrable Securities are available for resale under the 1933 Act pursuant to the Registration Statement.

Very truly yours,

By:_____

cc: [LIST NAMES OF HOLDERS]

EXHIBIT 10.1

GENOTHERAPEUTICS, INC.

STOCK OPTION PLAN

1. PURPOSE.

(a) The purpose of the Genotherapeutics, Inc. Stock Option Plan (the "Plan") is to provide a means by which selected key employees and directors (if declared eligible under paragraph 4) of Genotherapeutics, Inc. (the "Company"), and its Affiliates, as defined in subparagraph 1(b), may be given an opportunity to benefit from increases in value of the stock of the Company. The Plan will be effected solely through the granting of nonstatutory stock options.

(b) The word "Affiliate" as used in the Plan means any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424 (e) and (f), respectively, of the Internal Revenue Code of 1986, as amended from time to time (the "Code").

(c) The Company, by means of the Plan, seeks to retain and reward the services of persons now or later employed by or serving as directors of the Company, to secure and retain the services of persons capable of filling such positions, and to provide incentives for such persons to exert maximum efforts for the success of the Company.

2. ADMINISTRATION.

(a) The Plan shall be administered by a Committee appointed by the Board of Directors of the Company composed of not fewer than 3 members, (the "Committee").

(b) The Committee shall have the power, subject to, and within the limitations of, the express provisions of the Plan and to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board of Directors:

(i) To determine from time to time which of the persons eligible under the Plan shall be granted nonqualified stock options ("Option Awards") and the number of shares with respect to which Option Awards shall be granted to each such person.

(ii) To construe and interpret the Plan and Option Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Committee, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Option Award, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective.

(iii) To amend the Plan as provided in paragraph 11.

(iv) Generally, to exercise such powers and to perform such acts as the Committee deems necessary or expedient to promote the best interests of the Company.

(c) The Board of Directors may abolish the Committee at any time and revest in the Board of Directors the administration of the Plan.

3. SHARES SUBJECT TO THE PLAN.

(a) Subject to the provisions of paragraph 9 relating to adjustments upon changes in stock, the stock that may be issued pursuant to Option Awards granted under the Plan shall not exceed in the aggregate Three Thousand (3,000) shares of the Company's common stock. If any option or right granted under the Plan shall for any reason expire or otherwise terminate without having been exercised in full or which is settled in cash, the stock not issued under such option or right shall again become available to the Plan.

(b) The stock subject to the Plan may be unissued shares or reacquired shares, bought on the market or otherwise.

4. ELIGIBILITY.

Option Awards may be granted only to directors, officers or employees of the Company or its Affiliates.

5. TERMS OF OPTION AWARDS.

Each Option Award shall be in such form and shall contain such terms and conditions as the Committee shall deem appropriate. The provisions of separate options need not be identical, but each option shall include (through incorporation of provisions hereof by reference in the option or otherwise) the substance of each of the following provisions:

(a) The term of any option shall be ten (10) years from the date it was granted.

(b) The exercise price of each Option Award shall be not less than one hundred percent (100%) of the fair market value of the stock subject to the option on the date the option is granted; provided, however, that the Committee shall have the discretion to grant options to one or more persons and in such proportions and at such higher exercise price as the Committee may determine. Fair market value shall be determined by the Committee on such basis as it deems appropriate.

(c) The purchase price of stock acquired pursuant to an option shall be paid, to the extent permitted by applicable statutes and regulations, either (i) in cash at the time the option is exercised, or (ii) at the discretion of the Committee, determined either at the time of the grant or exercise of the option, (A) by delivery to the Company of other common stock of the Company, (B) according to a deferred payment or other arrangement (which may include, without limiting the generality of the foregoing, the use of other common stock of the Company) with the person

to whom the option is granted or to whom the option is transferred pursuant to subparagraph 5(d), or (C) in any other form of legal consideration that may be acceptable to the Committee.

(d) Unless otherwise expressly stated in the option, an Option Award shall not be transferable except by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of the person to whom the option is granted only by such person, nor shall an Option Holder have the right or power to anticipate, accelerate, convey, assign or otherwise alienate, hypothecate, pledge or otherwise encumber any Option Award or the shares subject to the Option Award.

(e) Shares of stock subject to any Option Award shall vest as follows: (i) one-third (1/3) of such shares shall vest on the third anniversary of the date of grant of such Option Award; (ii) an additional one-third (1/3) of such shares shall vest on the fourth anniversary of the date of grant of such Option Award; and (iii) the final one-third (1/3) of such shares shall vest on the fifth anniversary of the date of grant of such Option Award. In the case of any Option Award granted to a person using different exercise prices, this paragraph shall be applied separately to the shares granted at each option price.

(f) Shares sold to a third party shall be subject to a thirty day right of first refusal by the Company at the same price and terms as offered by any third party pursuant to a bona fide offer, and may not be sold prior to an offer of sale to the Company on such terms. Further, shares acquired through exercise of an Option Award shall be subject to the terms and conditions of the Voting and Shareholder Agreement dated May 13, 1999, between the Company and its stockholders, as amended from time to time (the "Stockholders Agreement").

(g) In the event of a participant's termination of employment or service as a director, as applicable, by reason of voluntary retirement (at or after age sixty-five (65) or after age fifty-

five with no fewer than ten (10) years of service), death, permanent and total disability, involuntary termination (other than a termination for cause but including any involuntary termination as the result of a Change in Control, as addressed in paragraph (h) below), with respect to such participant's Option Award(s) (i) the Committee may in its sole, absolute and final discretion elect to vest any or all shares not otherwise vested under the terms of the Plan, and (ii) any vested shares subject to an Option Award may be exercised within ten (10) years following the date of grant of such Option Award. In the event of an Option Award holder's employment or status as a director, as applicable, is terminated under any other circumstances, (i) any nonvested Option Award shall be forfeited immediately, and (ii) the date of such termination of employment shall be the last day on which any vested Option Award may be exercised.

For purposes of this section, a permanent and total disability shall mean the occurrence of the following conditions: (i) the Option Award holder's physical or mental incapacity (excluding infrequent and temporary absences due to ordinary illness) of properly performing the principal functions which had been typically assigned to him by the Company, (ii) such incapacity shall exist or be expected to exist with a reasonable degree of medical certainty for more than ninety (90) days in the aggregate during any consecutive twelve (12) month period, and (iii) either the Option Award holder or the Company shall have given the other thirty (30) days written notice of intent to terminate employment or service as a director because of disability. In the event the Company and Option Award holder are in material disagreement regarding the Participant's physical or mental condition, the Company shall authorize a panel of three (3) physicians selected by the Company to examine the Participant to determine conclusively, by a majority, whether the Participant is disabled for purposes of the Plan.

For purposes of this section, a termination for cause shall mean the termination of an individual's status as an employee or director of the Company, as applicable, as the result of (i) fraud or dishonesty in connection with the business of the Company; (ii) gross negligence in the performance of duties for the Company; (iii) willful failure in carrying out duties as an employee or director; or (iv) arrest and conviction of a felony involving moral turpitude, whether or not in connection with the business of the Company; provided that (iii) above shall not apply if the Option Award holder has been assigned by the Company to duties which are not comparable to such holder's function and compensation at the Company, or which are non-executive or demeaning assignments, or if the Company has given such participant demeaning and unreasonable pay cuts.

(h) In the event of a Change in Control of the Company, all shares subject to all Option Awards shall become one hundred percent (100%) vested and shall be converted to cash, options or stock of equivalent value in the surviving organization under terms and condition which substantially preserve the economic status of the participants, as determined by the Committee. For purposes of this paragraph, a Change in Control shall mean:

(i) a sale or other disposition of more than fifty percent (50%) of the issued and outstanding voting stock of the Company, in a single transaction or in a series of transactions. For such purposes, "Voting Stock" shall mean capital stock of the Company of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of the Company.

(ii) a merger or consolidation of the Company with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%)

of the issued and outstanding Voting Stock of the surviving entity of such transaction is held by persons who are not holders of the Voting Stock immediately prior to giving effect to such transaction;

(iii) a sale or other disposition of all or substantially all of the Company's assets in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of the Company).

A Change of Control shall not include any of the following events:

(i) any transfer or issuance of stock of the Company to one or more of the Company's lenders (or to any agents or representatives thereof) in exchange for debt of the Company owed to any such lenders;

(ii) any transfer of stock of the Company to or by any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to the Company and/or its subsidiaries; or

(iii) any transfer or issuance to any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of the Company's debts to any one of the Company's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to the Company in connection with the workout or restructuring of such debt.

(iv) any transfer of stock by a stockholder of the Company which is a partnership or corporation to the partners or stockholders in such stockholder.

(i) In the event of an initial public offering of the Company, Option Awards shall be convertible to options in shares of the newly public company, under terms and conditions which substantially preserve the rights and options of the participant. Any resulting registration of options or shares shall be effected at Company expense.

(j) If provided in the Option Award, each Option Award shall carry the right to receive any dividend or dividend equivalent on vested shares, under such terms and conditions as may be specified in the Option Award.

(k) Notwithstanding any other provisions of the Plan, any vested but unexercised Option Award shares shall be forfeited upon the Option Award holder's "Competition" with the Company. For this purpose, Competition shall be determined by the Committee, and shall exist if the Option Award holder directly or indirectly (i) engages or has a financial interest in, (ii) becomes an officer, employee, director, partner, advisor or consultant of or to, (iii) has an equity interest in, or (iv) in any way materially assists any person, corporation, entity or business whose existing or planned products or activities compete in whole or in part with the existing or planned products or activities of the Company. The sole fact of ownership by an Option Award holder of less than two percent (2%) of the stock of a publicly traded company which may have product lines which compete with product lines of this Company shall not be treated as Competition. Any determination by the Committee under this section shall be final and conclusive, unless overruled by the Board.

(l) Notwithstanding any other provision of the Plan or any Option Award to the contrary, any and all sales of shares to the Company or any Affiliate are contingent upon and subject to the terms and conditions of any bank loan covenants by the Company or any Affiliate.

6. COVENANTS OF THE COMPANY.

(a) During the term of any Option Award granted under the Plan, the Company shall keep available at all times for issuance or sale the number of shares of stock required to satisfy such Option Award.

(b) The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority, if any, as may be required to issue and sell shares of stock upon grant or exercise of Option Awards under the Plan; provided, however, that this undertaking shall not require the Company to register under the Securities Act of 1933, as amended (the "Securities Act"), either the Plan, any Option Award granted under the Plan or any stock issued or issuable pursuant to any such Option Awards. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority which counsel for the Company deems necessary for the lawful issuance and sale of stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell stock upon exercise of such Option Awards unless and until such authority is obtained.

7. USE OF PROCEEDS FROM STOCK.

Proceeds from the sale of stock pursuant to Option Awards granted under the Plan shall constitute general funds of the Company.

8. MISCELLANEOUS.

(a) The Committee shall have the power to accelerate the time during which an Option Award may be exercised or the time during which an option or stock acquired pursuant to an Option Award will vest, notwithstanding the provisions in the Option Award stating the time during which it may be exercised or the time during which stock acquired pursuant thereto will vest.

(b) Neither a recipient of an Option Award nor any person to whom an Option Award is transferred under subparagraph 5(d) shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares subject to such Option Award unless and until such person has satisfied all requirements for exercise of the Option Award pursuant to its terms and is thereby entitled to receive shares of stock.

(c) Throughout the term of any Option Award granted pursuant to the Plan, the Company shall make available to the holder of such Option Award upon request, not later than one hundred twenty (120) days after the close of each fiscal year of the Company during the option term, upon request, such financial and other information regarding the Company as comprises the annual report to the shareholders of the Company provided for in the bylaws of the Company.

(d) Nothing in the Plan or any instrument executed or Option Award granted pursuant thereto shall confer upon any recipient any right to continue in the employ of the Company or any Affiliate or to limit the Company's right to terminate the employment or directorship of any participant with or without cause. In the event that an Option Award recipient is permitted or otherwise entitled to take a leave of absence, the Company shall have the unilateral right to (i) determine whether such leave of absence will be treated as a termination of employment for purposes of his or her Option Award, and (ii) suspend or otherwise delay the time or times at which the shares subject to the Option Award would otherwise vest.

(e) To the extent provided by the terms of any Option Award, the recipient may satisfy any federal, state or local tax withholding obligation relating to the exercise or receipt of such Option Award by any of the following means or by a combination of such means: (i) tendering a cash payment: (ii) authorizing the Company to withhold from the shares of the

common stock otherwise issuable to the participant as a result of the exercise or receipt of the Option Award cash or a number of shares having a fair market value less than or equal to the amount of the withholding tax obligation; or (iii) delivering to the Company owned and unencumbered shares of the common stock having a fair market value less than or equal to the amount of the withholding tax obligation.

(f) In connection with each Option Award made pursuant to the Plan, the Company may require as a condition precedent to its obligation to issue or transfer shares to an eligible participant, or to evidence the removal of any restrictions on transfers or lapse of any repurchase right, that such participant make arrangements satisfactory to the Company to insure that the amount of any federal or other withholding tax required to be withheld with respect to such sale or transfer, or such removal or lapse, is made available to the Company for timely payment of such tax.

(g) The Company may, as a condition of transferring any stock pursuant to the Plan, require any person who is to acquire such stock (i) to give written assurances satisfactory to the Company as to the optionee's knowledge and experience in financial and business matters, and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of acquiring the stock; and (ii) to give written assurances satisfactory to the Company stating that such person is acquiring the stock for such person's own account and not with any present intention of selling or otherwise distributing the stock. These requirements, and any assurances given pursuant to such requirements, shall be inoperative if (i) the issuance of the shares has been registered under a then currently effective registration statement under the Securities Act, or (ii) as to any particular requirement, a determination is made by counsel for the

Company that such requirement need not be met in the circumstances under the then applicable securities laws.

(h) The Committee shall determine or cause to be determined the fair market value of the stock of the Company from time to time, as required for purposes of this Plan.

9. ADJUSTMENTS UPON CHANGES IN STOCK.

If any change is made in the stock subject to the Plan, or subject to any Option Award granted under the Plan (through merger, consolidation, reorganization, recapitalization, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or otherwise), the Plan and outstanding Option Awards will be appropriately adjusted in the class(es) and maximum number of shares subject to the Plan and the class(es) and number of shares and price per share of stock subject to outstanding Option Awards.

10. AMENDMENT OF THE PLAN.

(a) The Committee at any time, and from time to time, may amend the Plan subject to and within the limitations of any resolutions approved by the Board of Directors.

(b) The Committee in its discretion shall determine at the time of each amendment of the Plan whether or not to submit such amendment to the Board of Directors of the Company for approval.

(c) Rights and obligations under any Option Award granted before amendment of the Plan shall not be altered or impaired by any amendment of the Plan unless (i) the Company requests the consent of the person to whom the Option Award was granted and (ii) such person consents in writing.

11. TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Committee may suspend or terminate the Plan at any time. No Option Awards may be granted under the Plan while the Plan is suspended or after it is terminated. Upon the termination of the Plan, all Option Awards shall become fully vested.

(b) Rights and obligations under any Option Award granted while the Plan is in effect shall not be altered or impaired by suspension or termination of the Plan, except with the consent of the person to whom the Option Award was granted.

12. EFFECTIVE DATE OF PLAN.

The Plan shall be effective as of November 18, 1999 upon execution by the President of the Company, following approval by the Plan Committee.

IN WITNESS WHEREOF, the President of the Company has executed this Plan as of the 26th day of August, 1999.

GENOTHERAPEUTICS, INC.

BY: /s/ Marc S. Hanover

Title: CFO / Secretary

APPROVED:

PLAN COMMITTEE

/s/ John H. Pontius

/s/ Marc S. Hanover

/s/ Mitchell S. Steiner

EXHIBIT 10.2

GTx, INC.
2000 STOCK OPTION PLAN

1. PURPOSE.

(a) The purpose of the GTx, Inc. 2000 Stock Option Plan (the "Plan") is to provide a means by which selected key employees and directors (if declared eligible under paragraph 4) of GTx, Inc. (the "Company"), and its Affiliates, as defined in subparagraph 1(b), may be given an opportunity to benefit from increases in value of the stock of the Company. The Plan will be effected solely through the granting of nonstatutory stock options.

(b) The word "Affiliate" as used in the Plan means any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424 (e) and (f), respectively, of the Internal Revenue Code of 1986, as amended from time to time (the "Code").

(c) The Company, by means of the Plan, seeks to retain and reward the services of persons now or later employed by or serving as directors of the Company, to secure and retain the services of persons capable of filling such positions, and to provide incentives for such persons to exert maximum efforts for the success of the Company.

2. ADMINISTRATION.

(a) The Plan shall be administered by a Committee appointed by the Board of Directors of the Company composed of not fewer than 3 members, (the "Committee").

(b) The Committee shall have the power, subject to, and within the limitations of, the express provisions of the Plan and to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board of Directors:

(i) To determine from time to time which of the persons eligible under the Plan shall be granted nonqualified stock options ("Option Awards") and the number of shares with respect to which Option Awards shall be granted to each such person.

(ii) To construe and interpret the Plan and Option Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Committee, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Option Award, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective.

(iii) To amend the Plan as provided in paragraph 11.

(iv) Generally, to exercise such powers and to perform such acts as the Committee deems necessary or expedient to promote the best interests of the Company.

(c) The Board of Directors may abolish the Committee at any time and revest in the Board of Directors the administration of the Plan.

3. SHARES SUBJECT TO THE PLAN.

(a) Subject to the provisions of paragraph 9 relating to adjustments upon changes in stock, the stock that may be issued pursuant to Option Awards granted under the Plan shall not exceed in the aggregate Twelve Thousand Seven Hundred Fifty (12,750) shares of the Company's common stock. If any option or right granted under the Plan shall for any reason expire or

otherwise terminate without having been exercised in full or which is settled in cash, the stock not issued under such option or right shall again become available to the Plan.

(b) The stock subject to the Plan may be unissued shares or reacquired shares, bought on the market or otherwise.

4. ELIGIBILITY.

Option Awards may be granted only to directors, officers or employees of the Company or its Affiliates.

5. TERMS OF OPTION AWARDS.

Each Option Award shall be in such form and shall contain such terms and conditions as the Committee shall deem appropriate. The provisions of separate options need not be identical, but each option shall include (through incorporation of provisions hereof by reference in the option or otherwise) the substance of each of the following provisions:

(a) The term of any option shall be ten (10) years from the date it was granted.

(b) The exercise price of each Option Award shall be not less than one hundred percent (100%) of the fair market value of the stock subject to the option on the date the option is granted; provided, however, that the Committee shall have the discretion to grant options to one or more persons and in such proportions and at such higher exercise price as the Committee may determine. Fair market value shall be determined by the Committee on such basis as it deems appropriate.

(c) The purchase price of stock acquired pursuant to an option shall be paid, to the extent permitted by applicable statutes and regulations, either (i) in cash at the time the option is exercised, or (ii) at the discretion of the Committee, determined either at the time of the grant or

exercise of the option, (A) by delivery to the Company of other common stock of the Company, (B) according to a deferred payment or other arrangement (which may include, without limiting the generality of the foregoing, the use of other common stock of the Company) with the person to whom the option is granted or to whom the option is transferred pursuant to subparagraph 5(d), or (C) in any other form of legal consideration that may be acceptable to the Committee.

(d) Unless otherwise expressly stated in the option, an Option Award shall not be transferable except by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of the person to whom the option is granted only by such person, nor shall an Option Holder have the right or power to anticipate, accelerate, convey, assign or otherwise alienate, hypothecate, pledge or otherwise encumber any Option Award or the shares subject to the Option Award.

(e) Shares of stock subject to any Option Award shall vest as follows: (i) one-third (1/3) of such shares shall vest on the third anniversary of the date of grant of such Option Award; (ii) an additional one-third (1/3) of such shares shall vest on the fourth anniversary of the date of grant of such Option Award; and (iii) the final one-third (1/3) of such shares shall vest on the fifth anniversary of the date of grant of such Option Award. In the case of any Option Award granted to a person using different exercise prices, this paragraph shall be applied separately to the shares granted at each option price.

(f) Shares sold to a third party shall be subject to a thirty day right of first refusal by the Company at the same price and terms as offered by any third party pursuant to a bona fide offer, and may not be sold prior to an offer of sale to the Company on such terms. Further, shares acquired through exercise of an Option Award shall be subject to the terms and conditions

of the Voting and Shareholder Agreement dated April 15, 1999, between the Company and its stockholders, as amended from time to time (the "Stockholders Agreement").

(g) In the event of a participant's termination of employment or service as a director, as applicable, by reason of voluntary retirement (at or after age sixty-five (65) or after age fifty-five with no fewer than ten (10) years of service), death, permanent and total disability, involuntary termination (other than a termination for cause but including any involuntary termination as the result of a Change in Control, as addressed in paragraph (h) below), with respect to such participant's Option Award(s) (i) the Committee may in its sole, absolute and final discretion elect to vest any or all shares not otherwise vested under the terms of the Plan, and (ii) any vested shares subject to an Option Award may be exercised within ten (10) years following the date of grant of such Option Award. In the event of an Option Award holder's employment or status as a director, as applicable, is terminated under any other circumstances, (i) any nonvested Option Award shall be forfeited immediately, and (ii) the date of such termination of employment shall be the last day on which any vested Option Award may be exercised.

For purposes of this section, a permanent and total disability shall mean the occurrence of the following conditions: (i) the Option Award holder's physical or mental incapacity (excluding infrequent and temporary absences due to ordinary illness) of properly performing the principal functions which had been typically assigned to him by the Company, (ii) such incapacity shall exist or be expected to exist with a reasonable degree of medical certainty for more than ninety (90) days in the aggregate during any consecutive twelve (12) month period, and (iii) either the Option Award holder or the Company shall have given the other thirty (30) days written notice of intent to terminate employment or service as a director because of disability. In the event the

Company and Option Award holder are in material disagreement regarding the Participant's physical or mental condition, the Company shall authorize a panel of three (3) physicians selected by the Company to examine the Participant to determine conclusively, by a majority, whether the Participant is disabled for purposes of the Plan.

For purposes of this section, a termination for cause shall mean the termination of an individual's status as an employee or director of the Company, as applicable, as the result of (i) fraud or dishonesty in connection with the business of the Company; (ii) gross negligence in the performance of duties for the Company; (iii) willful failure in carrying out duties as an employee or director; or (iv) arrest and conviction of a felony involving moral turpitude, whether or not in connection with the business of the Company; provided that (iii) above shall not apply if the Option Award holder has been assigned by the Company to duties which are not comparable to such holder's function and compensation at the Company, or which are non-executive or demeaning assignments, or if the Company has given such participant demeaning and unreasonable pay cuts.

(h) In the event of a Change in Control of the Company, all shares subject to all Option Awards shall become one hundred percent (100%) vested and shall be converted to cash, options or stock of equivalent value in the surviving organization under terms and condition which substantially preserve the economic status of the participants, as determined by the Committee. For purposes of this paragraph, a Change in Control shall mean:

i) a sale or other disposition of more than fifty percent (50%) of the issued and outstanding voting stock of the Company, in a single transaction or in a series of transactions. For such purposes, "Voting Stock" shall mean capital stock of the Company of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to

vote for the election of members of the Board of Directors (or Persons performing similar functions) of the Company.

ii) a merger or consolidation of the Company with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding Voting Stock of the surviving entity of such transaction is held by persons who are not holders of the Voting Stock immediately prior to giving effect to such transaction;

iii) a sale or other disposition of all or substantially all of the Company's assets in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of the Company).

A Change of Control shall not include any of the following events:

i) any transfer or issuance of stock of the Company to one or more of the Company's lenders (or to any agents or representatives thereof) in exchange for debt of the Company owed to any such lenders;

ii) any transfer of stock of the Company to or by any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to the Company and/or its subsidiaries; or

iii) any transfer or issuance to any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of the Company's debts to any one of the Company's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to the Company in connection with the workout or restructuring of such debt.

iv) any transfer of stock by a stockholder of the Company which is a partnership or corporation to the partners or stockholders in such stockholder.

(i) In the event of an initial public offering of the Company, Option Awards shall be convertible to options in shares of the newly public company, under terms and conditions which substantially preserve the rights and options of the participant. Any resulting registration of options or shares shall be effected at Company expense.

(j) If provided in the Option Award, each Option Award shall carry the right to receive any dividend or dividend equivalent on vested shares, under such terms and conditions as may be specified in the Option Award.

(k) Notwithstanding any other provisions of the Plan, any vested but unexercised Option Award shares shall be forfeited upon the Option Award holder's "Competition" with the Company. For this purpose, Competition shall be determined by the Committee, and shall exist if the Option Award holder directly or indirectly (i) engages or has a financial interest in, (ii) becomes an officer, employee, director, partner, advisor or consultant of or to, (iii) has an equity interest in, or (iv) in any way materially assists any person, corporation, entity or business whose existing or planned products or activities compete in whole or in part with the existing or planned products or activities of the Company. The sole fact of ownership by an Option Award holder of less than two percent (2%) of the stock of a publicly traded company which may have product lines which compete with product lines of this Company shall not be treated as Competition. Any determination by the Committee under this section shall be final and conclusive, unless overruled by the Board.

(l) Notwithstanding any other provision of the Plan or any Option Award to the contrary, any and all sales of shares to the Company or any Affiliate are contingent upon and subject to the terms and conditions of any bank loan covenants by the Company or any Affiliate.

6. COVENANTS OF THE COMPANY.

(a) During the term of any Option Award granted under the Plan, the Company shall keep available at all times for issuance or sale the number of shares of stock required to satisfy such Option Award.

(b) The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority, if any, as may be required to issue and sell shares of stock upon grant or exercise of Option Awards under the Plan; provided, however, that this undertaking shall not require the Company to register under the Securities Act of 1933, as amended (the "Securities Act"), either the Plan, any Option Award granted under the Plan or any stock issued or issuable pursuant to any such Option Awards. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority which counsel for the Company deems necessary for the lawful issuance and sale of stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell stock upon exercise of such Option Awards unless and until such authority is obtained.

7. USE OF PROCEEDS FROM STOCK.

Proceeds from the sale of stock pursuant to Option Awards granted under the Plan shall constitute general funds of the Company.

8. MISCELLANEOUS.

(a) The Committee shall have the power to accelerate the time during which an Option Award may be exercised or the time during which an option or stock acquired pursuant to an Option Award will vest, notwithstanding the provisions in the Option Award stating the time during which it may be exercised or the time during which stock acquired pursuant thereto will vest.

(b) Neither a recipient of an Option Award nor any person to whom an Option Award is transferred under subparagraph 5(d) shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares subject to such Option Award unless and until such person has satisfied all requirements for exercise of the Option Award pursuant to its terms and is thereby entitled to receive shares of stock.

(c) Throughout the term of any Option Award granted pursuant to the Plan, the Company shall make available to the holder of such Option Award upon request, not later than one hundred twenty (120) days after the close of each fiscal year of the Company during the option term, upon request, such financial and other information regarding the Company as comprises the annual report to the shareholders of the Company provided for in the bylaws of the Company.

(d) Nothing in the Plan or any instrument executed or Option Award granted pursuant thereto shall confer upon any recipient any right to continue in the employ of the Company or any Affiliate or to limit the Company's right to terminate the employment or directorship of any participant with or without cause. In the event that an Option Award recipient is permitted or otherwise entitled to take a leave of absence, the Company shall have the unilateral right to (i) determine whether such leave of absence will be treated as a termination of employment for

purposes of his or her Option Award, and (ii) suspend or otherwise delay the time or times at which the shares subject to the Option Award would otherwise vest.

(e) To the extent provided by the terms of any Option Award, the recipient may satisfy any federal, state or local tax withholding obligation relating to the exercise or receipt of such Option Award by any of the following means or by a combination of such means: (i) tendering a cash payment: (ii) authorizing the Company to withhold from the shares of the common stock otherwise issuable to the participant as a result of the exercise or receipt of the Option Award cash or a number of shares having a fair market value less than or equal to the amount of the withholding tax obligation; or (iii) delivering to the Company owned and unencumbered shares of the common stock having a fair market value less than or equal to the amount of the withholding tax obligation.

(f) In connection with each Option Award made pursuant to the Plan, the Company may require as a condition precedent to its obligation to issue or transfer shares to an eligible participant, or to evidence the removal of any restrictions on transfers or lapse of any repurchase right, that such participant make arrangements satisfactory to the Company to insure that the amount of any federal or other withholding tax required to be withheld with respect to such sale or transfer, or such removal or lapse, is made available to the Company for timely payment of such tax.

(g) The Company may, as a condition of transferring any stock pursuant to the Plan, require any person who is to acquire such stock (i) to give written assurances satisfactory to the Company as to the optionee's knowledge and experience in financial and business matters, and that he or she is capable of evaluating, alone or together with the purchaser representative, the

merits and risks of acquiring the stock; and (ii) to give written assurances satisfactory to the Company stating that such person is acquiring the stock for such person's own account and not with any present intention of selling or otherwise distributing the stock. These requirements, and any assurances given pursuant to such requirements, shall be inoperative if (i) the issuance of the shares has been registered under a then currently effective registration statement under the Securities Act, or (ii) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws.

(h) The Committee shall determine or cause to be determined the fair market value of the stock of the Company from time to time, as required for purposes of this Plan.

9. ADJUSTMENTS UPON CHANGES IN STOCK.

If any change is made in the stock subject to the Plan, or subject to any Option Award granted under the Plan (through merger, consolidation, reorganization, recapitalization, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or otherwise), the Plan and outstanding Option Awards will be appropriately adjusted in the class(es) and maximum number of shares subject to the Plan and the class(es) and number of shares and price per share of stock subject to outstanding Option Awards.

10. AMENDMENT OF THE PLAN.

(a) The Committee at any time, and from time to time, may amend the Plan subject to and within the limitations of any resolutions approved by the Board of Directors.

(b) The Committee in its discretion shall determine at the time of each amendment of the Plan whether or not to submit such amendment to the Board of Directors of the Company for approval.

(c) Rights and obligations under any Option Award granted before amendment of the Plan shall not be altered or impaired by any amendment of the Plan unless (i) the Company requests the consent of the person to whom the Option Award was granted and (ii) such person consents in writing.

11. TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Committee may suspend or terminate the Plan at any time. No Option Awards may be granted under the Plan while the Plan is suspended or after it is terminated. Upon the termination of the Plan, all Option Awards shall become fully vested.

(b) Rights and obligations under any Option Award granted while the Plan is in effect shall not be altered or impaired by suspension or termination of the Plan, except with the consent of the person to whom the Option Award was granted.

12. EFFECTIVE DATE OF PLAN.

The Plan shall be effective as of November 21, 2000 upon execution by the President of the Company, following approval by the Plan Committee.

IN WITNESS WHEREOF, the President of the Company has executed this Plan as of the 21st day of November, 2000.

GTx, INC.

By: /s/ Mitchell S. Steiner

Title: Vice Chairman

APPROVED:

PLAN COMMITTEE

/s/ Marc S. Hanover

/s/ Mitchell S. Steiner

/s/ John H. Pontius

EXHIBIT 10.3

GTx, INC.

2001 STOCK OPTION PLAN

1. PURPOSE.

(a) The purpose of the GTx, Inc. 2001 Stock Option Plan (the "Plan") is to provide a means by which selected key employees and directors (if declared eligible under paragraph 4) of and consultants to GTx, Inc. (the "Company"), and its Affiliates, as defined in subparagraph 1(b), may be given an opportunity to benefit from increases in value of the stock of the Company. It is intended that this purpose will be effected through the granting of (i) incentive stock options and/or, (ii) nonstatutory stock options.

(b) The word "Affiliate" as used in the Plan means any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424 (e) and (f), respectively, of the Internal Revenue Code of 1986, as amended from time to time (the "Code").

(c) The Company, by means of the Plan, seeks to retain the services of persons now employed by or serving as consultants or directors to the Company, to secure and retain the services of persons capable of filling such positions, and to provide incentives for such persons to exert maximum efforts for the success of the Company.

(d) The Company intends that rights granted under the Plan ("Option Awards") shall, in the discretion of the Committee or Board of Directors of the Company (the "Board"), as applicable, be either (i) incentive stock options as that term is used in Section 422 of the Code ("Incentive Stock Options"), or (ii) stock options which do not qualify as Incentive Stock Options ("Supplemental Stock Options").

2. ADMINISTRATION.

(a) The Plan shall be administered by a Committee appointed by the Board of Directors of the Company composed of not fewer than three (3) Directors (the "Committee").

(b) The Committee shall have the power, subject to, and within the limitations of, the express provisions of the Plan and to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board of Directors:

(i) To determine from time to time which of the persons eligible under the Plan shall be granted Option Awards; when and how Option Awards shall be granted; whether a Option Award will be an Incentive Stock Option, a Supplemental Stock Option, or a combination of the foregoing; and the provisions of each Option Award granted (which need not be identical).

(ii) To construe and interpret the Plan and Option Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Committee, in the exercise of this power, may correct any

defect, omission or inconsistency in the Plan or in any Option Award, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective, consistent with its terms.

(iii) To amend the Plan as provided in paragraph 10.

(iv) Generally, to exercise such powers and to perform such acts as the Committee deems necessary or expedient to promote the best interests of the Company.

(c) The Board of Directors may abolish the Committee at any time and revest in the Board of Directors the administration of the Plan.

3. SHARES SUBJECT TO THE PLAN.

(a) Subject to the provisions of paragraph 9 relating to adjustments upon changes in stock, the stock that may be issued pursuant to Option Awards granted under the Plan shall not exceed in the aggregate thirty five thousand one hundred fifty (35,150) shares of the Company's common stock issued and outstanding as of the date of shareholder approval of the Plan. If any option or right granted under the Plan shall for any reason expire or otherwise terminate without having been exercised in full, the stock not issued under such option or right shall again become available for the Plan.

(b) The stock subject to the Plan may be unissued shares or reacquired shares, bought on the market or otherwise.

4. ELIGIBILITY.

(a) Incentive Stock Options may be granted only to employees (including officers) of the Company or its Affiliates. A director of the Company shall not be eligible to receive Incentive Stock Options unless such director is also an employee (including an officer) of the Company or any Affiliate. Option Awards other than Incentive Stock Options may be granted only to directors, officers or employees of or consultants to the Company or its Affiliates.

(b) No person shall be eligible for the grant of an Incentive Stock Option under the Plan if, at the time of grant, such person owns (or is deemed to own pursuant to Section 424(d) of the Code) stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or of any of its Affiliates unless the exercise price of such option is at least one hundred ten percent (110%) of the fair market value of such stock at the date of grant and the term of the option does not exceed five (5) years from the date of grant.

5. TERMS OF STOCK OPTIONS.

Each stock option shall be in such form and shall contain such terms and conditions as the Board or the Committee shall deem appropriate. All options shall be separately designated Incentive Stock Options or Supplemental Stock Options at the time of grant, and in such form as

issued pursuant to this paragraph, and a separate certificate or certificates shall be issued for shares purchased on exercise of each type of option. An option designated as a Supplemental Stock Option shall not be treated as an Incentive Stock Option. The provisions of separate options need not be identical, but each option shall include (through incorporation of provisions hereof by reference in the option or otherwise) the substance of each of the following provisions:

(a) The term of any option shall not be greater than ten (10) years from the date it was granted or, in the case of any option contemplated by paragraph 4(b), five (5) years from the date of grant.

(b) The exercise price of each Incentive Stock Option shall be not less than one hundred percent (100%) of the fair market value of the stock subject to the option on the date the option is granted or, in the case of any option contemplated by paragraph 4(b), one hundred ten percent (110%) of the fair market value of the stock subject to the option on the date of grant of the option.

(c) The purchase price of stock acquired pursuant to an option shall be paid, to the extent permitted by applicable statutes and regulations, either (i) in cash at the time the option is exercised, or (ii) at the discretion of the Committee either at the time of the grant or exercise of the option, (A) by delivery to the Company of other common stock of the Company, (B) according to a deferred payment or other arrangement (which may include, without limiting the generality of the foregoing, the use of other common stock of the Company) with the person to whom the option is granted or to whom the option is transferred pursuant to subparagraph 5(d), or (C) in any other form of legal consideration that may be acceptable to the Committee.

(d)

(i) Unless otherwise expressly stated in the option, an option shall not be transferable except by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of the person to whom the option is granted only by such person, nor shall an option holder have the right or power to anticipate, accelerate, convey, assign or otherwise alienate, hypothecate, pledge or otherwise encumber any option award or the shares subject to an option award.

(ii) Except with respect to Incentive Stock Options, the Committee may, in its discretion, establish forms and procedures for the transfer of all or any portion of such Option Award by the optionee to (i) Immediate Family Members (as defined hereinafter), (ii) a trust or trusts for the exclusive benefit of the optionee and such Immediate Family Members, or (iii) a partnership or limited liability company in which the optionee and such Immediate Family Members are the only partners or members (collectively such optionee's "Permitted Transferees"), provided that subsequent transfers shall be prohibited except in accordance with the laws of descent and distribution, or by will. Notification and approval of all such transfers shall be in the form specified by the Committee. Following transfer, any such Option Award shall continue to be subject to the same terms and conditions as were applicable immediately prior to transfer,

provided that for purposes of this Plan, wherever appropriate, the term "optionee" shall be deemed to refer to the Permitted Transferee. Notwithstanding the foregoing, the Plan Committee and the Company shall have no obligation to inform any Permitted Transferee of any expiration, termination, lapse or acceleration of any such Option Award and may give notices required hereunder, if any, to the optionee. The events of termination of employment hereof shall continue to be applied with respect to the original optionee, following which the Option Award shall be exercisable by the Permitted Transferee only to the extent, and for the periods specified herein. As used herein "Immediate Family Member" shall mean, with respect to the optionee, his or her spouse, child, stepchild, grandchildren or other descendants, and shall include relationships arising from legal adoption.

(e) The total number of shares of stock subject to an option may, but need not, be allotted in periodic installments (which may, but need not, be equal). From time to time during each of such installment periods, the option may become exercisable ("vest") with respect to some or all of the shares allotted to that period, and may be exercised with respect to some or all of the shares allotted to such period and/or any prior period as to which the option was not fully exercised. During the remainder of the term of the option (if its term extends beyond the end of the installment periods), the option may be exercised from time to time with respect to any shares then remaining subject to the option. In the absence of a specific provision to the contrary in a particular option grant, an option award shall vest one-third (1/3) on the third anniversary of the date of grant of such option award, an additional one-third on the fourth anniversary of the date of grant of such option award, and the final one-third (1/3) shall vest on the fifth anniversary of the date of grant of such option award. The provisions of this subparagraph 5(e) are subject to any option provisions governing the minimum number of shares as to which an option may be exercised.

(f) An option shall terminate three (3) months after termination of the optionee's employment or relationship as a director of or consultant to the Company or an Affiliate, unless (i) such termination is due to such person's permanent and total disability, within the meaning of Section 422(c)(6) of the Code, in which case the option may, but need not, provide that it may be exercised at any time within one (1) year following such termination of employment or relationship as a director or consultant; or (ii) the optionee dies while in the employ of or while serving as a director of or consultant to the Company or an Affiliate, or within not more than three (3) months after termination of such relationship, in which case the option may, but need not, provide that it may be exercised at any time within eighteen (18) months following the death of the optionee by the person or persons to whom the optionee's rights under such option passes by will or by the laws of descent and distribution; or (iii) such termination is due to such person's voluntary retirement in accordance with subparagraph (h) below, in which case the option may be exercised at any time within the earlier of five (5) years from the date of termination of such employment or relationship, as the case may be, or the term of the option; or (iv) the option by its terms specifies either (a) that it shall terminate sooner than three (3) months after termination of the optionee's employment or relationship as a director or consultant, or (b) that it may be exercised more than three (3) months after

termination of the optionee's employment or relationship with the Company or an Affiliate. This subparagraph 5(f) shall not be construed to extend the term of any option or to permit anyone to exercise the option after expiration of its term, nor shall it be construed to increase the number of shares as to which any option is exercisable from the amount exercisable on the date of termination of the optionee's employment or relationship as a consultant or director.

(g) Prior to such time as the Company's shares of common stock are first sold to the public in an offering registered pursuant to Section 5 of the Securities Act of 1933, as amended ("Initial Public Offering"), any shares of stock acquired through the exercise of an option shall be subject to a thirty (30) day right of first refusal by the Company at the same price and terms as offered by any third party pursuant to a bona fide offer, and may not be sold prior to an offer to sell to the Company on such terms. Further, shares acquired through exercise of an option award shall be subject to the terms and conditions of the Amended and Restated Voting and Shareholder Agreement dated October ___, 2001, between the Company and its stockholders, as amended from time to time (the "Stockholders Agreement").

(h) In the event of a participant's termination of employment or service as a director, as applicable, by reason of voluntary retirement (at or after age sixty-five (65) or after age fifty-five with no fewer than five (5) years of service), death, permanent and total disability, involuntary termination (other than a termination for cause but including any involuntary termination as the result of a Change in Control, as addressed below), with respect to such participant's Option Award(s), the Committee may in its sole, absolute and final discretion elect to vest any or all shares not otherwise vested under the terms of the Plan.

For purposes of this section, a permanent and total disability shall mean the occurrence of the following conditions: (i) the Option Award holder's physical or mental incapacity (excluding infrequent and temporary absences due to ordinary illness) of properly performing the principal functions which had been typically assigned to him by the Company, (ii) such incapacity shall exist or be expected to exist with a reasonable degree of medical certainty for more than ninety (90) days in the aggregate during any consecutive twelve (12) month period, and (iii) either the Option Award holder or the Company shall have given the other thirty (30) days written notice of intent to terminate employment or service as a director because of disability. In the event the Company and Option Award holder are in material disagreement regarding the Participant's physical or mental condition, the Company shall authorize a panel of three (3) physicians selected by the Company to examine the Participant to determine conclusively, by a majority, whether the Participant is disabled for purposes of the Plan.

For purposes of this section, a termination for cause shall mean the termination of an individual's status as an employee or director of the Company, as applicable, as the result of (i) fraud or dishonesty in connection with the business of the Company; (ii) gross negligence in the performance of duties for the Company; (iii) willful failure in carrying out duties as an employee, director or consultant; or (iv) arrest and conviction of a felony involving moral turpitude, whether or not in connection with the business of the Company; provided that (iii) above shall not apply if the Option Award holder has been assigned by the Company to duties

which are not comparable to such holder's function and compensation at the Company, or which are non-executive or demeaning assignments, or if the Company has given such participant demeaning and unreasonable pay cuts.

(i) In the event of a Change in Control of the Company, all shares subject to all Option Awards shall become one hundred percent (100%) vested and shall be converted to cash, options or stock of equivalent value in the surviving organization under terms and condition which substantially preserve the economic status of the Participants, as determined by the Committee. For purposes of this paragraph, a Change in Control shall mean:

(i) a sale or other disposition of more than fifty percent (50%) of the issued and outstanding voting stock of the Company, in a single transaction or in a series of transactions. For such purposes, "Voting Stock" shall mean capital stock of the Company of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of the Company.

(ii) a merger or consolidation of the Company with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding Voting Stock of the surviving entity of such transaction is held by persons who are not holders of the Voting Stock immediately prior to giving effect to such transaction;

(iii) a sale or other disposition of all or substantially all of the Company's assets in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of the Company

A Change of Control shall not include any of the following events:

(i) any transfer or issuance of stock of the Company to one or more of the Company's lenders (or to any agents or representatives thereof) in exchange for debt of the Company owed to any such lenders;

(ii) any transfer of stock of the Company to or by any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to the Company and/or its subsidiaries; or

(iii) any transfer or issuance to any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of the Company's debts to any one of the Company's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to the Company in connection with the workout or restructuring of such debt.

(iv) any transfer of stock by a stockholder of the Company which is a partnership or corporation to the partners or stockholders in such stockholder.

(j) In the event of an Initial Public Offering of the Company, Option Awards shall be convertible to options in shares of the newly public company, under terms and conditions which substantially preserve the rights and options of the participant. Any resulting registration of options or shares shall be effected at Company expense.

(k) If provided in the Option Award, each Option Award shall carry the right to receive any dividend or dividend equivalent on vested shares, under such terms and conditions as may be specified in the Option Award.

(l) Notwithstanding any other provisions of the Plan, any vested but unexercised Option Award shares shall be forfeited upon the Option Award holder's "Competition" with the Company. For this purpose, Competition shall be determined by the Committee, and shall exist if the Option Award holder while employed by or consulting for the Company and for a period of two (2) years thereafter directly or indirectly (i) engages or has a financial interest in, (ii) becomes an officer, employee, director, partner, advisor or consultant of or to, (iii) has an equity interest in, or (iv) in any way materially assists any person, corporation, entity or business whose existing or planned products or activities compete in whole or in part with the existing or planned products or activities of the Company. The sole fact of ownership by an Option Award holder of less than two percent (2%) of the stock of a publicly traded company which may have product lines which compete with product lines of this Company shall not be treated as Competition. Any determination by the Committee under this section shall be final and conclusive, unless overruled by the Board.

(m) Notwithstanding any other provision of the Plan or any Option Award to the contrary, any and all sales of shares to the Company or any Affiliate are contingent upon and subject to the terms and conditions of any bank loan covenants by the Company or any Affiliate.

6. COVENANTS OF THE COMPANY.

(a) During the terms of any Option Awards granted under the Plan, the Company shall keep available at all times the number of shares of stock required to satisfy such Option Awards.

(b) The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to issue and sell shares of stock upon grant or exercise of Option Awards under the Plan; provided, however, that this undertaking shall not require the Company to register under the Securities Act of 1933, as amended (the "Securities Act"), either the Plan, any Option Award granted under the Plan or any stock issued or issuable pursuant to any such Option Awards. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority which counsel for the Company deems

necessary for the lawful issuance and sale of stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell stock upon exercise of such Option Awards unless and until such authority is obtained.

7. USE OF PROCEEDS FROM STOCK.

Proceeds from the sale of stock pursuant to Option Awards granted under the Plan shall constitute general funds of the Company.

8. MISCELLANEOUS.

(a) The Committee shall have the power to accelerate the time during which a Option Award may be exercised or the time during which an option or stock acquired pursuant to a Option Award will vest, notwithstanding the provisions in the Option Award stating the time during which it may be exercised or the time during which stock acquired pursuant thereto will vest.

(b) Neither a recipient of a Option Award nor any person to whom a Option Award is transferred under subparagraph 5(d) shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares subject to such Option Award unless and until such person has satisfied all requirements for exercise of the Option Award pursuant to its terms and is thereby entitled to receive shares of stock.

(c) Throughout the term of any Option Award granted pursuant to the Plan, the Company shall make available to the holder of such Option Award, not later than one hundred twenty (120) days after the close of each of the Company's fiscal years during the option term, upon request, such financial and other information regarding the Company as comprises the annual report to the shareholders of the Company provided for in the bylaws of the Company.

(d) Nothing in the Plan or any instrument executed or Option Award granted pursuant thereto shall confer upon any recipient any right to continue in the employ of the Company or any Affiliate or to limit the Company's right to terminate the employment or consulting relationship or directorship of any eligible employee or recipient with or without cause. In the event that an Option Award recipient is permitted or otherwise entitled to take a leave of absence, the Company shall have the unilateral right to (i) determine whether such leave of absence will be treated as a termination of employment for purposes of his or her Option Award, or (ii) suspend or otherwise delay the time or times at which the shares subject to the Option Award would otherwise vest.

(e) To the extent provided by the terms of any Option Award, the recipient may satisfy any federal, state or local tax withholding obligation relating to the exercise or receipt of such Option Award by any of the following means or by a combination of such means: (1) tendering a cash payment; (2) authorizing the Company to withhold from the shares of the common stock otherwise issuable to the participant as a result of the exercise of receipt of the Option Award cash or a number of shares having a fair market value less than or equal to the amount of the withholding tax obligation; or (3)

delivering to the Company owned and unencumbered shares of common stock of the Company having a fair market value less than or equal to the amount of the withholding tax obligation.

(f) In connection with each Option Award made pursuant to the Plan, the Company may require as a condition precedent to its obligation to issue or transfer shares to an eligible participant, or to evidence the removal of any restrictions on transfers or lapse of any repurchase right, that such participant make arrangements satisfactory to the Company to insure that the amount of any federal or other withholding tax required to be withheld with respect to such sale or transfer, or such removal or lapse, is made available to the Company for timely payment of such tax.

(g) The Company may, as a condition of transferring any stock pursuant to the Plan, require any person who is to acquire such stock (1) to give written assurances satisfactory to the Company as to the optionee's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters, and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of acquiring the stock; and (2) to give written assurances satisfactory to the Company stating that such person is acquiring the stock for such person's own account and not with any present intention of selling or otherwise distributing the stock. These requirements, and any assurances given pursuant to such requirements, shall be inoperative if (i) the issuance of the shares has been registered under a then currently effective registration statement under the Securities Act, or (ii) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws.

9. ADJUSTMENTS UPON CHANGES IN STOCK.

(a) If any change is made in the stock subject to the Plan, or subject to any Option Award granted under the Plan (through merger, consolidation, reorganization, recapitalization, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or otherwise), the Plan and outstanding Option Awards will be appropriately adjusted in the class(es) and maximum number of shares subject to the Plan and the class(es) and number of shares and price per share of stock subject to outstanding Option Awards.

(b) In the event of: (1) a merger or consolidation in which the Company is not the surviving corporation, or (2) a reverse merger in which the Company is the surviving corporation but the shares of the Company's common stock outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise, then to the extent permitted by applicable law: (i) any surviving corporation shall assume any Option Awards outstanding under the Plan or shall substitute similar rights for those outstanding under the Plan, or (ii) such Option Awards shall continue in full force and effect. In the event

any surviving corporation refuses to assume or continue such Option Awards, or to substitute similar Option Awards for those outstanding under the Plan, then, with respect to Option Awards held by persons then performing services as employees or as consultants or directors for the Company, as the case may be, the time during which such Option Awards shall vest shall be accelerated and the Option Awards terminated if not exercised prior to such event. In the event of a dissolution or liquidation of the Company, any options outstanding under the Plan shall terminate if not exercised prior to such event.

10. AMENDMENT OF THE PLAN.

(a) The Committee at any time, and from time to time, may amend the Plan, subject to and within limitations of any resolutions approved by the Board of Directors. However, except as provided in paragraph 9 relating to adjustments upon changes in stock, no amendment shall be effective unless approved by the shareholders of the Company within twelve (12) months before or after the adoption of the amendment, where the amendment will increase the number of shares reserved for issuance under the Plan.

(b) With a view to making available the benefits provided by Section 422 of the Code, if deemed desirable by the Board, the Board in its discretion shall determine at the time of each amendment of the Plan whether or not to submit such amendment to the shareholders of the Company for approval.

(c) Rights and obligations under any Option Award granted before amendment of the Plan shall not be altered or impaired by any amendment of the Plan unless (i) the Company requests the consent of the person to whom the Option Award was granted and (ii) such person consents in writing.

11. TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Committee may suspend or terminate the Plan at any time. Unless sooner terminated, the Plan shall terminate ten (10) years from the date the Plan is adopted by the Board or approved by the shareholders of the Company, whichever is earlier. Upon termination of the Plan, all Option Awards shall become fully vested. No Option Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) Rights and obligations under any Option Award granted while the Plan is in effect shall not be altered or impaired by suspension or termination of the Plan, except with the consent of the person to whom the Option Award was granted.

12. EFFECTIVE DATE OF PLAN.

The Plan shall become effective as of October _____, 2001, but no Option Award granted under the Plan shall be exercised and no stock shall otherwise be issued under the Plan unless and until the Plan has been approved by the shareholders of the Company.

IN WITNESS WHEREOF, the authorized officer of the Company has executed this Plan on this 1st day of October, 2001.

GTx, Inc.

By: /s/ Henry P. Doggrell

Title: General Counsel and Secretary

AMENDMENT TO THE
GTX, INC.
2001 STOCK OPTION PLAN

WHEREAS, GTx, Inc. (the "Company") adopted the 2001 Stock Option Plan (the "Plan") effective October 1, 2001 and granted the Committee the right to amend the Plan;

WHEREAS, it has been determined that the Plan should be amended for the purpose of changing the definition of the terms "permanent and total disability" and "Change in Control";

WHEREAS, the Committee of the Company has approved such amendments;

NOW, THEREFORE, the Plan is hereby amended, effective as of the date hereof, as follows:

1. The definition of the term "permanent and total disability" set forth in Section 5 of the Plan is hereby amended to have the following meaning: (A) the inability of the optionee to perform substantially all of his or her duties and responsibilities to the Company by reason of a physical or mental disability or infirmity (excluding, however, infrequent and temporary absences due to ordinary illness) (i) for a continuous period of more than ninety (90) days or (ii) at such time as the optionee submits satisfactory medical evidence that he or she has a permanent physical or mental disability or infirmity which will likely prevent him from returning to the performance of his work duties for more than ninety (90) days, and (B) either the optionee or the Company shall have given the other at least thirty (30) days prior written notice of intent to terminate employment. The date of such permanent and total disability shall be on the last day of such ninety (90) day period or the day on which the optionee submits such satisfactory medical evidence, as the case might be.

2. The definition of the term "Change in Control" set forth in Section 5(i) of the Plan is hereby amended to have the following meaning: (a) the sale or other disposition of all or substantially all of the assets of the Company in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of the Company); (b) the sale or other disposition of more than fifty percent (50%) of the issued and outstanding voting stock of the Company, in a single transaction or in a series of transactions. For such purposes, "voting stock" shall mean the capital stock of the Company of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of the Company; or (3) a merger or consolidation of the Company with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding voting stock of the surviving entity of such transaction is held by persons who were not holders (taking into account their individual and affiliated holdings) as of the date of the grant of this Option of at least 20% of the voting stock of the Company. Notwithstanding the foregoing, a "Change in Control" shall not include: (i) any transfer or issuance of stock of the Company to one or more of the Company's lenders (or to any agents or representatives thereof) in exchange for debt of the Company owed to any such lenders; (ii) any transfer of stock of the Company to or by any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral

for any loans or financial accommodations to the Company and/or its subsidiaries; (iii) any transfer or issuance to any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of the Company's debts to any one of the Company's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to the Company in connection with the workout or restructuring of such debt; or (iv) any transfer of stock by a stockholder of the Company which is a partnership or corporation to the partners or stockholders in such stockholder.

IN WITNESS WHEREOF, the Company has caused this Amendment to be executed on November 15, 2001.

GTx, Inc.

By: /s/ Marc S. Hanover

Name: Marc S. Hanover

Title: President and COO

EXHIBIT 10.4

GTx, INC.

2002 STOCK OPTION PLAN

1. PURPOSE.

(a) The purpose of the GTx, Inc. 2002 Stock Option Plan (the "Plan") is to provide a means by which selected key employees and directors (if declared eligible under paragraph 4) of and consultants to GTx, Inc. (the "Company"), and its Affiliates, as defined in subparagraph 1(b), may be given an opportunity to benefit from increases in value of the stock of the Company. It is intended that this purpose will be effected through the granting of (i) incentive stock options and/or, (ii) nonstatutory stock options.

(b) The word "Affiliate" as used in the Plan means any parent corporation or subsidiary corporation of the Company, as those terms are defined in Sections 424 (e) and (f), respectively, of the Internal Revenue Code of 1986, as amended from time to time (the "Code").

(c) The Company, by means of the Plan, seeks to retain the services of persons now employed by or serving as consultants or directors to the Company, to secure and retain the services of persons capable of filling such positions, and to provide incentives for such persons to exert maximum efforts for the success of the Company.

(d) The Company intends that rights granted under the Plan ("Option Awards") shall, in the discretion of the Committee or Board of Directors of the Company (the "Board"), as applicable, be either (i) incentive stock options as that term is used in Section 422 of the Code ("Incentive Stock Options"), or (ii) stock options which do not qualify as Incentive Stock Options ("Supplemental Stock Options").

2. ADMINISTRATION.

(a) The Plan shall be administered by a Committee appointed by the Board of Directors of the Company composed of not fewer than three (3) Directors (the "Committee").

(b) The Committee shall have the power, subject to, and within the limitations of, the express provisions of the Plan and to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board of Directors:

(i) To determine from time to time which of the persons eligible under the Plan shall be granted Option Awards; when and how Option Awards shall be granted; whether a Option Award will be an Incentive Stock Option, a Supplemental Stock Option, or a combination of the foregoing; and the provisions of each Option Award granted (which need not be identical).

(ii) To construe and interpret the Plan and Option Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Committee, in the exercise of this power, may correct any

defect, omission or inconsistency in the Plan or in any Option Award, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective, consistent with its terms.

(iii) To amend the Plan as provided in paragraph 10.

(iv) Generally, to exercise such powers and to perform such acts as the Committee deems necessary or expedient to promote the best interests of the Company.

(c) The Board of Directors may abolish the Committee at any time and revest in the Board of Directors the administration of the Plan.

3. SHARES SUBJECT TO THE PLAN.

(a) Subject to the provisions of paragraph 9 relating to adjustments upon changes in stock, the stock that may be issued pursuant to Option Awards granted under the Plan shall not exceed in the aggregate Fifty Thousand (50,000) shares of the Company's common stock issued and outstanding as of the date of shareholder approval of the Plan. If any option or right granted under the Plan shall for any reason expire or otherwise terminate without having been exercised in full, the stock not issued under such option or right shall again become available for the Plan.

(b) The stock subject to the Plan may be unissued shares or reacquired shares, bought on the market or otherwise.

4. ELIGIBILITY.

(a) Incentive Stock Options may be granted only to employees (including officers) of the Company or its Affiliates. A director of the Company shall not be eligible to receive Incentive Stock Options unless such director is also an employee (including an officer) of the Company or any Affiliate. Option Awards other than Incentive Stock Options may be granted only to directors, officers or employees of or consultants to the Company or its Affiliates.

(b) No person shall be eligible for the grant of an Incentive Stock Option under the Plan if, at the time of grant, such person owns (or is deemed to own pursuant to Section 424(d) of the Code) stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or of any of its Affiliates unless the exercise price of such option is at least one hundred ten percent (110%) of the fair market value of such stock at the date of grant and the term of the option does not exceed five (5) years from the date of grant.

5. TERMS OF STOCK OPTIONS.

Each stock option shall be in such form and shall contain such terms and conditions as the Board or the Committee shall deem appropriate. All options shall be separately designated Incentive Stock Options or Supplemental Stock Options at the time of grant, and in such form as

issued pursuant to this paragraph, and a separate certificate or certificates shall be issued for shares purchased on exercise of each type of option. An option designated as a Supplemental Stock Option shall not be treated as an Incentive Stock Option. The provisions of separate options need not be identical, but each option shall include (through incorporation of provisions hereof by reference in the option or otherwise) the substance of each of the following provisions:

(a) The term of any option shall not be greater than ten (10) years from the date it was granted or, in the case of any option contemplated by paragraph 4(b), five (5) years from the date of grant.

(b) The exercise price of each Incentive Stock Option shall be not less than one hundred percent (100%) of the fair market value of the stock subject to the option on the date the option is granted or, in the case of any option contemplated by paragraph 4(b), one hundred ten percent (110%) of the fair market value of the stock subject to the option on the date of grant of the option.

(c) The purchase price of stock acquired pursuant to an option shall be paid, to the extent permitted by applicable statutes and regulations, either (i) in cash at the time the option is exercised, or (ii) at the discretion of the Committee either at the time of the grant or exercise of the option, (A) by delivery to the Company of other common stock of the Company, (B) according to a deferred payment or other arrangement (which may include, without limiting the generality of the foregoing, the use of other common stock of the Company) with the person to whom the option is granted or to whom the option is transferred pursuant to subparagraph 5(d), or (C) in any other form of legal consideration that may be acceptable to the Committee.

(d)

(i) Unless otherwise expressly stated in the option, an option shall not be transferable except by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of the person to whom the option is granted only by such person, nor shall an option holder have the right or power to anticipate, accelerate, convey, assign or otherwise alienate, hypothecate, pledge or otherwise encumber any option award or the shares subject to an option award.

(ii) Except with respect to Incentive Stock Options, the Committee may, in its discretion, establish forms and procedures for the transfer of all or any portion of such Option Award by the optionee to (i) Immediate Family Members (as defined hereinafter), (ii) a trust or trusts for the exclusive benefit of the optionee and such Immediate Family Members, or (iii) a partnership or limited liability company in which the optionee and such Immediate Family Members are the only partners or members (collectively such optionee's "Permitted Transferees"), provided that subsequent transfers shall be prohibited except in accordance with the laws of descent and distribution, or by will. Notification and approval of all such transfers shall be in the form specified by the Committee. Following transfer, any such Option Award shall continue to be subject to the same terms and conditions as were applicable immediately prior to transfer,

provided that for purposes of this Plan, wherever appropriate, the term "optionee" shall be deemed to refer to the Permitted Transferee. Notwithstanding the foregoing, the Plan Committee and the Company shall have no obligation to inform any Permitted Transferee of any expiration, termination, lapse or acceleration of any such Option Award and may give notices required hereunder, if any, to the optionee. The events of termination of employment hereof shall continue to be applied with respect to the original optionee, following which the Option Award shall be exercisable by the Permitted Transferee only to the extent, and for the periods specified herein. As used herein "Immediate Family Member" shall mean, with respect to the optionee, his or her spouse, child, stepchild, grandchildren or other descendants, and shall include relationships arising from legal adoption.

(e) The total number of shares of stock subject to an option may, but need not, be allotted in periodic installments (which may, but need not, be equal). From time to time during each of such installment periods, the option may become exercisable ("vest") with respect to some or all of the shares allotted to that period, and may be exercised with respect to some or all of the shares allotted to such period and/or any prior period as to which the option was not fully exercised. During the remainder of the term of the option (if its term extends beyond the end of the installment periods), the option may be exercised from time to time with respect to any shares then remaining subject to the option. In the absence of a specific provision to the contrary in a particular option grant, an option award shall vest one-third (1/3) on the third anniversary of the date of grant of such option award, an additional one-third on the fourth anniversary of the date of grant of such option award, and the final one-third (1/3) shall vest on the fifth anniversary of the date of grant of such option award. The provisions of this subparagraph 5(e) are subject to any option provisions governing the minimum number of shares as to which an option may be exercised.

(f) An option shall terminate three (3) months after termination of the optionee's employment or relationship as a director of or consultant to the Company or an Affiliate, unless (i) such termination is due to such person's permanent and total disability, within the meaning of Section 422(c)(6) of the Code, in which case the option may, but need not, provide that it may be exercised at any time within one (1) year following such termination of employment or relationship as a director or consultant; or (ii) the optionee dies while in the employ of or while serving as a director of or consultant to the Company or an Affiliate, or within not more than three (3) months after termination of such relationship, in which case the option may, but need not, provide that it may be exercised at any time within eighteen (18) months following the death of the optionee by the person or persons to whom the optionee's rights under such option passes by will or by the laws of descent and distribution; or (iii) such termination is due to such person's voluntary retirement in accordance with subparagraph (h) below, in which case the option may be exercised at any time within the earlier of five (5) years from the date of termination of such employment or relationship, as the case may be, or the term of the option; or (iv) the option by its terms specifies either (a) that it shall terminate sooner than three (3) months after termination of the optionee's employment or relationship as a director or consultant, or (b) that it may be exercised more than three (3) months after

termination of the optionee's employment or relationship with the Company or an Affiliate. This subparagraph 5(f) shall not be construed to extend the term of any option or to permit anyone to exercise the option after expiration of its term, nor shall it be construed to increase the number of shares as to which any option is exercisable from the amount exercisable on the date of termination of the optionee's employment or relationship as a consultant or director.

(g) Prior to such time as the Company's shares of common stock are first sold to the public in an offering registered pursuant to Section 5 of the Securities Act of 1933, as amended ("Initial Public Offering"), any shares of stock acquired through the exercise of an option shall be subject to a thirty (30) day right of first refusal by the Company at the same price and terms as offered by any third party pursuant to a bona fide offer, and may not be sold prior to an offer to sell to the Company on such terms. Further, shares acquired through exercise of an option award shall be subject to the terms and conditions of the Amended and Restated Voting and Shareholder Agreement dated October 5, 2001, between the Company and its stockholders, as amended from time to time (the "Stockholders Agreement").

(h) In the event of a participant's termination of employment or service as a director, as applicable, by reason of voluntary retirement (at or after age sixty-five (65) or after age fifty-five with no fewer than five (5) years of service), death, permanent and total disability, involuntary termination (other than a termination for cause but including any involuntary termination as the result of a Change in Control, as addressed below), with respect to such participant's Option Award(s), the Committee may in its sole, absolute and final discretion elect to vest any or all shares not otherwise vested under the terms of the Plan.

For purposes of this section, a permanent and total disability shall mean (A) the inability of the optionee to perform substantially all of his or her duties and responsibilities to the Company by reason of a physical or mental disability or infirmity (excluding, however, infrequent and temporary absences due to ordinary illness) (i) for a continuous period of more than ninety (90) days or (ii) at such time as the optionee submits satisfactory medical evidence that he or she has a permanent physical or mental disability or infirmity which will likely prevent him from returning to the performance of his work duties for more than ninety (90) days, and (B) either the optionee or the Company shall have given the other at least thirty (30) days prior written notice of intent to terminate employment. The date of such permanent and total disability shall be on the last day of such ninety (90) day period or the day on which the optionee submits such satisfactory medical evidence, as the case might be.

For purposes of this section, a termination for cause shall mean the termination of an individual's status as an employee or director of the Company, as applicable, as the result of (i) fraud or dishonesty in connection with the business of the Company; (ii) gross negligence in the performance of duties for the Company; (iii) willful failure in carrying out duties as an employee, director or consultant; or (iv) arrest and conviction of a felony involving moral turpitude, whether or not in connection with the business of the Company; provided that (iii) above shall not apply if the Option Award holder has been assigned by the Company to duties which are not comparable to such holder's function and compensation at the Company, or which

are non-executive or demeaning assignments, or if the Company has given such participant demeaning and unreasonable pay cuts.

(i) In the event of a Change in Control of the Company, all shares subject to all Option Awards shall become one hundred percent (100%) vested and shall be converted to cash, options or stock of equivalent value in the surviving organization under terms and condition which substantially preserve the economic status of the Participants, as determined by the Committee. For purposes of this paragraph, a Change in Control shall mean:

(a) The sale or other disposition of all or substantially all of the assets of the Company in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of the Company); (b) the sale or other disposition of more than fifty percent (50%) of the issued and outstanding voting stock of the Company, in a single transaction or in a series of transactions; or (c) a merger or consolidation of the Company with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding voting stock of the surviving entity of such transaction is held by persons who were not holders (taking into account their individual and affiliated holdings) as of the date of the grant of this Option of at least 20% of the voting stock of the Company. For such purposes, "voting stock" shall mean the capital stock of the Company of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of the Company. Notwithstanding the foregoing, a "Change in Control" shall not include: (i) any transfer or issuance of stock of the Company to one or more of the Company's lenders (or to any agents or representatives thereof) in exchange for debt of the Company owed to any such lenders; (ii) any transfer of stock of the Company to or by any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to the Company and/or its subsidiaries; (iii) any transfer or issuance to any person or entity, including but not limited to one or more of the Company's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of the Company's debts to any one of the Company's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to the Company in connection with the workout or restructuring of such debt; or (iv) any transfer of stock by a stockholder of the Company which is a partnership or corporation to the partners or stockholders in such stockholder.

(j) In the event of an Initial Public Offering of the Company, Option Awards shall be convertible to options in shares of the newly public company, under terms and conditions which substantially preserve the rights and options of the participant. Any resulting registration of options or shares shall be effected at Company expense.

(k) If provided in the Option Award, each Option Award shall carry the right to receive any dividend or dividend equivalent on vested shares, under such terms and conditions as may be specified in the Option Award.

(l) Notwithstanding any other provisions of the Plan, any vested but unexercised Option Award shares shall be forfeited upon the Option Award holder's "Competition" with the Company. For this purpose, Competition shall be determined by the Committee, and shall exist if the Option Award holder while employed by or consulting for the Company and for a period of two (2) years thereafter directly or indirectly (i) engages or has a financial interest in, (ii) becomes an officer, employee, director, partner, advisor or consultant of or to, (iii) has an equity interest in, or (iv) in any way materially assists any person, corporation, entity or business whose existing or planned products or activities compete in whole or in part with the existing or planned products or activities of the Company. The sole fact of ownership by an Option Award holder of less than two percent (2%) of the stock of a publicly traded company which may have product lines which compete with product lines of this Company shall not be treated as Competition. Any determination by the Committee under this section shall be final and conclusive, unless overruled by the Board.

(m) Notwithstanding any other provision of the Plan or any Option Award to the contrary, any and all sales of shares to the Company or any Affiliate are contingent upon and subject to the terms and conditions of any bank loan covenants by the Company or any Affiliate.

6. COVENANTS OF THE COMPANY.

(a) During the terms of any Option Awards granted under the Plan, the Company shall keep available at all times the number of shares of stock required to satisfy such Option Awards.

(b) The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to issue and sell shares of stock upon grant or exercise of Option Awards under the Plan; provided, however, that this undertaking shall not require the Company to register under the Securities Act of 1933, as amended (the "Securities Act"), either the Plan, any Option Award granted under the Plan or any stock issued or issuable pursuant to any such Option Awards. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority which counsel for the Company deems necessary for the lawful issuance and sale of stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell stock upon exercise of such Option Awards unless and until such authority is obtained.

7. USE OF PROCEEDS FROM STOCK.

Proceeds from the sale of stock pursuant to Option Awards granted under the Plan shall constitute general funds of the Company.

8. MISCELLANEOUS.

(a) The Committee shall have the power to accelerate the time during which a Option Award may be exercised or the time during which an option or stock acquired pursuant to a Option Award will vest, notwithstanding the provisions in the Option Award stating the time during which it may be exercised or the time during which stock acquired pursuant thereto will vest.

(b) Neither a recipient of a Option Award nor any person to whom a Option Award is transferred under subparagraph 5(d) shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares subject to such Option Award unless and until such person has satisfied all requirements for exercise of the Option Award pursuant to its terms and is thereby entitled to receive shares of stock.

(c) Throughout the term of any Option Award granted pursuant to the Plan, the Company shall make available to the holder of such Option Award, not later than one hundred twenty (120) days after the close of each of the Company's fiscal years during the option term, upon request, such financial and other information regarding the Company as comprises the annual report to the shareholders of the Company provided for in the bylaws of the Company.

(d) Nothing in the Plan or any instrument executed or Option Award granted pursuant thereto shall confer upon any recipient any right to continue in the employ of the Company or any Affiliate or to limit the Company's right to terminate the employment or consulting relationship or directorship of any eligible employee or recipient with or without cause. In the event that an Option Award recipient is permitted or otherwise entitled to take a leave of absence, the Company shall have the unilateral right to (i) determine whether such leave of absence will be treated as a termination of employment for purposes of his or her Option Award, or (ii) suspend or otherwise delay the time or times at which the shares subject to the Option Award would otherwise vest.

(e) To the extent provided by the terms of any Option Award, the recipient may satisfy any federal, state or local tax withholding obligation relating to the exercise or receipt of such Option Award by any of the following means or by a combination of such means: (1) tendering a cash payment; (2) authorizing the Company to withhold from the shares of the common stock otherwise issuable to the participant as a result of the exercise of receipt of the Option Award cash or a number of shares having a fair market value less than or equal to the amount of the withholding tax obligation; or (3) delivering to the Company owned and unencumbered shares of common stock of the Company having a fair market value less than or equal to the amount of the withholding tax obligation.

(f) In connection with each Option Award made pursuant to the Plan, the Company may require as a condition precedent to its obligation to issue or transfer shares to an eligible participant, or to evidence the removal of any restrictions on transfers or lapse of any repurchase right, that such participant make arrangements satisfactory to the Company to insure that the amount of any federal or other withholding tax required to be

withheld with respect to such sale or transfer, or such removal or lapse, is made available to the Company for timely payment of such tax.

(g) The Company may, as a condition of transferring any stock pursuant to the Plan, require any person who is to acquire such stock (1) to give written assurances satisfactory to the Company as to the optionee's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters, and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of acquiring the stock; and (2) to give written assurances satisfactory to the Company stating that such person is acquiring the stock for such person's own account and not with any present intention of selling or otherwise distributing the stock. These requirements, and any assurances given pursuant to such requirements, shall be inoperative if (i) the issuance of the shares has been registered under a then currently effective registration statement under the Securities Act, or (ii) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws.

9. ADJUSTMENTS UPON CHANGES IN STOCK.

(a) If any change is made in the stock subject to the Plan, or subject to any Option Award granted under the Plan (through merger, consolidation, reorganization, recapitalization, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or otherwise), the Plan and outstanding Option Awards will be appropriately adjusted in the class(es) and maximum number of shares subject to the Plan and the class(es) and number of shares and price per share of stock subject to outstanding Option Awards.

(b) In the event of: (1) a merger or consolidation in which the Company is not the surviving corporation, or (2) a reverse merger in which the Company is the surviving corporation but the shares of the Company's common stock outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise, then to the extent permitted by applicable law: (i) any surviving corporation shall assume any Option Awards outstanding under the Plan or shall substitute similar rights for those outstanding under the Plan, or (ii) such Option Awards shall continue in full force and effect. In the event any surviving corporation refuses to assume or continue such Option Awards, or to substitute similar Option Awards for those outstanding under the Plan, then, with respect to Option Awards held by persons then performing services as employees or as consultants or directors for the Company, as the case may be, the time during which such Option Awards shall vest shall be accelerated and the Option Awards terminated if not exercised prior to such event. In the event of a dissolution or liquidation of the Company, any options outstanding under the Plan shall terminate if not exercised prior to such event.

10. AMENDMENT OF THE PLAN.

(a) The Committee at any time, and from time to time, may amend the Plan, subject to and within limitations of any resolutions approved by the Board of Directors. However, except as provided in paragraph 9 relating to adjustments upon changes in stock, no amendment shall be effective unless approved by the shareholders of the Company within twelve (12) months before or after the adoption of the amendment, where the amendment will increase the number of shares reserved for issuance under the Plan.

(b) With a view to making available the benefits provided by Section 422 of the Code, if deemed desirable by the Board, the Board in its discretion shall determine at the time of each amendment of the Plan whether or not to submit such amendment to the shareholders of the Company for approval.

(c) Rights and obligations under any Option Award granted before amendment of the Plan shall not be altered or impaired by any amendment of the Plan unless (i) the Company requests the consent of the person to whom the Option Award was granted and (ii) such person consents in writing.

11. TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Committee may suspend or terminate the Plan at any time. Unless sooner terminated, the Plan shall terminate ten (10) years from the date the Plan is adopted by the Board or approved by the shareholders of the Company, whichever is earlier. Upon termination of the Plan, all Option Awards shall become fully vested. No Option Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) Rights and obligations under any Option Award granted while the Plan is in effect shall not be altered or impaired by suspension or termination of the Plan, except with the consent of the person to whom the Option Award was granted.

12. EFFECTIVE DATE OF PLAN.

The Plan shall become effective as of August 28, 2002, but no Option Award granted under the Plan shall be exercised and no stock shall otherwise be issued under the Plan unless and until the Plan has been approved by the shareholders of the Company.

IN WITNESS WHEREOF, the authorized officer of the Company has executed this Plan on this 28th day of August, 2002.

GTx, Inc.

By: /s/ Henry P. Doggrell

Title: General Counsel and Secretary

EXHIBIT 10.8

EMPLOYMENT AGREEMENT

This Employment Agreement (this "Agreement") is made and entered into as of October 1, 2003 (the "Effective Date") by and between GTx, INC., located at 3 North Dunlap, 3rd Floor, Memphis, Tennessee 38163 (the "Employer"), and MITCHELL S. STEINER, M.D. (the "Employee"), residing at 8894 Silver Bark Drive, Germantown, Tennessee 38183.

WHEREAS, the Employer desires to retain the services of Employee as Chief Executive Officer; and

WHEREAS, the Employer and the Employee desire to enter into this Agreement to set forth terms and conditions of the employment relationship between the Employer and the Employee; and

WHEREAS, during the course of Employee's employment with the Employer, the Employer will train and continue to train Employee and to impart to Employee proprietary, confidential, and/or trade secret information, data and/or materials of the Employer; and

WHEREAS, the Employer has a vital interest in maintaining its confidential information and trade secrets, as well as rights to inventions, since doing so allows the Employer to compete fairly and enhances the value of the Employer to shareholders and job security for employees; and

WHEREAS, the Employer desires to procure the services of Employee and Employee is willing to be employed and continue to be employed with the Employer upon the terms and subject to the conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained in this Agreement, the employment and continued employment of Employee in accordance with the terms and conditions of this Agreement, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, agree and covenant as follows:

1. DEFINITIONS

For the purposes of this Agreement, the following terms have the meanings specified or referred to in this Section 1.

"AGREEMENT" has the meaning set forth in first paragraph of this Agreement.

"BASIC COMPENSATION" means Salary and Benefits.

"BENEFITS" means as defined in Section 3.1(b).

"BOARD OF DIRECTORS" means the Board of Directors of the Employer.

"CHANGE OF CONTROL" means any of the following events: (a) the sale or other disposition of all or substantially all of the assets of Employer in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of Employer); (b) any Person or group becomes the beneficial owner, directly, or indirectly, of securities of the Employer representing more than fifty percent (50%) of the combined voting power of the Employer's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. For such purposes, "voting stock" shall mean the capital stock of Employer of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of Employer; or (c) a merger or consolidation of Employer with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding voting stock of the surviving entity of such transaction is held by persons who were not holders (taking into account their individual and affiliated holdings) as of the Effective Date of at least twenty percent (20%) of the voting stock of Employer. A Change of Control shall not include: (1) any transfer or issuance of stock of Employer to one or more of Employer's lenders (or to any agents or representatives thereof) in exchange for debt of Employer owed to any such lenders; (2) any transfer of stock of Employer to or by any person or entity, including but not limited to one or more of the Employer's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to Employer and/or its subsidiaries; (3) any transfer or issuance to any person or entity, including but not limited to one or more of Employer's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of Employer's debts to any one of Employer's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to Employer in connection with the workout or restructuring of such debt; (4) any transfer of stock by a stockholder of Employer which is a partnership or corporation to the partners or stockholders in such stockholder or any transfer of stock by a stockholder of Employer to an entity affiliated with such stockholder or the immediate family of such stockholder or a trust or similar entity for the benefit of such family members; or (5) any transfer or issuance of stock in connection with an offering of the Employer's stock in a registered public transaction not involving a transaction described in Rule 145, promulgated under the Securities Act of 1933, as amended, provided that the Employer's officers and Board of Directors shall not materially change as a result thereof.

"CHANGE OF CONTROL TERMINATION" means (i) a Termination Without Cause of the Employee's employment by the Employer within six (6) months after a Change of Control or (ii) the Employee's resignation for Good Reason within six (6) months after a Change of Control.

"COMPETING BUSINESS" means any individual or entity, other than the Employer, that is engaging in, or proposes to engage in, the development, manufacture, distribution or sale of a Competing Product in North America, Europe, Japan, China, Taiwan or South Korea; provided however, that (i) an entity that develops, manufactures, distributes or sells a Competing Product in a separate business unit than the business unit in which Employee is then employed shall not be deemed a Competing Business unless Employee provides Confidential Information and/or Proprietary Information to the business unit that is engaging in or proposes to engage in the development, manufacture, distribution or sale of a Competing Product; and (ii) nothing in this Agreement shall prevent Employee from conducting research for non-commercial purposes utilizing institutional or governmental grant funds in areas relating to any Competing Product as

long as such research is not in areas that are protected or intended to be protected by patents of Employer.

"COMPETING PRODUCT" means any pharmaceutical or other compound, composition, formulation, method, process, product or material that is competitive with any product of Employer under development, manufacture, distribution or commercialization at any time from and after the Effective Date through the date of termination of Employee's employment, including, without limitation, small molecules that target androgen receptors, estrogen receptors or other hormone receptors for purposes of treating, diagnosing, or imaging humans in health and disease, and selective cytopathic viruses, such as vesicular stomatitus virus (rhabdoviridae), that target and destroy selected cells.

"CONFIDENTIAL INFORMATION AND/OR PROPRIETARY INFORMATION" means any and all:

(a) information disclosed to Employee or known by Employee as a consequence of, or through, Employee's employment with the Employer since his date of employment in September 1997 (including information conceived, originated, discovered, or developed in whole or in part by Employee), not generally known in the relevant trade or industry, about the Employer's business, products, processes, and services; and trade secrets concerning the business and affairs of the Employer, product specifications, data, know-how, formulae, compositions, research, processes, designs, sketches, photographs, graphs, drawings, samples, inventions and ideas, past, current, and planned research and development, current and planned manufacturing or distribution methods and processes, customer lists, current and anticipated customer requirements, price lists, market studies, business plans, computer software and programs (including object code and source code), computer software and database technologies, systems, structures, and architectures (and related formulae, compositions, processes, improvements, devices, know-how, inventions, discoveries, concepts, ideas, designs, methods and information); and any other information, however documented, that is a trade secret within the meaning of Tenn. Code Section 39-14-138; and

(b) information concerning the business and affairs of the Employer (which includes historical financial statements, financial projections and budgets, historical and projected sales, capital spending budgets and plans, the names and backgrounds of key personnel, personnel training and techniques and materials), however documented; and

(c) intellectual property, inventions, methods, processes, techniques, computer programs, devices, products, services, compounds, gene therapy products, pharmaceuticals, substances, vectors, enzymes, genes, concepts, discoveries, improvements, and designs, whether or not patenable in the United States or foreign countries, any trade secrets, information, procedures, technologies, data, results, conclusions, know-how or show-how and business information; and

(d) notes, analysis, compilations, studies, summaries, and other material prepared by or for the Employer containing or based, in whole or in part, on any information included in the foregoing.

"EFFECTIVE DATE" means the date stated in the first paragraph of the Agreement.

"EMPLOYEE" has the meaning stated in the first paragraph of this Agreement.

"EMPLOYEE INVENTION" means any idea, invention, technique, modification, process, improvement (whether patentable or not), industrial design (whether registerable or not), work of authorship (whether or not copyright protection may be obtained for it), design, copyrightable work, discovery, trademark, copyright, trade secret, formula, device, method, compound, gene, prodrug, pharmaceutical, structure, product concept, marketing plan, strategy, customer list, technique, blueprint, sketch, record, note, drawing, know-how, data, patent application, continuation application, continuation-in-part application, file wrapper continuation application or divisional application, created, conceived, or developed by the Employee, either solely or in conjunction with others, during the Employee's employment, or a period that includes a portion of the Employee's employment, that relates in any way to, or is useful in any manner in, the business then being conducted or proposed to be conducted by the Employer, and any such item created by the Employee, either solely or in conjunction with others, following termination of the Employee's employment with the Employer, that is based upon or uses Confidential Information and/or Proprietary Information.

"EMPLOYER" means GTx, Inc., its successors and assigns, and any of its current or future subsidiaries, or organizations controlled by, controlling, or under common control with it.

"GOOD REASON" means any of the following:

(a) following a Change of Control, a change in the Employee's status, position or responsibilities (including reporting responsibilities) which, without Employee's consent, represents a reduction in or demotion of the Employee's status, position or responsibilities as in effect immediately prior to a Change of Control or the assignment to the Employee of any duties or responsibilities which are inconsistent with such status, position or responsibilities;

(b) following a Change of Control, a reduction in the Salary in effect immediately prior to the Change of Control or modifying, suspending, discontinuing, or terminating any Benefit in a manner which materially and adversely affects Employee;

(c) following a Change of Control, the relocation of the Employer's principal Employee offices to a location outside a thirty-mile radius of Memphis, Tennessee or the Employer's requiring the Employee to be based at any place other than a location within a thirty-mile radius of Memphis, Tennessee, except for reasonably required travel on the Employer's business; or

(d) following a Change of Control, the failure of the Employer to obtain an agreement reasonably satisfactory to Employee from any successor or assign of the Employer to assume and agree to perform this Agreement.

"PERSON" means any individual, corporation (including any non-profit corporation), general or limited partnership, limited liability company, joint venture, estate, trust, association, organization, or governmental body.

"PROPRIETARY ITEMS" means any Proprietary and/or Confidential Information embodied in any document, record, recording, electronic media, formulae, notebook, plan, model, component, device, or computer software or code, whether embodied in a disk or in any other form.

"SALARY" means as defined in Section 3.1(a).

"TERMINATION WITH CAUSE" means the termination of the Employee's employment by act of the Board for any of the following reasons:

(a) the Employee's conviction for a felony;

(b) the Employee's theft, embezzlement, misappropriation of or intentional infliction of material damage to the Employer's property or business opportunities;

(c) the Employee's breach of the provisions contained in Section 7 or Section 8 of this Agreement; or

(d) the Employee's ongoing willful neglect of or failure to perform his duties hereunder or his ongoing willful failure or refusal to follow any reasonable, unambiguous duly adopted written direction of the Board of Directors that is not inconsistent with the description of the Employee's duties set forth in Section 2.3, if such willful neglect or failure is materially damaging or materially detrimental to the business and operations of the Employer; provided that Employee shall have received written notice of such failure and shall have continued to engage in such failure after 30 days following receipt of such notice from the Board of Directors, which notice specifically identifies the manner in which the Board of Directors believes that Employee has engaged in such failure. For purposes of this subsection, no act, or failure to act, shall be deemed "willful" unless done, or omitted to be done, by Employee not in good faith, and without reasonable belief that such action or omission was in the best interest of the Employer.

"TERMINATION WITHOUT CAUSE" means the termination of the Employee's employment by the Employer for any reason other than Termination With Cause, or termination by the Employer due to Employee's death or disability.

2. EMPLOYMENT TERMS AND DUTIES

2.1 Employment

The Employer hereby employs the Employee, and the Employee hereby accepts employment by the Employer, upon the terms and conditions set forth in this Agreement.

2.2 Term

Either the Employee or the Employer may terminate this Agreement and the Employee's employment and compensation with or without cause or notice, at any time, at either the Employer's or the Employee's option. No company officer or manager has the authority to enter into any other agreement for employment for a specified period of time, or to modify or to

make any agreement contrary to the foregoing, except by written amendment to this Agreement, dated and signed by the President of the Employer.

2.3 Duties

The Employee will have such duties as are assigned or delegated to the Employee by the Board of Directors and will initially serve as Chief Executive Officer for the Employer. The Employee will devote his full time, attention, skill and energy to the business of the Employer, will use his best efforts to promote the success of the Employer's business, and will cooperate fully with the Board of Directors in the advancement of the best interest of the Employer. Employee agrees to abide by all bylaws, policies, practices, procedures or rules of Employer. Employee may be reassigned or transferred to another management position, as designated by the Board of Directors, which may or may not provide the same level of responsibility as the initial assignment, in accordance with the terms and conditions of this Agreement.

3. COMPENSATION

3.1 Basic Compensation

(a) Salary. The Employee will be paid on the 15th and 30th day of each month a bi-weekly salary of $10,000 (the "Salary"), which is the equivalent of $240,000 per year. Employee's Salary may be adjusted from time to time by agreement of the Employee and the Board of Directors.

(b) Benefits. The Employee will, during his employment, be permitted to participate in such life insurance, hospitalization, major medical, short term disability, long term disability, 401K plan and other employee benefit plans of the Employer that may be in effect from time to time, to the extent the Employee is eligible under the terms of those plans (collectively, the "Benefits").

(c) The Employer may withhold from any salary or benefits payable to Employee all federal, state, local, and other taxes and other amounts as permitted or required pursuant to law, rules or regulations.

4. FACILITIES AND EXPENSES

4.1 General

The Employer will furnish the Employee office space, equipment, supplies, and such other facilities and personnel as the Employer deems necessary or appropriate for the performance of the Employee's duties under this Agreement. The Employer will pay the Employee's dues in such professional societies and organizations as the Board of Directors deems appropriate, and will pay on behalf of the Employee (or reimburse the Employee for) reasonable expenses incurred by the Employee at the request of, or on behalf of, the Employer in the performance of the Employee's duties pursuant to this Agreement, and in accordance with the Employer's employment policies, including reasonable expenses incurred by the Employee in attending conventions, seminars, and other business meetings, in appropriate business

entertainment activities, and for promotional expenses. The Employee must file expense reports with respect to such expenses in accordance with the Employer's policies.

5. VACATIONS AND HOLIDAYS

The Employee will be entitled to three (3) weeks paid vacation each year in accordance with the vacation policies of the Employer in effect from time to time. Vacation must be taken by the Employee at such time or times as approved by the Board of Directors or President. The Employee will also be entitled to the paid holidays set forth in the Employer's policies. Vacation days and holidays during any year that are not used by the Employee during such year may not be used in any subsequent year.

6. TERMINATION

6.1 Events of Termination

Either the Employee or Employer may terminate this Employment Agreement (with the exception of the provisions of Section 7 and 8 which shall survive termination of this Agreement) and Basic Compensation with or without cause or notice, at any time at either the Employee's or the Employer's option.

6.2 The employment of Employee shall terminate on the date of the Employee's death, in which event Employee's Basic Compensation, owing to Employee through the date of Employee's death shall be paid to his estate. Employee's estate will not be entitled to any other compensation under this Agreement.

6.3 The Employer shall be released from any and all further obligations under this Agreement, except the Employer shall be obligated to pay Employee his Basic Compensation owing to Employee through the day on which Employee's employment is terminated and as provided in Section 6.4, if applicable. Employee's obligation under Sections 7 and 8 shall continue pursuant to the terms and conditions of this Agreement.

6.4 As additional consideration for the covenants in Section 7 and Section 8, in the event of a Change of Control Termination, Employee shall receive the equivalent of his bi-weekly Salary at the time of his termination of Employment for a period of one (1) year from the date of termination payable in accordance with Employer's then current payroll policies and procedures, less deductions required by law; provided that if Employee shall terminate his employment on account of a reduction in his Salary or Benefits, as provided in paragraph (b) of the definition of "Good Reason", then Employee shall be entitled to receive hereunder the equivalent Salary he was making prior to such reduction.

7. NON-DISCLOSURE COVENANT; EMPLOYEE INVENTIONS

7.1 Acknowledgements by the Employee

The Employee acknowledges and agrees that (a) during the course of his employment and as a part of his employment, the Employee will be afforded access to Confidential Information and/or Proprietary Information; (b) public disclosure of such

Confidential Information and/or Proprietary Information could have an adverse effect on the Employer and its business; (c) because the Employee possesses substantial technical expertise and skill with respect to the Employer's business, the Employer desires to obtain exclusive ownership of each Employee Invention, and the Employer will be at a substantial competitive disadvantage if it fails to acquire exclusive ownership of each Employee Invention; and (d) the provisions of this Section 7 are reasonable and necessary to prevent the improper use or disclosure of Confidential Information and/or Proprietary Information and to provide the Employer with exclusive ownership of all Employee Inventions.

7.2 Agreements of the Employee

In consideration of the compensation and benefits to be paid or provided to the Employee by the Employer under this Agreement and otherwise, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Employee covenants and agrees as follows:

(a) Confidentiality.

(i) That all of such Confidential Information and/or Proprietary Information is a unique asset of the business of Employer, the disclosure of which would be damaging to Employer.

(ii) That the Employee will not at any time, whether during or after termination or cessation of the Employee's employment, except as authorized by Employer and for its benefit, use, divulge or disclose (or enable anyone else to use, divulge or disclose) to any person, association or entity any Confidential Information and/or Proprietary Information which the Employee presently possesses or which the Employee may obtain during the course of the Employee's employment with respect to the business, finances, customers or affairs of Employer or trade secrets, developments, methods or other information and data pertaining to the Employer's business. The Employee shall keep strictly confidential all matters and information entrusted to the Employee and shall not use or attempt to use any such Confidential Information and/or Proprietary Information in any manner which may injure or cause loss or may be calculated to injure or cause loss, whether directly or indirectly, to Employer.

(iii) That during the course of this Agreement or at any time after termination, Employee will keep in strictest confidence and will not disclose or make accessible to any other person without the prior written consent of Employer, the Confidential Information and/or Proprietary Information; Employee agrees: (a) not to use any such Confidential Information and/or Proprietary Information for himself or others; and (b) not to take any such material or reproductions thereof from the Employer's facilities at any time during his employment except, in each case, as required in connection with the Employee's duties to the Employer.

(iv) Employee agrees to hold in confidence, and not to distribute or disseminate to any person or entity for any reason, any Confidential Information and/or Proprietary Information of Employer under this Agreement, or information relating to experiments or results obtained based on the duties of Employee, except for information which: (a) is in or which becomes a part of the public domain not as a result of a breach of this Agreement, (b) information lawfully received from a third party who had the right to disclose such information or (c) is required by legal process before a court of proper jurisdiction (by oral questions, deposition, interrogatories, requests for information or documents, subpoena, civil investigative domain or other similar process) to disclose all or any part of any Confidential Information and/or Proprietary Information, provided that Employee will provide Employer with prompt notice of such request or requirement, as well as notice of the terms and circumstances surrounding such request or requirements, so that Employer may seek an appropriate protective order or waive compliance with the provisions of this Agreement. In such case, the parties will consult with each other on the advisability of pursuing any such order or other legal action or available step to resist or narrow such request or requirement. If, failing the entry of a protective order or the receipt of a waiver hereunder, Employee is, in the opinion of counsel reasonably acceptable to Employer, legally compelled to disclose Confidential Information and/or Proprietary Information. Employee may disclose that portion of such information which counsel advises to obtain and will not oppose action by Employer to disclose, an appropriate protective order or other reliable assurance that confidential treatment will be accorded the disclosure of such information.

(v) Upon written notice by Employer, Employee shall promptly redeliver to Employer, or, if requested by Employer, promptly destroy all written Confidential Information and/or Proprietary Information and any other written material containing any information included in the Confidential Information and/or Proprietary Information (whether prepared by Employer, Employee, or a third party), and will not retain any copies, extracts or other reproductions in whole or in part of such written Confidential Information and/or Proprietary Information (and upon request certify such redelivery of destruction to Employer in a written instrument reasonably acceptable to Employer and its counsel).

(vi) This Agreement and the terms and conditions recited herein are confidential and non-public, except as may be expressly permitted by the Employer. The Employee agrees not to disclose the contents of this Agreement to any person or entity, including, but not limited to the press, other media, any public body, or any competitor of Employer, except to the Employee's legal counsel or as may be required by law.

(vii) Any trade secrets of the Employer will be entitled to all of the protections and benefits of State of Tennessee law and any other applicable law. If any information that the Employer deems to be a trade secret is found by a court of competent jurisdiction not be to a trade secret for purposes of this

Agreement, such information will, nevertheless, be considered Confidential Information and/or Proprietary Information for purposes of this Agreement. The Employee hereby waives any requirement that the Employer submits proof of the economic value of any trade secret or post a bond or other security.

(viii) None of the foregoing obligations and restrictions applies to any part of the Confidential Information and/or Proprietary Information that the Employee demonstrates was or became generally available to the public other than as a result of a disclosure by the Employee.

(ix) The Employee will not remove from the Employer's premises (except to the extent such removal is for purposes of the performance of the Employee's duties at home or while traveling, or except as otherwise specifically authorized by the Employer) any Proprietary Items. The Employee recognizes that, as between the Employer and the Employee, all of the Proprietary Items, whether or not developed by the Employee, are the exclusive property of the Employer. Upon termination of this Agreement by either party, or upon the request of the Employer during the employment of Employee, the Employee will return to the Employer all of the Proprietary Items in the Employee's possession or subject to the Employee's control, and the Employee shall not retain any copies, abstracts, sketches, or other physical or electronic embodiment of any of the Proprietary Items.

(b) Employee Inventions.

(i) Each Employee Invention will belong exclusively to the Employer. Employee agrees that Employer shall have sole and exclusive ownership rights in any conception, invention, trade secrets, information, ideas, improvement, substance, know-how, whether or not patentable, arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies of Employer. Any resulting or derivative rights, including patent rights, shall become the exclusive property of Employer and Employer shall be entitled to the entire right, title and interest with respect hereto. Employee agrees, without additional compensation, to convey, assign the entire right, title, and interest in and to any inventions for the United States and all foreign jurisdictions to Employer arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies.

(ii) Employer shall retain the entire right, title and interest in and to any and all Confidential Information and/or Proprietary Information provided by Employer to Employee and to any methods, compounds, improvements, substances, and compositions using or incorporating such Confidential Information and/or Proprietary Information.

(iii) Employee agrees that Confidential Information and/or Proprietary Information provided to the Employee by Employer shall be used for work purposes only and shall not be used for any other uses, studies, experiments or tests.

(iv) Employee agrees that he will promptly disclose to Employer, or any persons designated by Employer, all Employee Inventions, made or conceived or reduced to practice or learned by him, either alone or jointly with others, during the employment of the Employee. The Employee further agrees to assist Employer in every proper way (but at Employer's expense) to obtain and from time to time enforce patents, copyrights or other rights on Employee Inventions in any and all countries, and to that end Employee will execute all documents necessary: (a) to apply for, obtain and vest in the name of Employer alone (unless Employer otherwise directs) letters patent, copyrights or other analogues protection in any country throughout the world and when so obtained or vested to renew and restore the same; and (b) to defend (including the giving of testimony and rendering any other assistance) any opposition proceedings in respect of such applications and any opposition proceedings or petitions or applications for revocation of such letters patent, copyright or other analogous protection. Employee's obligation to assist Employer in obtaining and enforcing patents and copyrights for Employee Inventions in any and all countries shall continue beyond and after the termination of Employee.

(v) Any copyrightable work whether published or unpublished created by Employee in connection with or during the performance of services below shall be considered a work made for hire, to the fullest extent permitted by law and all right, title and interest therein, including the worldwide copyrights, shall be the property of Employer as the employer and party specially commissioning such work. In the event that any such copyrightable work or portion thereof shall not be legally qualified as a work made for hire, or shall subsequently be so held, Employee agrees to properly convey to Employer, without additional compensation, the entire right, title and interest in and to such work or portion thereof, including but not limited to the worldwide copyrights, extensions of such copyrights, and renewal copyrights therein, and further including all rights to reproduce the copyrighted work in copies or phonorecords, to prepare derivative works based on the copyrighted work, to distribute copies of the copyrighted work, to perform the copyrighted work publicly, to display the copyrighted work publicly, and to register the claim of copyright therein and to execute any and all documents with respect hereto.

(vi) Employee may not publish or disclose any Confidential Information and/or Proprietary Information relating to, arising from, derivative of, or as a result of his employment pursuant to this Agreement including but not limited to: information, improvements, results, experiments, data, or methods, that makes reference to any of the Confidential Information and/or Proprietary Information. Any work performed under, or arising from, or a result of his

employment with Employer shall not be published or disclosed in written, electronic, or oral form without the express written permission of Employer.

7.3 Disputes or Controversies

The Employee recognizes that should a dispute or controversy arising from or relating to this Agreement be submitted for adjudication to any court, arbitration panel, or other third party, the preservation of the secrecy of Confidential Information and/or Proprietary Information may be jeopardized. All pleadings, documents, testimony, and records relating to any such adjudication will be maintained in secrecy and will be available for inspection by the Employer, the Employee, and their respective attorneys and experts, who will agree, in advance and in writing, to receive and maintain all such information in secrecy, except as may be limited by them in writing.

8. NON-COMPETITION

8.1 Acknowledgments by the Employee

Except for circumstance involving a Change of Control as described in Section 8.4 below, Employee understands and recognizes that the Employee's services provided to Employer are special, unique, unusual, extraordinary and intellectual in character, and Employee agrees that, during the employment of Employee and for a period of two (2) years from the date of termination of the Employee's employment with Employer, he will not in any manner, directly or indirectly, on behalf of himself or any Person, firm, partnership, joint venture, corporation or other business entity, engage or invest in, own, manage, operate, finance, control or participate in the ownership, management, operation, financing, or control of, be employed by, associated with, or in any manner connected with, lend the Employee's name or similar name to, lend Employee's credit to or render services or advice to, enter into or engage in any Competing Business; provided, however, that Employee may purchase or otherwise acquire up to (but not more than) one percent of any class of securities of any enterprise (but without otherwise participating in the activities of such enterprise) if such securities are listed on any national or regional securities exchange or have been registered under Section 12(g) of the Securities Exchange Act of 1934.

8.2 Except for circumstances involving a Change of Control as described in Section 8.4 below, in consideration of the acknowledgements by the Employee, and in consideration of the compensation and benefits to be paid or provided to the Employee by the Employer, the Employee covenants that he will not, directly or indirectly, whether for the Employee's own account or the account of any other person (i) at any time during the employment of Employee and for a period of two (2) years from the termination of the Employee's employment with Employer, solicit, employ, or otherwise engage as an employee, independent contractor, or otherwise, any person who is or was an employee of the Employer at any time during the Employee's employment with Employer or in any manner induce or attempt to induce any employee of the Employer to terminate his employment with the Employer; or (ii) at any time during the employment of Employee with Employer and for two (2) years from the termination of Employee's employment with Employer, interfere with the Employer's

relationship with any person, including any person who at any time during the Employee's employment with Employer was an employee, contractor, supplier, or customer of the Employer.

8.3 In further consideration of these premises, Employee agrees that he will not at any time during or after Employee's employment with Employer, disparage the Employer or any of its shareholders, directors, officers, employees, or agents.

8.4 Change of Control. In the event of a Change of Control Termination, Employee's obligations under Sections 8.1 and 8.2 above shall expire one (1) year from the date of termination of his employment with Employer (or any entity acquiring Employer as a result of a Change of Control).

8.5 If any covenant in Section 8 is held to be unreasonable, arbitrary, or against public policy, such covenant will be considered to be divisible with respect to scope, time, and geographic area, and such lesser scope, time, or geographic area, or all of them, as a court of competent jurisdiction may determine to be reasonable, not arbitrary, and not against public policy, will be effective, binding, and enforceable against the Employee.

The period of time applicable to any covenant in Section 8 will be extended by the duration of any violation by the Employee of such covenant.

The Employee will, while the covenants under Section 8 are in effect, give notice to the Employer, within ten days after accepting any other employment, of the identity of the Employee's employer. The Employer may notify such employer that the Employee is bound by this Agreement and, at the Employer's election, furnish such employer with a copy of this Agreement or relevant portions thereof.

9. GENERAL PROVISIONS

9.1 Injunctive Relief and Additional Remedy

The Employee acknowledges that the injury that would be suffered by the Employer as a result of a breach of the provisions of this Agreement (including any provision of Sections 7 and 8) would be irreparable and that an award of monetary damages to the Employer for such a breach would be an inadequate remedy. Consequently, the Employer will have the right, in addition to any other rights it may have, to obtain injunctive relief to restrain any breach or threatened breach or otherwise to specifically enforce any provision of this Agreement, and the Employer will not be obligated to post bond or other security in seeking such relief. Without limiting the Employer's rights under this Section 9 or any other remedies of the Employer, if the Employee breaches any of the provisions of Section 7 or 8, the Employer will have the right to cease making any payments otherwise due to the Employee under this Agreement.

9.2 Covenants of Sections 7 and 8 are Essential and Independent Covenants

The covenants by the Employee in Sections 7 and 8 are essential elements of this Agreement, and without the Employee's agreement to comply with such covenants the Employer

would not have entered into this Agreement or employed or continued the employment of the Employee. The Employer and the Employee have independently consulted their respective counsel and have been advised in all respects concerning the reasonableness and propriety of such covenants, with specific regard to the nature of the business conducted by the Employer.

The Employee's covenants in Sections 7 and 8 are independent covenants and the existence of any claim by the Employee against the Employer under this Agreement or otherwise will not excuse the Employee's breach of any covenant in Section 7 or 8.

If the Employee's employment hereunder is terminated by either party, this Agreement will continue in full force and effect as is necessary or appropriate to enforce the covenants and agreements of the Employee in Sections 7 and 8.

9.3 Representations and Warranties by the Employee

The Employee represents and warrants to the Employer that the execution and delivery by the Employee of this Agreement do not, and the performance by the Employee of the Employee's obligations hereunder will not, with or without the giving of notice or the passage of time, or both: (a) violate any judgment, writ, injunction, or order of any court, arbitrator, or governmental agency applicable to the Employee; or (b) conflict with, result in the breach of any provisions of or the termination of, or constitute a default under, any agreement to which the Employee is a party or by which the Employee is or may be bound.

9.4 Waiver

The rights and remedies of the parties to this Agreement are cumulative and not alternative. Neither the failure nor any delay by either party in exercising any right, power, or privilege under this Agreement will operate as a waiver of such right, power, or privilege, and no single or partial exercise of any such right, power, or privilege will preclude any other or further exercise of such right, power, or privilege or the exercise of any other right, power, or privilege. To the maximum extent permitted by applicable law, (a) no claim or right arising out of this Agreement can be discharged by one party, in whole or in part, by a waiver or renunciation of the claim or right unless in writing signed by the other party; (b) no waiver that may be given by a party will be applicable except in the specific instance for which it is given; and (c) no notice to or demand on one party will be deemed to be a waiver of any obligation of such party or of the right of the party giving such notice or demand to take further action without notice or demand as provided in this Agreement.

9.5 Binding Effect; Delegation of Duties Prohibited

This Agreement shall inure to the benefit of, and shall be binding upon, the parties hereto and their respective successors, assigns, heirs, and legal representatives, including any entity with which the Employer may merge or consolidate or to which all or substantially all of its assets may be transferred. The duties and covenants of the Employee under this Agreement, being personal, may not be delegated.

9.6 Notices

All notices, consents, waivers, and other communications under this Agreement must be in writing and will be deemed to have been duly given when (a) delivered by hand (with written confirmation of receipt), (b) sent by facsimile (with written confirmation of receipt), provided that a copy is mailed by registered mail, return receipt requested, or (c) when received by the addressee, if sent by a nationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and facsimile numbers set forth below (or to such other addresses and facsimile numbers as a party may designate by notice to the other parties):

If to Employer: GTx, Inc
3 N. Dunlap Ave, 3rd Floor
Memphis, Tennessee 38163
Attention: General Counsel
Facsimile No.: 901-523-9772

If to the Employee: Mitchell S. Steiner
8894 Silver Bark Drive
Germantown, Tennessee 38183
Facsimile No.:

Employee shall notify Employer in writing of any change of his address. Otherwise, Employer shall send all notices to Employee's address herein.

9.7 Entire Agreement; Amendments

This Agreement contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral or written, between the parties hereto with respect to the subject matter hereof. This Agreement may not be amended orally, but only by an agreement in writing signed by the parties hereto.

9.8 Governing Law

This Agreement will be governed by the laws of the State of Tennessee without regard to conflicts of laws principles.

9.9 Jurisdiction

Any action or proceeding seeking to enforce any provision of, or based on any right arising out of, this Agreement shall be brought against either of the parties in the courts of the State of Tennessee, County of Shelby, or, if it has or can acquire jurisdiction, in the United States District Court for the Western District of Tennessee, and each of the parties consents to the jurisdiction of such courts (and of the appropriate appellate courts) in any such action or proceeding and waives any objection to venue laid therein. Process in any action or proceeding referred to in the preceding sentence may be served on either party anywhere in the world.

9.10 Section Headings, Construction

The headings of Sections in this Agreement are provided for convenience only and will not affect its construction or interpretation. All references to "Section" or "Sections" refer to the corresponding Section or Sections of this Agreement unless otherwise specified. All words used in this Agreement will be construed to be of such gender or number as the circumstances require. Unless otherwise expressly provided, the word "including" does not limit the preceding words or terms.

9.11 Severability

If any provision of this Agreement is held invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Agreement will remain in full force and effect. Any provision of this Agreement held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

9.12 Counterparts

This Agreement may be executed in one or more counterparts, each of which will be deemed to be an original copy of this Agreement and all of which, when taken together, will be deemed to constitute one and the same agreement.

9.13 Waiver of Jury Trial

THE PARTIES HERETO HEREBY WAIVE A JURY TRIAL IN ANY LITIGATION WITH RESPECT TO THIS AGREEMENT, OR ARISING OUT OF OR CONCERNING EMPLOYEE'S EMPLOYMENT WITH EMPLOYER OR TERMINATION THEREOF.

9.14 Prior Employment and Confidentiality Agreements.

Employer and Employee acknowledge that Employee has previously executed a Confidentiality and Non-Disclosure Agreement dated August 6, 2001 (the "Prior CDA"), a copy of which is attached hereto as Schedule 1. The Employer and Employee agree that the provisions of this agreement amend and supercede the Prior CDA, which shall be of no further force and effect.

IN WITNESS WHEREOF, the parties have executed and delivered this Agreement as of the date above first written above.

MITCHELL S. STEINER, M.D.

/s/ Mitchell S. Steiner, M.D.

GTx, INC.

By: /s/ Marc S. Hanover

Name: Marc S. Hanover

Title: President/COO

EXHIBIT 10.9

EMPLOYMENT AGREEMENT

This Employment Agreement (this "Agreement") is made and entered into as of October 1, 2003 (the "Effective Date") by and between GTx, INC., located at 3 North Dunlap, 3rd Floor, Memphis, Tennessee 38163 (the "Employer"), and MARC S. HANOVER (the "Employee"), residing at 5597 St. Joseph Fairway, Memphis, Tennessee 38120.

WHEREAS, the Employer desires to retain the services of Employee as President; and

WHEREAS, the Employer and the Employee desire to enter into this Agreement to set forth terms and conditions of the employment relationship between the Employer and the Employee; and

WHEREAS, during the course of Employee's employment with the Employer, the Employer will train and continue to train Employee and to impart to Employee proprietary, confidential, and/or trade secret information, data and/or materials of the Employer; and

WHEREAS, the Employer has a vital interest in maintaining its confidential information and trade secrets, as well as rights to inventions, since doing so allows the Employer to compete fairly and enhances the value of the Employer to shareholders and job security for employees; and

WHEREAS, the Employer desires to procure the services of Employee and Employee is willing to be employed and continue to be employed with the Employer upon the terms and subject to the conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained in this Agreement, the employment and continued employment of Employee in accordance with the terms and conditions of this Agreement, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, agree and covenant as follows:

1. DEFINITIONS

For the purposes of this Agreement, the following terms have the meanings specified or referred to in this Section 1.

"AGREEMENT" has the meaning set forth in first paragraph of this Agreement.

"BASIC COMPENSATION" means Salary and Benefits.

"BENEFITS" means as defined in Section 3.1(b).

"BOARD OF DIRECTORS" means the Board of Directors of the Employer.

"CEO" has the meaning set forth in Section 2.2.

"CHANGE OF CONTROL" means any of the following events: (a) the sale or other disposition of all or substantially all of the assets of Employer in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of Employer); (b) any Person or group becomes the beneficial owner, directly, or indirectly, of securities of the Employer representing more than fifty percent (50%) of the combined voting power of the Employer's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. For such purposes, "voting stock" shall mean the capital stock of Employer of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of Employer; or (c) a merger or consolidation of Employer with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding voting stock of the surviving entity of such transaction is held by persons who were not holders (taking into account their individual and affiliated holdings) as of the Effective Date of at least twenty percent (20%) of the voting stock of Employer. A Change of Control shall not include: (1) any transfer or issuance of stock of Employer to one or more of Employer's lenders (or to any agents or representatives thereof) in exchange for debt of Employer owed to any such lenders; (2) any transfer of stock of Employer to or by any person or entity, including but not limited to one or more of the Employer's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to Employer and/or its subsidiaries; (3) any transfer or issuance to any person or entity, including but not limited to one or more of Employer's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of Employer's debts to any one of Employer's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to Employer in connection with the workout or restructuring of such debt; (4) any transfer of stock by a stockholder of Employer which is a partnership or corporation to the partners or stockholders in such stockholder or any transfer of stock by a stockholder of Employer to an entity affiliated with such stockholder or the immediate family of such stockholder or a trust or similar entity for the benefit of such family members; or (5) any transfer or issuance of stock in connection with an offering of the Employer's stock in a registered public transaction not involving a transaction described in Rule 145, promulgated under the Securities Act of 1933, as amended, provided that the Employer's officers and Board of Directors shall not materially change as a result thereof.

"CHANGE OF CONTROL TERMINATION" means (i) a Termination Without Cause of the Employee's employment by the Employer within six (6) months after a Change of Control or (ii) the Employee's resignation for Good Reason within six (6) months after a Change of Control.

"COMPETING BUSINESS" means any individual or entity, other than the Employer, that is engaging in, or proposes to engage in, the development, manufacture, distribution or sale of a Competing Product in North America, Europe, Japan, China, Taiwan or South Korea; provided however, that an entity that develops, manufactures, distributes or sells a Competing Product in a separate business unit than the business unit in which Employee is then employed shall not be deemed a Competing Business unless Employee provides Confidential Information and/or Proprietary Information to the business unit that is engaging in or proposes to engage in the development, manufacture, distribution or sale of a Competing Product.

"COMPETING PRODUCT" means any pharmaceutical or other compound, composition, formulation, method, process, product or material that is competitive with any product of Employer under development, manufacture, distribution or commercialization at any time from and after the Effective Date through the date of termination of Employee's employment, including, without limitation, small molecules that target androgen receptors, estrogen receptors or other hormone receptors for purposes of treating, diagnosing, or imaging humans in health and disease, and selective cytopathic viruses, such as vesicular stomatitus virus (rhabdoviridae), that target and destroy selected cells.

"CONFIDENTIAL INFORMATION AND/OR PROPRIETARY INFORMATION" means any and all:

(a) information disclosed to Employee or known by Employee as a consequence of, or through, Employee's employment with the Employer since his date of employment in September 1997 (including information conceived, originated, discovered, or developed in whole or in part by Employee), not generally known in the relevant trade or industry, about the Employer's business, products, processes, and services; and trade secrets concerning the business and affairs of the Employer, product specifications, data, know-how, formulae, compositions, research, processes, designs, sketches, photographs, graphs, drawings, samples, inventions and ideas, past, current, and planned research and development, current and planned manufacturing or distribution methods and processes, customer lists, current and anticipated customer requirements, price lists, market studies, business plans, computer software and programs (including object code and source code), computer software and database technologies, systems, structures, and architectures (and related formulae, compositions, processes, improvements, devices, know-how, inventions, discoveries, concepts, ideas, designs, methods and information); and any other information, however documented, that is a trade secret within the meaning of Tenn. Code Section 39-14-138; and

(b) information concerning the business and affairs of the Employer (which includes historical financial statements, financial projections and budgets, historical and projected sales, capital spending budgets and plans, the names and backgrounds of key personnel, personnel training and techniques and materials), however documented; and

(c) intellectual property, inventions, methods, processes, techniques, computer programs, devices, products, services, compounds, gene therapy products, pharmaceuticals, substances, vectors, enzymes, genes, concepts, discoveries, improvements, and designs, whether or not patenable in the United States or foreign countries, any trade secrets, information, procedures, technologies, data, results, conclusions, know-how or show-how and business information; and

(d) notes, analysis, compilations, studies, summaries, and other material prepared by or for the Employer containing or based, in whole or in part, on any information included in the foregoing.

"EFFECTIVE DATE" means the date stated in the first paragraph of the Agreement.

"EMPLOYEE" has the meaning stated in the first paragraph of this Agreement.

"EMPLOYEE INVENTION" means any idea, invention, technique, modification, process, improvement (whether patentable or not), industrial design (whether registerable or not), work of authorship (whether or not copyright protection may be obtained for it), design, copyrightable work, discovery, trademark, copyright, trade secret, formula, device, method, compound, gene, prodrug, pharmaceutical, structure, product concept, marketing plan, strategy, customer list, technique, blueprint, sketch, record, note, drawing, know-how, data, patent application, continuation application, continuation-in-part application, file wrapper continuation application or divisional application, created, conceived, or developed by the Employee, either solely or in conjunction with others, during the Employee's employment, or a period that includes a portion of the Employee's employment, that relates in any way to, or is useful in any manner in, the business then being conducted or proposed to be conducted by the Employer, and any such item created by the Employee, either solely or in conjunction with others, following termination of the Employee's employment with the Employer, that is based upon or uses Confidential Information and/or Proprietary Information.

"EMPLOYER" means GTx, Inc., its successors and assigns, and any of its current or future subsidiaries, or organizations controlled by, controlling, or under common control with it.

"GOOD REASON" means any of the following:

(a) following a Change of Control, a change in the Employee's status, position or responsibilities (including reporting responsibilities) which, without Employee's consent, represents a reduction in or demotion of the Employee's status, position or responsibilities as in effect immediately prior to a Change of Control or the assignment to the Employee of any duties or responsibilities which are inconsistent with such status, position or responsibilities;

(b) following a Change of Control, a reduction in the Salary in effect immediately prior to the Change of Control or modifying, suspending, discontinuing, or terminating any Benefit in a manner which materially and adversely affects Employee;

(c) following a Change of Control, the relocation of the Employer's principal Employee offices to a location outside a thirty-mile radius of Memphis, Tennessee or the Employer's requiring the Employee to be based at any place other than a location within a thirty-mile radius of Memphis, Tennessee, except for reasonably required travel on the Employer's business; or

(d) following a Change of Control, the failure of the Employer to obtain an agreement reasonably satisfactory to Employee from any successor or assign of the Employer to assume and agree to perform this Agreement.

"PERSON" means any individual, corporation (including any non-profit corporation), general or limited partnership, limited liability company, joint venture, estate, trust, association, organization, or governmental body.

"PROPRIETARY ITEMS" means any Proprietary and/or Confidential Information embodied in any document, record, recording, electronic media, formulae, notebook, plan, model,

component, device, or computer software or code, whether embodied in a disk or in any other form.

"SALARY" means as defined in Section 3.1(a).

"TERMINATION WITH CAUSE" means the termination of the Employee's employment by act of the Board for any of the following reasons:

(a) the Employee's conviction for a felony;

(b) the Employee's theft, embezzlement, misappropriation of or intentional infliction of material damage to the Employer's property or business opportunities;

(c) the Employee's breach of the provisions contained in Section 7 or Section 8 of this Agreement; or

(d) the Employee's ongoing willful neglect of or failure to perform his duties hereunder or his ongoing willful failure or refusal to follow any reasonable, unambiguous duly adopted written direction of the CEO that is not inconsistent with the description of the Employee's duties set forth in Section 2.3, if such willful neglect or failure is materially damaging or materially detrimental to the business and operations of the Employer; provided that Employee shall have received written notice of such failure and shall have continued to engage in such failure after 30 days following receipt of such notice from the CEO, which notice specifically identifies the manner in which the CEO believes that Employee has engaged in such failure. For purposes of this subsection, no act, or failure to act, shall be deemed "willful" unless done, or omitted to be done, by Employee not in good faith, and without reasonable belief that such action or omission was in the best interest of the Employer.

"TERMINATION WITHOUT CAUSE" means the termination of the Employee's employment by the Employer for any reason other than Termination With Cause, or termination by the Employer due to Employee's death or disability.

2. EMPLOYMENT TERMS AND DUTIES

2.1 Employment

The Employer hereby employs the Employee, and the Employee hereby accepts employment by the Employer, upon the terms and conditions set forth in this Agreement.

2.2 Term

Either the Employee or the Employer may terminate this Agreement and the Employee's employment and compensation with or without cause or notice, at any time, at either the Employer's or the Employee's option. No company officer or manager has the authority to enter into any other agreement for employment for a specified period of time, or to modify or to make any agreement contrary to the foregoing, except by written amendment to this Agreement, dated and signed by the Chief Executive Officer ("CEO") of the Employer.

2.3 Duties

The Employee will have such duties as are assigned or delegated to the Employee by the Board of Directors or the CEO, and will initially serve as President for the Employer. The Employee will devote his full time, attention, skill and energy to the business of the Employer, will use his best efforts to promote the success of the Employer's business, and will cooperate fully with the Board of Directors and the CEO in the advancement of the best interest of the Employer. Employee agrees to abide by all bylaws, policies, practices, procedures or rules of Employer. Employee may be reassigned or transferred to another management position, as designated by the Board of Directors or the CEO, which may or may not provide the same level of responsibility as the initial assignment, in accordance with the terms and conditions of this Agreement.

3. COMPENSATION

3.1 Basic Compensation

(a) Salary. The Employee will be paid on the 15th and 30th day of each month a bi-weekly salary of $7,500 (the "Salary"), which is the equivalent of $180,000 per year. Employee's Salary may be adjusted from time to time by agreement of the Employee and the CEO.

(b) Benefits. The Employee will, during his employment, be permitted to participate in such life insurance, hospitalization, major medical, short term disability, long term disability, 401K plan and other employee benefit plans of the Employer that may be in effect from time to time, to the extent the Employee is eligible under the terms of those plans (collectively, the "Benefits").

(c) The Employer may withhold from any salary or benefits payable to Employee all federal, state, local, and other taxes and other amounts as permitted or required pursuant to law, rules or regulations.

4. FACILITIES AND EXPENSES

4.1 General

The Employer will furnish the Employee office space, equipment, supplies, and such other facilities and personnel as the Employer deems necessary or appropriate for the performance of the Employee's duties under this Agreement. The Employer will pay the Employee's dues in such professional societies and organizations as the CEO deems appropriate, and will pay on behalf of the Employee (or reimburse the Employee for) reasonable expenses incurred by the Employee at the request of, or on behalf of, the Employer in the performance of the Employee's duties pursuant to this Agreement, and in accordance with the Employer's employment policies, including reasonable expenses incurred by the Employee in attending conventions, seminars, and other business meetings, in appropriate business entertainment activities, and for promotional expenses. The Employee must file expense reports with respect to such expenses in accordance with the Employer's policies.

5. VACATIONS AND HOLIDAYS

The Employee will be entitled to three (3) weeks paid vacation each year in accordance with the vacation policies of the Employer in effect from time to time. Vacation must be taken by the Employee at such time or times as approved by the CEO. The Employee will also be entitled to the paid holidays set forth in the Employer's policies. Vacation days and holidays during any year that are not used by the Employee during such year may not be used in any subsequent year.

6. TERMINATION

6.1 Events of Termination

Either the Employee or Employer may terminate this Employment Agreement (with the exception of the provisions of Section 7 and 8 which shall survive termination of this Agreement) and Basic Compensation with or without cause or notice, at any time at either the Employee's or the Employer's option.

6.2 The employment of Employee shall terminate on the date of the Employee's death, in which event Employee's Basic Compensation, owing to Employee through the date of Employee's death shall be paid to his estate. Employee's estate will not be entitled to any other compensation under this Agreement.

6.3 The Employer shall be released from any and all further obligations under this Agreement, except the Employer shall be obligated to pay Employee his Basic Compensation owing to Employee through the day on which Employee's employment is terminated and as provided in Section 6.4, if applicable. Employee's obligation under Sections 7 and 8 shall continue pursuant to the terms and conditions of this Agreement.

6.4 As additional consideration for the covenants in Section 7 and Section 8, in the event of a Change of Control Termination, Employee shall receive the equivalent of his bi-weekly Salary at the time of his termination of Employment for a period of one (1) year from the date of termination payable in accordance with Employer's then current payroll policies and procedures, less deductions required by law; provided that if Employee shall terminate his employment on account of a reduction in his Salary or Benefits, as provided in paragraph (b) of the definition of "Good Reason", then Employee shall be entitled to receive hereunder the equivalent Salary he was making prior to such reduction.

7. NON-DISCLOSURE COVENANT; EMPLOYEE INVENTIONS

7.1 Acknowledgements by the Employee

The Employee acknowledges and agrees that (a) during the course of his employment and as a part of his employment, the Employee will be afforded access to Confidential Information and/or Proprietary Information; (b) public disclosure of such Confidential Information and/or Proprietary Information could have an adverse effect on the Employer and its business; (c) because the Employee possesses substantial technical expertise and skill with respect to the Employer's business, the Employer desires to obtain exclusive

ownership of each Employee Invention, and the Employer will be at a substantial competitive disadvantage if it fails to acquire exclusive ownership of each Employee Invention; and (d) the provisions of this Section 7 are reasonable and necessary to prevent the improper use or disclosure of Confidential Information and/or Proprietary Information and to provide the Employer with exclusive ownership of all Employee Inventions.

7.2 Agreements of the Employee

In consideration of the compensation and benefits to be paid or provided to the Employee by the Employer under this Agreement and otherwise, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Employee covenants and agrees as follows:

(a) Confidentiality.

(i) That all of such Confidential Information and/or Proprietary Information is a unique asset of the business of Employer, the disclosure of which would be damaging to Employer.

(ii) That the Employee will not at any time, whether during or after termination or cessation of the Employee's employment, except as authorized by Employer and for its benefit, use, divulge or disclose (or enable anyone else to use, divulge or disclose) to any person, association or entity any Confidential Information and/or Proprietary Information which the Employee presently possesses or which the Employee may obtain during the course of the Employee's employment with respect to the business, finances, customers or affairs of Employer or trade secrets, developments, methods or other information and data pertaining to the Employer's business. The Employee shall keep strictly confidential all matters and information entrusted to the Employee and shall not use or attempt to use any such Confidential Information and/or Proprietary Information in any manner which may injure or cause loss or may be calculated to injure or cause loss, whether directly or indirectly, to Employer.

(iii) That during the course of this Agreement or at any time after termination, Employee will keep in strictest confidence and will not disclose or make accessible to any other person without the prior written consent of Employer, the Confidential Information and/or Proprietary Information; Employee agrees: (a) not to use any such Confidential Information and/or Proprietary Information for himself or others; and (b) not to take any such material or reproductions thereof from the Employer's facilities at any time during his employment except, in each case, as required in connection with the Employee's duties to the Employer.

(iv) Employee agrees to hold in confidence, and not to distribute or disseminate to any person or entity for any reason, any Confidential Information and/or Proprietary Information of Employer under this Agreement, or information relating to experiments or results obtained based on the duties of

Employee, except for information which: (a) is in or which becomes a part of the public domain not as a result of a breach of this Agreement, (b) information lawfully received from a third party who had the right to disclose such information or (c) is required by legal process before a court of proper jurisdiction (by oral questions, deposition, interrogatories, requests for information or documents, subpoena, civil investigative domain or other similar process) to disclose all or any part of any Confidential Information and/or Proprietary Information, provided that Employee will provide Employer with prompt notice of such request or requirement, as well as notice of the terms and circumstances surrounding such request or requirements, so that Employer may seek an appropriate protective order or waive compliance with the provisions of this Agreement. In such case, the parties will consult with each other on the advisability of pursuing any such order or other legal action or available step to resist or narrow such request or requirement. If, failing the entry of a protective order or the receipt of a waiver hereunder, Employee is, in the opinion of counsel reasonably acceptable to Employer, legally compelled to disclose Confidential Information and/or Proprietary Information. Employee may disclose that portion of such information which counsel advises to obtain and will not oppose action by Employer to disclose, an appropriate protective order or other reliable assurance that confidential treatment will be accorded the disclosure of such information.

(v) Upon written notice by Employer, Employee shall promptly redeliver to Employer, or, if requested by Employer, promptly destroy all written Confidential Information and/or Proprietary Information and any other written material containing any information included in the Confidential Information and/or Proprietary Information (whether prepared by Employer, Employee, or a third party), and will not retain any copies, extracts or other reproductions in whole or in part of such written Confidential Information and/or Proprietary Information (and upon request certify such redelivery of destruction to Employer in a written instrument reasonably acceptable to Employer and its counsel).

(vi) This Agreement and the terms and conditions recited herein are confidential and non-public, except as may be expressly permitted by the Employer. The Employee agrees not to disclose the contents of this Agreement to any person or entity, including, but not limited to the press, other media, any public body, or any competitor of Employer, except to the Employee's legal counsel or as may be required by law.

(vii) Any trade secrets of the Employer will be entitled to all of the protections and benefits of State of Tennessee law and any other applicable law. If any information that the Employer deems to be a trade secret is found by a court of competent jurisdiction not be to a trade secret for purposes of this Agreement, such information will, nevertheless, be considered Confidential Information and/or Proprietary Information for purposes of this Agreement. The Employee hereby waives any requirement that the Employer submits proof of the economic value of any trade secret or post a bond or other security.

(viii) None of the foregoing obligations and restrictions applies to any part of the Confidential Information and/or Proprietary Information that the Employee demonstrates was or became generally available to the public other than as a result of a disclosure by the Employee.

(ix) The Employee will not remove from the Employer's premises (except to the extent such removal is for purposes of the performance of the Employee's duties at home or while traveling, or except as otherwise specifically authorized by the Employer) any Proprietary Items. The Employee recognizes that, as between the Employer and the Employee, all of the Proprietary Items, whether or not developed by the Employee, are the exclusive property of the Employer. Upon termination of this Agreement by either party, or upon the request of the Employer during the employment of Employee, the Employee will return to the Employer all of the Proprietary Items in the Employee's possession or subject to the Employee's control, and the Employee shall not retain any copies, abstracts, sketches, or other physical or electronic embodiment of any of the Proprietary Items.

(b) Employee Inventions.

(i) Each Employee Invention will belong exclusively to the Employer. Employee agrees that Employer shall have sole and exclusive ownership rights in any conception, invention, trade secrets, information, ideas, improvement, substance, know-how, whether or not patentable, arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies of Employer. Any resulting or derivative rights, including patent rights, shall become the exclusive property of Employer and Employer shall be entitled to the entire right, title and interest with respect hereto. Employee agrees, without additional compensation, to convey, assign the entire right, title, and interest in and to any inventions for the United States and all foreign jurisdictions to Employer arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies.

(ii) Employer shall retain the entire right, title and interest in and to any and all Confidential Information and/or Proprietary Information provided by Employer to Employee and to any methods, compounds, improvements, substances, and compositions using or incorporating such Confidential Information and/or Proprietary Information.

(iii) Employee agrees that Confidential Information and/or Proprietary Information provided to the Employee by Employer shall be used for work purposes only and shall not be used for any other uses, studies, experiments or tests.

(iv) Employee agrees that he will promptly disclose to Employer, or any persons designated by Employer, all Employee Inventions, made or conceived or reduced to practice or learned by him, either alone or jointly with others, during the employment of the Employee. The Employee further agrees to assist Employer in every proper way (but at Employer's expense) to obtain and from time to time enforce patents, copyrights or other rights on Employee Inventions in any and all countries, and to that end Employee will execute all documents necessary: (a) to apply for, obtain and vest in the name of Employer alone (unless Employer otherwise directs) letters patent, copyrights or other analogues protection in any country throughout the world and when so obtained or vested to renew and restore the same; and (b) to defend (including the giving of testimony and rendering any other assistance) any opposition proceedings in respect of such applications and any opposition proceedings or petitions or applications for revocation of such letters patent, copyright or other analogous protection. Employee's obligation to assist Employer in obtaining and enforcing patents and copyrights for Employee Inventions in any and all countries shall continue beyond and after the termination of Employee.

(v) Any copyrightable work whether published or unpublished created by Employee in connection with or during the performance of services below shall be considered a work made for hire, to the fullest extent permitted by law and all right, title and interest therein, including the worldwide copyrights, shall be the property of Employer as the employer and party specially commissioning such work. In the event that any such copyrightable work or portion thereof shall not be legally qualified as a work made for hire, or shall subsequently be so held, Employee agrees to properly convey to Employer, without additional compensation, the entire right, title and interest in and to such work or portion thereof, including but not limited to the worldwide copyrights, extensions of such copyrights, and renewal copyrights therein, and further including all rights to reproduce the copyrighted work in copies or phonorecords, to prepare derivative works based on the copyrighted work, to distribute copies of the copyrighted work, to perform the copyrighted work publicly, to display the copyrighted work publicly, and to register the claim of copyright therein and to execute any and all documents with respect hereto.

(vi) Employee may not publish or disclose any Confidential Information and/or Proprietary Information relating to, arising from, derivative of, or as a result of his employment pursuant to this Agreement including but not limited to: information, improvements, results, experiments, data, or methods, that makes reference to any of the Confidential Information and/or Proprietary Information. Any work performed under, or arising from, or a result of his employment with Employer shall not be published or disclosed in written, electronic, or oral form without the express written permission of Employer.

7.3 Disputes or Controversies

The Employee recognizes that should a dispute or controversy arising from or relating to this Agreement be submitted for adjudication to any court, arbitration panel, or other third party, the preservation of the secrecy of Confidential Information and/or Proprietary Information may be jeopardized. All pleadings, documents, testimony, and records relating to any such adjudication will be maintained in secrecy and will be available for inspection by the Employer, the Employee, and their respective attorneys and experts, who will agree, in advance and in writing, to receive and maintain all such information in secrecy, except as may be limited by them in writing.

8. NON-COMPETITION

8.1 Acknowledgments by the Employee

Except for circumstance involving a Change of Control as described in Section 8.4 below, Employee understands and recognizes that the Employee's services provided to Employer are special, unique, unusual, extraordinary and intellectual in character, and Employee agrees that, during the employment of Employee and for a period of two (2) years from the date of termination of the Employee's employment with Employer, he will not in any manner, directly or indirectly, on behalf of himself or any Person, firm, partnership, joint venture, corporation or other business entity, engage or invest in, own, manage, operate, finance, control or participate in the ownership, management, operation, financing, or control of, be employed by, associated with, or in any manner connected with, lend the Employee's name or similar name to, lend Employee's credit to or render services or advice to, enter into or engage in any Competing Business; provided, however, that Employee may purchase or otherwise acquire up to (but not more than) one percent of any class of securities of any enterprise (but without otherwise participating in the activities of such enterprise) if such securities are listed on any national or regional securities exchange or have been registered under Section 12(g) of the Securities Exchange Act of 1934.

8.2 Except for circumstances involving a Change of Control as described in Section 8.4 below, in consideration of the acknowledgements by the Employee, and in consideration of the compensation and benefits to be paid or provided to the Employee by the Employer, the Employee covenants that he will not, directly or indirectly, whether for the Employee's own account or the account of any other person (i) at any time during the employment of Employee and for a period of two (2) years from the termination of the Employee's employment with Employer, solicit, employ, or otherwise engage as an employee, independent contractor, or otherwise, any person who is or was an employee of the Employer at any time during the Employee's employment with Employer or in any manner induce or attempt to induce any employee of the Employer to terminate his employment with the Employer; or (ii) at any time during the employment of Employee with Employer and for two (2) years from the termination of Employee's employment with Employer, interfere with the Employer's relationship with any person, including any person who at any time during the Employee's employment with Employer was an employee, contractor, supplier, or customer of the Employer.

8.3 In further consideration of these premises, Employee agrees that he will not at any time during or after Employee's employment with Employer, disparage the Employer or any of its shareholders, directors, officers, employees, or agents.

8.4 Change of Control. In the event of a Change of Control Termination, Employee's obligations under Sections 8.1 and 8.2 above shall expire one (1) year from the date of termination of his employment with Employer (or any entity acquiring Employer as a result of a Change of Control).

8.5 If any covenant in Section 8 is held to be unreasonable, arbitrary, or against public policy, such covenant will be considered to be divisible with respect to scope, time, and geographic area, and such lesser scope, time, or geographic area, or all of them, as a court of competent jurisdiction may determine to be reasonable, not arbitrary, and not against public policy, will be effective, binding, and enforceable against the Employee.

The period of time applicable to any covenant in Section 8 will be extended by the duration of any violation by the Employee of such covenant.

The Employee will, while the covenants under Section 8 are in effect, give notice to the Employer, within ten days after accepting any other employment, of the identity of the Employee's employer. The Employer may notify such employer that the Employee is bound by this Agreement and, at the Employer's election, furnish such employer with a copy of this Agreement or relevant portions thereof.

9. GENERAL PROVISIONS

9.1 Injunctive Relief and Additional Remedy

The Employee acknowledges that the injury that would be suffered by the Employer as a result of a breach of the provisions of this Agreement (including any provision of Sections 7 and 8) would be irreparable and that an award of monetary damages to the Employer for such a breach would be an inadequate remedy. Consequently, the Employer will have the right, in addition to any other rights it may have, to obtain injunctive relief to restrain any breach or threatened breach or otherwise to specifically enforce any provision of this Agreement, and the Employer will not be obligated to post bond or other security in seeking such relief. Without limiting the Employer's rights under this Section 9 or any other remedies of the Employer, if the Employee breaches any of the provisions of Section 7 or 8, the Employer will have the right to cease making any payments otherwise due to the Employee under this Agreement.

9.2 Covenants of Sections 7 and 8 are Essential and Independent Covenants

The covenants by the Employee in Sections 7 and 8 are essential elements of this Agreement, and without the Employee's agreement to comply with such covenants the Employer would not have entered into this Agreement or employed or continued the employment of the Employee. The Employer and the Employee have independently consulted their respective counsel and have been advised in all respects concerning the reasonableness and propriety of such covenants, with specific regard to the nature of the business conducted by the Employer.

The Employee's covenants in Sections 7 and 8 are independent covenants and the existence of any claim by the Employee against the Employer under this Agreement or otherwise will not excuse the Employee's breach of any covenant in Section 7 or 8.

If the Employee's employment hereunder is terminated by either party, this Agreement will continue in full force and effect as is necessary or appropriate to enforce the covenants and agreements of the Employee in Sections 7 and 8.

9.3 Representations and Warranties by the Employee

The Employee represents and warrants to the Employer that the execution and delivery by the Employee of this Agreement do not, and the performance by the Employee of the Employee's obligations hereunder will not, with or without the giving of notice or the passage of time, or both: (a) violate any judgment, writ, injunction, or order of any court, arbitrator, or governmental agency applicable to the Employee; or (b) conflict with, result in the breach of any provisions of or the termination of, or constitute a default under, any agreement to which the Employee is a party or by which the Employee is or may be bound.

9.4 Waiver

The rights and remedies of the parties to this Agreement are cumulative and not alternative. Neither the failure nor any delay by either party in exercising any right, power, or privilege under this Agreement will operate as a waiver of such right, power, or privilege, and no single or partial exercise of any such right, power, or privilege will preclude any other or further exercise of such right, power, or privilege or the exercise of any other right, power, or privilege. To the maximum extent permitted by applicable law, (a) no claim or right arising out of this Agreement can be discharged by one party, in whole or in part, by a waiver or renunciation of the claim or right unless in writing signed by the other party; (b) no waiver that may be given by a party will be applicable except in the specific instance for which it is given; and (c) no notice to or demand on one party will be deemed to be a waiver of any obligation of such party or of the right of the party giving such notice or demand to take further action without notice or demand as provided in this Agreement.

9.5 Binding Effect; Delegation of Duties Prohibited

This Agreement shall inure to the benefit of, and shall be binding upon, the parties hereto and their respective successors, assigns, heirs, and legal representatives, including any entity with which the Employer may merge or consolidate or to which all or substantially all of its assets may be transferred. The duties and covenants of the Employee under this Agreement, being personal, may not be delegated.

9.6 Notices

All notices, consents, waivers, and other communications under this Agreement must be in writing and will be deemed to have been duly given when (a) delivered by hand (with written confirmation of receipt), (b) sent by facsimile (with written confirmation of receipt), provided that a copy is mailed by registered mail, return receipt requested, or (c) when received by the addressee, if sent by a nationally recognized overnight delivery service (receipt

requested), in each case to the appropriate addresses and facsimile numbers set forth below (or to such other addresses and facsimile numbers as a party may designate by notice to the other parties):

If to Employer: GTx, Inc
3 N. Dunlap Ave, 3rd Floor
Memphis, Tennessee 38163
Attention: General Counsel
Facsimile No.: 901-523-9772

If to the Employee: Marc S. Hanover
5597 St. Joseph Fairway
Memphis, Tennessee 38120
Facsimile No.:_____

Employee shall notify Employer in writing of any change of his address. Otherwise, Employer shall send all notices to Employee's address herein.

9.7 Entire Agreement; Amendments

This Agreement contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral or written, between the parties hereto with respect to the subject matter hereof. This Agreement may not be amended orally, but only by an agreement in writing signed by the parties hereto.

9.8 Governing Law

This Agreement will be governed by the laws of the State of Tennessee without regard to conflicts of laws principles.

9.9 Jurisdiction

Any action or proceeding seeking to enforce any provision of, or based on any right arising out of, this Agreement shall be brought against either of the parties in the courts of the State of Tennessee, County of Shelby, or, if it has or can acquire jurisdiction, in the United States District Court for the Western District of Tennessee, and each of the parties consents to the jurisdiction of such courts (and of the appropriate appellate courts) in any such action or proceeding and waives any objection to venue laid therein. Process in any action or proceeding referred to in the preceding sentence may be served on either party anywhere in the world.

9.10 Section Headings, Construction

The headings of Sections in this Agreement are provided for convenience only and will not affect its construction or interpretation. All references to "Section" or "Sections" refer to the corresponding Section or Sections of this Agreement unless otherwise specified. All words used in this Agreement will be construed to be of such gender or number as the circumstances require. Unless otherwise expressly provided, the word "including" does not limit the preceding words or terms.

9.11 Severability

If any provision of this Agreement is held invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Agreement will remain in full force and effect. Any provision of this Agreement held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

9.12 Counterparts

This Agreement may be executed in one or more counterparts, each of which will be deemed to be an original copy of this Agreement and all of which, when taken together, will be deemed to constitute one and the same agreement.

9.13 Waiver of Jury Trial

THE PARTIES HERETO HEREBY WAIVE A JURY TRIAL IN ANY LITIGATION WITH RESPECT TO THIS AGREEMENT, OR ARISING OUT OF OR CONCERNING EMPLOYEE'S EMPLOYMENT WITH EMPLOYER OR TERMINATION THEREOF.

9.14 Prior Employment and Confidentiality Agreements.

Employer and Employee acknowledge that Employee has previously executed a Confidentiality and Non-Disclosure Agreement dated July 1, 2000 (the "Prior CDA"), a copy of which is attached hereto as Schedule 1. The Employer and Employee agree that the provisions of this agreement amend and supersede the Prior CDA, which shall be of no further force and effect.

IN WITNESS WHEREOF, the parties have executed and delivered this Agreement as of the date above first written above.

MARC S. HANOVER

/s/ Marc S. Hanover

GTx, INC.

By: /s/ Mitchell S. Steiner

Name: Mitchell S. Steiner

Title: CEO

EXHIBIT 10.10

EMPLOYMENT AGREEMENT

This Employment Agreement (this "Agreement") is made and entered into as of October 1, 2003 (the "Effective Date") by and between GTx, INC., located at 3 North Dunlap, 3rd Floor, Memphis, Tennessee 38163 (the "Employer"), and MARK E. MOSTELLER (the "Employee"), residing at 5064 Anchor Cove, Memphis, Tennessee 38117.

WHEREAS, the Employer desires to retain the services of Employee as Chief Financial Officer; and

WHEREAS, the Employer and the Employee desire to enter into this Agreement to set forth terms and conditions of the employment relationship between the Employer and the Employee; and

WHEREAS, during the course of Employee's employment with the Employer, the Employer will train and continue to train Employee and to impart to Employee proprietary, confidential, and/or trade secret information, data and/or materials of the Employer; and

WHEREAS, the Employer has a vital interest in maintaining its confidential information and trade secrets, as well as rights to inventions, since doing so allows the Employer to compete fairly and enhances the value of the Employer to shareholders and job security for employees; and

WHEREAS, the Employer desires to procure the services of Employee and Employee is willing to be employed and continue to be employed with the Employer upon the terms and subject to the conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained in this Agreement, the employment and continued employment of Employee in accordance with the terms and conditions of this Agreement, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, agree and covenant as follows:

1. DEFINITIONS

For the purposes of this Agreement, the following terms have the meanings specified or referred to in this Section 1.

"AGREEMENT" has the meaning set forth in first paragraph of this Agreement.

"BASIC COMPENSATION" means Salary and Benefits.

"BENEFITS" means as defined in Section 3.1(b).

"BOARD OF DIRECTORS" means the Board of Directors of the Employer.

"CEO" has the meaning set forth in Section 2.2.

"CHANGE OF CONTROL" means any of the following events: (a) the sale or other disposition of all or substantially all of the assets of Employer in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of Employer); (b) any Person or group becomes the beneficial owner, directly, or indirectly, of securities of the Employer representing more than fifty percent (50%) of the combined voting power of the Employer's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. For such purposes, "voting stock" shall mean the capital stock of Employer of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of Employer; or (c) a merger or consolidation of Employer with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding voting stock of the surviving entity of such transaction is held by persons who were not holders (taking into account their individual and affiliated holdings) as of the Effective Date of at least twenty percent (20%) of the voting stock of Employer. A Change of Control shall not include: (1) any transfer or issuance of stock of Employer to one or more of Employer's lenders (or to any agents or representatives thereof) in exchange for debt of Employer owed to any such lenders; (2) any transfer of stock of Employer to or by any person or entity, including but not limited to one or more of the Employer's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to Employer and/or its subsidiaries; (3) any transfer or issuance to any person or entity, including but not limited to one or more of Employer's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of Employer's debts to any one of Employer's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to Employer in connection with the workout or restructuring of such debt; (4) any transfer of stock by a stockholder of Employer which is a partnership or corporation to the partners or stockholders in such stockholder or any transfer of stock by a stockholder of Employer to an entity affiliated with such stockholder or the immediate family of such stockholder or a trust or similar entity for the benefit of such family members; or (5) any transfer or issuance of stock in connection with an offering of the Employer's stock in a registered public transaction not involving a transaction described in Rule 145, promulgated under the Securities Act of 1933, as amended, provided that the Employer's officers and Board of Directors shall not materially change as a result thereof.

"CHANGE OF CONTROL TERMINATION" means (i) a Termination Without Cause of the Employee's employment by the Employer within six (6) months after a Change of Control or (ii) the Employee's resignation for Good Reason within six (6) months after a Change of Control.

"CONFIDENTIAL INFORMATION AND/OR PROPRIETARY INFORMATION" means any and all:

(a) information disclosed to Employee or known by Employee as a consequence of, or through, Employee's employment with the Employer since his date of employment on August 6, 2001 (including information conceived, originated, discovered, or developed in whole or in part by Employee), not generally known in the relevant trade or industry, about the Employer's business, products, processes, and services; and trade secrets concerning the business and affairs of the Employer, product specifications, data, know-how, formulae, compositions, research, processes, designs, sketches, photographs, graphs, drawings, samples, inventions and ideas, past, current, and planned research and development, current and planned manufacturing or

distribution methods and processes, customer lists, current and anticipated customer requirements, price lists, market studies, business plans, computer software and programs (including object code and source code), computer software and database technologies, systems, structures, and architectures (and related formulae, compositions, processes, improvements, devices, know-how, inventions, discoveries, concepts, ideas, designs, methods and information); and any other information, however documented, that is a trade secret within the meaning of Tenn. Code Section 39-14-138; and

(b) information concerning the business and affairs of the Employer (which includes historical financial statements, financial projections and budgets, historical and projected sales, capital spending budgets and plans, the names and backgrounds of key personnel, personnel training and techniques and materials), however documented; and

(c) intellectual property, inventions, methods, processes, techniques, computer programs, devices, products, services, compounds, gene therapy products, pharmaceuticals, substances, vectors, enzymes, genes, concepts, discoveries, improvements, and designs, whether or not patenable in the United States or foreign countries, any trade secrets, information, procedures, technologies, data, results, conclusions, know-how or show-how and business information; and

(d) notes, analysis, compilations, studies, summaries, and other material prepared by or for the Employer containing or based, in whole or in part, on any information included in the foregoing.

"EFFECTIVE DATE" means the date stated in the first paragraph of the Agreement.

"EMPLOYEE" has the meaning stated in the first paragraph of this Agreement.

"EMPLOYEE INVENTION" means any idea, invention, technique, modification, process, improvement (whether patentable or not), industrial design (whether registerable or not), work of authorship (whether or not copyright protection may be obtained for it), design, copyrightable work, discovery, trademark, copyright, trade secret, formula, device, method, compound, gene, prodrug, pharmaceutical, structure, product concept, marketing plan, strategy, customer list, technique, blueprint, sketch, record, note, drawing, know-how, data, patent application, continuation application, continuation-in-part application, file wrapper continuation application or divisional application, created, conceived, or developed by the Employee, either solely or in conjunction with others, during the Employee's employment, or a period that includes a portion of the Employee's employment, that relates in any way to, or is useful in any manner in, the business then being conducted or proposed to be conducted by the Employer, and any such item created by the Employee, either solely or in conjunction with others, following termination of the Employee's employment with the Employer, that is based upon or uses Confidential Information and/or Proprietary Information.

"EMPLOYER" means GTx, Inc., its successors and assigns, and any of its current or future subsidiaries, or organizations controlled by, controlling, or under common control with it.

"GOOD REASON" means any of the following:

(a) following a Change of Control, a change in the Employee's status, position or responsibilities (including reporting responsibilities) which, without Employee's consent, represents a reduction in or demotion of the Employee's status, position or responsibilities as in effect immediately prior to a Change of Control or the assignment to the Employee of any duties or responsibilities which are inconsistent with such status, position or responsibilities;

(b) following a Change of Control, a reduction in the Salary in effect immediately prior to the Change of Control or modifying, suspending, discontinuing, or terminating any Benefit in a manner which materially and adversely affects Employee;

(c) following a Change of Control, the relocation of the Employer's principal Employee offices to a location outside a thirty-mile radius of Memphis, Tennessee or the Employer's requiring the Employee to be based at any place other than a location within a thirty-mile radius of Memphis, Tennessee, except for reasonably required travel on the Employer's business; or

(d) following a Change of Control, the failure of the Employer to obtain an agreement reasonably satisfactory to Employee from any successor or assign of the Employer to assume and agree to perform this Agreement.

"PERSON" means any individual, corporation (including any non-profit corporation), general or limited partnership, limited liability company, joint venture, estate, trust, association, organization, or governmental body.

"PROPRIETARY ITEMS" means any Proprietary and/or Confidential Information embodied in any document, record, recording, electronic media, formulae, notebook, plan, model, component, device, or computer software or code, whether embodied in a disk or in any other form.

"SALARY" means as defined in Section 3.1(a).

"TERMINATION WITH CAUSE" means the termination of the Employee's employment by act of the Board for any of the following reasons:

(a) the Employee's conviction for a felony;

(b) the Employee's theft, embezzlement, misappropriation of or intentional infliction of material damage to the Employer's property or business opportunities;

(c) the Employee's breach of the provisions contained in Section 7 of this Agreement; or

(d) the Employee's ongoing willful neglect of or failure to perform his duties hereunder or his ongoing willful failure or refusal to follow any reasonable, unambiguous duly

adopted written direction of the CEO that is not inconsistent with the description of the Employee's duties set forth in Section 2.3, if such willful neglect or failure is materially damaging or materially detrimental to the business and operations of the Employer; provided that Employee shall have received written notice of such failure and shall have continued to engage in such failure after 30 days following receipt of such notice from the CEO, which notice specifically identifies the manner in which the CEO believes that Employee has engaged in such failure. For purposes of this subsection, no act, or failure to act, shall be deemed "willful" unless done, or omitted to be done, by Employee not in good faith, and without reasonable belief that such action or omission was in the best interest of the Employer.

"TERMINATION WITHOUT CAUSE" means the termination of the Employee's employment by the Employer for any reason other than Termination With Cause, or termination by the Employer due to Employee's death or disability.

2. EMPLOYMENT TERMS AND DUTIES

2.1 Employment

The Employer hereby employs the Employee, and the Employee hereby accepts employment by the Employer, upon the terms and conditions set forth in this Agreement.

2.2 Term

Either the Employee or the Employer may terminate this Agreement and the Employee's employment and compensation with or without cause or notice, at any time, at either the Employer's or the Employee's option. No company officer or manager has the authority to enter into any other agreement for employment for a specified period of time, or to modify or to make any agreement contrary to the foregoing, except by written amendment to this Agreement, dated and signed by the Chief Executive Officer ("CEO") or the President of the Employer.

2.3 Duties

The Employee will have such duties as are assigned or delegated to the Employee by the Board of Directors, CEO or the President, and will initially serve as Chief Financial Officer for the Employer. The Employee will devote his full time, attention, skill and energy to the business of the Employer, will use his best efforts to promote the success of the Employer's business, and will cooperate fully with the Board of Directors, CEO and the President in the advancement of the best interest of the Employer. Employee agrees to abide by all bylaws, policies, practices, procedures or rules of Employer. Employee may be reassigned or transferred to another management position, as designated by the Board of Directors, CEO or the President, which may or may not provide the same level of responsibility as the initial assignment, in accordance with the terms and conditions of this Agreement.

3. COMPENSATION

3.1 Basic Compensation

(a) Salary. The Employee will be paid on the 15th and 30th day of each month a bi-weekly salary of $6,666.67 (the "Salary"), which is the equivalent of $160,000 per year. Employee's Salary may be adjusted from time to time by agreement of the Employee and the CEO.

(b) Benefits. The Employee will, during his employment, be permitted to participate in such life insurance, hospitalization, major medical, short term disability, long term disability, 401K plan and other employee benefit plans of the Employer that may be in effect from time to time, to the extent the Employee is eligible under the terms of those plans (collectively, the "Benefits").

(c) The Employer may withhold from any salary or benefits payable to Employee all federal, state, local, and other taxes and other amounts as permitted or required pursuant to law, rules or regulations.

(d) In accordance with the stock option letter Employee has received from Employer on or before the date of execution hereof (the "Option Letter"), Employee has received options to purchase common stock of the Employer pursuant to the terms of the Option Letter and related Stock Option Subscription Agreement executed in connection therewith, as additional consideration from Employer for Employee entering into this Agreement.

4. FACILITIES AND EXPENSES

4.1 General

The Employer will furnish the Employee office space, equipment, supplies, and such other facilities and personnel as the Employer deems necessary or appropriate for the performance of the Employee's duties under this Agreement. The Employer will pay the Employee's dues in such professional societies and organizations as the CEO or President deems appropriate, and will pay on behalf of the Employee (or reimburse the Employee for) reasonable expenses incurred by the Employee at the request of, or on behalf of, the Employer in the performance of the Employee's duties pursuant to this Agreement, and in accordance with the Employer's employment policies, including reasonable expenses incurred by the Employee in attending conventions, seminars, and other business meetings, in appropriate business entertainment activities, and for promotional expenses. The Employee must file expense reports with respect to such expenses in accordance with the Employer's policies.

5. VACATIONS AND HOLIDAYS

The Employee will be entitled to three (3) weeks paid vacation each year in accordance with the vacation policies of the Employer in effect from time to time. Vacation must be taken by the Employee at such time or times as approved by the CEO or President. The Employee will also be entitled to the paid holidays set forth in the Employer's policies. Vacation days and

holidays during any year that are not used by the Employee during such year may not be used in any subsequent year.

6. TERMINATION

6.1 Events of Termination

Either the Employee or Employer may terminate this Employment Agreement (with the exception of the provisions of Section 7 which shall survive termination of this Agreement) and Basic Compensation with or without cause or notice, at any time at either the Employee's or the Employer's option.

6.2 The employment of Employee shall terminate on the date of the Employee's death, in which event Employee's Basic Compensation, owing to Employee through the date of Employee's death shall be paid to his estate. Employee's estate will not be entitled to any other compensation under this Agreement.

6.3 The Employer shall be released from any and all further obligations under this Agreement, except the Employer shall be obligated to pay Employee his Basic Compensation owing to Employee through the day on which Employee's employment is terminated and as provided in Section 6.4, if applicable. Employee's obligation under Section 7 shall continue pursuant to the terms and conditions of this Agreement.

6.4 As additional consideration for the covenants in Section 7, in the event of a Change of Control Termination, Employee shall receive the equivalent of his bi-weekly Salary at the time of his termination of Employment for a period of one (1) year from the date of termination payable in accordance with Employer's then current payroll policies and procedures, less deductions required by law; provided that if Employee shall terminate his employment on account of a reduction in his Salary or Benefits, as provided in paragraph (b) of the definition of "Good Reason", then Employee shall be entitled to receive hereunder the equivalent Salary he was making prior to such reduction.

7. NON-DISCLOSURE COVENANT; EMPLOYEE INVENTIONS

7.1 Acknowledgements by the Employee

The Employee acknowledges and agrees that (a) during the course of his employment and as a part of his employment, the Employee will be afforded access to Confidential Information and/or Proprietary Information; (b) public disclosure of such Confidential Information and/or Proprietary Information could have an adverse effect on the Employer and its business; (c) because the Employee possesses substantial technical expertise and skill with respect to the Employer's business, the Employer desires to obtain exclusive ownership of each Employee Invention, and the Employer will be at a substantial competitive disadvantage if it fails to acquire exclusive ownership of each Employee Invention; and (d) the provisions of this Section 7 are reasonable and necessary to prevent the improper use or disclosure of Confidential Information and/or Proprietary Information and to provide the Employer with exclusive ownership of all Employee Inventions.

7.2 Agreements of the Employee

In consideration of the compensation and benefits to be paid or provided to the Employee by the Employer under this Agreement and in consideration of Employee's receipt of grants of options to purchase Employer stock, pursuant to the Option Letter and otherwise, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Employee covenants and agrees as follows:

(a) Confidentiality.

(i) That all of such Confidential Information and/or Proprietary Information is a unique asset of the business of Employer, the disclosure of which would be damaging to Employer.

(ii) That the Employee will not at any time, whether during or after termination or cessation of the Employee's employment, except as authorized by Employer and for its benefit, use, divulge or disclose (or enable anyone else to use, divulge or disclose) to any person, association or entity any Confidential Information and/or Proprietary Information which the Employee presently possesses or which the Employee may obtain during the course of the Employee's employment with respect to the business, finances, customers or affairs of Employer or trade secrets, developments, methods or other information and data pertaining to the Employer's business. The Employee shall keep strictly confidential all matters and information entrusted to the Employee and shall not use or attempt to use any such Confidential Information and/or Proprietary Information in any manner which may injure or cause loss or may be calculated to injure or cause loss, whether directly or indirectly, to Employer.

(iii) That during the course of this Agreement or at any time after termination, Employee will keep in strictest confidence and will not disclose or make accessible to any other person without the prior written consent of Employer, the Confidential Information and/or Proprietary Information; Employee agrees: (a) not to use any such Confidential Information and/or Proprietary Information for himself or others; and (b) not to take any such material or reproductions thereof from the Employer's facilities at any time during his employment except, in each case, as required in connection with the Employee's duties to the Employer.

(iv) Employee agrees to hold in confidence, and not to distribute or disseminate to any person or entity for any reason, any Confidential Information and/or Proprietary Information of Employer under this Agreement, or information relating to experiments or results obtained based on the duties of Employee, except for information which: (a) is in or which becomes a part of the public domain not as a result of a breach of this Agreement, (b) information lawfully received from a third party who had the right to disclose such information or (c) is required by legal process before a court of proper jurisdiction (by oral questions, deposition, interrogatories, requests for information or

documents, subpoena, civil investigative domain or other similar process) to disclose all or any part of any Confidential Information and/or Proprietary Information, provided that Employee will provide Employer with prompt notice of such request or requirement, as well as notice of the terms and circumstances surrounding such request or requirements, so that Employer may seek an appropriate protective order or waive compliance with the provisions of this Agreement. In such case, the parties will consult with each other on the advisability of pursuing any such order or other legal action or available step to resist or narrow such request or requirement. If, failing the entry of a protective order or the receipt of a waiver hereunder, Employee is, in the opinion of counsel reasonably acceptable to Employer, legally compelled to disclose Confidential Information and/or Proprietary Information. Employee may disclose that portion of such information which counsel advises to obtain and will not oppose action by Employer to disclose, an appropriate protective order or other reliable assurance that confidential treatment will be accorded the disclosure of such information.

(v) Upon written notice by Employer, Employee shall promptly redeliver to Employer, or, if requested by Employer, promptly destroy all written Confidential Information and/or Proprietary Information and any other written material containing any information included in the Confidential Information and/or Proprietary Information (whether prepared by Employer, Employee, or a third party), and will not retain any copies, extracts or other reproductions in whole or in part of such written Confidential Information and/or Proprietary Information (and upon request certify such redelivery of destruction to Employer in a written instrument reasonably acceptable to Employer and its counsel).

(vi) This Agreement and the terms and conditions recited herein are confidential and non-public, except as may be expressly permitted by the Employer. The Employee agrees not to disclose the contents of this Agreement to any person or entity, including, but not limited to the press, other media, any public body, or any competitor of Employer, except to the Employee's legal counsel or as may be required by law.

(vii) Any trade secrets of the Employer will be entitled to all of the protections and benefits of State of Tennessee law and any other applicable law. If any information that the Employer deems to be a trade secret is found by a court of competent jurisdiction not be to a trade secret for purposes of this Agreement, such information will, nevertheless, be considered Confidential Information and/or Proprietary Information for purposes of this Agreement. The Employee hereby waives any requirement that the Employer submits proof of the economic value of any trade secret or post a bond or other security.

(viii) None of the foregoing obligations and restrictions applies to any part of the Confidential Information and/or Proprietary Information that the Employee demonstrates was or became generally available to the public other than as a result of a disclosure by the Employee.

(ix) The Employee will not remove from the Employer's premises (except to the extent such removal is for purposes of the performance of the Employee's duties at home or while traveling, or except as otherwise specifically authorized by the Employer) any Proprietary Items. The Employee recognizes that, as between the Employer and the Employee, all of the Proprietary Items, whether or not developed by the Employee, are the exclusive property of the Employer. Upon termination of this Agreement by either party, or upon the request of the Employer during the employment of Employee, the Employee will return to the Employer all of the Proprietary Items in the Employee's possession or subject to the Employee's control, and the Employee shall not retain any copies, abstracts, sketches, or other physical or electronic embodiment of any of the Proprietary Items.

(b) Employee Inventions.

(i) Each Employee Invention will belong exclusively to the Employer. Employee agrees that Employer shall have sole and exclusive ownership rights in any conception, invention, trade secrets, information, ideas, improvement, substance, know-how, whether or not patentable, arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies of Employer. Any resulting or derivative rights, including patent rights, shall become the exclusive property of Employer and Employer shall be entitled to the entire right, title and interest with respect hereto. Employee agrees, without additional compensation, to convey, assign the entire right, title, and interest in and to any inventions for the United States and all foreign jurisdictions to Employer arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies.

(ii) Employer shall retain the entire right, title and interest in and to any and all Confidential Information and/or Proprietary Information provided by Employer to Employee and to any methods, compounds, improvements, substances, and compositions using or incorporating such Confidential Information and/or Proprietary Information.

(iii) Employee agrees that Confidential Information and/or Proprietary Information provided to the Employee by Employer shall be used for work purposes only and shall not be used for any other uses, studies, experiments or tests.

(iv) Employee agrees that he will promptly disclose to Employer, or any persons designated by Employer, all Employee Inventions, made or conceived or reduced to practice or learned by him, either alone or jointly with others, during the employment of the Employee. The Employee further agrees to assist Employer in every proper way (but at Employer's expense) to obtain and from time to time enforce patents, copyrights or other rights on Employee

Inventions in any and all countries, and to that end Employee will execute all documents necessary: (a) to apply for, obtain and vest in the name of Employer alone (unless Employer otherwise directs) letters patent, copyrights or other analogues protection in any country throughout the world and when so obtained or vested to renew and restore the same; and (b) to defend (including the giving of testimony and rendering any other assistance) any opposition proceedings in respect of such applications and any opposition proceedings or petitions or applications for revocation of such letters patent, copyright or other analogous protection. Employee's obligation to assist Employer in obtaining and enforcing patents and copyrights for Employee Inventions in any and all countries shall continue beyond and after the termination of Employee.

(v) Any copyrightable work whether published or unpublished created by Employee in connection with or during the performance of services below shall be considered a work made for hire, to the fullest extent permitted by law and all right, title and interest therein, including the worldwide copyrights, shall be the property of Employer as the employer and party specially commissioning such work. In the event that any such copyrightable work or portion thereof shall not be legally qualified as a work made for hire, or shall subsequently be so held, Employee agrees to properly convey to Employer, without additional compensation, the entire right, title and interest in and to such work or portion thereof, including but not limited to the worldwide copyrights, extensions of such copyrights, and renewal copyrights therein, and further including all rights to reproduce the copyrighted work in copies or phonorecords, to prepare derivative works based on the copyrighted work, to distribute copies of the copyrighted work, to perform the copyrighted work publicly, to display the copyrighted work publicly, and to register the claim of copyright therein and to execute any and all documents with respect hereto.

(vi) Employee may not publish or disclose any Confidential Information and/or Proprietary Information relating to, arising from, derivative of, or as a result of his employment pursuant to this Agreement including but not limited to: information, improvements, results, experiments, data, or methods, that makes reference to any of the Confidential Information and/or Proprietary Information. Any work performed under, or arising from, or a result of his employment with Employer shall not be published or disclosed in written, electronic, or oral form without the express written permission of Employer.

7.3 Disputes or Controversies

The Employee recognizes that should a dispute or controversy arising from or relating to this Agreement be submitted for adjudication to any court, arbitration panel, or other third party, the preservation of the secrecy of Confidential Information and/or Proprietary Information may be jeopardized. All pleadings, documents, testimony, and records relating to any such adjudication will be maintained in secrecy and will be available for inspection by the Employer, the Employee, and their respective attorneys and experts, who will agree, in advance

and in writing, to receive and maintain all such information in secrecy, except as may be limited by them in writing.

8. [INTENTIONALLY OMITTED.]

9. GENERAL PROVISIONS

9.1 Injunctive Relief and Additional Remedy

The Employee acknowledges that the injury that would be suffered by the Employer as a result of a breach of the provisions of this Agreement (including any provision of Section 7) would be irreparable and that an award of monetary damages to the Employer for such a breach would be an inadequate remedy. Consequently, the Employer will have the right, in addition to any other rights it may have, to obtain injunctive relief to restrain any breach or threatened breach or otherwise to specifically enforce any provision of this Agreement, and the Employer will not be obligated to post bond or other security in seeking such relief. Without limiting the Employer's rights under this Section 9 or any other remedies of the Employer, if the Employee breaches any of the provisions of Section 7, the Employer will have the right to cease making any payments otherwise due to the Employee under this Agreement.

9.2 Covenants of Section 7 are Essential and Independent Covenants

The covenants by the Employee in Section 7 are essential elements of this Agreement, and without the Employee's agreement to comply with such covenants the Employer would not have entered into this Agreement or employed or continued the employment of the Employee. The Employer and the Employee have independently consulted their respective counsel and have been advised in all respects concerning the reasonableness and propriety of such covenants, with specific regard to the nature of the business conducted by the Employer.

The Employee's covenants in Section 7 are independent covenants and the existence of any claim by the Employee against the Employer under this Agreement or otherwise will not excuse the Employee's breach of any covenant in Section 7.

If the Employee's employment hereunder is terminated by either party, this Agreement will continue in full force and effect as is necessary or appropriate to enforce the covenants and agreements of the Employee in Section 7.

9.3 Representations and Warranties by the Employee

The Employee represents and warrants to the Employer that the execution and delivery by the Employee of this Agreement do not, and the performance by the Employee of the Employee's obligations hereunder will not, with or without the giving of notice or the passage of time, or both: (a) violate any judgment, writ, injunction, or order of any court, arbitrator, or governmental agency applicable to the Employee; or (b) conflict with, result in the breach of any provisions of or the termination of, or constitute a default under, any agreement to which the Employee is a party or by which the Employee is or may be bound.

9.4 Waiver

The rights and remedies of the parties to this Agreement are cumulative and not alternative. Neither the failure nor any delay by either party in exercising any right, power, or privilege under this Agreement will operate as a waiver of such right, power, or privilege, and no single or partial exercise of any such right, power, or privilege will preclude any other or further exercise of such right, power, or privilege or the exercise of any other right, power, or privilege. To the maximum extent permitted by applicable law, (a) no claim or right arising out of this Agreement can be discharged by one party, in whole or in part, by a waiver or renunciation of the claim or right unless in writing signed by the other party; (b) no waiver that may be given by a party will be applicable except in the specific instance for which it is given; and (c) no notice to or demand on one party will be deemed to be a waiver of any obligation of such party or of the right of the party giving such notice or demand to take further action without notice or demand as provided in this Agreement.

9.5 Binding Effect; Delegation of Duties Prohibited

This Agreement shall inure to the benefit of, and shall be binding upon, the parties hereto and their respective successors, assigns, heirs, and legal representatives, including any entity with which the Employer may merge or consolidate or to which all or substantially all of its assets may be transferred. The duties and covenants of the Employee under this Agreement, being personal, may not be delegated.

9.6 Notices

All notices, consents, waivers, and other communications under this Agreement must be in writing and will be deemed to have been duly given when (a) delivered by hand (with written confirmation of receipt), (b) sent by facsimile (with written confirmation of receipt), provided that a copy is mailed by registered mail, return receipt requested, or (c) when received by the addressee, if sent by a nationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and facsimile numbers set forth below (or to such other addresses and facsimile numbers as a party may designate by notice to the other parties):

If to Employer: GTx, Inc
3 N. Dunlap Ave, 3rd Floor
Memphis, Tennessee 38163
Attention: General Counsel
Facsimile No.: 901-523-9772

If to the Employee: Mark E. Mosteller
5064 Anchor Cove
Memphis, Tennessee 38117
Facsimile No.:_____

Employee shall notify Employer in writing of any change of his address. Otherwise, Employer shall send all notices to Employee's address herein.

9.7 Entire Agreement; Amendments

This Agreement contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral or written, between the parties hereto with respect to the subject matter hereof. This Agreement may not be amended orally, but only by an agreement in writing signed by the parties hereto.

9.8 Governing Law

This Agreement will be governed by the laws of the State of Tennessee without regard to conflicts of laws principles.

9.9 Jurisdiction

Any action or proceeding seeking to enforce any provision of, or based on any right arising out of, this Agreement shall be brought against either of the parties in the courts of the State of Tennessee, County of Shelby, or, if it has or can acquire jurisdiction, in the United States District Court for the Western District of Tennessee, and each of the parties consents to the jurisdiction of such courts (and of the appropriate appellate courts) in any such action or proceeding and waives any objection to venue laid therein. Process in any action or proceeding referred to in the preceding sentence may be served on either party anywhere in the world.

9.10 Section Headings, Construction

The headings of Sections in this Agreement are provided for convenience only and will not affect its construction or interpretation. All references to "Section" or "Sections" refer to the corresponding Section or Sections of this Agreement unless otherwise specified. All words used in this Agreement will be construed to be of such gender or number as the circumstances require. Unless otherwise expressly provided, the word "including" does not limit the preceding words or terms.

9.11 Severability

If any provision of this Agreement is held invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Agreement will remain in full force and effect. Any provision of this Agreement held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

9.12 Counterparts

This Agreement may be executed in one or more counterparts, each of which will be deemed to be an original copy of this Agreement and all of which, when taken together, will be deemed to constitute one and the same agreement.

9.13 Waiver of Jury Trial

THE PARTIES HERETO HEREBY WAIVE A JURY TRIAL IN ANY LITIGATION WITH RESPECT TO THIS AGREEMENT, OR ARISING OUT OF OR

CONCERNING EMPLOYEE'S EMPLOYMENT WITH EMPLOYER OR TERMINATION THEREOF.

9.14 Prior Employment and Confidentiality Agreements.

Employer and Employee acknowledge that Employee has previously executed an employment letter and a Confidentiality and Non-Disclosure Agreement (collectively, the "Prior Employment Documents"), copies of which are attached hereto as Schedule 1. The Employer and Employee agree that the provisions of this agreement amend and supercede the Prior Employment Documents, which shall be of no further force and effect.

IN WITNESS WHEREOF, the parties have executed and delivered this Agreement as of the date above first written above.

MARK E. MOSTELLER
/S/ Mark E. Mosteller

GTx, INC.

By: /s/ Mitchell S. Steiner

Name: /s/ Mitchell S. Steiner

Title: CEO

EXHIBIT 10.11

EMPLOYMENT AGREEMENT

This Employment Agreement (this "Agreement") is made and entered into as of October 1, 2003 (the "Effective Date") by and between GTx, INC., located at 3 North Dunlap, 3rd Floor, Memphis, Tennessee 38163 (the "Employer"), and HENRY P. DOGGRELL (the "Employee"), residing at 1657 Peabody Avenue, Memphis, Tennessee 38104.

WHEREAS, the Employer desires to retain the services of Employee as General Counsel and Secretary; and

WHEREAS, the Employer and the Employee desire to enter into this Agreement to set forth terms and conditions of the employment relationship between the Employer and the Employee; and

WHEREAS, during the course of Employee's employment with the Employer, the Employer will train and continue to train Employee and to impart to Employee proprietary, confidential, and/or trade secret information, data and/or materials of the Employer; and

WHEREAS, the Employer has a vital interest in maintaining its confidential information and trade secrets, as well as rights to inventions, since doing so allows the Employer to compete fairly and enhances the value of the Employer to shareholders and job security for employees; and

WHEREAS, the Employer desires to procure the services of Employee and Employee is willing to be employed and continue to be employed with the Employer upon the terms and subject to the conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained in this Agreement, the employment and continued employment of Employee in accordance with the terms and conditions of this Agreement, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, agree and covenant as follows:

1. DEFINITIONS

For the purposes of this Agreement, the following terms have the meanings specified or referred to in this Section 1.

"AGREEMENT" has the meaning set forth in first paragraph of this Agreement.

"BASIC COMPENSATION" means Salary and Benefits.

"BENEFITS" means as defined in Section 3.1(b).

"BOARD OF DIRECTORS" means the Board of Directors of the Employer.

"CEO" has the meaning set forth in Section 2.2.

"CHANGE OF CONTROL" means any of the following events: (a) the sale or other disposition of all or substantially all of the assets of Employer in a single transaction or in a series of transactions (including, without limitation, any liquidation or dissolution of Employer); (b) any Person or group becomes the beneficial owner, directly, or indirectly, of securities of the Employer representing more than fifty percent (50%) of the combined voting power of the Employer's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. For such purposes, "voting stock" shall mean the capital stock of Employer of any class or classes, the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of members of the Board of Directors (or Persons performing similar functions) of Employer; or (c) a merger or consolidation of Employer with or into any other entity, if immediately after giving effect to such transaction more than fifty percent (50%) of the issued and outstanding voting stock of the surviving entity of such transaction is held by persons who were not holders (taking into account their individual and affiliated holdings) as of the Effective Date of at least twenty percent (20%) of the voting stock of Employer. A Change of Control shall not include: (1) any transfer or issuance of stock of Employer to one or more of Employer's lenders (or to any agents or representatives thereof) in exchange for debt of Employer owed to any such lenders; (2) any transfer of stock of Employer to or by any person or entity, including but not limited to one or more of the Employer's lenders (or to any agents or representatives thereof), pursuant to the terms of any pledge of said stock as collateral for any loans or financial accommodations to Employer and/or its subsidiaries; (3) any transfer or issuance to any person or entity, including but not limited to one or more of Employer's lenders (or to any agents or representatives thereof), in connection with the workout or restructuring of Employer's debts to any one of Employer's lenders, including but not limited to the issuance of new stock in exchange for any equity contribution to Employer in connection with the workout or restructuring of such debt; (4) any transfer of stock by a stockholder of Employer which is a partnership or corporation to the partners or stockholders in such stockholder or any transfer of stock by a stockholder of Employer to an entity affiliated with such stockholder or the immediate family of such stockholder or a trust or similar entity for the benefit of such family members; or (5) any transfer or issuance of stock in connection with an offering of the Employer's stock in a registered public transaction not involving a transaction described in Rule 145 promulgated under the Securities Act of 1933, as amended, provided that the Employer's officers and Board of Directors shall not materially change as a result thereof.

"CHANGE OF CONTROL TERMINATION" means (i) a Termination Without Cause of the Employee's employment by the Employer within six (6) months after a Change of Control or (ii) the Employee's resignation for Good Reason within six (6) months after a Change of Control.

"CONFIDENTIAL INFORMATION AND/OR PROPRIETARY INFORMATION" means any and all:

(a) information disclosed to Employee or known by Employee as a consequence of, or through, Employee's employment with the Employer since his date of employment on October 1, 2001 (including information conceived, originated, discovered, or developed in whole or in part by Employee), not generally known in the relevant trade or industry, about the Employer's business, products, processes, and services; and trade secrets concerning the business and affairs of the Employer, product specifications, data, know-how, formulae, compositions, research, processes, designs, sketches, photographs, graphs, drawings, samples, inventions and ideas, past, current, and planned research and development, current and planned manufacturing

or distribution methods and processes, customer lists, current and anticipated customer requirements, price lists, market studies, business plans, computer software and programs (including object code and source code), computer software and database technologies, systems, structures, and architectures (and related formulae, compositions, processes, improvements, devices, know-how, inventions, discoveries, concepts, ideas, designs, methods and information); and any other information, however documented, that is a trade secret within the meaning of Tenn. Code Section 39-14-138; and

(b) information concerning the business and affairs of the Employer (which includes historical financial statements, financial projections and budgets, historical and projected sales, capital spending budgets and plans, the names and backgrounds of key personnel, personnel training and techniques and materials), however documented; and

(c) intellectual property, inventions, methods, processes, techniques, computer programs, devices, products, services, compounds, gene therapy products, pharmaceuticals, substances, vectors, enzymes, genes, concepts, discoveries, improvements, and designs, whether or not patenable in the United States or foreign countries, any trade secrets, information, procedures, technologies, data, results, conclusions, know-how or show-how and business information; and

(d) notes, analysis, compilations, studies, summaries, and other material prepared by or for the Employer containing or based, in whole or in part, on any information included in the foregoing.

"EFFECTIVE DATE" means the date stated in the first paragraph of the Agreement.

"EMPLOYEE" has the meaning stated in the first paragraph of this Agreement.

"EMPLOYEE INVENTION" means any idea, invention, technique, modification, process, improvement (whether patentable or not), industrial design (whether registerable or not), work of authorship (whether or not copyright protection may be obtained for it), design, copyrightable work, discovery, trademark, copyright, trade secret, formula, device, method, compound, gene, prodrug, pharmaceutical, structure, product concept, marketing plan, strategy, customer list, technique, blueprint, sketch, record, note, drawing, know-how, data, patent application, continuation application, continuation-in-part application, file wrapper continuation application or divisional application, created, conceived, or developed by the Employee, either solely or in conjunction with others, during the Employee's employment, or a period that includes a portion of the Employee's employment, that relates in any way to, or is useful in any manner in, the business then being conducted or proposed to be conducted by the Employer, and any such item created by the Employee, either solely or in conjunction with others, following termination of the Employee's employment with the Employer, that is based upon or uses Confidential Information and/or Proprietary Information.

"EMPLOYER" means GTx, Inc., its successors and assigns, and any of its current or future subsidiaries, or organizations controlled by, controlling, or under common control with it.

"GOOD REASON" means any of the following:

(a) following a Change of Control, a change in the Employee's status, position or responsibilities (including reporting responsibilities) which, without Employee's consent, represents a reduction in or demotion of the Employee's status, position or responsibilities as in effect immediately prior to a Change of Control or the assignment to the Employee of any duties or responsibilities which are inconsistent with such status, position or responsibilities;

(b) following a Change of Control, a reduction in the Salary in effect immediately prior to the Change of Control or modifying, suspending, discontinuing, or terminating any Benefit in a manner which materially and adversely affects Employee;

(c) following a Change of Control, the relocation of the Employer's principal Employee offices to a location outside a thirty-mile radius of Memphis, Tennessee or the Employer's requiring the Employee to be based at any place other than a location within a thirty-mile radius of Memphis, Tennessee, except for reasonably required travel on the Employer's business; or

(d) following a Change of Control, the failure of the Employer to obtain an agreement reasonably satisfactory to Employee from any successor or assign of the Employer to assume and agree to perform this Agreement.

"PERSON" means any individual, corporation (including any non-profit corporation), general or limited partnership, limited liability company, joint venture, estate, trust, association, organization, or governmental body.

"PROPRIETARY ITEMS" means any Proprietary and/or Confidential Information embodied in any document, record, recording, electronic media, formulae, notebook, plan, model, component, device, or computer software or code, whether embodied in a disk or in any other form.

"SALARY" means as defined in Section 3.1(a).

"TERMINATION WITH CAUSE" means the termination of the Employee's employment by act of the Board for any of the following reasons:

(a) the Employee's conviction for a felony;

(b) the Employee's theft, embezzlement, misappropriation of or intentional infliction of material damage to the Employer's property or business opportunities;

(c) the Employee's breach of the provisions contained in Section 7 of this Agreement; or

(d) the Employee's ongoing willful neglect of or failure to perform his duties hereunder or his ongoing willful failure or refusal to follow any reasonable, unambiguous duly adopted written direction of the CEO that is not inconsistent with the description of the Employee's duties set forth in Section 2.3, if such willful neglect or failure is materially

damaging or materially detrimental to the business and operations of the Employer; provided that Employee shall have received written notice of such failure and shall have continued to engage in such failure after 30 days following receipt of such notice from the CEO, which notice specifically identifies the manner in which the CEO believes that Employee has engaged in such failure. For purposes of this subsection, no act, or failure to act, shall be deemed "willful" unless done, or omitted to be done, by Employee not in good faith, and without reasonable belief that such action or omission was in the best interest of the Employer.

"TERMINATION WITHOUT CAUSE" means the termination of the Employee's employment by the Employer for any reason other than Termination With Cause, or termination by the Employer due to Employee's death or disability.

2. EMPLOYMENT TERMS AND DUTIES

2.1 Employment

The Employer hereby employs the Employee, and the Employee hereby accepts employment by the Employer, upon the terms and conditions set forth in this Agreement.

2.2 Term

Either the Employee or the Employer may terminate this Agreement and the Employee's employment and compensation with or without cause or notice, at any time, at either the Employer's or the Employee's option. No company officer or manager has the authority to enter into any other agreement for employment for a specified period of time, or to modify or to make any agreement contrary to the foregoing, except by written amendment to this Agreement, dated and signed by the Chief Executive Officer ("CEO") or the President of the Employer.

2.3 Duties

The Employee will have such duties as are assigned or delegated to the Employee by the Board of Directors, CEO or the President, and will initially serve as General Counsel and Secretary for the Employer. The Employee will devote his full time, attention, skill and energy to the business of the Employer, will use his best efforts to promote the success of the Employer's business, and will cooperate fully with the Board of Directors, CEO and the President in the advancement of the best interest of the Employer. Employee agrees to abide by all bylaws, policies, practices, procedures or rules of Employer. Employee may be reassigned or transferred to another management position, as designated by the Board of Directors, CEO or the President, which may or may not provide the same level of responsibility as the initial assignment, in accordance with the terms and conditions of this Agreement.

3. COMPENSATION

3.1 Basic Compensation

(a) Salary. The Employee will be paid on the 15th and 30th day of each month a bi-weekly salary of $7,916.67 (the "Salary"), which is the equivalent of

$190,000 per year. Employee's Salary may be adjusted from time to time by agreement of the Employee and the CEO.

(b) Benefits. The Employee will, during his employment, be permitted to participate in such life insurance, hospitalization, major medical, short term disability, long term disability, 401K plan and other employee benefit plans of the Employer that may be in effect from time to time, to the extent the Employee is eligible under the terms of those plans (collectively, the "Benefits").

(c) The Employer may withhold from any salary or benefits payable to Employee all federal, state, local, and other taxes and other amounts as permitted or required pursuant to law, rules or regulations.

(d) In accordance with the stock option letter Employee has received from Employer on or before the date of execution hereof (the "Option Letter"), Employee has received options to purchase common stock of the Employer pursuant to the terms of the Option Letter and related Stock Option Subscription Agreement executed in connection therewith, as additional consideration from Employer for Employee entering into this Agreement.

4. FACILITIES AND EXPENSES

4.1 General

The Employer will furnish the Employee office space, equipment, supplies, and such other facilities and personnel as the Employer deems necessary or appropriate for the performance of the Employee's duties under this Agreement. The Employer will pay the Employee's dues in such professional societies and organizations as the CEO or President deems appropriate, and will pay on behalf of the Employee (or reimburse the Employee for) reasonable expenses incurred by the Employee at the request of, or on behalf of, the Employer in the performance of the Employee's duties pursuant to this Agreement, and in accordance with the Employer's employment policies, including reasonable expenses incurred by the Employee in attending conventions, seminars, and other business meetings, in appropriate business entertainment activities, and for promotional expenses. The Employee must file expense reports with respect to such expenses in accordance with the Employer's policies.

5. VACATIONS AND HOLIDAYS

The Employee will be entitled to three (3) weeks paid vacation each year in accordance with the vacation policies of the Employer in effect from time to time. Vacation must be taken by the Employee at such time or times as approved by the CEO or President. The Employee will also be entitled to the paid holidays set forth in the Employer's policies. Vacation days and holidays during any year that are not used by the Employee during such year may not be used in any subsequent year.

6. TERMINATION

6.1 Events of Termination

Either the Employee or Employer may terminate this Employment Agreement (with the exception of the provisions of Section 7 which shall survive termination of this Agreement) and Basic Compensation with or without cause or notice, at any time at either the Employee's or the Employer's option.

6.2 The employment of Employee shall terminate on the date of the Employee's death, in which event Employee's Basic Compensation, owing to Employee through the date of Employee's death shall be paid to his estate. Employee's estate will not be entitled to any other compensation under this Agreement.

6.3 The Employer shall be released from any and all further obligations under this Agreement, except the Employer shall be obligated to pay Employee his Basic Compensation owing to Employee through the day on which Employee's employment is terminated and as provided in Section 6.4, if applicable. Employee's obligation under Section 7 shall continue pursuant to the terms and conditions of this Agreement.

6.4 As additional consideration for the covenants in Section 7, in the event of a Change of Control Termination, Employee shall receive the equivalent of his bi-weekly Salary at the time of his termination of Employment for a period of one (1) year from the date of termination payable in accordance with Employer's then current payroll policies and procedures, less deductions required by law; provided that if Employee shall terminate his employment on account of a reduction in his Salary or Benefits, as provided in paragraph (b) of the definition of "Good Reason", then Employee shall be entitled to receive hereunder the equivalent Salary he was making prior to such reduction.

7. NON-DISCLOSURE COVENANT; EMPLOYEE INVENTIONS

7.1 Acknowledgements by the Employee

The Employee acknowledges and agrees that (a) during the course of his employment and as a part of his employment, the Employee will be afforded access to Confidential Information and/or Proprietary Information; (b) public disclosure of such Confidential Information and/or Proprietary Information could have an adverse effect on the Employer and its business; (c) because the Employee possesses substantial technical expertise and skill with respect to the Employer's business, the Employer desires to obtain exclusive ownership of each Employee Invention, and the Employer will be at a substantial competitive disadvantage if it fails to acquire exclusive ownership of each Employee Invention; and (d) the provisions of this Section 7 are reasonable and necessary to prevent the improper use or disclosure of Confidential Information and/or Proprietary Information and to provide the Employer with exclusive ownership of all Employee Inventions.

7.2 Agreements of the Employee

In consideration of the compensation and benefits to be paid or provided to the Employee by the Employer under this Agreement and in consideration of Employee's receipt of grants of options to purchase Employer stock, pursuant to the Option Letter and otherwise, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Employee covenants and agrees as follows:

(a) Confidentiality.

(i) That all of such Confidential Information and/or Proprietary Information is a unique asset of the business of Employer, the disclosure of which would be damaging to Employer.

(ii) That the Employee will not at any time, whether during or after termination or cessation of the Employee's employment, except as authorized by Employer and for its benefit, use, divulge or disclose (or enable anyone else to use, divulge or disclose) to any person, association or entity any Confidential Information and/or Proprietary Information which the Employee presently possesses or which the Employee may obtain during the course of the Employee's employment with respect to the business, finances, customers or affairs of Employer or trade secrets, developments, methods or other information and data pertaining to the Employer's business. The Employee shall keep strictly confidential all matters and information entrusted to the Employee and shall not use or attempt to use any such Confidential Information and/or Proprietary Information in any manner which may injure or cause loss or may be calculated to injure or cause loss, whether directly or indirectly, to Employer.

(iii) That during the course of this Agreement or at any time after termination, Employee will keep in strictest confidence and will not disclose or make accessible to any other person without the prior written consent of Employer, the Confidential Information and/or Proprietary Information; Employee agrees: (a) not to use any such Confidential Information and/or Proprietary Information for himself or others; and (b) not to take any such material or reproductions thereof from the Employer's facilities at any time during his employment except, in each case, as required in connection with the Employee's duties to the Employer.

(iv) Employee agrees to hold in confidence, and not to distribute or disseminate to any person or entity for any reason, any Confidential Information and/or Proprietary Information of Employer under this Agreement, or information relating to experiments or results obtained based on the duties of Employee, except for information which: (a) is in or which becomes a part of the public domain not as a result of a breach of this Agreement, (b) information lawfully received from a third party who had the right to disclose such information or (c) is required by legal process before a court of proper jurisdiction (by oral questions, deposition, interrogatories, requests for information or

documents, subpoena, civil investigative domain or other similar process) to disclose all or any part of any Confidential Information and/or Proprietary Information, provided that Employee will provide Employer with prompt notice of such request or requirement, as well as notice of the terms and circumstances surrounding such request or requirements, so that Employer may seek an appropriate protective order or waive compliance with the provisions of this Agreement. In such case, the parties will consult with each other on the advisability of pursuing any such order or other legal action or available step to resist or narrow such request or requirement. If, failing the entry of a protective order or the receipt of a waiver hereunder, Employee is, in the opinion of counsel reasonably acceptable to Employer, legally compelled to disclose Confidential Information and/or Proprietary Information. Employee may disclose that portion of such information which counsel advises to obtain and will not oppose action by Employer to disclose, an appropriate protective order or other reliable assurance that confidential treatment will be accorded the disclosure of such information.

(v) Upon written notice by Employer, Employee shall promptly redeliver to Employer, or, if requested by Employer, promptly destroy all written Confidential Information and/or Proprietary Information and any other written material containing any information included in the Confidential Information and/or Proprietary Information (whether prepared by Employer, Employee, or a third party), and will not retain any copies, extracts or other reproductions in whole or in part of such written Confidential Information and/or Proprietary Information (and upon request certify such redelivery of destruction to Employer in a written instrument reasonably acceptable to Employer and its counsel).

(vi) This Agreement and the terms and conditions recited herein are confidential and non-public, except as may be expressly permitted by the Employer. The Employee agrees not to disclose the contents of this Agreement to any person or entity, including, but not limited to the press, other media, any public body, or any competitor of Employer, except to the Employee's legal counsel or as may be required by law.

(vii) Any trade secrets of the Employer will be entitled to all of the protections and benefits of State of Tennessee law and any other applicable law. If any information that the Employer deems to be a trade secret is found by a court of competent jurisdiction not be to a trade secret for purposes of this Agreement, such information will, nevertheless, be considered Confidential Information and/or Proprietary Information for purposes of this Agreement. The Employee hereby waives any requirement that the Employer submits proof of the economic value of any trade secret or post a bond or other security.

(viii) None of the foregoing obligations and restrictions applies to any part of the Confidential Information and/or Proprietary Information that the Employee demonstrates was or became generally available to the public other than as a result of a disclosure by the Employee.

(ix) The Employee will not remove from the Employer's premises (except to the extent such removal is for purposes of the performance of the Employee's duties at home or while traveling, or except as otherwise specifically authorized by the Employer) any Proprietary Items. The Employee recognizes that, as between the Employer and the Employee, all of the Proprietary Items, whether or not developed by the Employee, are the exclusive property of the Employer. Upon termination of this Agreement by either party, or upon the request of the Employer during the employment of Employee, the Employee will return to the Employer all of the Proprietary Items in the Employee's possession or subject to the Employee's control, and the Employee shall not retain any copies, abstracts, sketches, or other physical or electronic embodiment of any of the Proprietary Items.

(b) Employee Inventions.

(i) Each Employee Invention will belong exclusively to the Employer. Employee agrees that Employer shall have sole and exclusive ownership rights in any conception, invention, trade secrets, information, ideas, improvement, substance, know-how, whether or not patentable, arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies of Employer. Any resulting or derivative rights, including patent rights, shall become the exclusive property of Employer and Employer shall be entitled to the entire right, title and interest with respect hereto. Employee agrees, without additional compensation, to convey, assign the entire right, title, and interest in and to any inventions for the United States and all foreign jurisdictions to Employer arising out of, resulting from, or derivative of: (1) the work or services of Employee, or (2) within the scope of the duties of Employee, or (3) using any materials, compounds, devices, or monies.

(ii) Employer shall retain the entire right, title and interest in and to any and all Confidential Information and/or Proprietary Information provided by Employer to Employee and to any methods, compounds, improvements, substances, and compositions using or incorporating such Confidential Information and/or Proprietary Information.

(iii) Employee agrees that Confidential Information and/or Proprietary Information provided to the Employee by Employer shall be used for work purposes only and shall not be used for any other uses, studies, experiments, or tests.

(iv) Employee agrees that he will promptly disclose to Employer, or any persons designated by Employer, all Employee Inventions, made or conceived or reduced to practice or learned by him, either alone or jointly with others, during the employment of the Employee. The Employee further agrees to assist Employer in every proper way (but at Employer's expense) to obtain and from time to time enforce patents, copyrights or other rights on Employee

Inventions in any and all countries, and to that end Employee will execute all documents necessary: (a) to apply for, obtain and vest in the name of Employer alone (unless Employer otherwise directs) letters patent, copyrights or other analogues protection in any country throughout the world and when so obtained or vested to renew and restore the same; and (b) to defend (including the giving of testimony and rendering any other assistance) any opposition proceedings in respect of such applications and any opposition proceedings or petitions or applications for revocation of such letters patent, copyright or other analogous protection. Employee's obligation to assist Employer in obtaining and enforcing patents and copyrights for Employee Inventions in any and all countries shall continue beyond and after the termination of Employee.

(v) Any copyrightable work whether published or unpublished created by Employee in connection with or during the performance of services below shall be considered a work made for hire, to the fullest extent permitted by law and all right, title and interest therein, including the worldwide copyrights, shall be the property of Employer as the employer and party specially commissioning such work. In the event that any such copyrightable work or portion thereof shall not be legally qualified as a work made for hire, or shall subsequently be so held, Employee agrees to properly convey to Employer, without additional compensation, the entire right, title and interest in and to such work or portion thereof, including but not limited to the worldwide copyrights, extensions of such copyrights, and renewal copyrights therein, and further including all rights to reproduce the copyrighted work in copies or phonorecords, to prepare derivative works based on the copyrighted work, to distribute copies of the copyrighted work, to perform the copyrighted work publicly, to display the copyrighted work publicly, and to register the claim of copyright therein and to execute any and all documents with respect hereto.

(vi) Employee may not publish or disclose any Confidential Information and/or Proprietary Information relating to, arising from, derivative of, or as a result of his employment pursuant to this Agreement including but not limited to: information, improvements, results, experiments, data, or methods, that makes reference to any of the Confidential Information and/or Proprietary Information. Any work performed under, or arising from, or a result of his employment with Employer shall not be published or disclosed in written, electronic, or oral form without the express written permission of Employer.

7.3 Disputes or Controversies

The Employee recognizes that should a dispute or controversy arising from or relating to this Agreement be submitted for adjudication to any court, arbitration panel, or other third party, the preservation of the secrecy of Confidential Information and/or Proprietary Information may be jeopardized. All pleadings, documents, testimony, and records relating to any such adjudication will be maintained in secrecy and will be available for inspection by the Employer, the Employee, and their respective attorneys and experts, who will agree, in advance

and in writing, to receive and maintain all such information in secrecy, except as may be limited by them in writing.

8. [INTENTIONALLY OMITTED.]

9. GENERAL PROVISIONS

9.1 Injunctive Relief and Additional Remedy

The Employee acknowledges that the injury that would be suffered by the Employer as a result of a breach of the provisions of this Agreement (including any provision of Section 7) would be irreparable and that an award of monetary damages to the Employer for such a breach would be an inadequate remedy. Consequently, the Employer will have the right, in addition to any other rights it may have, to obtain injunctive relief to restrain any breach or threatened breach or otherwise to specifically enforce any provision of this Agreement, and the Employer will not be obligated to post bond or other security in seeking such relief. Without limiting the Employer's rights under this Section 9 or any other remedies of the Employer, if the Employee breaches any of the provisions of Section 7, the Employer will have the right to cease making any payments otherwise due to the Employee under this Agreement.

9.2 Covenants of Section 7 are Essential and Independent Covenants

The covenants by the Employee in Section 7 are essential elements of this Agreement, and without the Employee's agreement to comply with such covenants the Employer would not have entered into this Agreement or employed or continued the employment of the Employee. The Employer and the Employee have independently consulted their respective counsel and have been advised in all respects concerning the reasonableness and propriety of such covenants, with specific regard to the nature of the business conducted by the Employer.

The Employee's covenants in Section 7 are independent covenants and the existence of any claim by the Employee against the Employer under this Agreement or otherwise will not excuse the Employee's breach of any covenant in Section 7.

If the Employee's employment hereunder is terminated by either party, this Agreement will continue in full force and effect as is necessary or appropriate to enforce the covenants and agreements of the Employee in Section 7.

9.3 Representations and Warranties by the Employee

The Employee represents and warrants to the Employer that the execution and delivery by the Employee of this Agreement do not, and the performance by the Employee of the Employee's obligations hereunder will not, with or without the giving of notice or the passage of time, or both: (a) violate any judgment, writ, injunction, or order of any court, arbitrator, or governmental agency applicable to the Employee; or (b) conflict with, result in the breach of any provisions of or the termination of, or constitute a default under, any agreement to which the Employee is a party or by which the Employee is or may be bound.

9.4 Waiver

The rights and remedies of the parties to this Agreement are cumulative and not alternative. Neither the failure nor any delay by either party in exercising any right, power, or privilege under this Agreement will operate as a waiver of such right, power, or privilege, and no single or partial exercise of any such right, power, or privilege will preclude any other or further exercise of such right, power, or privilege or the exercise of any other right, power, or privilege. To the maximum extent permitted by applicable law, (a) no claim or right arising out of this Agreement can be discharged by one party, in whole or in part, by a waiver or renunciation of the claim or right unless in writing signed by the other party; (b) no waiver that may be given by a party will be applicable except in the specific instance for which it is given; and (c) no notice to or demand on one party will be deemed to be a waiver of any obligation of such party or of the right of the party giving such notice or demand to take further action without notice or demand as provided in this Agreement.

9.5 Binding Effect; Delegation of Duties Prohibited

This Agreement shall inure to the benefit of, and shall be binding upon, the parties hereto and their respective successors, assigns, heirs, and legal representatives, including any entity with which the Employer may merge or consolidate or to which all or substantially all of its assets may be transferred. The duties and covenants of the Employee under this Agreement, being personal, may not be delegated.

9.6 Notices

All notices, consents, waivers, and other communications under this Agreement must be in writing and will be deemed to have been duly given when (a) delivered by hand (with written confirmation of receipt), (b) sent by facsimile (with written confirmation of receipt), provided that a copy is mailed by registered mail, return receipt requested, or (c) when received by the addressee, if sent by a nationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and facsimile numbers set forth below (or to such other addresses and facsimile numbers as a party may designate by notice to the other parties):

If to Employer: GTx, Inc
3 N. Dunlap Ave, 3rd Floor
Memphis, Tennessee 38163
Attention: Chief Executive Officer
Facsimile No.: 901-523-9772

If to the Employee: Henry Doggrell
1657 Peabody Avenue
Memphis, Tennessee 38104
Facsimile No.:_____

Employee shall notify Employer in writing of any change of his address. Otherwise, Employer shall send all notices to Employee's address herein.

9.7 Entire Agreement; Amendments

This Agreement contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral or written, between the parties hereto with respect to the subject matter hereof. This Agreement may not be amended orally, but only by an agreement in writing signed by the parties hereto.

9.8 Governing Law

This Agreement will be governed by the laws of the State of Tennessee without regard to conflicts of laws principles.

9.9 Jurisdiction

Any action or proceeding seeking to enforce any provision of, or based on any right arising out of, this Agreement shall be brought against either of the parties in the courts of the State of Tennessee, County of Shelby, or, if it has or can acquire jurisdiction, in the United States District Court for the Western District of Tennessee, and each of the parties consents to the jurisdiction of such courts (and of the appropriate appellate courts) in any such action or proceeding and waives any objection to venue laid therein. Process in any action or proceeding referred to in the preceding sentence may be served on either party anywhere in the world.

9.10 Section Headings, Construction

The headings of Sections in this Agreement are provided for convenience only and will not affect its construction or interpretation. All references to "Section" or "Sections" refer to the corresponding Section or Sections of this Agreement unless otherwise specified. All words used in this Agreement will be construed to be of such gender or number as the circumstances require. Unless otherwise expressly provided, the word "including" does not limit the preceding words or terms.

9.11 Severability

If any provision of this Agreement is held invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Agreement will remain in full force and effect. Any provision of this Agreement held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

9.12 Counterparts

This Agreement may be executed in one or more counterparts, each of which will be deemed to be an original copy of this Agreement and all of which, when taken together, will be deemed to constitute one and the same agreement.

9.13 Waiver of Jury Trial

THE PARTIES HERETO HEREBY WAIVE A JURY TRIAL IN ANY LITIGATION WITH RESPECT TO THIS AGREEMENT, OR ARISING OUT OF OR

CONCERNING EMPLOYEE'S EMPLOYMENT WITH EMPLOYER OR TERMINATION THEREOF.

9.14 Prior Employment and Confidentiality Agreements.

Employer and Employee acknowledge that Employee has previously executed an employment letter and a Confidentiality and Non-Disclosure Agreement dated August 31, 2001 (collectively, the "Prior Employment Documents"), copies of which are attached hereto as Schedule 1. The Employer and Employee agree that the provisions of this agreement amend and supercede the Prior Employment Documents, which shall be of no further force and effect.

IN WITNESS WHEREOF, the parties have executed and delivered this Agreement as of the date above first written above.

HENRY P. DOGGRELL

/s/ Henry P. Doggrell

GTx, INC.

By: /s/ Mitchell S. Steiner

Name: Mitchell S. Steiner

Title: CEO

EXHIBIT 10.13

Prepared By: Lessee:

University of Tennessee
Office of Real Estate Management
The Middlebrook Building
5723 Middlebrook Pike
Knoxville, TN 37096

Lessee:

Tristar Enterprises, Inc.
3 N. Dunlap Street
Memphis, TN 38 I63

L E A S E

THIS LEASE, made and entered into this 7th day and effective as of March, 2001, and effective as of October 1, 2000, by and between THE UNIVERSITY OF TENNESSEE, hereinafter called the Lessor, and TRISTAR ENTERPRISES, INC., hereinafter called the Lessee.

WITNESSETH:

The parties hereto, for the considerations hereinafter mentioned, covenant and agree as follows:

1. DESCRIPTION: The Lessor hereby leases unto I, Lessee those premises with the appurtenances thereto situated in the State of Tennessee, County of Shelby, City of Memphis, in the Van Vleet Building at 3 N. Dunlap Street. The premises above are more particularly described as follows:

Approximately 2,050 rentable square feet of Office Space located on the second floor and identified on attached Addendum Number One as C202, C206, C207, C208, C212, C216, C219, C223, C224, C226 and C228. Approximately 4,818 rentable square feet of Laboratory Space located on the third floor and identified on attached Addendum Number Two as N321, N324. N324A, N325, N326, N326A, N328, N328A, N329, N330, N333, N333A, N334, N334A, N334B. Plans for the building are located in the Office of facilities at The University of Tennessee Health Science Center in Memphis, Tennessee and are incorporated by reference as if fully set out herein.

Being part of the same property described in the last recorded instrument conveyed to Lessor in Plat Book No. I, Page 69. recorded in the Register's Office, Shelby County, Tennessee. (Reference Instrument No. 6005-287 -no other recorded deeds were located).

2. TERM: The term of this lease shall commence on October 1, 2000, and shall end on September 30, 2005, with such rights of termination and/or extension as may be hereinafter expressly set forth. Should the Lessee occupy the premises beyond the term of this lease such occupancy shall in no event be year-to-year but at the will of the Lessor.

3. RENT: The Lessee shall pay annual rent of $94,820 ($11.00 per rentable square foot of Office Space and $15.00 per rentable square foot of Laboratory space), payable in installments of $7,901.67 per month. The rental cost may subsequently be adjusted each July 1 and shall be based on the percentage difference between the two most recent annual State and Local Index values listed in Table 3.8B Real Government consumption Expenditures by Type and Real Gross Investment by Type (formerly entitled Government Purchases by Type in Constant Dollars) contained in the applicable July issue of the Department of Commerce's Survey of Current Business. For example, if this adjustment factor had been put into effect prior to July 1, 1996, a 2.3% increase in the prior rate would be permissible for the period of July 1, 1996 - June 30, 1997 (the July 1996 issue of the Department of Commerce's Survey of Current Business lists the 1995 State and Local Index value as 788.6 and the 1994 value as 770.5 (788.6/770.5 = 1.023)).

4. PURPOSE: The premises hereby leased shall only be used for education, research, or public service activities. Lessee shall not permit or suffer any act or event to occur upon the premises which is extra hazardous on the account of tire or explosion.

Further Lessee covenants to comply with all City laws and ordinances and State and federal laws in regard to nuisances, insofar as the premises are concerned and to make no unlawful or offensive use of the premises.

5. ASSIGNMENT AND SUBLETTING: The Lessee shall neither assign this Lease nor sublet the premises in whole or part without the written consent of the Lessor. Further, the Lessee shall not permit the use or occupation of said premises by anyone other than Lessee without the written consent of the Lessor.

6. REPAIR/MAINTENANCE: The Lessee accepts the premises in its present physical condition. During the lease term, the Lessor shall maintain the leased premises and appurtenances which he provides in good repair and tenantable condition, including, but not limited to, the maintenance and repair of the elevators, plumbing, heating, electrical, air conditioning and ventilating equipment and fixtures to the end that all such facilities are kept in good operative condition except in case of damage arising solely from a willful or negligent act of' the Lessee's agent, invitee, or employee.

The Lessee shall take good care of the premises hereby leased and the appurtenances thereof and neither commit nor permit any waste. At the end or other expiration of the term of this Lease, the Lessor shall deliver up said premises in as good order or condition as they were at the beginning of this Lease, ordinary wear and tear thereof and damage by earthquake the elements, acts of God, or fire over which the Lessee has no control excepted.

7. ALTERATIONS: The Lessee shall not make any alterations, additions or improvements in the premises without first obtaining written consent from the Lessor. All alterations, additions or improvements made by the Lessee shall inure to the benefit of the property of the Lessor upon the termination and end of this lease unless hereinafter specified to the contrary or otherwise agreed to in writing and signed by both parties.

8. UTILITIES: The costs associated with utilities and janitorial services will be included as part of the rent as set forth in paragraph 3.

9. INSPECTION: 'The Lessor shall have the right, upon notice to the Lessee, to enter the leased premises at reasonable times in order to inspect, render services or make necessary repairs to the premises.

10. FIRE AND CASUALTY: If the premises be destroyed by fire or other casualty, this Lease shall immediately terminate. In the case of partial destruction or damage so as to render the premises untenantable, either party may terminate the Lease by giving written notice to the other within fourteen(14) days thereafter.

11. LIABILITY: Lessor shall not be liable for any property or valuables destroyed, damaged, lost, stolen, taken or missing from the Premises, the Lessee agreeing to sufficiently protect, secure, insure, and safeguard any and all property maintained or stored upon the Premises. Any property placed on or within the Premises is maintained strictly at Lessee's own risk. The Lessor agrees to provide fire and casualty insurance or self insurance in amounts sufficient to protect its own interest in the Building only.

Lessee, its successors and assigns, shall indemnify and hold harmless Lessor and the State of Tennessee from any and all claims, costs or damages, and judgments of whatsoever nature, including without limitation costs and expenses incurred by Lessor or the State in the defense of any action, arising out of the activities of Lessee on the premises pursuant to this Lease and to assume all responsibility and liability therefore.

The Lessee, its successors and approved assigns, agrees to maintain adequate public liability insurance and will provide satisfactory evidence of such insurance to the State. Further, the liability limits of this insurance must not be less than the exposure and limits of' the State's liability under the Claims Commission Statute, T.C.A. Section 9-8-307, as it may be from time to time amended and/or construed by the claims commission and courts. This statute currently limits liability of the State to $300,000 per claimant, $1,000,000 per occurrence. The insurance policy shall include a provision for the insurance company to notify the State in writing of any cancellation or changes of the policy at least 30 days in advance of the cancellation or change.

12. TERMINATION/EXTENSION: Notwithstanding any other provision to the contrary in the event that the Lessee becomes insolvent or bankruptcy proceedings are filed against or by the Lessee, his heirs or assigns in any court whatsoever, it shall give the rights to Lessor or its assigns, at their option, to immediately declare this contract null and void and at once resume possession of the property. No receiver, trustee or other judicial officer shall have any right, title or interest in or to the above described property by virtue of' this contract.

Further, if the Lessee shall fail or neglect to make any payment of rent when due, vacate the premises without notice to the Lessor or shall violate any of' the provisions of this Lease, the Lessor, without any other demand or notice, may at Lessor's option, immediately terminate this Lease and if necessary require the Lessee to vacate the leased premises.

In lieu of any termination right mentioned herein or in conjunction therewith, Lessor may pursue any other lawful right or remedy incident to the relationship created by this Lease. Should the Lessor at any time seek to rightfully recover possession of the premises and be obstructed or resisted therein, and any litigation thereon ensue, the Lessee shall be bound to pay the Lessor reasonable attorney's fees and all court costs.

It is agreed that either party shall have the right and privilege to terminate the agreement by giving a written notice to the other party at least 90 days prior to the specified termination date.

This lease may be extended by both parties agreeing to the terms and conditions of such extension in writing and signed by all parties subject to the approval of the State Building Commission.

13. NOTICES: All notices herein provided to be given, or which may be given, by either delivered in person or by certified mail as follows:

TO THE LESSOR:	TO THE LESSEE:
OFFICE OF REAL ESTATE MANAGEMENT	TRISTAR ENTERPRISES, INC.
THE UNIVERSITY OF TENNESSEE	3 N. DUNLAP STREET
432 COMMUNICATIONS BUILDING	MEMPHIS, TN 38163
KNOXVILLE, TN 37996-0342	

14. SPECIAL PROVISIONS: Prior to the execution of this lease the following special provisions, if any, were agreed upon:

a. This agreement constitutes the entire agreement concerning the least of this property. Any previous written or oral agreements between the Lessee and the previous owners of the property are entirely superseded.

b. Additional space in the amount of approximately 1, 014 rentable square feet on the first floor and 976 rentable square feet on the third floor will be required at a later date. This lease will be amended at that time to include this additional space at the then-current rental rate.

c. This Lease may not be amended, modified or in any way changed except by written agreement signed by both parties.

d. This Lease is not binding upon the Lessor until the fully executed document is delivered to the Lessee.

15. CERTIFICATION: The Lessee hereby certifies that Lessee is neither now nor within the past six (6) months has been an official or employee of 'The University of' Tennessee or any other agency or institution of the State of Tennessee and that no official or employee of The University of-Tennessee or no official or employee of the University or one of those agencies has any personal interest in the leased premises.

IN WITNESS WHEREOF, this lease has been executed by the parties hereto on the day and year first above written.

LESSOR

THE UNIVERSITY OF TENNESSEE

BY: /s/ illegible
VICE PRESIDENT

LESSEE

TRISTAR ENTERPRISES, INC.

BY: /s/ illegible
ITS: President & CEO

STATE OF TENNESSEE

BY: /s/ C. Warren Neel,
C. WARREN NEEL, PhD, Commissioner
Finance and Administration

APPROVED:

BY: /s/ Paul G. Summers
Paul G. Summers
Attorney General

BY: /s/ Don Sundquist
Don Sundquist
Governor

AUTHENTICATION FORM FOR LEASE

BETWEEN

THE STATE OF TENNESSEE

AND

TRISTAR ENTERPRISES, INC.

STATE OF TENNESSEE
COUNTY OF KNOX

Personally appeared before me, the undersigned Notary Public for Knox County, Emerson H. Fly, Vice-President of the University of Tennessee, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence, and who, upon oath, acknowledged that he/she is the Vice-President of the University of Tennessee and that he/she as Vice-President, being authorized so to do, executed the foregoing instrument for the purpose therein contained by signing the name of the State by himself as Vice-President.

Witness my hand and seal at office, this 25th day of July, 2001.

/s/ Sophie Diane Martin Hopkins

Notary Public

My Commission Expires:

6-26-02

STATE OF TENNESSEE
COUNTY OF DAVIDSON

Personally appeared before me, the undersigned, Notary Public for Davidson County, C. Warren Neel, PhD, with whom I am personally acquainted and who, upon oath, acknowledged that he is the Commissioner of Finance and Administration and that he as Commissioner, being authorized so to do, executed the foregoing instrument for the purpose therein contained by signing the name of the State of Tennessee, by himself as Commissioner.

Witness my hand and seal at office, this 27th day of August, 2001.

/s/ Margaret Tolleson

Notary Public

My Commission Expires:

Nov. 29, 2003

AUTHENTICATION FORM FOR LEASE
MADE BY AND BETWEEN

TRISTAR ENTERPRISES, INC.

AND THE STATE OF TENNESSEE

DATED_____

STATE OF TENNESSEE

COUNTY OF SHELBY

Before me _____, a Notary Public in and for said County and State aforesaid, personally appeared _____, with whom I am personally acquainted, and who, upon oath, acknowledged himself/herself to be the _____ of _____, the within named Lessor, a corporation, and that he/she as such _____, being authorized so to do, executed the foregoing lease for the purposes therein contained, by signing the name of the Corporation by himself/herself as _____.

Witness my hand and seal, at the office in Memphis, TN, this 7th day of March, 2001.

Notary Public
_____

My Commission Expires:

March 12, 2002

EXHIBIT 10.14

SUBLEASE

This Sublease made and entered into as of this 1st day of October 2000 by and between TRISTAR ENTERPRISES, INC., a Tennessee nonprofit corporation ("Sublessor") and GENOTHERAPEUTICS, INC., a Tennessee corporation ("Sublessee").

R E C I T A L S

WHEREAS. the Sublessor and The University of Tennessee have entered into a Lease dated October 1, 2000 (the "Primary Lease"), a copy of which is attached hereto as Exhibit A.

WHEREAS, the Sublessor desires to sublease a portion of the premises leased by the original Primary Lease to the Sublessee.

NOW THEREFORE, in consideration of the foregoing and other good and valuable considerations set forth herein, the parties agree as follows:

1. The Sublessor hereby subleases unto the Sublessee those premises with the appurtenances thereto appertaining situated in the State of Tennessee, County of Shelby, City of Memphis, located at 3 North Dunlap Street, more particularly described as follows:

> Approximately 4.818 rentable square feet of laboratory space located on the Third Floor of the Van Vleet Building, 3 North Dunlap Street, Memphis, Shelby County, Tennessee. Being part of the same property described in the last recorded instrument conveyed to The University of Tennessee in Plat Book No. 1, Page 69, recorded in the Register's Office, Shelby County, Tennessee. (Reference Instrument No. 6005-287). Plans for the building can be found in the Office of Facilities at The University of Tennessee Health Science Center, Memphis, Tennessee.

2. The Sublessee shall pay annual rent of $72,270.00 ($15.00 per square foot), payable in installments of $6,022.50 per month. The rental cost may be subsequently adjusted each July 1 and shall be based on the percentage difference between the two most recent annual State and Local Index values listed in Table 3.8B-Real Government Consumption Expenditures by Type and Real Gross Investment by Type (formerly entitled Government Purchases by Type and Constant Dollars)contained in the applicable July issue of the Department of Commerce's Survey of Current Business. For example, if this adjustment factor had been put into effect prior to July 1, 1996, a 2.3 percent increase in the prior rate would be permissible for the period of July 1, 1996 through June 30, 1997 (the July 1996 issue of the Department of Commerce's Survey of Current Business lists the 1995 State and Local Index value at 788.6 and the 1994 value at 770.5 (788.6/770.5 equals 1.023)).

3. Except for Section 1 and Section 3 of the Primary Lease, the Sublessee hereby agrees to be bound by the terms and the conditions of the Primary Lease as if the Sublessee were the Lessee thereunder.

4. The effectiveness of this Sublease is subject to the written consent of The University of Tennessee approving this Sublease.

5. All notices required under this Sublease shall be sent to the following addresses:

To the Sublessor:	To the Sublessee:
Tristar Enterprises, Inc. 3 North Dunlap Street Memphis, Tennessee 38163	Genotherapeutics, Inc. _____ _____

IN WITNESS WHEREOF, this Sublease has been executed by the parties as of the date hereinabove written:

TRISTAR ENTERPRISES, INC

By: /s/ illegible
_____

Title: President

GENOTHERAPEUTICS, INC.

By: /s/ Marc Hanover

Title: President

Tristar Enterprises, Inc.
Phase I
Space Requirements

Office #	Sq Ft	Tristar	UT	Office
206	325	162.5	162.5	Scott
216	242	121	121	Banton
232	239		239	Palmer
230	140		140	UTRC
224	343	171.5	171.5	CMO
228	161	161		IRB
202	107	107		IRB
208	176	176		ADMIN
221	141		141	UT STORAGE
223	139	139		ACC'T/Contract Mgr
226	161	161		CLINICAL/Coordinator
205	182		182	RESEARCH
219	143	85	58	Howell
212	176	88	88	Jennings
207	348	174	174	Conf. Rm
3rd Floor	3750	3750		Lab (sub-GTX)*
Total	6773	5296	1477	

*Room # 333, 333A, 329, 325, 321, 324, 324A, 326, 326A, 328, 328A, 334, 334A, 334B, & 330 (cold room)

Phase II (Expansion)

First Floor: Room # 106, 106A, 106B, 106C, and 107 (approx. 700 sq ft)

Third Floor: Room # 319 & 320 (approx. 750 sq ft)

SUBLEASE AMENDMENT

This Amendment is to the sublease made between TRISTAR ENTERPRISES, INC., a Tennessee nonprofit corporation (" Sublessor")and GENOTHERAPEUTICS, INC., a Tennessee corporation ("Sublessee") signed on October 1, 2000.

1. The Sublessor hereby subleases unto the Sublessee those premises with the appurtenances thereto situated in the State Of Tennessee, County of Shelby, City of Memphis, located at 3 North Dunlap Street, more particularly described as follows:

a. Effective February 1,2001, approximately 7,374 rentable square feet of office space located on the Third Floor of the Van Vleet Building, Rooms C300, C301, C302, C303, C304, C305, C310, C311, C312, C313, C314, C315, C315A, C316, C317, C319, C322, C322A, C322B, C322C, C323, C325, C326, C327, C327A, C329, C329A, C332, C333, C334, C335, S301, S302, S303, S305, S306,

b. Effective June 1, 2001 approximately 966 rentable square feet of laboratory space located on the Third Floor of the Van Vleet Building, Rooms N319, N320, N320A, 3 North Dunlap Street, Memphis, Shelby County, Tennessee. Being part of the same property described in the last recorded instrument conveyed to The University of Tennessee in Plat Book No., 1, Page 69, recorded in the Register's Office, Shelby County, Tennessee. (Reference Instrument No. 6005-287) Plans for the building can be found in the Office of Facilities at The University of Tennessee Health Science Center, Memphis, Tennessee.

2. The Sublessee shall pay annual rent of $81,114.00 ($11.00 per square foot) payable in installments of $6,759.50 per month for the office space. The Sublessee shall pay annual rent of $14,490.00 ($15.00 per square foot) payable in installments of $1,207.50 per month for the additional laboratory space.

3. All other terms remain unchanged.

IN WITNESS WHEREOF, this Sublease amendment has been executed by the parties as of the date hereinabove written:

TRISTAR ENTERPRISES, INC.

By: /s/ illegible

Title: President & CEO

GENOTHERAPEUTICS, INC.

By: Marc Hanover

Title: President

SUBLEASE AMENDMENT NUMBER 2

This Amendment Number 2 is to the sublease between Tristar Enterprises, Inc., a Tennessee nonprofit corporation ("Sublessor") and GTx, Inc., a Tennessee corporation ("Sublessee") signed on October 1, 2000.

A copy of the sublease, signed on October 1, 2000 and a copy of the original Sublease Amendment, which was effective on February 1, 2001, are attached to this Sublease Amendment Number 2.

1. The Sublessor hereby subleases unto the Sublessee those premises with the appurtenances thereto situated in the State of Tennessee, County of Shelby, City of Memphis, located at 3 North Dunlap Street, more particularly described as follows:

   Effective October 1, 2002, approximately 644 rentable square feet of office space located on the First Floor of the Van Vleet Building, Rooms C119, C120, C121, C122, C126.

2. The Sublessee shall pay annual rent of $7,087.73 ($11.00 per square foot) payable in installments of $590.64 per month for the office space.

3. All other terms remain unchanged.

In witness whereof, this Sublease Amendment Number 2 has been executed by the parties as indicated below:

TRISTAR ENTERPRISES, INC.	GTx, INC.
By: /s/ Robert L. Palmer ----------	By: /s/ Mark E. Mosteller ----------
Name: Robert L. Palmer	Name: Mark E. Mosteller
Title: President & CEO	Title: Chief Financial Officer
Date: 11/5/02	Date: 11/5/02

Amendment Number 2

C0119	115
C0120	121
C0121	105
C0122	85
C0126	60
	486
	x 1.3258
	644.34
	x 11
	7,087.73
	590.64

SUBLEASE AMENDMENT NUMBER 3

This Amendment Number 3 is to the sublease between Tristar Enterprises, Inc., a Tennessee nonprofit corporation ("Sublessor")and GTx, Inc., a Tennessee corporation ("Sublessee") signed on October 1, 2000.

A copy of the sublease, signed on October 1, 2000, a copy of the original Sublease Amendment, and a copy of Sublease Amendment Number 2, are attached to this Sublease Amendment Number 3.

1. The Sublessor hereby subleases unto the Sublessee those premises with the appurtenances thereto situated in the State of Tennessee, County of Shelby, City of Memphis, located at 3 North Dunlap Street, more particularly described as follows:

   Effective January 1, 2002, approximately 2,437 rentable square feet of office space located on the First Floor of the Van Vleet Building, Rooms C106, C106A, C106B, C106C, C106D, C106E, C106F, C106G, C106H, C107, C110, and C111.

2. The Sublessee shall pay annual rent of $120.00 payable in installments of $10.00 per month for the space.

3. All other terms remain unchanged.

In witness whereof, this Sublease Amendment Number 2 has been executed by the parties as indicated below:

TRISTAR ENTERPRISES, INC.	GTx, INC.
By: /s/ Robert L. Palmer ----------	By: /s/ Mark E. Mosteller ----------
Name: Robert L. Palmer	Name: Mark E. Mosteller
Title: President & CEO	Title: CFO
Date: 11/6/02	Date: 11/5/02

GTx, INC.
DETAIL OF CLEAN ROOM
CONSTRUCTION EXPENSES
CLEAN ROOM LOCATED ON THE FIRST FLOOR OF THE VAN VLEET BUILDING,
3 NORTH DUNLAP STREET

VENDOR	ITEM	INVOICE NUMBER	AMOUNT	
Clean Rooms West	Clean room construction and HVAC	18593	$10,303.94	
Clean Rooms West	Clean room construction and HVAC	18594	1,251.00	
Clean Rooms West	Clean room construction and HVAC	18510	73,657.55	
Clean Rooms West	Clean room construction and HVAC	17377	9,329.05	$ 94,541.54
Steris	Autoclave-sterilizer	101305900	53,648.99	
Steris	Autoclave-sterilizer	101451916	3,861.28	
Steris	Autoclave-sterilizer	101627455	506.37	
Steris	Autoclave-sterilizer	101625106	2,680.81	
Steris	Autoclave-sterilizer	101694378	3,289.97	63,987.42
Quality Cryogenics	Special piping for liquid nitrogen	3552	1,500.00	
Quality Cryogenics	Special piping for liquid nitrogen	6229	4,580.00	
Quality Cryogenics	Special piping for liquid nitrogen	6228	8,603.00	14,683.00
White Plumbing	Piping for gases	3107	5,032.00	5,032.00
Nexair	Gas manifolds	542767	918.11	
		553743	125.57	
		553737	1,266.53	
		534143	1,742.30	
		534131	5,265.70	
		502403	7,704.05	
		594376	68.78	17,091.04
Pure Water Solutions	Sterilizer Feed Water System	64381	3,072.14	3,072.14
	Total Clean Room Costs Incurred by GTx, Inc.			$ 198,407.14

SUBLEASE AMENDMENT NUMBER 4

This Amendment Number 4 is to the sublease between Tristar Enterprises, Inc., a Tennessee nonprofit corporation ("Sublessor")and GTx, Inc., a Tennessee corporation ("Sublessee") signed on October 1, 200l.

A copy of the sublease, signed on October 1, 2000, a copy of the original Sublease Amendment, a copy of Sublease Amendment Number 2, and a copy of Sublease Amendment Number 3 are attached to this Sublease Amendment Number 4.

1. The Sublessor hereby subleases unto the Sublessee those premises with the appurtenances thereto situated in the State of Tennessee, County of Shelby, City of Memphis, located at 3 North Dunlap Street, more particularly described as follows:

   Effective September 1, 2003, approximately 3 10 rentable square feet of office space located on the First Floor of the Van Vleet Building, Rooms C127 and C129.

2. The Sublessee shall pay annual rent of $3,410.00 ($11 per square foot) payable in installments of $258.80 per month for the office space.

3. All other terms remain unchanged.

In witness whereof, this Sublease Amendment Number 4 has been executed by the parties as indicated below:

TRISTAR ENTERPRISES, INC.	GTx, INC.
By: /s/ Robert L. Palmer ----------	By: /s/ Mark E. Mosteller ----------
Name: Robert L. Palmer	Name: Mark E. Mosteller
Title: President & CEO	Title: Chief Financial Officer
Date: 8/11/03	Date: 8/11/03

SUBLEASE AMENDMENT NUMBER 5

This Amendment Number 5 is to the sublease between Tristar Enterprises, Inc., a Tennessee nonprofit corporation ("Sublessor")and GTx, Inc., a Tennessee corporation ("Sublessee")signed on October 1, 2000,

1. The Sublessor hereby subleases unto the Sublessee those premises with the appurtenances thereto situated in the State of Tennessee, County of Shelby, City of Memphis, located at 3 North Dunlap Street, more particularly described as follows:

   Effective September 1, 2003, approximately 831 rentable square feet of office space located on the Second Floor of the Van Vleet Building, Rooms S201, S202, S203, S205, and S206.

2. The Sublessee shall pay annual rent of $9,141.00 ($11 per square foot) payable in installments of $761.75 per month for the office space.

3. All other terms remain unchanged.

In witness whereof, this Sublease Amendment Number 5 has been executed by the parties as indicated below:

TRISTAR ENTERPRISES, INC.	GTx, INC.
By: /s/ Robert L. Palmer	By: /s/ Mark E. Mosteller
Name: Robert L. Palmer	Name: Mark E. Mosteller
Title: President & CEO	Title: Chief Financial Officer
Date: 8/5/03	Date: 8/7/03

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

EXHIBIT 10.15

TOREMIFENE LICENSE AND SUPPLY AGREEMENT

BY AND BETWEEN

ORION CORPORATION

ESPOO, FINLAND

AND

GTX INC.,

TENNESSEE, U.S.A.

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AMENDED AND RESTATED LICENSE AND SUPPLY AGREEMENT

THIS AMENDED AND RESTATED LICENSE AND SUPPLY AGREEMENT (this "Agreement") is entered into and made effective as of this 22nd day of October, 2001 (the "Amendment Date") by and between ORION CORPORATION, a corporation organized and existing under the laws of Finland and having its principal office at Orionintie 1 FIN-02200 Espoo, Finland ("Orion"), and GTX INC., (fka Genotherapeutics, Inc.) a corporation organized and existing under the laws of the State of Tennessee, U.S.A. and having its principal office at 3 North Dunlap Avenue, Van Vleet Building, Third Floor, Memphis, Tennessee 38163, USA ("GTX").

WHEREAS, Orion and GTX entered into a Toremifene License and Supply Agreement effective as of March 30, 2000 (the "Effective Date"), to govern the Parties' rights and obligations with respect to the research, development, commercialization and manufacture of Product (as defined in said agreement) (the "Original Agreement");

WHEREAS, the Parties desire with this Agreement to supercede the Original Agreement as of the Amendment Date to provide that GTX shall have the sole responsibility for researching, developing, registering and commercializing the Product (as defined below) within the Field (as defined below) worldwide, and that Orion shall have no monetary or other responsibilities for researching, developing, registering and commercializing Product, but shall remain responsible for manufacturing Orion Product (as defined below), as agreed herein;

NOW THEREFORE for and in consideration of the mutual covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, Orion and GTX (hereinafter individually a "Party"; and collectively the "Parties") hereto agree as follows:

1. DEFINITIONS

For purposes of this Agreement, the following terms shall be defined as set forth below. Additional terms used in specific Sections of this Agreement shall be defined in such Sections.

1.1 "AFFILIATE" shall mean any business entity controlled by a Party, or which controls a Party, or which is under common control with a Party. "Control" herein means the direct or indirect ownership of more than fifty percent (50%) of the authorized issued voting shares in such entity, or such other relationship as in fact legally results in effective control over the management, business and affairs of such entity or Party, as the case may be.

1.2 "ANNUAL NET SALES" shall mean Net Sales (as defined below) in any calendar year.

1.3 "CALENDAR QUARTER" shall mean each of the three (3) month periods beginning on January 1, April 1, July I and October 1 of each year during the Term (as defined below).

1.4 "COMPETING PRODUCT" shall mean any pharmaceutical product containing an anti-estrogen and/or a SERM as a therapeutically active ingredient as well as any salt thereof, which product is licensed, sold and/or marketed for use in the Field, including, but not limited to, other dosage forms licensed, sold and/or marketed for use in the same Field as the Product. Competing Product does not include Orion Product, its Affiliate or subcontractor, but includes any generic form of the Product.

1.5 "DMF" shall have the meaning provided in Section 7.4.

1.6 "FIELD" shall mean the prevention and treatment of prostate cancer, which shall mean for purposes hereof: preventing prostate carcinogenesis; suppressing or inhibiting prostate cancer; reducing the risk of developing prostate cancer; increasing the survival rate of a subject with prostate cancer; and treating prostate cancer.

1.7 "FIRST COMMERCIAL SALE" means in each country, the date the Product is first sold, marketed, or publicly made available for sale for use in the Field by GTX, its Affiliate or a GTX Unaffiliated Sublicensee. Product for use in the Field, distributed or used for clinical trial purposes shall not be considered sold, marketed or made publicly available for sale and shall not constitute First Commercial Sale.

1.8 "GENERIC PRODUCT" shall mean a generic pharmaceutical product for human use containing Toremifene as an active ingredient and which can be substituted by the prescriber or dispenser for a Product for use in the Field.

1.9 "GTX FINAL DEVELOPMENT AND REGISTRATION PLAN" shall mean the final product development and registration plan for each Product in the Field prepared by GTX, its Affiliate or a GTX Unaffiliated Sublicensee, as the same may be modified from time to time pursuant to Section 7.3.

1.10 "GTX KNOW-HOW" shall mean such non-patented and unpublished non-clinical, pre-clinical and clinical documentation, information, and data including information and data in the US IND [*] relating to the use of any anti-estrogen and/or SERM in the Field, that is owned or controlled by, and disclosable by and available to, GTX and its Affiliates as of the Effective Date or at any time during the Term, including but not limited to all registration materials for the Product developed, acquired or compiled by GTX and/or its Affiliates as of the Effective Date or at any time during the Term, and all non-patented and unpublished documentation, information and data relating to the formulation, manufacture and/or quality control of the Product that is owned or controlled by GTX and/or its Affiliates as of the Effective Date or at any time during the Term.

1.11 "GTX PATENTS" shall mean the patents issued from GTX Patent Applications as of the Effective Date and other patents owned or controlled by GTX and its Affiliates that are issued at any time during the Term and that relate to the manufacture, sale or use of any anti-estrogen and/or SERM for use in the Field (including any divisions, continuations, continuations-

in-part, re-examinations, reissues, additions, renewals and extensions thereof). GTX Patents in existence as of the Effective Date are set forth in Part I of Schedule A.

1.12 "GTX PATENT APPLICATIONS" shall mean patent applications of GTX and/or its Affiliates pending as of the Effective Date and patent applications owned or controlled by GTX and/or its Affiliates that are filed at any time during the Term, in each case that relate to the manufacture, sale or use of any anti-estrogen and/or SERM for use in the Field (including any divisions, continuations, continuations-in-part, re-examinations, reissues, additions, renewals and extensions thereof). GTX Patent Applications in existence as of the Effective Date are set forth in Part II of Schedule A. For purposes of this Agreement, the Parties acknowledge that GTX Patent Applications shall include patent application U.S. Serial No. [*] which claims the use of Product in the Field, which application is in the name of and owned by The University of Tennessee Research Corporation. GTX represents and warrants that it has acquired sufficient rights and licenses from The University of Tennessee Research Corporation to said application for the purpose of performing its obligations under this Agreement.

1.13 "GTX PATENT RIGHTS" shall mean GTX Patents and GTX Patent Applications.

1.14 "GTX PRELIMINARY DEVELOPMENT AND REGISTRATION PLAN" shall mean the preliminary product development plan for the development of the Product in the Field prepared by GTX which has been provided to Orion prior to Effective Date, and which was attached to the Original Agreement.

1.15 "GTX TERRITORY" shall mean all countries or territories worldwide.

1.16 "GTX UNAFFILIATED SUBLICENSEE" shall mean any sublicensee of GTX other than a GTX Affiliate. For avoidance of doubt, Orion shall not be a GTX Unaffiliated Sublicensee.

1.17 "MAJOR COUNTRY" shall mean the United States of America including its fifty states, the District of Columbia, Puerto Rico, and all other USA territories and possessions ("USA"), Canada, Japan, Great Britain, France, Germany, Spain and Italy.

1.18 "MANUFACTURING PATENTS" shall have the meaning provided in Section 7.6.

1.19 "NET SALES" shall mean the invoiced gross sales of the Product to a Third Party which is not a GTX Unaffiliated Sublicensee, less: (A) credits and allowances or adjustments (consistent with generally accepted accounting principles), granted to such customers on account of rejections, recalls or returns of the Product previously sold; (B) any customary and reasonable trade and cash discounts, rebates, including government rebates, granted in connection with sale of Product to such customers; (C) sales, tariff duties and/or use taxes directly imposed and with reference to particular sales; and (D) outbound transportation prepaid or allowed, amounts allowed or credited on returns, export licenses, import duties, value added tax, and prepaid freight.

1.20 "NORTH AMERICAN TERRITORY" shall mean (i) the USA (ii) Mexico, and (iii) Canada.

1.21 "ORION KNOW-HOW" shall mean such non-patented and unpublished non-clinical, pre-clinical and clinical documentation, information, and data relating to the Orion Product that is owned or controlled by, and disclosable by and available to, Orion and its Affiliates as of the Effective Date or at any time during the Term which is necessary for the development by GTX of Product for use in the Field (including without limitation filing an application for Regulatory Approval for the Product for use in the Field), including information and data in U.S. NDA [*] relating to the Orion Product, registration materials for the Orion Product, documentation, information and data relating to the formulation and/or quality control of the Orion Product. Except as otherwise provided in Sections 7.6, 13.9, 15.1, 16.3.2, 16.4 and 20.2, Orion Know-How shall exclude information relating to Orion's manufacture of Toremifene (as defined below) and Orion Product (as defined below).

1.22 "ORION PATENTS" shall mean the patents owned or controlled by Orion that are directed to the compound Toremifene per se, and relate to the use or sale of Toremifene and all other patents issued from Orion Patent Applications during the Term (including any divisions, continuations, continuations-in-part, re-examinations, reissues, additions, renewals and extensions thereof). Orion Patents in existence as of the Effective Date are set forth in Part I of Schedule B. Schedule B shall be amended by Orion from time to time during the Term to include future Orion Patents.

1.23 "ORION PATENT APPLICATIONS" shall mean patent applications owned or controlled by Orion and its Affiliates that are pending as of the Effective Date, and patent applications owned or controlled by Orion and its Affiliates that are filed at any time during the Term, in each case that are directed to the compound Toremifene per se and relate to the use or sale of Toremifene (including any divisions, continuations, continuations-in-part, re-examinations, reissues, additions, renewals and extensions thereof). Orion Patent Applications in existence as of the Amendment Date are set forth in Part II of Schedule C. Schedule C shall be amended by Orion from time to time during the Term to include future Orion Patent Applications.

1.24 "ORION PATENT RIGHTS" shall mean Orion Patents and Orion Patent Applications.

1.25 "ORION PRODUCT" shall mean tablets containing [*] of Toremifene respectively, that are manufactured by Orion and are commercially available as of the Amendment Date, and such other dosage strength or formulation of Toremifene as a therapeutically active ingredient as Orion may agree to manufacture pursuant to Section 16.4.

1.26 "ORION UNAFFILIATED SUBLICENSEE" shall mean any licensee or sublicensee under the Orion Patent Rights, other than an Orion Affiliate, GTX, a GTX Affiliate or a GTX Unaffiliated Sublicensee.

1.27 "PREMIUM" shall mean, with respect to an equity investment by a Third Party in GTX, an amount equal to the difference between the total consideration paid for the purchase of shares of GTX stock and the fair market value of such stock, as defined herein. Such fair market value shall be equal to either (i) if GTX has not had an initial public offering of its stock prior to the date of such investment by such Third Party, and does not conduct such a public offering concurrently with such investment, the average price per share of GTX stock offered in GTX's two (2) most recent rounds of equity financing, multiplied by the number of shares of GTX stock

issued to such Third Party investor, also on an as-warranted basis, or (ii) if GTX has had an initial public offering of its stock prior to the date of such investment by such Third Party, or is then conducting such a public offering concurrently with such Third Party investment, the trading price of a share of GTX common stock on the date such Third Party investment is made (or, if such date is not a trading day, the price of a share of GTX common stock on the most recent trading day prior to the date of such investment, and if such Third Party investment occurs concurrent with the initial public offering, then the price per share at which stock is offered to the public), multiplied by the number of shares issued to such Third Party investor.

1.28 "PRODUCT" shall mean any pharmaceutical product for human use within the Field containing Toremifene as a therapeutically active ingredient.

1.29 "REGULATORY APPROVAL" shall mean all governmental approvals required to import, market, promote and sell the Product for use in the Field in any given country or territory in the GTX Territory, including but not limited to, product registrations, medical approvals and price and marketing approvals.

1.30 "ROW TERRITORY" shall mean the GTX Territory except the North American Territory and Japan.

1.31 "SALES OF GENERIC PRODUCT" shall mean the documented sale and use of a Generic Product.

1.32 "SPECIFICATIONS" shall mean the current specifications (as of the Amendment Date) for the Orion Product, as such specifications are, with regard to [*] containing Toremifene, set forth in the Orion NDA [*] approved by the U.S. FDA, and with regard to [*] and [*] tablet of Orion Product set forth in Schedule C (Copies of such current specifications are set forth in Schedule C attached hereto and made a part hereof.) The Specifications shall also include any other modified or additional specifications applicable to Orion Product which may be manufactured by Orion, pursuant to Section 16.3 or 16.4. Schedule C may be amended from time to time as necessary to reflect modifications to the Specifications that may be implemented pursuant to Section 16.3 or to include Specifications for any Other Product that Orion may agree to manufacture pursuant to Section 16.4.

1.33 "TERM" shall mean the period commencing on the Amendment Date and continuing, on a country by country basis until the date of expiration or invalidation of the last to expire or be invalidated of the GTX Patent Rights, subject to earlier termination under Section 20 as provided herein.

1.34 "THIRD PARTY" or "Third Parties" shall mean any party or parties other than GTX, Orion, an Affiliate of GTX, or an Affiliate of Orion.

1.35 "TOREMIFENE" shall mean [*].

1.36 "TRADEMARKS" shall mean the trademarks GTX selects and registers for the Product in the Territory in accordance with Section 9 of this Agreement.

1.37 "U.S. FDA" shall mean the United States Food and Drug Administration and any successor regulatory agency.

1.38 "U.S. IND" shall mean an Investigational New Drug Application filed with the U.S. FDA.

1.39 "U.S. NDA" shall mean a New Drug Application filed with the U.S. FDA.

1.40 "UPFRONT AND MILESTONE INCOME" shall have the meaning provided in Section 3.1.1(c).

1.41 "VALID CLAIM" shall mean a claim of an issued patent which has not expired and which has not been held revoked, invalid or unenforceable by decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed with the time allowed for appeal having expired, and which has not been admitted to be invalid through reissue or disclaimer or otherwise.

2. GRANT AND SCOPE OF RIGHTS GRANTED

2.1 ORION GRANTS TO GTX

2.1.1 License Grants. Orion hereby grants to GTX:

(I) an exclusive right and license, with the right to grant sublicenses as provided in Section 2.1.4, under Orion Patent Rights and Orion Know-How, to develop, use, have used, sell, have sold, import, market and distribute the Product in the North American Territory and in Japan in the Field;

(II) a non-exclusive right and license, with the right to grant sublicenses as provided in Section 2.1.4, under Orion Patent Rights and Orion Know-How, to develop, use, have used, sell, have sold, import, market and distribute the Product in the ROW Territory for exclusive use in the Field;

(III) a non-exclusive license, under the Orion Patents and Orion Know-How, to perform research and preclinical development activities in accordance with Section 2.5 using the Powder (as defined in Section 13.6.2) to be provided to GTX pursuant to Section 13.6.2; and

Licenses under Sections 2.1.1 (i) and (ii) may be expanded to include the right to make and have made Products as provided in Sections 7.6, 13.9, 15.1, 16.3.2, 16.4 and 20.2.2 on such terms as are set forth in such Sections.

For the avoidance of doubt, nothing herein shall limit or restrict or be construed to limit or restrict Orion from using, and GTX acknowledges that Orion may use Toremifene and Product as a reference compound and/or product in its R&D and business activities.

2.1.2 MANUFACTURING RIGHTS RESERVED. Except as otherwise provided in Sections 7.6, 13.9, 15.1, 16.3.2, 16.4 and 20.2.2, Orion retains the exclusive right to manufacture

or have manufactured Toremifene, Orion Product and Product including, without limitation, any Toremifene and Orion Product to be supplied to GTX under this Agreement and subject to Sections 7.6, 13.9, 15.1, 16.3.2, 16.4 and 20.2.2 herein, during the Term GTX undertakes to purchase all its requirement of Product exclusively from Orion.

2.1.3 USE OF ORION KNOW-HOW. Under the licenses granted pursuant to Sections 2.1.1 (i)-(ii), GTX shall, subject to the terms and conditions of this Agreement, including without limitation Section 8, have the right to use and reference Orion Know-How in support of GTX's clinical trials and applications for Regulatory Approval within the Field for the Product in the GTX Territory. Subject to the license rights granted hereunder, Orion retains full ownership rights to all Orion Know-How.

2.1.4 SUBLICENSING. GTX shall have the right to sublicense its rights received under this Agreement in the GTX Territory to any Third Party, provided that GTX shall notify Orion within fifteen (15) days after execution of an agreement between GTX and a GTX Unaffiliated Sublicensee. GTX shall endeavor to include in its agreement with each GTX Unaffiliated Sublicensee a provision stating that, upon termination of this Agreement, such Sublicensee and Orion shall discuss, and as appropriate, negotiate the terms and conditions under which Orion and such sublicensee would be willing to collaborate with regard to the further development and/or commercialization of the Product for use in the Field in which GTX and such sublicensee were previously developing and/or commercializing Products, provided that any such further development and/ or commercialization of the Product by Orion and such sublicensee shall be subject to and conditioned by a definite written agreement, if any, accepted and signed by duly authorized representatives of Orion. GTX shall forward to Orion a complete copy of each sublicense agreement. No sublicense shall relieve GTX of any of its obligations or commitments under this Agreement and GTX shall cause its Affiliates and GTX Unaffiliated Sublicensees to comply with all of GTX obligations and commitments under this Agreement.

GTX shall remain jointly and severally liable to Orion with its Affiliate(s) and GTX Unaffiliated Sublicensee(s) that obtain a sublicense under the licenses granted to GTX pursuant to Section 2.1.1 for performance of GTX's obligations under this Agreement. GTX shall be responsible for complying and ensuring that such of its Affiliates and GTX Unaffiliated Sublicensees, as applicable, comply with all relevant laws, regulations and requirements relating to the importation, packaging, distribution, marketing, promotion, sale and use of Product in the GTX Territory.

Orion shall have the right to propose to GTX one or more potential sub-licensees for the Product for use in the Field in Japan, South Korea and China (including, for the purpose of this Agreement, the People's Republic of China and Taiwan). GTX shall consider such proposal(s) in good faith when appointing a sub-licensee for the Product for use in the Field for Japan, South Korea and China. After the Amendment Date, Orion may disclose to its current licensee for Toremifene in the breast cancer field in the USA, Japan, South Korea and China the existence of this Agreement and the fact that it pertains to the development and commercialization of Toremifene in the Field, [*].

2.1.5 GTX RIGHTS OF FIRST NEGOTIATION

(A) Orion grants GTX, on a country by country basis, the right of first negotiation to negotiate further agreements under commercially reasonable terms and conditions regarding the further development, registration, promotion, marketing, sales and distribution of a pharmaceutical product for human use within the Field containing anti-estrogens and/or SERMs, including analogs, metabolites, and/or derivatives thereof, as the active ingredient (a) which is covered by a Valid Claim within the GTX Patent Rights in such country; and (b) for which Orion has both a license or other right to develop and commercialize such products and within five (5) years after the Amendment Date, Orion has commenced Phase I clinical trials for such product anywhere in the world for a primary indication falling within the Field (a product fulfilling (a) and (b), hereinafter referred to as "Additional Product"). Within thirty (30) days after GTX's receipt in writing of a first offer from Orion regarding commercially reasonable terms and conditions for obtaining rights in and to such Additional Product, GTX shall notify Orion in writing if it wishes to enter into negotiations with respect to such Product. Should GTX elect to exercise such right, the Parties agree to negotiate in good faith the commercially reasonable terms and conditions for a letter of intent to be completed within ninety (90) days of receipt by Orion of such notification from GTX Any deadlines may be extended by mutual written agreement. Should GTX fail to provide written notification to Orion by the end of the thirty (30) day period, or GTX notifies Orion that it does not wish to enter into negotiations; or the Parties, despite conducting good faith negotiations, are unable to finalize the commercial terms of the letter of intent within the ninety day (90) period, GTX shall have no further rights in the anti-estrogens and/or SERM including analogs, metabolites, and/or derivatives thereof, and Orion shall be free to contract with a Third Party concerning same or itself pursue the development, registration, promotion, marketing, sales and distribution of such Additional Product.

(B) During the term of any Orion Patent or pendency of Orion Patent Application in the relevant country, Orion grants GTX, on a country by country basis and as set forth in this Section 2.1.5 (b), a right of first negotiation to negotiate with Orion an agreement under which GTX would, on commercially reasonable terms and conditions, develop, register, promote, market, sell and distribute pharmaceutical products containing Toremifene for use outside the Field ("Other Activities"), provided, however, that such right of first negotiation described in this Section 2.1.5(b) shall not extend to breast cancer indications.

(I) If after the Amendment Date, a Third Party (including without limitation an Orion Unaffiliated Sublicensee or a GTX Unaffiliated Sublicensee) approaches Orion in writing and indicates its desire to obtain a license and/or other rights from Orion to conduct Other Activities, or if an Orion Affiliate refers such a Third Party having such interest to Orion, then Orion shall advise such Third Party to approach GTX and discuss such Other Activity with GTX. Orion shall for a period of two hundred and ten (210) days from the date that Orion notifies GTX in writing that a Third Party has an interest in an Other Activity, refrain from granting such Third Party such license and/or other rights to conduct such Other Activities. If GTX desires to obtain a license and other support from Orion to conduct such Other Activities (alone or together with such Third Party) GTX shall notify Orion in writing thereof. If GTX so notifies Orion, then the Parties shall negotiate exclusively with each other the terms of a binding, commercially reasonable license agreement under which Orion would grant GTX a license to conduct such Other Activities and provide other related support to GTX, provided that GTX's right to conduct such Other Activity shall be subject to and conditioned by, and become effective only upon the execution by the Parties of a separate, mutually acceptable written

agreement, if any, with respect thereto. Such negotiations, if any, shall continue for up to one hundred and eighty (180) days after Orion receives such notification from GTX or until the expiry of said period of two hundred and ten (210) days, which ever is earlier (hereinafter referred to as "Negotiation Period"). If the Parties, despite conducting good faith negotiations, if any, are unable to or do not finalize and execute a binding license agreement within the Negotiation Period, then GTX shall have no rights with respect to such Other Activities, and Orion and/or its Affiliate shall have the right to conduct such Other Activities alone or together with a Third Party(ies) or grant a Third Party a license and/or other rights from Orion to conduct Other Activities without any obligation to GTX.

(II) If after the Amendment Date a Third Party (including without limitation an Orion Unaffiliated Sublicensee or a GTX Unaffiliated Sublicensee) approaches GTX or a GTX Affiliate and indicates its desire to obtain a license and/or other rights to conduct Other Activities, then GTX shall Promptly notify Orion in writing. Within thirty (30) days after GTX provides any such notice to Orion, GTX shall inform Orion if GTX desires to negotiate the terms and conditions under which GTX would be willing to obtain a license from Orion to conduct the Other Activities that are the subject of such notice. If GTX so notifies Orion of its interest, then the Parties shall negotiate exclusively with each other a letter of intent providing for the material, commercially reasonable terms and conditions under which Orion would be willing to grant GTX a license to conduct such Other Activities and provide other related support to GTX. Such negotiations shall continue for up to one hundred and eighty (180) days after Orion receives such notification from GTX. If GTX fails to provide written notice to Orion of GTX's interest in conducting such Other Activities by the end of such thirty (30) day period, or if the Parties, despite conducting good faith negotiations, are unable to finalize such a letter of intent within such one hundred and eighty (180) day period, then GTX shall have no further rights with respect to such Other Activities, and Orion shall have the right to grant to such Third Party a license and/or other rights to conduct such Other Activities without further obligation to GTX with respect to such Other Activities. If the Parties finalize a letter of intent pursuant to this subsection (ii) providing for the material terms and conditions under which GTX would obtain a license conduct Other Activities within such one hundred and eighty (180) day period, then the Parties shall promptly thereafter meet to negotiate an agreement setting forth more fully the terms and conditions contained in such letter of intent as well as other applicable terms and conditions typically contained in agreements of similar nature, provided that GTX's right to conduct such Other Activity shall be subject to and conditioned by, and become effective only upon the execution by the Parties of a separate, mutually acceptable written agreement, with respect thereto, if any, and further provided that neither GTX nor Orion shall either itself conduct such Other Activities or grant any Third Party the right to do so unless (I) GTX has provided Orion notice that it is not interested in conducting such Other Activity, or (II) GTX has failed to provided Orion with such notice of its interest in conducting such Other Activity within such thirty (30) day period, or (III) the Parties fail to agree upon the terms of a letter of intent or execute such agreement within the applicable one hundred eighty (180) day period, which ever of items (I)-(III) occur first.

(III) If after the Amendment Date Orion or an Orion Affiliate desires to initiate the conduct of Other Activities, then Orion shall promptly so notify GTX in writing. Within thirty (30) days after GTX receives any such notification from Orion, GTX shall inform Orion if GTX desires to negotiate the terms and conditions under which Orion would be

willing to grant GTX a license and other support from Orion to conduct the Other Activities that are the subject of such notice. If GTX so notifies Orion of its interest, then the Parties shall negotiate exclusively with each other on a binding, commercially reasonable license agreement under which Orion would grant GTX a license to conduct such Other Activities and Orion would provide other related support to GTX, provided that GTX's right to conduct such Other Activity shall be subject to and conditioned by, and become effective only upon the execution by the Parties of a separate, mutually acceptable written agreement, if any, with respect thereto. Such negotiations shall continue for up to one hundred and eighty (180) days after Orion receives such notification from GTX. If GTX fails to provide written notice to Orion of GTX's interest in conducting such Other Activities by the end of such thirty (30) day period, or if the Parties, despite conducting good faith negotiations, are unable to finalize and execute a binding license agreement within such one hundred and eighty (180) day period, then GTX shall have no rights with respect to such Other Activities, and Orion or its Affiliate shall have the right to conduct such Other Activities alone or together with a Third Party(ies) without any obligation to GTX. Orion shall not grant a license to any Third Party to commercialize products containing Toremifene for such Other Activities unless and until (I) GTX has provided Orion notice that it is not interested in conducting such Other Activity, or (II) GTX has failed to provide Orion with such notice of its interest in conducting such Other Activity within such thirty (30) day period, or (III) the Parties fail to execute such binding license agreement within such one hundred eighty (180) day period, which ever of items (I)-(III) occur first.

(IV) If GTX desires to conduct Other Activities, then GTX shall promptly notify Orion in writing of GTX's desire to conduct such Other Activity and the terms and conditions under which GTX would be willing to obtain a license to conduct such Other Activities and other related support from Orion, provided that any such license to GTX to conduct such Other Activity shall be subject to and conditioned by, and become effective only upon the execution by the Parties of a separate, mutually acceptable written agreement, if any ("Additional Agreement"). If GTX so notifies Orion of its interest, then the Parties shall discuss, and as appropriate, negotiate exclusively with each other with regard to an Additional Agreement for up to one hundred and eighty (180) days after Orion receives such notification from GTX. If the Parties are unable to or do not finalize and execute such Additional Agreement within such one hundred and eighty (180) day period, then GTX shall have no rights with respect to such Other Activities, and Orion or its Affiliate shall have the right to itself conduct such Other Activities or to grant to such Third Party a license and/or other right to conduct such Other Activities without further obligation to GTX with respect thereto.

(V) Any deadlines provided in this Section 2.1.5(b) may be extended by mutual written agreement of the Parties. GTX's rights under this Section 2.1.5(b) shall apply on an indication by indication basis.

2.2 NO IMPLIED LICENSES. Any rights not expressly granted by either Party to the other Party in this Agreement are expressly reserved by the Party owning or controlling such rights and, accordingly, no licenses other than those specified herein shall be deemed granted by this Agreement by implication, estoppel or otherwise.

2.3 UNITED STATES GOVERNMENT RIGHTS. In the event it is determined that any GTX Patent Rights were developed with the support of the United States Government or any agency

thereof (the "Government"), the Government will retain rights in the GTX Patent Rights as set forth in Title 35 U.S.C. Section 200 et seq. All rights herein granted to GTX are subject to any such rights held by the Government and further subject to any restrictions or obligations that may be imposed by the Government pursuant to such rights, at such time that it is determined.

2.4 ORION'S RIGHT OF FIRST NEGOTIATION.

2.4.1 Whereas Orion has considerable knowledge and experience in the marketing, sales and distribution of pharmaceutical products in, inter alia, Scandinavia (which term shall for purpose of this Section 2.4 comprise the countries of Denmark, Finland, Norway and Sweden), GTX undertakes to regard Orion as its preferential partner for the marketing, sales and distribution of the Product in Scandinavia for use in the Field. Consequently, GTX grants, and shall cause its Affiliates and Unaffiliated Sublicensees who receive a sublicense under the license granted to GTX pursuant to Section 2.1.1 in Scandinavia to grant, to Orion a right of first negotiation to negotiate in good faith an agreement(s) under commercially reasonable terms and conditions regarding the marketing, sales and/or distribution by Orion of the Product in Scandinavia for use in the Field, with the express understanding that such commercially reasonable terms and conditions shall not comprise an obligation to develop and register the Product for use in the Field in any country of Scandinavia.

2.4.2 Within thirty (30) days after Orion's receipt of a first written offer from GTX regarding commercially reasonable terms and conditions governing such rights, Orion shall notify GTX in writing if it wishes to negotiate the terms and conditions under which Orion could obtain the rights contemplated in this Section 2.4. Should Orion so exercise such right, the Parties shall negotiate exclusively with each other and in good faith the commercially reasonable terms and conditions for a license and distribution agreement for the marketing, sales and distribution by Orion of the Product in Scandinavia for use in the Field, such negotiations to be completed within one hundred and eighty (180) days from the date of Orion's notification to GTX. Any deadlines may be extended by mutual agreement upon reasonable request. If Orion fails to provide written notification to GTX by the end of the thirty (30) day period; Orion notifies GTX that it does not wish to enter into negotiations; or the Parties, despite conducting good faith negotiations, are unable to finalize the material commercial terms of agreement within such one hundred and eighty (180) day period (any such event, a "Termination of the Orion Right"), Orion shall have no further right under this Agreement to market, sell and distribute the Product in Scandinavia and GTX shall be free to offer to or enter into an agreement with any Third Party or any GTX Affiliate with respect to such activities after the Termination of the Orion Right occurs.

2.4.3 In the event that GTX's Unaffiliated Sublicensee for Product for use in the Field in the USA does not obtain the right and license to sell, have sold, import, market and distribute the Product in the Field in Europe at the time of execution of the sublicense agreement for the Product for use in the Field in the USA, then Orion shall, on the terms and conditions of Sections 2.4.1 and 2.4.2, have a right of first negotiation to negotiate in good faith an agreement(s) under commercially reasonable terms and conditions regarding the marketing, sales and/or distribution of the Product for use in the Field in Europe.

2.5 USE OF TOREMIFENE BY GTX FOR RESEARCH. Subject to Sections 2.1.1 (iii) and 13.6.2, GTX may use the Powder provided to it pursuant to Section 13.6.2 to perform stability studies and other activities with respect to Products for use in the Field that are necessary for supporting Regulatory Approval of Products or expanding the indications for Products within the Field. GTX shall, upon Orion's request therefor, provide Orion with written updates of any and all activities undertaken by or on behalf of it pursuant to this Section 2.5, and with the results thereof in reasonable detail.

2.6 PROHIBITED ACTIONS. During the Term of this Agreement, Orion shall not grant any rights to any Third Party that are inconsistent with the licenses granted to GTX pursuant to Section 2.1.1.

3. PAYMENTS

3.1 TYPES OF PAYMENTS. For the rights, privileges and licenses granted hereunder, GTX shall pay Orion in the manner provided as follows:

3.1.1 In the event GTX or its Affiliate receives Upfront and Milestone Income (as defined in Section 3.1.1(c)), GTX shall pay Orion as follows:

(A) Any Upfront and Milestone Income shall first be applied to [*] both prior to and after the Amendment Date, and also for the [*].

(B) Upon full reimbursement of such [*] pursuant to Section 3.1.1 (a), any remaining Upfront and Milestone Income (the "Net Upfront and Milestone Income") shall then be paid by GTX to Orion as follows:

(I) GTX shall pay Orion [*] of the portion of Net Upfront and Milestone Income that is [*]; and

(II) [*] of the portion of the Net Upfront and Milestone Income that is [*].

(C) For the purposes of this Agreement, "Upfront and Milestone Income" shall mean any bona fide consideration (either in cash or non-cash form) received by GTX or its Affiliate from a GTX Unaffiliated Sublicensee for sublicensing GTX's rights in and to the Product for use in the Field in the GTX Territory excluding: (i) Royalty Income (as defined in Section 3.1.4); (ii) cost of goods payments for supply of Product manufactured by Orion and supplied at the prices set forth in Section 13 herein below, or payments to reimburse GTX's fully burdened costs of manufacturing or having manufactured Product by or on behalf of GTX as permitted under this Agreement; (iii) in the form of a loan; or (iv) for the purchase of an equity interest in GTX (except to the extent such purchase price is a Premium over the fair market value of such stock, in which case the Premium, but not the portion of such price that is at the fair market value of such stock, shall be included in Upfront and Milestone Income). Notwithstanding the foregoing, if GTX receives Upfront and Milestone Income received in the form described in (ii) or (iii) [*]. For example and without limitation, if [*].

3.1.2 If GTX is Acquired prior to the first Regulatory Approval of Product for use in the Field, then GTX shall pay to Orion an amount equal to [*] or [*] of the fair market value of GTX at the time of such acquisition. "Acquired" means that GTX either (i) sells all or substantially all of its assets to a Third Party, or (ii) is merged with or consolidated or reorganized into a Third Party, or becomes a subsidiary of a Third Party, and, as a result of such transaction, the stockholders of GTX immediately prior to such transaction own less than fifty percent (50%) of the surviving parent entity.

3.1.3 For commercial sales of each Product by GTX, or its Affiliates in a country of GTX Territory commencing on the First Commercial Sale of Product, GTX shall during the Term pay Orion a running royalty in the amount of [*] of Net Sales of Product on a country by country basis, subject to the provisions of Sections 3.1.6 and 20.2.2.

3.1.4 Subject to the provisions of Sections 3.1.6 and 20.2.2, in the event GTX receives running royalty income from GTX Unaffiliated Sublicensees for sublicensing GTX's rights in and to the Product for use in the Field and/or based upon sales by GTX Unaffiliated Sublicensees of Product for use in the Field in the Territory ("Royalty Income"), GTX shall during the Term pay Orion the lesser of, on a country by country basis, either (i) [*] of such Royalty Income; or (ii) [*] of such GTX Unaffiliated Sublicensees, provided, however, that in no event shall the amounts due to Orion pursuant to this Section 3.1.4 be [*] of Net Sales of such GTX Unaffiliated Sublicensees.

3.1.5 As of December 31, 2000, an upfront license fee of [*] (the "Upfront License Fee"), was paid in full by GTX to Orion. This payment shall be creditable by GTX against fees or payments due to Orion with respect to Upfront and Milestone Income pursuant to Section 3.1.1.

3.1.6 If a Generic Product is sold in any Major Country of the GTX Territory, and, for two (2) succeeding calendar quarters the Sales of Generic Product in that country [*] of the sales of Product (calculated on a unit basis) in that country, then the royalty on Net Sales owed by GTX to Orion under Section 3.1.3 and the payments due to Orion on Royalty Income pursuant to Section 3.1.4, respectively, shall be reduced to [*] of the amount otherwise due to Orion pursuant to either Section 3.1.3 or 3.1.4, as applicable, with regard to such country with such reduction to be applicable to the immediately succeeding calendar quarter only.

3.2 NON-REFUNDABILITY. All milestone payments GTX makes to Orion pursuant to Section 3.1.1 shall be non-refundable once paid. However, if this Agreement is terminated for any reason prior to a given milestone payment becoming due or if the events specified for a given milestone payment do not occur, then GTX shall have no obligation to make such milestone payment.

3.3 ROYALTY REPORTS AND PAYMENTS. Commencing with the first Calendar Quarter in which GTX, its Affiliates or a GTX Unaffiliated Sublicensees make the First Commercial Sale of the Product, GTX shall provide Orion with a written report of Net Sales and Royalty Income on a country-by-country basis within forty-five (45) days after the last day of March, June, September and December for Royalty Income accruing on Net Sales during the three (3)

preceding calendar months. Concurrently with the submission of each such written report, GTX shall pay or cause to be paid to Orion the total amount of royalties shown to be due thereon.

3.4 CURRENCY. GTX shall make all Upfront and Milestone Income and royalty payments to Orion pursuant to Section 3.1 in U.S. Dollars except that GTX shall make all cost of goods payments to Orion pursuant to Section 13 in euros. Where royalty payments are made, payments earned shall be first determined by GTX in the currency of the country where the Net Sales on the sales giving rise to payments were made and then converted directly to its equivalent in U.S. dollars. The rates of exchange for converting the currencies involved to U.S. dollars shall be the Foreign Exchange Rates quoted in the Wall Street Journal rate on the last business day of the quarterly period in which the royalty payments were earned.

3.5 NO ROYALTIES PAYABLE BETWEEN AFFILIATES. No royalties shall be payable to a Party on sales between the other Party, its Affiliates or between the Party's Affiliates.

3.6 NO MULTIPLE ROYALTIES. No multiple royalties shall be payable because the Product, its manufacture, use or sale is or shall be covered by multiple patents.

4. LIAISON

Representatives of the Parties shall meet bi-annually or as otherwise agreed to review development, sales and marketing activities for the Product for use in the Field in the GTX Territory, with the exact dates and locations of such meetings to be mutually agreed upon. Such meetings shall alternate between GTX's and Orion's offices or be at other mutually agreed upon locations, with each Party to be responsible for the travel and living costs and expenses of its own representatives attending such meetings.

5. PAYMENT, RECORD KEEPING AND AUDIT RIGHTS

5.1 METHOD OF PAYMENT. In the event of any required tax withholding, the paying Party will provide the receiving Party with any relevant certificates or documents required for national, state or local tax credit and reporting purposes. Payments hereunder shall not be creditable against any other amounts payable by a Party under this Agreement, except as otherwise expressly stated herein. All payments shall be made by bank wire transfer (e.g., "SWIFT" or other comparable electronic transfer method) to such account(s) as the receiving Party shall designate beforehand in writing to the paying Party. Payments shall be deemed paid once funds are freely available to the receiving Party at such account(s).

5.2 LATE PAYMENTS. The Party entitled to payment hereunder reserves the right to charge the paying Party interest on any amounts owing from the paying Party which are overdue by more than fourteen (14) business days at a rate of [*] per annum, or the maximum rate allowed by law, whichever is lower, calculated from the date any payment was due and payable.

5.3 RECORD KEEPING AND AUDIT RIGHTS. Each Party shall keep or cause to be kept accurate records relating to Net Sales, royalties, development and any other costs and expenses subject to payment, deduction or reimbursement by either Party to the other Party in sufficient detail to enable the amounts payable hereunder to be determined. Upon the written request of either Party (but not more frequently than once in any calendar year), the requesting Party may

retain an independent certified public accountant, subject to approval by the other Party (which approval shall not be unreasonably withheld), to review such records to verify the accuracy of the payments made or payable hereunder. Such accountant shall be required to execute a confidentiality agreement in a form reasonably acceptable to the audited Party and shall report to the auditing Party only the amount of any underpayment or overcharge. Within ten (10) business days after completion of such review, the Parties shall reconcile any underpayment or overcharge. The auditing Party shall pay the cost of any review of records conducted at its request under this Section. However, if the review establishes underpayment or overcharge by the audited Party of over three percent (3%) during the period of the review, the audited Party shall promptly reimburse the auditing Party for the fees and expenses of the accountant. Such audit rights may be exercised by the Parties only with respect to records for the current calendar year and the preceding two (2) calendar years.

6. GTX PRODUCT MARKETING AND SALES ACTIVITIES

6.1 MINIMUM SALES REQUIREMENTS FOR USA.

6.1.1 LEVELS OF MSRS. GTX shall have annual minimum sales requirements for Product for use in the Field ("MSRs") in the second year and fourth year after Product Launch in the USA equal to [*] of GTX's annual Product Sales Projections (as defined below) in the USA. To establish such projections for the purpose of the foregoing sentence, GTX shall provide to Orion annual Product Sales Projections in the USA within ninety (90) days after GTX, its Affiliate or Unaffiliated Sublicensee completes the last pivotal clinical trial as provided in the GTX Final Development and Registration Plan for Product in the USA. The Parties shall set forth in Schedule D GTX's MSR obligations within sixty (60) days after GTX provides such projections, and such MSRs shall be made a part hereof. Beginning with the [*] year after Product Launch in USA for use in the Field until the end of the Term, GTX shall have an annual MSR equal to [*] of the average of GTX's Actual Product Sales (as defined below) in the USA for Product in the Field for the [*]. "Product Sales Projections" means GTX's good faith estimates of the target patient population in a given year for Products in the Field, multiplied by the price per tablet of Product for use in the Field that GTX plans to be able to charge during the [*] after Product Launch. "Actual Product Sales" means GTX's, its Affiliate's or a GTX Unaffiliated Sublicensee's actual Net Sales of Product in the Field during a given year in the USA.

For example, in year [*] if the target patient population is [*] subjects in the Field and the Product would be consumed [*] for the Field at a hypothetical price of [*], GTX's Product Sales Projections would [*]. The hypothetical price for a tablet set forth above is hypothetical and was only used for the sole purpose of explaining the mechanism for calculating the Product Sales Projections and MSRs. Nothing contained in such example shall be so construed to deny the right of GTX to freely set its resale price of the Product.

6.1.2 PRODUCT LAUNCH DATE. "Product Launch in USA" shall be determined by the date on which the Product has received Regulatory Approval and is commercially available in the USA as follows: (i) if such date occurs during the first six (6) months of any calendar year (i.e., January 1-June 30), Product Launch in USA shall be deemed to have occurred on January 1 of such calendar year, and (ii) if such date occurs during the last six (6)

months of any calendar year (i.e., July 1-December 31), Product Launch in USA shall be deemed to have occurred on January 1 of the following calendar year.

6.1.3 ADJUSTMENT. GTX's annual Product Sales Projections for the Field in the USA shall be subject to adjustment by written agreement of the Parties, with a corresponding adjustment in the MSRs, in the event of government intervention in given markets (including, but not limited to, government mandated health care reforms, rebates or regulatory changes), failure to obtain (or delay in obtaining) approval for a Product indication in the Field, or other events or causes affecting the market for the Product for use in the Field beyond the control of GTX, including but not limited to lower than anticipated pricing approvals measured on an aggregate basis throughout USA; GTX Patent Rights and/or Orion Patent Rights invalidation, infringement or expiration; Product safety and/or efficacy issues and/or major therapeutic advances materially affecting the market potential for the Product for use in the Field (including but not limited to new surgical procedures or introduction of new competitive products with superior safety and/or efficacy profiles); or a Force Majeure event (as described in Section 26).

6.1.4 FAILURE TO ACHIEVE MSRS. If GTX's annual Product Sales in USA for the Field are less than the MSRs in any applicable calendar year, GTX shall, without prejudice to its payment obligations under Section 3.1, pay Orion royalties corresponding to the "shortfall" between the actual royalties paid by GTX for such year and the royalties which would have been payable pursuant to Section 3.1 had GTX achieved the MSRs during such year. GTX's payment of such "shortfall" hereunder shall be Orion's sole and exclusive remedy for GTX's failure to achieve MSRs in USA for such year. However, if GTX fails to pay such "shortfall," then Orion may, without prejudice to its right to such shortfall, also terminate this Agreement pursuant to Section 20.2.2.

6.2 NO MINIMUM SALES REQUIREMENTS OUTSIDE OF USA. GTX shall not have any MSRs with respect to sale of the Product in any countries in GTX Territory outside of the USA.

6.3 MARKETING AND SALES EFFORTS IN THE MAJOR COUNTRIES

6.3.1 COMMERCIALLY REASONABLE OBLIGATION. On a country by country basis, subject to Sections 6.3 and 6.4, during the period commencing with Regulatory Approval in a Major Country, and for the remainder of the Term, GTX, its Affiliate and/or a GTX Unaffiliated Sublicensee shall use commercially reasonable efforts to promote, market, distribute and sell the Product for use in the Field in the Major Countries. For purposes of this Section 6.3, "commercially reasonable" shall mean using, in each of the Major Countries, an equivalent degree of effort as GTX, its Affiliate or a GTX Unaffiliated Sublicensee would use to promote, market, distribute and sell a product of it own that is of comparable market potential in the respective Major Countries during the same time period (as determined by consideration of, without limitation, potential market, patent protection, and availability of competitive products), including but not limited to, engaging in the following activities (subject to any applicable U.S. FDA restrictions or other applicable legal restrictions):

(A) Using reasonable diligence to establish and maintain good business relationships with hospitals, health systems, doctors and other medical professionals in accordance with standard and customary practices in the Major Countries;

(B) Using commercially reasonable efforts to establish and maintain an adequate capacity of sales personnel consisting of reasonably qualified personnel who have been certified, as trained by GTX, its Affiliate or a GTX Unaffiliated Sublicensee, to promote and market the Product for use in the Field in the Major Countries, and to provide such sales force with adequate sales and promotional materials for the Product;

(C) Promoting and detailing the Product for use in the Field throughout the Major Countries, provided that GTX, its Affiliate or a GTX Unaffiliated Sublicensee may, in its discretion use relatively greater promotional and detailing efforts (i) in some Major Countries than it uses in other of such countries, and (ii) in some parts of each Major Country than in other parts thereof, consistent with its overall marketing plan; and further provided, however, that the foregoing shall in no event be deemed to limit GTX's its Affiliate or a GTX Unaffiliated Sublicensee overall obligations under the first paragraph of this Section 6.3.1.

(D) Advertising the Product for use in the Field in professional journals and publications and sponsoring or attending appropriate symposia, trade exhibitions and medical education programs in a manner equivalent to that used for GTX's, its Affiliate's or a GTX Unaffiliated Sublicensee's, as applicable, own products of comparable market potential in such Major Country; and

(E) Formulating and using reasonable efforts to implement annual sales and marketing plans for the Product for use in the Field in the Major Countries and providing copies of such plans to Orion for review and comment, provided that Orion shall not have approval rights with respect to such plans.

6.3.2 SALES OBJECTIVES AND OTHER FACTORS FOR THE USA. GTX and Orion shall agree in writing upon annual target sales objectives for the Product for use in the Field in the USA, commencing with the fourth calendar year after First Commercial Sale of the Product for use in the Field in the USA, provided that such annual target sales objectives shall not be considered MSRs for any purposes, but instead shall be used by the Parties for informational and planning purposes and shall be one (1) factor, among others, to be considered in assessing whether GTX has complied with its commercially reasonable obligations hereunder. GTX's level of sales and marketing expenses for the Product for use in the Field in the USA and events or causes affecting the market for the Product for use in the Field beyond the control of GTX shall also be among the factors to be considered in assessing whether GTX has complied with its commercially reasonable obligations hereunder.

6.4 PRODUCT LAUNCH

6.4.1 TIMING OF LAUNCH. GTX shall use commercially reasonable efforts to launch the Product for use in a given indication in the Field as soon as practical in every Major Country of the GTX Territory where GTX, its Affiliates and/or GTX Unaffiliated Sublicensees have obtained Regulatory Approval for such indication. Notwithstanding the foregoing, GTX, its Affiliate or a GTX Unaffiliated Sublicensee may, acting in good faith in the exercise of its reasonable business judgment, determine either to delay the launch of the Product for use in a given indication in the Field or not to launch the Product for use in a given indication in the Field in any given country in the GTX Territory other than a Major Country, which decision to delay

or not to launch shall not be deemed a failure to use commercially reasonable efforts. Further, GTX's, its Affiliates' or a GTX Unaffiliated Sublicensee's decision to delay the launch of the Product for use in the Field in any Major Country for up to six (6) months after GTX or its Affiliates have obtained Regulatory Approval in such country, shall not be deemed a failure to use commercially reasonable efforts pursuant to Section 6.3 to the extent that GTX can demonstrate that such delay was attributable to bona fide business reasons affecting the Product.

6.4.2 DECISIONS NOT TO LAUNCH. GTX shall promptly notify Orion in writing if GTX, its Affiliate or a GTX Unaffiliated Sublicensee, as applicable, determines to delay the launch of the Product for use in a given indication in the Field in any Major Country after obtaining Regulatory Approval of Product therefor. If such decision is due to any reasons other than the potential for, or the existence of, adverse business effects in such Major Country, then such decision shall be deemed a material breach of this Agreement pursuant to Section 20.2.2 and GTX shall be subject to the provisions of such Section within thirty days (30) after GTX's decision not to launch in such Major Country.

6.5 MARKETING COSTS AND EXPENSES. Except as other-wise provided herein or as otherwise mutually agreed by the Parties, GTX, its Affiliate or a GTX Unaffiliated Sublicensee shall bear all costs and expenses connected with its marketing and sales activities for the Product for use in the Field and its performance under this Agreement.

6.6 MARKETING PLANS AND REPORTS.

6.6.1 MARKETING PLANS. GTX shall develop and provide to Orion by October 31 of each year during the Term marketing and sales plans for the Product for each Major Country for the following calendar year, commencing with the calendar year in which Regulatory Approval is obtained in each respective country. Such plans shall include the projected Annual Net Sales and the projected advertising and promotion budgets for such year, and shall not be applicable to the calculation of MSRs pursuant to Section 6.1, for which GTX shall separately provide information.

6.6.2 MARKETING AND SALES REPORTS. GTX shall provide to Orion, within forty-five (45) days after the end of each calendar year, a written marketing activities and sales report for each of the Major Countries. The report shall include at least a description of sales, marketing and promotion activities and a list of scientific conferences or other events involving the Product or its therapeutic area, accompanied by a general description of the nature and extent of GTX's participation in such conferences or events.

7. GTX PRODUCT DEVELOPMENT AND REGISTRATIONS

7.1 GTX DEVELOPMENT AND REGISTRATION ACTIVITIES.

7.1.1 GTX ACTIVITIES. In accordance with the GTX Preliminary Development and Registration Plan and the GTX Final Development and Registration Plan, GTX shall undertake development and registration activities for the Product for use in the Field in the GTX Territory, including but not limited to, conducting or sponsoring, and completing or having completed in accordance with U.S. FDA regulations and Good Clinical Practice regulations under the European Union legislation and directives requirements, all clinical studies and other

activities required for Regulatory Approval under the GTX Final Development and Registration Plan. Without limiting the provisions of Section 7.6, GTX shall use its commercially reasonable efforts to pursue such development and registration activities under the GTX Final Development and Registration Plan with the objective of filing applications for Regulatory Approval in all Major Countries throughout the GTX Territory according to the anticipated filing dates set forth in the GTX Final Development and Registration Plan timetable. GTX's Regulatory Approvals in the GTX Territory shall be owned solely by GTX.

7.1.2 ORION ACTIVITIES.

(A) Orion shall use its commercially reasonable efforts to assist GTX in obtaining and maintaining the U.S. FDA Regulatory Approval of Products and any other required Regulatory Approvals in the Major Countries of the GTX Territory relating to the manufacture, use, marketing or sale of Product for use in the Field (by providing to GTX relevant information, documents and data in its possession in relation to regulatory inquiries during the Regulatory Approval process for Products, necessary additional letters of cross-reference or authorization equivalent to those described in Section 7.4, assistance in obtaining free sales certificates, and other similar assistance).

(B) Orion shall perform any stability testing for the bulk Orion Product to be manufactured and supplied by Orion to GTX that is required by regulatory authorities in any Major Country. Such testing shall be provided at no cost to GTX, except that GTX will reimburse Orion's direct costs of performing any such stability testing that must be conducted solely for the [*] tablet of the Orion Product. Orion employees shall, at Orion's cost and expense, have the right to participate in all FDA and other regulatory agency meetings regarding the use of the Product in the Field.

(C) Orion shall have no obligation to research, develop, register, commercialize any Product or carry out any studies or testing in relation to Products, including without limitation with respect to any new or additional strength, dosage form, formulation or route of administration of the Orion Product or the Product, or provide any documentation, information or data relating to the foregoing, except as expressly provided in Section 7.1.2(a) or otherwise set forth in this Agreement, unless the Parties expressly mutually agree otherwise in writing after the Amendment Date. Other than as expressly agreed in this Agreement, Orion shall have no obligation to fund or pay for any of the costs and expenses of such activities. All studies, trials, tests, activities, documentation, data and information required by any regulatory or other governmental agency or which is necessary or useful for the research, development, registration or commercialization of the Product shall, unless otherwise expressly agreed to herein, be for the sole cost and responsibility of GTX.

7.1.3 FDA FILE. Any regulatory filings (including without limitation any DMFs that GTX may develop if it obtains the right to manufacture Product) compiled and filed by or on behalf of GTX shall remain the property of GTX, but GTX shall, upon request therefor by Orion, negotiate with Orion the terms under which GTX would provide appropriate authorization letters to relevant regulatory bodies to enable Orion to reference such regulatory filings for purposes of applying for and supporting Orion's applications for Regulatory Approval of products containing Toremifene outside the Field.

7.2 DEVELOPMENT AND REGISTRATION COSTS. Except as otherwise expressly provided in this Agreement or otherwise mutually agreed in writing by the Parties after the Amendment Date, GTX shall bear all costs and expenses related to Product registration and regulatory activities, including without limitation costs of filing, obtaining and maintaining all Regulatory Approvals throughout GTX Territory, as well as all costs and expenses for the research and development of the Product for use in the Field, provided that GTX shall not be responsible for any costs related to the manufacture of the Orion Product (except for payments that GTX must make to Orion pursuant to Section 7.1.2(b) or Section 13 (such costs collectively referred to herein as "Manufacturing Costs"). Except for the Manufacturing Costs or as otherwise expressly provided in this Section 7, Orion shall bear no responsibility for any costs or expenses related to Product registration, regulatory, research or development activities in relation to the Product.

7.2.1 DEVELOPMENT AND REGISTRATION COSTS PRIOR TO AMENDMENT DATE. The Parties agree that GTX shall, notwithstanding anything to the contrary in the Original Agreement or otherwise, also bear all costs and expenses related to Product research, development, registration, regulatory compliance and other activities relating to the development of Product that were incurred prior to the Amendment Date by GTX (excluding any Manufacturing Costs) (hereinafter referred to as "Incurred Costs"). Consequently, GTX shall forever release and discharge Orion of any and all claims that it purports to have at the Amendment Date or may have thereafter against Orion with respect to Incurred Costs.

7.3 GTX DEVELOPMENT AND REGISTRATION PLAN.

7.3.1 COMPLETION OF GTX FINAL DEVELOPMENT AND REGISTRATION PLAN. The GTX Preliminary Development and Registration Plan was attached to the Original Agreement as Schedule B. GTX will prepare a GTX Final Development and Registration Plan for each Major Country in a timely fashion upon receiving approval from the appropriate regulatory authority in each Major Country of a plan for regulatory approval in that country. Immediately upon completion of the GTX Final Development and Registration Plan for each Major Country, a copy of such Plan shall be provided to Orion.

7.3.2 ORION'S RIGHT TO COMMENT ON AND OBJECT TO PLAN. Orion shall have the right to comment on each GTX Final Development and Registration Plan for each Major Country. Additionally, Orion shall have the right to object to each GTX Final Development and Registration Plan for each Major Country to the extent such plan could reasonably be deemed to affect adversely Orion's development, commercialization, sales or registration of Orion's proprietary product Fareston(R) outside the Field or Toremifene outside the Field. GTX undertakes to change and/or amend the GTX Final Development and Registration Plan for each Major Country to the extent Orion has so objected thereto as necessary to alleviate or obviate such adverse effect. Orion shall provide GTX with such comments and/or objections within thirty (30) days from Orion's receipt of the GTX Final Development and Registration Plan.

7.3.3 CHANGES TO SUCH PLAN. GTX may modify the GTX Final Development and Registration Plan, as GTX deems necessary and consistent with Section 7.3.1, but shall notify Orion of such changes. Any changes to the GTX Final Development and Registration Plan for each Major Country shall also be subject to Section 7.3.2.

7.4 ORION DOCUMENTATION AND DATA

7.4.1 GTX ACCESS TO ORION KNOW-HOW. Orion has provided and shall continue to provide GTX with copies of the Orion Know-How, documentation, information and data listed or referenced in the GTX Preliminary Development and Registration Plan, and GTX shall be authorized to use and reference the same in its applications for Regulatory Approval and regulatory compliance activities in relation to such Regulatory Approvals. Any Product Drug Master Files ("DMFs") compiled or owned by Orion shall remain the property of Orion, but Orion shall, upon reasonable request therefor by GTX, provide appropriate authorization letters to relevant regulatory bodies in the GTX Territory within forty-five (45) days from such request to enable GTX to reference such DMFs for purposes of GTX's applications for Regulatory Approval and regulatory compliance activities in the GTX Territory as provided for in Section 7.1. For the avoidance of doubt, neither Party is obligated to disclose the contents of its DMFs to the other Party.

7.4.2 GTX ACCESS TO DATA. During the Term, Orion shall provide GTX, within forty-five (45) days of receipt of a written request from GTX specifying in detail the documentation, information and data requested, access to Orion Know-How that GTX reasonably requires for regulatory filings for the use of Product in the Field in the GTX Territory. Upon GTX's request, Orion shall provide GTX with copies of such Orion Know-How referenced in the preceding sentence only in such form and content as is available to Orion, provided that, upon Orion's request, GTX shall reimburse Orion for Orion's direct out-of-pocket cost of making such copies and providing GTX with such Orion Know-How.

GTX shall also provide to Orion quarterly reports summarizing GTX's progress under the GTX Preliminary Development and Registration Plan and the GTX Final Development and Registration Plan.

7.4.3 LETTER OF CROSS REFERENCE. Orion agrees that the Cross Reference letter dated December 10, 1999 from Orion to GTX shall remain in effect and may not be revoked by Orion unless this Agreement is terminated. During the Term, Orion shall permit GTX, its Affiliates and the GTX Unaffiliated Sublicensees to reference, and shall provide GTX with an appropriate authorization letter to enable GTX, its Affiliates and the GTX Unaffiliated Sublicensees to reference, Orion's existing U.S. NDA [*] and all other applications or filings for Regulatory Approval for Orion Products for use in the breast cancer indication and related DMFs that are identified in Schedule E hereof (hereinafter "Orion Product Approvals") for the purpose of applying for and supporting Regulatory Approval of Products for use in the Field within the GTX Territory. Orion shall update Schedule E from time to time during the Term to set forth all Orion Product Approvals and DMFs that are owned and controlled by Orion. GTX recognizes that Orion has obtained the Orion Product Approvals solely for the purpose of its proprietary product Fareston(R), and that nothing herein shall be construed so as to obligate Orion to maintain or cause to be maintained any Orion Product Approvals solely for allowing GTX, its Affiliates and/or GTX Unaffiliated Sublicensees referring thereto, provided that during the Term Orion shall not withdraw such Orion Product Approvals in the absence of commercially justifiable reasons in relation to Fareston(R).

7.4.4 All requests by GTX to Orion for documentation, information or data, as agreed herein, shall be addressed only to the attention of such person(s) as is/are designated in writing or in electronic form by Orion from time to time.

7.5 GTX REGISTRATION AND MARKETING APPROVAL APPLICATIONS. GTX, its Affiliates and/or GTX Unaffiliated Sublicensees shall have the responsibility and the right to submit registration applications for Regulatory Approval and marketing and price approval of the Product for use in the Field within the GTX Territory.

7.6 FAILURE TO FILE OR EXTEND. Orion shall have the right to terminate its obligations under Section 7.1.2(a) and its obligations to manufacture and supply to GTX Orion Product upon one hundred and twenty (120) days prior written notice to GTX, if either (I) Regulatory Approval has not been granted for the Product for use in the Field in the USA by December 31, 2007, or (II) the last Valid Claim included in the Orion Patent Rights in the USA expires (which the Parties currently anticipate to occur in 2009) or is invalidated. Any such notice hereunder shall be given no later than sixty (60) days after the occurrence of the applicable event giving rise to such right, provided that GTX shall inform Orion in writing by December 31, 2007, whether or not Regulatory Approval has been granted for the Product for use in the Field in the USA by such date. The time for Orion to provide notice to GTX of its decision to exercise its right with regard to the event described in item (I) shall be deemed to commence upon the receipt by Orion of such notice from GTX, provided that nothing shall be construed so as to prevent Orion from exercising its right with regard to the event described in item (I) if Orion finds out, either by itself or through a Third Party that Regulatory Approval has not been granted for the Product for use in the Field in the USA by December 31, 2007. Effective upon the date that GTX receives any notice from Orion pursuant to this Section 7.6 and during the Term, Orion hereby grants GTX a contingent license under the Orion Patent Rights and Orion Know-How and all other patents and patent applications owned or controlled by Orion during the Term that relate to the manufacture, use or sale of Toremifene or Orion Product ("Manufacturing Patents") to make and have made Product for use in the Field in the GTX Territory. Such license shall be exclusive with respect to Products for use in the Field and in the North American Territory and Japan, and nonexclusive with respect to Products for exclusive use in the Field in the ROW Territory. Orion shall as soon as practically possible after providing any notice to GTX pursuant to this Section 7.6 provide GTX with such then-existing manufacturing, process and quality control procedures, documentation and other relevant know-how and information to the extent reasonably necessary to enable GTX to exercise its manufacturing right pursuant to this Section 7.6 (hereinafter "Product Manufacturing Know-How"), including without limitation providing up to ten (10) person-days of technology transfer assistance at GTX's site of manufacture of Product using Orion personnel skilled in such manufacturing operations, at no charge to GTX.

At any time prior to December 31, 2007, GTX may propose to discuss whether Orion would be willing either to commit to manufacture and supply to GTX Orion Product for a certain amount of time to allow GTX to have uninterrupted supply during critical Product development or commercialization periods, or to allow GTX to locate and qualify a Third Party manufacturer of Orion Product for such purpose. Upon such request, the Parties shall promptly discuss whether or not Orion is interested in supplying GTX with such needs of Orion Product. Nothing in this

paragraph shall be deemed to require Orion to take any action or to impose an obligation for, or constitute a commitment by Orion in relation to such subject matter.

7.7 REIMBURSEMENT OF ORION COSTS. Except as provided for otherwise in this Section 7, GTX shall reimburse Orion for all costs and expenses incurred by Orion in fulfilling its obligations under this Section 7. Orion shall issue an invoice for all such reasonable costs and expenses so incurred during each Calendar Quarter and GTX shall effect payment of such invoice within thirty (30) days from the date of the invoice.

8. CONFIDENTIALITY AND PUBLICITY

8.1 CONFIDENTIALITY OBLIGATION. Each Party shall hold the other Party's Confidential Information (as defined below) of which it becomes informed in connection with this Agreement or the Original Agreement in strictest confidence and shall not disclose such Confidential Information to Third Parties or otherwise use it, except to the extent such use or disclosure is expressly permitted by the terms of this Agreement or is reasonably necessary for the performance of this Agreement.

8.2 PERMITTED DISCLOSURES. Permitted disclosures of Confidential Information hereunder include, but are not limited to: (A) disclosures to regulatory agencies to the extent required for Regulatory Approval, including but not limited to, GTX Product registrations and applications in the GTX Territory (to the extent expressly permitted hereunder), and (B) disclosures to the Parties' Affiliates, employees, agents and independent contractors (including clinical investigators, consultants and contract research organizations) who have a bona fide "need to know", and GTX Unaffiliated Sublicensees, and prospective sublicensees, provided that for such permitted disclosures under subsection (B) the disclosing Party shall obligate the recipients to maintain the confidentiality of Confidential Information under terms substantially similar to those contained in this Section 8.

8.3 CONFIDENTIAL INFORMATION. "Confidential Information" includes, but is not limited to, any information relating to the terms of this Agreement, the Original Agreement, the Product, the Orion Product, GTX Know-How, GTX Patent Rights, Orion Patent Rights, Orion Know-How, GTX Preliminary Development and Registration Plan, GTX Final Development and Registration Plan, clinical and non-clinical studies involving the Product, and all sales and marketing plans for the Product, as well as information concerning all other products and the business affairs, manufacturing processes and other activities of the disclosing Party that are designated as confidential in writing or orally disclosed, provided such oral disclosure is confirmed as confidential in writing within thirty (30) days thereafter. However, Confidential Information shall not include any information:

(A) PUBLICLY AVAILABLE INFORMATION. Which at the time of disclosure is or later comes into public domain by publication or otherwise through no fault of the receiving Party;

(B) PREVIOUSLY KNOWN INFORMATION. Which can be demonstrated by documentation or other competent proof to have been in the receiving Party's possession prior to disclosure;

(C) SUBSEQUENTLY RECEIVED INFORMATION. Which is subsequently received by the receiving Party from a Third Party who is not bound by any confidentiality undertaking to the disclosing Party or to any of its Affiliates with respect to said information;

(D) INDEPENDENTLY DEVELOPED INFORMATION. Which is independently developed by or for the receiving Party without reference to the disclosing Party's Confidential Information; or

(E) LEGALLY REQUIRED DISCLOSURES OF INFORMATION. Which is legally required to be disclosed pursuant to any statute or regulation or any judicial or administrative order including any material or information requested by the Securities and Exchange Commission or Finnish equivalent thereof to the extent that such information cannot be treated confidential.

8.4 DURATION OF CONFIDENTIALITY OBLIGATION. The confidentiality obligations of the Parties hereunder shall remain in effect during the Term and shall survive the termination or expiration of this Agreement for any reason and be effective until the later of five (5) years after such termination or expiration, or ten (10) years after the Amendment Date.

8.5 PUBLICITY AND ANNOUNCEMENTS

8.5.1 With regard to the existence and content of commercial terms and conditions of this Agreement, unless agreed upon by the Parties, neither Party shall originate any publicity, news release or other public announcement, written or oral, whether to the public press, stockholders or otherwise, relating to this Agreement or any amendment hereto, without the approval of the other Party, except as required by law, including, without limitation, provisions regarding the disclosure requirement for publicly quoted companies, and then only to the minimum extent so required, in which event such Party shall give the other Party a reasonable opportunity to review the form and content of the announcement before such legally required announcement is made.

8.5.2 GTX may originate any publicity, news release or other public announcement, written or oral, whether to the public press, stockholders or otherwise, relating to the use of the Product in the Field, provided that GTX forwards to Orion such publicity, news release or other public announcement fourteen (14) days prior to such publicity, news release or other public announcement, except as otherwise required by law or regulation. It is agreed that such publicity, news release or other public announcement does not require the approval of Orion, unless Orion considers such publicity, news release or other public announcement to (I) fall within the scope of Section 8.5.1; or (II) be misleading or incorrect, in which case Orion shall, within five (5) business days after receiving such publicity, news release or other public announcement, so notify GTX and provide written comments specifying changes that Orion reasonably believes will correct such inaccuracy, except as otherwise required by law or regulation. If requested by Orion, such publicity, news release or other public announcement shall include wording to the effect that Toremifene is a proprietary compound of Orion, and that Toremifene has been licensed by Orion to GTX for use in the Field.

9. TRADEMARKS

9.1 USE OF TRADEMARKS. GTX shall market and sell the Product for use in the Field in GTX Territory only under Trademarks selected by GTX. GTX shall not select a Trademark which is confusingly similar to the Orion trademark Fareston(R). GTX shall own and control all Trademarks excluding, for the avoidance of doubt Fareston(R). GTX shall notify Orion if GTX decides to change, alter, modify or replace the Trademark initially selected by it for the Product without the express written prior approval thereof by Orion.

9.2 TRADEMARK FILING AND MAINTENANCE. GTX shall be responsible for filing, maintaining, prosecuting and defending the Trademarks in the GTX Territory.

9.3 WORLDWIDE TRADEMARK ENFORCEMENT. GTX shall be responsible for and control Trademark prosecution, maintenance, and/or enforcement worldwide. If requested by Orion, GTX shall provide Orion with copies of all documents relating to the maintenance of the Trademark in the GTX Territory, at Orion's expense.

10. PATENT OWNERSHIP AND WARRANTIES

10.1 PATENT OWNERSHIP.

10.1.1 Subject to the license rights granted to GTX hereunder, Orion retains full ownership of all Orion Patent Rights and shall be responsible for filing, prosecuting, and maintaining Orion Patent Rights as provided for in Section 11.

10.1.2 Subject to the license rights granted to Orion hereunder, GTX retains full ownership of all GTX Patent Rights and shall be responsible for filing, prosecuting, and maintaining GTX Patent Rights as provided for in Section 11.

10.2 ORION PATENT WARRANTIES. Orion warrants and represents that, to the best of its management's knowledge as of the Effective Date,: (A) Schedule B sets forth all of the Orion Patent Rights as of the Effective Date and as of the Amendment Date which are directed to the composition of matter, use or sale of the compound Toremifene per se; (B) Orion has not and will not grant, license, convey, assign, and/or transfer to any Third Party any rights to Orion Patent Rights for use in the Field, or any rights to manufacture the Product or Toremifene for use in the Field, or other rights to any Third Party inconsistent with the licenses and other rights granted to GTX hereunder, (C) based upon Orion's reasonably diligent investigation, the Orion Patent Rights are (i) valid, in full force, and enforceable and/or (ii) there are no existing valid Third Party patents in the GTX Territory that might be infringed by the manufacture or sale of the Orion Product by Orion to GTX under this Agreement, and (D) the use and sale of Products in the Field and in the GTX Territory by GTX, its Affiliates or Unaffiliated Sublicensees pursuant to this Agreement will not, in the absence of a license from Orion, infringe any patents owned or controlled by Orion other than the Orion Patent Rights. Additionally, Orion represents and warrants to GTX that to the best of its management's knowledge as of the Amendment Date, Orion has not received any written claims from any Third Party alleging that the use of Toremifene in the Field infringes such Third Party's patent rights.

10.3 GTX PATENT WARRANTIES. GTX warrants and represents that, to the best of its management's knowledge as of the Effective Date: (A) Schedule A sets forth all of the GTX Patent Rights as of the Effective Date which cover the Product for use in the Field and that it had

full right and authority to grant to Orion and Orion Affiliate the rights granted to it under the Original Agreement; (B) subject to Section 2.1.4, GTX has not and will not grant to any Third Party any rights under the Orion Patent Rights or Orion Know-How inconsistent with GTX's licenses under this Agreement, and (C) the United States Government or any agency thereof should not exercise such rights as set forth and/or referenced to in Section 2.3, if GTX's development, registration and commercialization of the Product for use in the Field will be carried out as agreed herein and (D) (i) the GTX Patent Rights are valid, in full force, and enforceable and (ii) upon GTX's reasonably diligent investigation, there are no existing valid and enforceable Third Party patents in the GTX Territory that might be infringed by the marketing, promotion, distribution, importation, offer for sale or sale of the Product by GTX, its Affiliates and GTX Unaffiliated Sublicensees.

11. PATENT PROSECUTION AND INFRINGEMENT

11.1 ORION PATENT FILING AND PROSECUTION. Orion shall, at its sole expense, prosecute, maintain and defend Orion Patent Rights in the GTX Territory and Orion shall control all Orion Patent Rights filings and actions. Orion shall use its commercially reasonable efforts to obtain extensions in the Major Countries in the GTX Territory in which such extensions are available.

11.2 GTX PATENT FILING AND PROSECUTION. GTX shall, as its sole expense, file, prosecute, maintain and defend GTX Patent Rights in the GTX Territory and GTX shall control all GTX Patent Rights filings and actions. GTX shall use its commercially reasonable efforts to obtain GTX Patent Rights protection and commercially reasonable efforts to obtain GTX Patent Rights extensions in any countries in the GTX Territory in which such extensions are available.

11.3 NOTIFICATION OF INFRINGEMENT. The Parties shall promptly inform each other of any information that comes to their attention involving actual or apparent infringements or misappropriations of Orion Patent Rights, Orion Know-How, GTX Patent Rights, GTX Know-How, or Trademarks by any Third Party, or claims of alleged infringement made by any Third Party in the GTX Territory against Orion, its Affiliates, or Orion Unaffiliated Sublicensees, GTX, its Affiliates, or GTX Unaffiliated Sublicensees, resulting from the manufacture, importation, marketing, sale or use of the Product in the Field.

11.4 INFRINGEMENT OF THIRD PARTIES RIGHTS BY ORION. Orion shall, at its sole discretion, direct or defend in its own name and at its own expense any legal or other action or proceeding, including any settlement or negotiation, with respect to any alleged infringement of a Third Party patent or other proprietary right as a result of Orion's, its Affiliates', or Orion Unaffiliated Sublicensees' manufacture of Toremifene or Orion Product for use in the Field, excluding actions and proceedings covered by Section 11.5. During the time any such proceeding or any appeal thereof is pending, Royalty Income payable by GTX under Section 3.1 in the country in which such proceeding is pending shall be paid by GTX into an interest-bearing escrow account pending the outcome of such proceeding. Upon a favorable final resolution of such proceeding or any appeal thereof, GTX shall resume paying Orion the full royalties in such country, and all funds in such escrow account shall be paid to Orion. Upon an unfavorable final resolution of such proceeding or any appeal thereof, the funds in such escrow account shall be applied toward the damage award in such action, if any, and the balance, if any, shall be paid to

Orion. If Orion fails to defend such proceeding or discontinues the defense, all funds in such escrow account shall be returned to GTX and GTX shall have no further obligation to pay Royalty Income in such country.

11.5 INFRINGEMENT OF THIRD PARTIES RIGHTS BY GTX. GTX shall, at its sole discretion, direct or defend in its own name and at GTX's own expense in the GTX Territory any legal or other action or proceeding, including any settlement or negotiation, with respect to any alleged infringement of a Third Party patent, trademark or other proprietary right as a result of GTX's, its Affiliates', or GTX Unaffiliated Sublicensees' making, having made, importing, marketing, distributing, using or selling the Product in GTX Territory for use in the Field, excluding actions and proceedings covered by Section 11.4.

11.6 INFRINGEMENT INDEMNIFICATION.

11.6.1 ORION INFRINGEMENT INDEMNIFICATION. Orion shall indemnify, defend and hold GTX (including for purposes of this Section 11.6.1, GTX Affiliates and GTX Unaffiliated Sublicensees), its and their officers, directors, and employees, and permitted successors and assigns, harmless from and against any and all liabilities, damages, claims, demands, costs and/or expenses (including reasonable attorneys' fees) (collectively, "Losses") claimed by any Third Party in any patent or proprietary right infringement suit or action which may be brought as a result of Orion's, its Affiliates', or Orion Unaffiliated Sublicensees' manufacture of Toremifene or Orion Product, except to the extent such Losses arise out of claims for which GTX shall defend, indemnify and hold Onion harmless pursuant to Section 11.6.2, and further subject to the conditions of indemnification set forth in Section 14.7.

11.6.2 GTX INFRINGEMENT INDEMNIFICATION. GTX shall indemnify, defend and hold Orion (including for purposes of this Section Orion's Affiliates and Unaffiliated Sublicensees) its and their officers, directors, and employees, and permitted successors and assigns, harmless from and against any and all Losses claimed by any Third Party in any suits or actions relating to patent, trademark or other proprietary right infringements as a result of GTX's, its Affiliates', or GTX Unaffiliated Sublicensees' making or having made, importing, marketing, using or selling the Product or Other Product under the Trademark in GTX Territory for use in the Field, except to the extent such Losses arise out of claims for which Orion shall indemnify, defend and hold GTX harmless pursuant to Section 11.6.1, and further subject to the conditions of indemnification set forth in Section 14.7.

11.7 TERMINATION FOR INFRINGEMENT OF THIRD PARTY RIGHTS. Should either Party be prevented by reason of an adverse, non-appealable court or administrative proceeding, order or judgment or arbitral award against it from manufacturing, making, using or selling the Orion Product and/ or Product in any country within the GTX Territory as required or permitted under this Agreement, then, as to such country or territory so affected, the other Party may, upon sixty (60) days prior written notice thereof to the other Party, terminate this Agreement upon written notice to the other Party with respect to such country, and the Parties shall make a final transition accounting and settlement for outstanding bona fide costs, payments and expenses to which each Party is entitled hereunder with respect to such country.

11.8 THIRD PARTY INFRINGEMENT OF ORION PATENT RIGHTS.

11.8.1 ORION ENFORCEMENT. Orion shall have the first right but not the obligation, to commence, at its own expense appropriate measures to enforce Orion Patent Rights against infringement by Third Parties relating to the manufacture, use, sale, offer for sale, or import of products containing Toremifene for use in the Field, within a reasonable period of time after Orion becomes aware of such infringement (including, but not limited to, by notifying the infringing Third Party of such infringement and demanding that such Third Party cease and desist from such infringement) and, if such infringement does not cease, commence a legal proceeding to enforce Orion Patent Rights, if any, against Third Party infringements within a reasonable period of time of the date Orion becomes aware of such infringement. Orion shall notify GTX promptly after Orion becomes aware of such infringement, and, upon request therefor by GTX, keep GTX reasonably informed regarding Orion's intended strategy in such situation. During the time any such proceeding or any appeal thereof is pending, no Royalty Income shall be payable under Section 3.1 in the country in which such proceeding is pending. Upon a favorable final resolution of such proceeding or any appeal thereof, GTX shall resume paying Orion the full royalties in such country, and GTX shall also be liable for payment of any back royalties payable for such period for which such a proceeding has been pending. Orion's commencement of such proceeding shall be at Orion's own expense, provided that Orion shall be entitled to retain all recoveries in such proceeding or any appeal thereof. Such commencement by Orion shall not relieve either Party of its obligations under Section 11.6.

11.8.2 GTX ENFORCEMENT.

(A) ORION PATENT RIGHTS. If within a reasonable period of time from the date Orion becomes aware of any alleged Third Party infringement of the Orion Patent Rights relating to the manufacture, use, sale, offer for sale, or import of Products containing Toremifene for use in the Field, either by notice from GTX or otherwise, Orion has not commenced a legal proceeding pursuant to Section 11.8.1, or if at any time Orion discontinues the pursuit of such proceeding, GTX may, at its option, commence, continue or intervene, as the case may be, in such proceeding, provided, however, that with respect to any such proceedings in any country in the GTX Territory, GTX shall first request Orion to notify GTX whether any Third Party has a right to enforce the relevant Orion Patent Rights in the relevant countries, in which event Orion shall promptly respond to such request, and further provided that GTX's rights hereunder are subject and secondary to any rights that Orion has granted to any Third Party prior to the Amendment Date in such country with respect to enforcement of the relevant Orion Patent Rights. During the time any such proceeding or any appeal thereof is pending, no Royalty Income shall be payable under Section 3.1 in the country in which such proceeding is pending. Upon a favorable final resolution of such proceeding or any appeal thereof, GTX shall resume paying Orion the full royalties in such country, and GTX shall also be liable for payment of any back royalties payable for such period for which such a proceeding has been pending. GTX's commencement, continuation or intervention in such proceeding shall be at GTX's own expense, provided that GTX shall be entitled to retain all recoveries in such proceeding or any appeal thereof. Such commencement, continuation or intervention by GTX shall not relieve either Party of its obligations under Section 11.6.

11.9 THIRD PARTY INFRINGEMENT OF GTX PATENT RIGHTS AND TRADEMARK.

11.9.1 GTX shall have the sole right, but not the obligation, at its own expense, to commence appropriate measures to enforce GTX Patent Rights and rights to Trademarks against Third Party infringements (including, but not limited to, notifying the infringing Third Party of such infringement and demanding that such Third Party cease and desist from such infringement) and, if such infringement does not cease, commence a legal proceeding to enforce such GTX Patent Rights or rights to Trademarks, if any against Third Party infringements. GTX's commencement of such proceeding shall be at GTX's own expense, provided that GTX shall be entitled to retain all recoveries in such proceeding or any appeal thereof. Such commencement by GTX shall not relieve either Party of its obligations under Section 11.6.

11.10 MUTUAL COOPERATION. In the event of any infringement litigation in the GTX Territory involving the Product or Orion Product or any Orion Patent Rights or GTX Patent Rights or the Trademark, the non-prosecuting or non-defending Party shall render such reasonable assistance as may be requested by the prosecuting or defending Party in connection with such infringement actions. If Orion requests GTX's assistance in connection with such infringement claims or actions, Orion shall reimburse GTX for such direct, documented out-of-pocket expenses as are reasonably incurred by GTX during the course of it providing such requested assistance. If GTX requests Orion's assistance in connection with such infringement claims or actions, GTX shall reimburse Orion for such direct, documented out-of-pocket expenses as are reasonably incurred by Orion during the course of it providing such requested assistance. Before incurring such expenses, the Parties shall in good faith agree in writing on the nature and extent of assistance to be rendered, and an estimate of the total expenses, which expenses shall be monitored periodically.

11.11 PATENT CHALLENGES

11.11.1 If GTX, its Affiliate, or GTX Unaffiliated Sublicensee, either directly or through a contractor or agent, challenges the validity of any Orion Patent Rights in any Major Country within the GTX Territory and does not cease such challenge within thirty (30) days of receipt of written notice from Orion, then such challenge shall be deemed a material breach of this Agreement and Orion shall have the right to terminate this Agreement by written notice with immediate effect, at Orion's sole discretion, in its entirety or with respect to such country.

11.11.2 If Orion challenges the validity of any GTX Patent Rights in any Major Country in GTX Territory other than Major Country that is a member of the European Union and does not cease such challenge within thirty (30) days of receipt of written notice from GTX, then such challenge shall be deemed a material breach of this Agreement and GTX shall be entitled to terminate this Agreement by written notice with immediate effect, at GTX's sole discretion, in its entirety or with respect to such country.

11.12 ACTIVITIES DURING INFRINGEMENT LITIGATION

11.12.1 In the event of any patent or trademark or other proprietary right infringement litigation involving the Product in GTX Territory in which GTX defends or prosecutes such litigation, GTX may, at any time following one hundred eighty (180) days after the commencement of such litigation, request in writing that Orion suspend the manufacture of the Orion Product for use in the Field in the part of the GTX Territory so affected pending

resolution of such litigation if GTX reasonably deems such action necessary or advisable to mitigate possible damages that may be incurred during the pendency of such litigation. If Orion elects not to comply with such request within thirty (30) days after receipt thereof, then all damages resulting from Orion's continued manufacturing of the Product for use in the Field in the part of the GTX Territory so affected after Orion's receipt of such request shall be borne by Orion and be subject to Orion's indemnification obligation to GTX pursuant to Section 14.6.1.

11.12.2 In the event of any patent or trademark or other proprietary right infringement litigation involving the Orion Product in the GTX Territory in which Orion defends or prosecutes such litigation, Orion may, at any time following one hundred eighty (180) days after the commencement of such litigation, request in writing that GTX suspend the import, distribution, marketing, sale and use of the Product, and suspend Orion's manufacture and supply of Orion Product for GTX hereunder, in the part of the Territory so affected pending resolution of such litigation if Orion reasonably deems such action necessary or advisable to mitigate possible damages that may be incurred during the pendency of such litigation. If GTX elects not to comply with such request within thirty (30) days after receipt thereof, then all damages resulting from GTX's continued importing, distribution, marketing, sale and use of the Product in the part of the GTX Territory so affected after GTX's receipt of such request shall be borne by GTX and be subject to GTX indemnification obligation to GTX pursuant to Section 14.6.2. If GTX elects to comply with such request, such compliance shall be considered a suspension of GTX's marketing and sales obligations, notwithstanding Section 6.

11.12.3 In the event either Party receives a written claim of any alleged or actual infringement of a Third Party patent or trademark or other proprietary right as a result of Orion's, its Affiliate(s) or Unaffiliated Sublicensee(s') manufacturing of or selling Orion Product to GTX, or GTX, its Affiliates, or GTX Unaffiliated Sublicensees making, having made, marketing, using or selling the Product in GTX Territory for use in the Field, each Party shall so notify the other Party and the Parties shall confer regarding the basis for such claim, and discuss how the Parties may resolve the situation. Orion shall have the right to suspend its manufacture and supply of the Orion Product in and/or to the part of the GTX Territory so affected upon twenty (20) days prior written notice to GTX pending resolution of such claim or any related infringement litigation, if necessary to mitigate damages that may be incurred. If Orion exercises its rights hereunder, the Parties shall thereafter discuss from time to time whether the situation has been resolved and, accordingly, whether Orion is in a position to resume the supply of Orion Product pursuant to this Agreement.

12. COMPETING PRODUCTS

12.1 OBLIGATIONS WITH RESPECT TO COMPETING PRODUCTS

12.1.1 Beginning on the Effective Date and until the expiration of the last of the Orion Patent Rights on a country by country basis in the Major Countries, GTX and GTX Affiliates undertake not to market or sell a Competing Product in such country, excluding those countries of the Major Countries within the European Union, in which countries GTX and GTX Affiliates undertake not to market or sell any Competing Product for a period of five (5) years from the Amendment Date.

12.1.2 However, nothing contained in this Section 12.1 shall be construed as preventing either Party from conducting research and development activities relating to a Competing Product during such period or thereafter.

13. PRODUCT ORDERS, SUPPLY AND PAYMENTS

13.1 ORION SUPPLY OBLIGATIONS

13.1.1 PRODUCT SUPPLY. During the Term, Orion shall, subject to the terms of this Section 13, supply GTX and GTX Affiliates with their requirements of Orion Product. Orion shall supply the Product in bulk tablet form.

13.1.2 PRODUCT DELIVERY. Orion shall supply Orion Product to GTX only against receipt of GTX's written purchase orders. Except as otherwise provided herein or as otherwise expressly agreed in writing by the Parties, delivery shall be within ninety (90) days from receipt and confirmation by Orion of GTX's purchase order. Orion shall confirm the delivery dates within ten (10) business days after receipt of GTX's purchase orders and, subject to the provisions of Section 13.2, Orion shall use its best reasonable efforts to fill such orders on the requested delivery dates, but shall in any event fill such orders within ninety (90) days from receipt and confirmation of GTX's purchase order. Orion shall deliver Orion Product F.O.B. Espoo, Finland to a carrier designated by GTX. GTX shall pay shipping costs and shall assume title to and risk of loss for Orion Product purchased hereunder upon delivery to GTX's designated carrier.

13.1.3 PRODUCT SHIPPING INSTRUCTIONS. GTX shall provide Orion with appropriate instructions for each shipment of Orion Product hereunder designating the desired carrier, destination and method of transport. If Orion becomes aware that the designated carrier is unable to accept the desired shipment within the requested delivery period, Orion shall promptly notify GTX and GTX shall promptly designate another carrier or carriers.

13.2 ORION AFFILIATES AND SUBCONTRACTORS. Orion may satisfy its supply obligations under this Agreement either directly or through any Orion Affiliate, whether located inside or outside GTX Territory (provided that such Orion Affiliate has a manufacturing site which has received all required regulatory approvals and that Orion guarantees the performance of such Affiliate), and such supply by Orion Affiliates shall not be deemed an infringement of GTX's rights hereunder.

13.3 GTX FORECASTS

13.3.1 ROLLING FORECASTS. Not later than ninety (90) days prior to GTX's first commercial order of Orion Product from Orion for GTX's Product launch anywhere in the GTX Territory, GTX shall inform Orion in writing of GTX's bona fide, good faith estimated requirements of Orion Product in the GTX Territory during the remainder of the calendar year of said Product launch. Thereafter, for the remainder of the Term, GTX shall provide to Orion by September 30 of each year a purchase forecast of GTX's estimated requirements of Orion Product for the fifteen (15) month period beginning with October 1 of the then current year, allocated for each calendar month of such period. GTX shall update its purchase estimates to Orion on a monthly basis by indicating by the end of each month revised estimates or confirming

that no revisions are necessary, which shall provide Orion with GTX's rolling fifteen (15) month forecasts.

13.3.2 EXCESS QUANTITIES. If GTX orders a quantity of Orion Product in excess of one hundred twenty-five percent (125%) of GTX's purchase forecast provided two (2) Calendar Quarters prior to such order, Orion shall deliver the quantity in excess of one hundred twenty-five percent (125%) up to one hundred fifty percent (150%) of such forecast within one hundred twenty (120) days from receipt and confirmation of GTX's purchase order. If GTX orders a quantity of Orion Product in excess of one hundred fifty percent (150%) of GTX's purchase forecast provided two (2) Calendar Quarters prior to such order, Orion shall use commercially reasonable efforts to supply the quantity in excess of one hundred fifty percent (150%) up to two hundred percent (200%) of such forecast as soon as practical, but in no event later than one hundred eighty (180) days from receipt and confirmation of GTX's purchase order. If GTX orders a quantity of Orion Product in excess of two hundred percent (200%) of GTX's purchase forecast provided two (2) Calendar Quarters prior to such Order, Orion shall use commercially reasonable efforts to supply the quantities in excess of such forecast as soon as practical.

13.3.3 MINIMUM QUANTITIES. Of the amounts of Orion Product indicated by GTX in its rolling monthly forecasts, GTX shall purchase at least one hundred percent (100%) of its estimated requirement for Orion Product for the first three (3) months of such forecast, eighty percent (80%) of its estimated requirement of Orion Product for the fourth, fifth and sixth months of such forecast, and fifty percent (50%) of its estimated requirement of Orion Product for the seventh, eighth and ninth months of such forecast. All orders and deliveries of Orion Product shall be in full batch sizes of Orion Product, as determined by Orion from time to time. Orion shall notify GTX in writing prior to the date upon which GTX must provide its first commercial order of Orion Product under this Section 13 of what the size of a full batch of Orion Product is at such time.

13.4 PRICES AND PAYMENT

13.4.1 COMMERCIAL PRICING FORMULA. Orion's annual price of bulk Orion Product to GTX for commercial purposes, delivered F.O.B., Espoo, Finland, shall be:

[*]

13.4.2 INVOICING AND PAYMENT. Orion shall invoice GTX for commercial orders of Orion Product shipped, and GTX shall pay such invoice within thirty (30) days of receipt.

13.4.3 PRICE CHANGES. GTX may, no more than once per year, request that Orion determine whether the average cost of the raw materials set forth in Schedule C used to manufacture Product during the immediately preceding year has, in the aggregate, changed by more than five percent (5%) of the average cost thereof that applied during the year immediately preceding the date that is one year earlier than the date of GTX's request (any such change, a "Significant Cost Change"). Reasonably promptly following any such request by GTX, Orion shall make such determination and notify GTX of the result of such determination. Additionally,

if Orion determines that a Significant Cost Change has occurred (other than in response to such a request by GTX), it shall so notify GTX. If Orion determines that a Significant Cost Change has occurred upon GTX's request or upon Orion's own investigation, then the Parties shall (no more than once annually) adjust the price to reflect such Significant Cost Change. Such price shall apply to Orion Products purchased by GTX following the date of Orion's notice to GTX that a Significant Cost Change has occurred.

13.5 RESALE PRICES. GTX, its Affiliates and GTX Unaffiliated Sublicensees shall be free to set their own resale prices for the Product sold in the GTX Territory.

13.6 PRODUCT SUPPLY FOR TESTING AND REGISTRATION; SUPPLY OF TOREMIFENE.

13.6.1 Product Supply for Testing and Registration. The supply price for the [*] tablet of bulk Orion Product for clinical trials shall be [*] per tablet. Orion shall supply GTX with such quantities of [*] tablets of bulk Product as GTX may require of Orion Product and/or placebos for GTX's use in clinical trials referenced in the GTX Preliminary Development and Registration Plan or the GTX Final Development and Registration Plan. The price for the [*] tablet of bulk Orion Product for clinical trials shall be [*] per tablet. Orion shall supply GTX with such quantities of [*] tablets of bulk Product as GTX may require of Orion Product and/or placebos for GTX's use in clinical trials referenced in the GTX Preliminary Development and Registration Plan or the GTX Final Development and Registration Plan. The price for the [*] tablet of bulk Orion Product for clinical trials shall be [*] per tablet. Orion shall supply GTX with such quantities as GTX may require of [*] tablets of Orion Product and/or placebos for GTX's use in clinical trials referenced in the GTX Preliminary Development and Registration Plan or the GTX Final Development and Registration Plan. The price for a [*] placebo for such clinical trials shall be [*], per tablet. All Orion Product supplied for testing and registration pursuant to this Section 13.6 shall be provided in bulk packaging.

13.6.2 SUPPLY OF TOREMIFENE.

For the sole purpose of aiding GTX in its efforts to obtain Regulatory Approval for the Product for use in the Field in the GTX Territory, Orion shall, during the Term, upon written order thereof by GTX, provide GTX, free of charge, with up to [*] of Toremifene in bulk powder form (the "Powder"). GTX undertakes to use such Powder only for studies necessary to support Regulatory Approval for Product for use in the Field. Upon ordering Powder from Orion, GTX shall provide Orion with a detailed description of such study(ies) and the expected amount of Powder needed for said study(ies).

As consideration for Orion's agreeing to provide the Powder to GTX, all results, data, information, inventions, memoranda, reports, discoveries, work products and other results (including without limitation any patents(s) granted thereon), which are conceived, derived, reduced to practice, made and/or developed by or on behalf of GTX and arising out of or relating to the use of the Powder (hereinafter referred to as "Results") shall be jointly owned by GTX and Orion such that each party shall have a one-half undivided interest in and to such results, without a duty of accounting to the other Party. Orion's interest in the Results, and any patent rights related thereto, shall be subject to the licenses granted to GTX pursuant to Section 2.1 to the extent such Results are included in the Orion Patent Rights or Orion Know-How. GTX hereby

grants to Orion an exclusive, royalty-free, worldwide license with the right to grant sublicenses, under GTX's joint interest in the Results and any intellectual property rights relating thereto for use in developing, using, having used, selling, having sold, importing, marketing and distributing products outside of the Field. Orion hereby grants to GTX an exclusive, royalty-free, worldwide license, with the right to grant sublicenses, under Orion's joint interest in the Results and any intellectual property rights relating thereto, for use in developing, using, having used, selling, having sold, importing, marketing and distributing products in the Field, to the extent such rights are not otherwise included in the Orion Patent Rights or Orion Know-How licensed to GTX pursuant to Section 2.1.1.

Any use of the Results by GTX other than for the purposes of this Agreement (hereinafter referred to as "Other Use"), shall not be permitted without the express written consent of Orion, which Orion may withhold at its sole discretion.

Without prejudice to the foregoing, the Results shall be deemed both Orion's and GTX's Confidential Information and shall be used and treated for purposes of Section 8 of this Agreement as Confidential Information of the other Party. GTX shall promptly disclose to Orion all Results immediately when such Results are available.

GTX and Orion shall mutually determine whether or not any of the Results provide the basis for any patentable inventions. If both Orion and GTX consider that patents for any such inventions involving Results should be sought, then such applications shall, in accordance with what has been stated herein above, be filed in the Parties' joint name, and the Parties shall share equally all costs of filing, prosecuting and maintaining relevant patent applications and patents. The Parties shall negotiate in good faith on the division of responsibilities with regard to drafting, filing, prosecuting and maintaining the relevant patent applications and, patents. If the Parties do not decide that patent application(s) should be filed for any patentable inventions included in the Results, then the Results shall continue to be treated as Confidential Information of both Parties.

13.7 AGREEMENT TERMS GOVERN. Except as otherwise agreed in writing by the Parties, the terms and conditions of this Agreement shall govern Orion and its Affiliates' sale of Orion Product to GTX, its Affiliates and GTX Unaffiliated Sublicensees during the Term, notwithstanding any conflicting terms and conditions set forth in GTX's forecast, order or purchase documents or in Orion's sale or acceptance documents and any such conflicting terms are hereby expressly rejected.

13.8 PRICE ADJUSTMENT FOR COMMERCIAL SUPPLY. It is agreed upon by the Parties that the price of the [*] tablet of Orion Product to GTX shall be reduced below [*] based upon attaining certain milestone purchases of Product as follows: if GTX purchases annually an aggregate amount of [*] of tablet [*] the price of the tablet shall be [*] per [*] tablet. Similarly, (i) the price to GTX of the [*] tablet of Orion Product shall be reduced if GTX purchases annually [*] of the [*] tablets such that the price per [*] tablet of Orion Product shall be [*] and (ii) the price to GTX of the [*] tablet of Orion Product shall be reduced if GTX purchases annually [*] of the [*] tablets such that the price per [*] tablet of Orion Product shall be [*]. If a price adjustment is triggered under this Section 13.8, then the adjusted price shall apply to the entire amount of the relevant tablets purchased during the relevant year.

Orion shall within thirty (30) days after the end of such year, pay to GTX an amount equal to the number of relevant tablets actually purchased during such year, multiplied by the difference between the price paid by GTX for supply of the relevant tablets and the lower price that is actually applicable due to the adjustment to be made pursuant to this Section 13.8.

13.9 TERMINATION OF PRODUCT SUPPLY. Orion shall, at its sole discretion, have the right upon providing twenty-four (24) months prior written notice thereof, to terminate its obligations under this Section 13 relating to the manufacture and supply of Orion Product and/or Toremifene (pursuant to Section 13.6.2) in the event that Orion permanently ceases the manufacture of Toremifene and/or Orion Product. In the event that Orion so terminates such obligations, Orion shall grant GTX a contingent license under the Orion Patent Rights, Orion Know-How and the Manufacturing Patents to make and have made Product for use in the Field in the GTX Territory during the Term, with such license to be exclusive with respect to Products for use in the Field and in the North American Territory, and non-exclusive for exclusive use in the Field in the ROW Territory. Such license shall become effective upon GTX's receipt of notice from Orion under this Section 13.9. Orion shall during such twenty-four (24) month notice period, and as soon as practically possible after GTX's written request, provide GTX with Product Manufacturing Know-How to the extent reasonably necessary to enable GTX to exercise its back-up manufacturing right pursuant to this Section 13.9, including without limitation providing up to ten (10) person-days of technology transfer assistance at GTX's site of manufacture of Product using Orion personnel skilled in such manufacturing operations, at no charge to GTX.

14. PRODUCT WARRANTIES AND INDEMNIFICATION

14.1 PRODUCT WARRANTIES AND LIMITATIONS

14.1.1 ORION WARRANTIES. Orion warrants and represents that the Orion Product manufactured by Orion, its Affiliate(s) or subcontractor(s), as the case may be, and delivered to GTX, its Affiliate(s) or GTX Unaffiliated Sublicensee(s) hereunder for resale shall (i) from the date of shipment until the end of the specified shelf-life conform to the Specifications (provided, however, that Orion Product has after shipment been handled and stored properly and been afforded sufficient protection against deterioration and damage) and shall have been manufactured in accordance with U.S. FDA Good Manufacturing Practices and equivalent Good Manufacturing Practices in Europe to the extent applicable to Orion, its Affiliates or subcontractors as the manufacturer(s) of Orion Product, and (ii) be transferred free and clear of any security interests, liens and encumbrances. It is expressly agree that, except as expressly provided for in Section 10.2, no representation, warranty, commitment or obligations given, made or undertaken by Orion in this Agreement shall apply with regard to any Product manufactured by a party other than Orion, its Affiliates or subcontractors, including without limitation any Product manufactured by or on behalf of GTX under its stand-by and other manufacturing rights pursuant to Section 7.6, 13.9, 15.1, 16.3.2, 16.4 or 20.2.2.

14.1.2 LIMITATIONS. Except as otherwise expressly stated herein, no warranties or representations, express or implied are made or shall be deemed to have been made by Orion, its Affiliate or subcontractor including without limitation the warranties of fitness for a particular purpose and merchantability, regarding any Product, including without limitation the Orion

Product and Other Product. Subject to Orion's warranty and indemnification obligations under this Agreement for Orion Product, Orion shall have no responsibility or liability for any Product, including without limitation Orion Product and Other Product manufactured by Orion and/or used, supplied, marketed, or sold by GTX, its Affiliates or GTX Unaffiliated Sublicensees.

14.2 CERTIFICATE OF ANALYSIS. Orion shall furnish GTX with one or more certificates of analysis for each batch of Orion Product supplied hereunder, in the form required by law in each country of GTX Territory where the Orion Product is marketed, with shipment of each such batch.

14.3 PRODUCT INSPECTIONS

14.3.1 GTX INSPECTION AND ANALYSIS. GTX shall inspect and analyze a representative sample of Orion Product from batches supplied by Orion promptly after receipt. If, after inspection, GTX reasonably believes the shipment does not meet the Specifications, GTX shall notify Orion in writing within thirty (30) days after GTX's receipt of any such goods. If GTX does not so notify Orion, GTX shall be deemed to have waived all claims against Orion for said quantity delivered, except for any latent defects that could not have been reasonably discovered upon such inspection, which defects shall be notified by GTX to Orion within fourteen (14) days from discovery of same. Any claims by GTX regarding goods delivered shall specify in reasonable detail the nature and basis for the claim and cite relevant Orion lot numbers or other information to enable specific identification of the goods involved. GTX shall not be required to accept Orion Product having a shelf-life of less than eighty percent (80%) of the stated expiration dating on the date of shipment by Orion.

14.3.2 ORION RESPONSE. Orion shall respond to all claims made by GTX on a case-by-case basis and Orion shall have the right to first inspect any goods involved before being required to take any action with respect thereto. Orion shall review any such claim of nonconformity made by GTX within thirty (30) business days of receipt of GTX's notice under Section 14.3.1 and conduct any required testing of the goods involved as soon as possible, but in no event later than forty-five (45) days after receipt thereof, or earlier if the U.S. FDA or any corresponding regulatory authority in the Territory requires an earlier response from Orion. If such review and testing by Orion (or testing by an independent laboratory as set forth below) confirms that a claimed quantity does not meet the Specifications, then, at Orion's expense, GTX shall dispose of or return such quantity involved as Orion shall direct in writing and Orion shall replace such quantity with conforming goods as soon as possible, but in no event later than sixty (60) days after testing is completed, which shall be GTX's sole and exclusive remedy for such non-conformity. If the Parties fail to agree as to whether a delivered quantity meets the Specifications, then the Parties shall have the batch in dispute analyzed by a mutually agreed upon independent testing laboratory located in the country in which Orion Product to which goods relate is intended for resale, or, if the Parties agree, in Finland. Such laboratory's determination shall be deemed final as to any dispute over the Specifications and the nonprevailing Party shall bear the costs of such independent laboratory's testing.

14.4 PRODUCT STORAGE. Each Party shall properly store Orion Product under conditions that will not adversely affect the quality or normal shelf life thereof.

14.5 GTX RESPONSIBILITIES IN GTX TERRITORY

14.5.1 LABELING. GTX shall be responsible for packaging of the Product, and for all labeling, inserts, packaging and promotional materials and any other materials which accompany, are distributed, used or referred to in any way by GTX, its Affiliate(s) or GTX Unaffiliated Sublicensee(s) in connection with the Product and GTX shall ensure that same shall conform to all legal requirements in each country of the GTX Territory in which the Product is sold. Subject to applicable legal and regulatory requirements and space limitations, all Product labeling, packaging, inserts and promotional materials shall indicate that the Product is sold by GTX under license from Orion. GTX shall, upon written request therefore by Orion, provide Orion with copies of representative samples of materials which GTX, its Affiliates and GTX Unaffiliated Sublicensees intend to use in connection with the marketing, promotion and sale of the Product thirty (30) days prior to their first use thereof, provided that nothing herein or otherwise, including without limitation any request by Orion to be furnished with such materials or review of same, shall be construed as Orion assuming any liability or responsibility for such materials or their conformity to all legal requirements in any country of the GTX Territory in which the Product is sold and such request and/or review by Orion of such materials shall be without prejudice to the first sentence of this Section 14.5. GTX, its Affiliates, or GTX Unaffiliated Sublicensee shall register, promote, market and sell the Product in the GTX Territory only for the indications for which relevant Regulatory Approvals have been obtained and only in accordance with applicable legal and governmental authority requirements.

14.5.2 NOTIFICATION. GTX shall also be responsible for notifying, reporting or registering this Agreement or the business relationship created hereby with any government authorities in the GTX Territory to the extent legally required. Orion shall provide GTX with such assistance as GTX may reasonably request in connection therewith.

14.6 RECIPROCAL INDEMNIFICATION PROVISIONS

14.6.1 ORION INDEMNIFICATION. Orion shall defend, indemnify and hold GTX, its Affiliates, GTX Unaffiliated Sublicensees, and its and their officers, directors and employees, harmless from and against any and all liabilities, damages, claims, demands, costs, or expenses (including reasonable attorneys' fees) Losses claimed by any Third Party for any property or other economic loss or damage or injury or death suffered by it to the extent the same is determined to have been caused by (A) the negligence, fault, willful wrongdoing or any other act or omission in relation to the manufacture by Orion, its Affiliates or subcontractor(s) of the Orion Product, or a material breach of this Agreement by Orion, its Affiliate(s) or Unaffiliated Sublicensee(s), or (B) or a breach by Orion of the warranties set forth in Section 14.1, except with respect to each of (A) and (B) to the extent that such Losses are caused by activities for which GTX must defend, indemnify and hold harmless pursuant to Section 14.6.2.

14.6.2 GTX INDEMNIFICATION IN GTX TERRITORY. GTX shall defend, indemnify and hold Orion, its Affiliates, and its and their the officers, directors and employees harmless from and against any and all Losses claimed by any Third Party for any property or other economic loss or damage, injury or death suffered by it to the extent the same is determined to have been caused by (A) the negligence, fault, willful wrongdoing or any other act or omission, or material breach of this Agreement by GTX, its Affiliates or Unaffiliated

Sublicensees or (B) the manufacture, use, sale, importation, distribution, and/or marketing of the Product in the Field in GTX Territory, including without limitation any product liability claim for property or other economic loss or damage, injury or death suffered by a Third Party arising out of or relating to the Product or Other Product or use thereof, except with respect to each of (A) and (B) to the extent that such Losses are caused by activities for which Orion must defend, indemnify and hold harmless GTX pursuant to Section 14.6.1.

14.7 CONDITIONS FOR INDEMNIFICATION. With respect to any indemnification obligations of either Party to the other Party under this Agreement, the following conditions must be met for such indemnification obligations to become applicable: (A) the indemnified Party shall notify the indemnifying Party promptly in writing of any claim which may give rise to an obligation on the part of the indemnifying Party hereunder; (B) the indemnifying Party shall be allowed to timely undertake the sole control of the defense of any such action and claim, including all negotiations for the settlement, or compromise of such claim or action at its sole expense; and (C) the indemnified Party shall render reasonable assistance, information, cooperation and authority to permit the indemnifying Party to defend such action, it being agreed that any out-of-pocket expenses or other expenses incurred by the indemnified Party in rendering the same shall be borne or reimbursed promptly by the indemnifying Party.

14.8 LIABILITY INSURANCE. GTX shall procure and maintain insurance, including product liability insurance, adequate to cover its obligations hereunder and which are consistent with normal business practices of prudent companies commercializing products of similar nature that present similar liability risks. It is understood that such insurance shall not be construed to create a limit of GTX's liability with respect to its any of its obligations hereunder, including without limitation its indemnification and compensation obligations under this Agreement. GTX shall provide Orion with written evidence of such insurance (including without limitation financial information that describes the amounts available under such insurance) upon request. This Section 14.8 shall survive the termination expiration of this Agreement for ten (10) years for whatsoever reason.

15. STANDBY MANUFACTURING RIGHTS

15.1 INABILITY TO MANUFACTURE OR SUPPLY. If Orion is unable to supply or manufacture Orion Product, as ordered pursuant to Sections 13.1.2 and 13.3.2, for ninety (90) or more consecutive days after the agreed delivery time for any reason, (including but not limited to a Force Majeure event), save as for reasons arising from acts or omissions of GTX, its Affiliates and/or its Unaffiliated Sublicensees, including without limitation failure by GTX, its Affiliates and/or its Unaffiliated Sublicensees to notify Orion of Orion's failure to deliver Orion Product ordered pursuant to Sections 13.1.2 and 13.3.2, then GTX may, at its option, responsibility and expense, elect to manufacture or have a Third Party manufacture Toremifene for use in manufacturing and selling the Product for use in the Field anywhere in the GTX Territory until such time as Orion can demonstrate to GTX's reasonable satisfaction that Orion is capable of resuming the manufacture of Toremifene and/or Orion Product, as applicable. To the extent necessary to implement such standby manufacturing rights, Orion hereby grants GTX a contingent license under the Orion Patent Rights, Orion Know-How and Manufacturing Patents to make and have made Product for use in the Field in the GTX Territory. Such license shall be exclusive with respect to Products for use in the Field and in the North American Territory, and

nonexclusive for exclusive use in the Field in the ROW Territory, with such license to become effective only under the circumstances specified in the preceding sentence. In such case, Orion shall as soon as practically possible provide GTX with Product Manufacturing Know-How to the extent reasonably necessary to enable GTX to exercise its back-up manufacturing right pursuant to this Section 15.1, including without limitation providing up to ten (10) person-days of technology transfer assistance at GTX's site of manufacture of Product using Orion personnel skilled in such manufacturing operations, at no charge to GTX. Orion shall promptly notify GTX in writing of any circumstances rendering it unable to manufacture Product and the estimated duration of such circumstances. GTX's standby-manufacturing rights under this Section 15.1 shall be GTX's sole and exclusive remedy for Orion's failure to manufacture or have manufactured Orion Product for supply to GTX under Section 13.

16. MANUFACTURING INSPECTIONS AND CHANGES

16.1 REGULATORY INSPECTIONS. Each Party shall allow representatives of the U.S. FDA and any other regulatory agency or authority with jurisdiction over the manufacture, marketing and distribution of the Product to tour and inspect all facilities utilized by such Party in the manufacture, testing, packaging, storage, and shipment of Product sold under this Agreement, and shall co-operate with such representatives in every reasonable manner. Each Party shall also provide the other Party with a copy of any U.S. FDA Form 483 notices of adverse findings, regulatory letters or similar notifications it receives from any other governmental authority setting forth adverse findings or non compliance with any applicable laws, regulations or standards relating to the Product within five (5) days of its own receipt thereof. Each Party shall also provide the other Party with a copy of its proposed written response to such governmental authority before submission and shall incorporate any changes thereto which the other Party may reasonably request.

16.2 ORION-INITIATED MANUFACTURING CHANGES. Save as for changes required under applicable laws and regulations or by any competent regulatory or other authority, during the Term, Orion shall not make any material changes to its manufacturing operations for Toremifene and Orion Product to be supplied to GTX pursuant to this Agreement, without informing GTX prior to such changes; provided that if such changes would require GTX to make additional filings with regulatory authorities or to seek additional Regulatory Approvals for Orion Product, then Orion shall not make such change without GTX's prior written consent, such consent not to be unreasonably withheld, conditioned or delayed

16.3 GTX-INITIATED MANUFACTURING CHANGES

16.3.1 GTX REQUEST FOR MANUFACTURING CHANGES. Prior to Orion providing GTX with notice pursuant to Section 13.9, GTX may, from time to time during the Term and as agreed in this Section 16.3, make a written and detailed request for changes in Orion's manufacturing operations, or the Specifications, for Toremifene and Orion Product. Such changes that are required and mandatory under applicable laws and regulations in a Major Country shall be deemed "Required Manufacturing Changes", and such changes that are intended to promote quality control/quality assurance, and/or to achieve greater efficiency or cost savings in the manufacturing process shall be deemed "Other Manufacturing Changes".

16.3.2 REQUIRED MANUFACTURING CHANGES. Provided that GTX furnishes Orion with evidence of Required Manufacturing Changes, Orion shall commence the implementation of Required Manufacturing Changes as soon as practicable, but in no event later than (i) ninety (90) days after receipt of GTX's request (or within such other longer time period as may be mutually agreed upon by the Parties if implementation within ninety (90) days is impossible or reasonably impractical, such agreement not to be unreasonably withheld, condition or delayed by GTX) or (ii) earlier if required by the U.S. FDA or any corresponding regulatory authority in a Major Country. If Orion does not commence the implementation of Required Manufacturing Changes within the time period referenced in the preceding sentence or does not notify GTX in writing that Orion disputes whether GTX's requested changes are Required Manufacturing Changes, then GTX shall have the option to exercise standby manufacturing rights for Toremifene and Product pursuant to Section 15.1 until such time as Orion implements such Required Manufacturing Changes. If Orion notifies GTX in writing that Orion disputes whether GTX's requested changes are Required Manufacturing Changes, the Parties shall resolve such dispute by reference to a mutually agreed upon independent Third Party regulatory expert as soon as possible for a binding determination of whether the requested changes are Required Manufacturing Changes. If such independent Third Party regulatory expert determines that GTX's requested changes are Required Manufacturing Changes, Orion shall implement such changes as soon as possible. Any modification to the Specifications that is necessary to implement or reflect a Required Manufacturing Change shall be deemed to be included in the Specifications, and any Products manufactured thereunder by Orion shall be deemed Orion Products.

16.3.3 OTHER MANUFACTURING CHANGES. Orion shall give due consideration to making Other Manufacturing Changes proposed by GTX. Orion shall within sixty (60) days from receipt of GTX's written request for Other Manufacturing Changes provide GTX a written response to such request indicating whether it would be willing to discuss, and as appropriate, negotiate the terms and conditions under which Orion would be willing to implement such Other Manufacturing Changes.

16.4 NEW DOSAGE STRENGTHS AND FORMULATIONS. Upon written request by GTX, the Parties shall meet in person or by teleconference to discuss, and as appropriate, negotiate the terms under which Orion would be willing to manufacture and supply to GTX any dosage strengths or formulations of the Product other than those that are available as an Orion Product as of the Amendment Date (including without limitation any combination Product containing Toremifene and another active ingredient) or any Product otherwise having specifications different from Orion Product Specifications (such Products, collectively "Other Product(s)"), as provided in this Section 16.4.

The Parties shall conduct such discussions during a sixty (60) day period following GTX's written request setting forth in sufficient detail the changes proposed by GTX, or any mutually agreed extension of such time period ("Evaluation Period"). If Orion would be willing to manufacture such Other Product, Orion shall within the Evaluation Period notify GTX of the terms and conditions under which it would be willing to do so, and the Parties shall negotiate a written amendment to this Agreement to include the applicable terms and conditions under which Orion would manufacture such Other Product, including without limitation the supply price of such Other Product. Upon execution of such amendment, such Other Product shall be

deemed to be an Orion Product. Such negotiation shall be conducted for up to one hundred twenty (120) days following GTX's receipt of Orion's notice of such terms and conditions ("Negotiation Period"). It is expressly agreed that Orion shall have no obligation to manufacture and supply any Other Product unless a mutually acceptable definitive written amendment to this Agreement, if any, in relation to such Other Product is executed by duly authorized representatives of both Parties.

In the event Orion notifies GTX within the Evaluation Period that it will not be interested in supplying such Other Product, or the Parties do not amend this Agreement during the Negotiation Period to specify applicable terms for, or execute another agreement governing, Orion's supply of such Other Product for use in the Field, then if GTX has a good faith basis for requiring supply of such Other Product, including but not limited to its desire to develop a dosage strength of Product other than one which is in clinical development by or on behalf of GTX as of the Amendment Date and in which an Orion Product is available, or a formulation of Product that incorporates a new technology or another active ingredient in order to optimize the pharmacokinetic properties of Product, improve the competitive position of Product in the market, or to increase the efficiency or safety of Products, GTX shall have the right to manufacture, or engage a Third Party subcontractor to manufacture, such Other Product for sale and use in the Field only. GTX shall exercise such right to manufacture or have manufactured an Other Product for sale and use in the Field pursuant to this Section 16.4 in good faith only, and not for the purpose of obtaining the right to manufacture Product by, for example, proposing minor changes to the Product formulation that do not present a commercially reasonable basis for development. To the extent reasonably necessary to implement such manufacturing right, Orion hereby grants GTX a contingent license under Orion's Patent Rights, Orion Know-How, Manufacturing Patents, and Product Manufacturing Know-How to make and have made the relevant Other Product for use in the Field in the GTX Territory. Such license shall be exclusive with respect to Products for use in the Field and in the North American Territory, and nonexclusive for exclusive use in the Field in the ROW Territory, and shall become effective only under the circumstances specified in this Section 16.4.

17. PRODUCT RECALLS

17.1 RECALL NOTIFICATION. Each Party shall promptly notify the other Party in writing of any facts relating to the advisability of the recall, destruction or withholding from the market of the Product anywhere in the GTX Territory (collectively, "Recall").

17.2 RECALL IMPLEMENTATION IN GTX TERRITORY. If at any time (A) any governmental or regulatory authority in the GTX Territory issues a request, directive or order for a Recall; (B) a court of competent jurisdiction orders a Recall in the GTX Territory; or (C) GTX determines, following consultation with Orion (except in emergency situations in which there is insufficient time for such consultation), that a Recall in the GTX Territory is necessary or advisable, GTX shall take all appropriate corrective actions to effect the Recall and Orion shall provide GTX with such cooperation in connection with the Recall as GTX may reasonably request.

17.3 RECALL COSTS AND EXPENSES IN GTX TERRITORY. GTX shall bear the costs and expenses of any Recall in the GTX Territory, provided that Orion shall bear all costs and

expenses of any Recall in the GTX Territory to the extent such Recall is the result of a breach in the warranties set forth in Section 14.1.

18. ADVERSE DRUG EXPERIENCES

18.1 ADVERSE EVENTS.

(A) To ensure that all relevant safety information for Toremifene is shared between the Parties, the following information will be exchanged: (i) GTX will provide to Orion all regulatory safety updates (e.g. 120-day safety updates, annual reports, post-authorization safety updates) upon public release thereof concerning the Product; and (ii) Orion will provide to GTX Periodic Safety Update Reports upon public release thereof prepared in accordance with ICH E2C guidelines covering Orion's Toremifene indication for breast cancer. In addition, any safety information which may negatively affect the benefit-risk ratio of Toremifene products or that may have consequences regarding the product information (e.g. labeling, data sheets, instruction leaflets) or may require immediate safety measures to be taken by either Party shall be forwarded to the other Party without any delay. Each Party is responsible for any regulatory safety reporting requirements with respect to its own Regulatory Approval applications and regulatory requirements according to applicable laws, rules and regulations. If the FDA requires that reports of adverse events must be exchanged between the Parties, and submitted to the FDA in connection with both Parties' regulatory filings for Toremifene products, the details of the Parties' exchange of such information will be modified accordingly and documented as an Exhibit to this Agreement.

(B) The intent of Section 18.1(a) is to enable each Party to comply with regulatory requirements for Toremifene products. If either Party learns that the foregoing exchange of information is not sufficient for such Party to meet regulatory requirements with respect to Toremifene products that it has the right to commercialize, it may so note by the other Party. Promptly thereafter, the Parties shall discuss and agree upon a mutually acceptable modification to the foregoing procedure that enables the Party providing such notice to conform with such regulatory requirements with respect to such Toremifene products. Specifically and without limitation, to the extent regulatory authorities outside of the United States require reporting or other obligations with respect to adverse drug experiences in addition to those stated in Section 18.1(a) above, the Parties shall, promptly after the Amendment Date, meet and negotiate in good faith mutually agreeable procedures to meet such obligations.

This Section 18 shall survive the expiration or termination of this Agreement.

19. REPRESENTATIONS AND WARRANTIES

19.1 REPRESENTATIONS AND WARRANTIES OF THE PARTIES. Each Party hereby represents and warrants to the other Party as follows:

(A) CORPORATE STATUS. It is a corporation duly organized and validly existing under the laws of its state or other jurisdiction of incorporation or formation;

(B) AUTHORITY. It has the power and authority to execute and deliver this Agreement, and to perform its obligations hereunder;

(C) NO CONFLICTS. The execution, delivery and performance by it of this Agreement and its compliance with the terms and provisions hereof does not and will not conflict with or result in a breach of any of the terms and provisions of or constitute a default under (i) any loan agreement, guaranty, financing agreement, agreement affecting a product or other agreement or instrument binding or affecting it or its property; (ii) the provisions of its charter documents or by-laws; or (iii) any order, whit, injunction or decree of any court or governmental authority entered against it or by which any of its property is bound;

(D) NO APPROVALS. Except for the regulatory filings and approvals for the Product referenced herein, no authorization, consent or approval of any governmental authority or Third Party is required for the execution, delivery or performance by it of this Agreement, and the execution, delivery or performance of this Agreement will not violate any law, rule or regulation applicable to such party;

(E) ENFORCEABILITY. This Agreement has been duly authorized, executed and delivered and constitutes its legal, valid and binding obligation enforceable against it in accordance with its terms subject, as to enforcement, to bankruptcy, insolvency, reorganization and other laws of general applicability relating to or affecting creditors' rights and to the availability of particular remedies under general equity principles; and

(F) COMPLIANCE WITH LAWS. It shall comply with all applicable local, state, national, regional and governmental laws and regulations relating to its activities under this Agreement.

(G) NEGATIVE DATA OR INFORMATION. Each Party has, to the best of its management knowledge, no knowledge of negative data or information regarding the Product, which, to the best of its reasonable belief, would have a material effect on the regulatory approval process and/or on the commercialization of the Product in the Field.

20. TERM AND EARLY TERMINATION RIGHTS

20.1 TERM. The Term shall be as stated in Section 1.33.

20.2 TERMINATION FOR CAUSE. Either Party shall have the right, without prejudice to any other rights or remedies available to it, either to terminate this Agreement or the license rights granted to a Party under this Agreement on a country-by-country basis for cause as described in this Section 20.2 as follows.

20.2.1 BANKRUPTCY. Either Party shall have the right to terminate this Agreement and same shall terminate upon expiry of a sixty (60) days notice period, if the other Party becomes insolvent, is adjudged bankrupt, applies for judicial or extra-judicial settlement with its creditors, makes an assignment for the benefit of its creditors, voluntarily files for bankruptcy or has a receiver or trustee (or the like) in bankruptcy appointed by reason of its insolvency, or in the event an involuntary bankruptcy action is filed against the other Party and not dismissed within ninety (90) days, or if the other Party becomes the subject of liquidation or dissolution proceedings or otherwise discontinues business.

20.2.2 MATERIAL BREACH. If either Party commits a material breach of this Agreement and if the Party alleged to be in breach of this Agreement fails to (i) cure such breach or (ii) commence bona fide dispute resolution proceedings under Section 24.2 contesting whether a breach has occurred and/or whether such breach is a material breach, in either case within sixty (60) days after receipt of written notice from the Party asserting the breach, then the Party asserting the breach may terminate this Agreement in its entirety (if such breach is a material breach other than as specified in Section 11.11.1), or, if such breach is by GTX and is described in Section 6.4.2 or 11.11.1 terminate the license granted to GTX pursuant to Section 2.1 with respect to the Major Country in relation to which such material breach occurred. If the Agreement is terminated either in its entirety or with regard to a particular Major Country, as the case may be, then:

if GTX is the breaching Party, then GTX shall grant to Orion a nonexclusive, royalty-bearing license, with the right to grant sublicenses, under the GTX Patent Rights, the Trademark and the GTX Know-How to make have made, use, sell, offer for sale, market and promote, and import Products in the country(ies) in which GTX's license terminates (if such breach is a material breach described in Section 6.4.2) or, for any other material breach, throughout the GTX Territory; or

if Orion is the breaching Party, then the license granted to GTX shall be expanded to include a license under the Orion Patent Rights, Orion Know-How, and Manufacturing Patents to make and have made Products for use in the Field in the GTX Territory during the Term, with such license to be exclusive with respect to Products for use in the Field and in the North American Territory, and nonexclusive for exclusive use in the Field in the ROW Territory, and Orion shall as soon as practically possible provide GTX with Product Manufacturing Know-How to the extent reasonably necessary to enable GTX to exercise its manufacturing right pursuant to this Section, including without limitation providing up to ten (10) person-days of technology transfer assistance at GTX's site of Manufacture or Product using Orion personnel skilled in such manufacturing operations, at no charge to GTX.

If a non-breaching Party obtains a license under this Section 20.2.2 above, it shall pay to the other Party a running royalty equal to [*] of such non-breaching Party's Net Sales of Product in the territory in which such license applies. Furthermore, if GTX is the breaching Party, GTX shall promptly transfer to Orion, at GTX's expense, all Regulatory Approvals and registration filings for the Product in the territory in which Orion obtains such license, together with such documentation, information and data in its possession as Orion may need for regulatory compliance in the course of exercising its rights in such territory with respect to Product.

20.3 TERMINATION BY MUTUAL AGREEMENT. The Parties may terminate this Agreement at any time by drafting and executing a mutually acceptable written agreement. The written agreement shall specify the consequences of such termination.

20.4 OTHER TERMINATION BY ORION

20.4.1 Orion shall have the right to terminate this Agreement upon thirty (30) days prior written notice to GTX if any business entity which is a direct competitor of Orion for

Toremifene should any time during the Term acquire control over the business affairs of GTX by purchase or acquisition of a fifty percent (50%) or greater interest in GTX's issued and outstanding stock, all or substantially all of GTX's assets, or the GTX business unit or division dealing with the Product. If Orion after the thirty (30) days from receipt of notification (such notification to be furnished by GTX to Orion at the latest by such purchase or acquisition becoming public knowledge), does not exercise its rights to terminate this Agreement, Orion shall irrevocably lose and forfeit such right.

20.5 OTHER TERMINATION BY GTX

20.5.1 CHANGE OF CONTROL OF ORION. GTX shall have the right to terminate this Agreement upon thirty (30) days prior written notice to Orion if any business entity which is a direct competitor of GTX for Toremifene for use in the Field should any time during the Term acquire control over the business affairs of Orion by purchase or acquisition of a fifty percent (50%) or greater interest in Orion's issued and outstanding stock, all or substantially all of Orion's assets, or the Orion business unit or division dealing with the Product. If GTX after the thirty (30) days from receipt of notification, such notification to be furnished by Orion to GTX at the latest by such purchase or acquisition becoming public knowledge, does not exercise its rights to terminate this Agreement, GTX shall irrevocably lose and forfeit such right.

20.5.2 SAFETY OR EFFICACY. If at any time during the Term: (i) GTX decides not to file an application for Regulatory Approval in any country or decides to withdraw such application due to documented adverse reactions or other safety issues with the Product or the Product's lack of efficacy or limited efficacy (collectively, "Safety or Efficacy Issues"); (ii) GTX's application(s) for Regulatory Approval in any country is rejected due to Safety or Efficacy Issues; (iii) GTX's application(s) for Regulatory Approval in any country is subsequently withdrawn because of Safety or Efficacy Issues; or (iv) the Product is withdrawn or recalled from the market in any country because of Safety or Efficacy Issues, then GTX may, at its option, terminate this Agreement with respect to such country upon thirty (30) days prior written notice to Orion. GTX must exercise this right of termination within the later of (a) sixty (60) days of the occurrence of the event giving rise to such right or (b) thirty (30) days of GTX's last meeting, if any, with the relevant regulatory authorities, provided that GTX uses reasonable diligence to schedule such meeting and that Orion is providing reasonable co-operation to GTX in connection with such meeting. GTX may, at its option, exercise its right of termination under this Section 20.5.2 on a country-by-country basis, and, if GTX does so, GTX's termination notice shall specify the country or countries of the GTX Territory affected.

20.6 EFFECT OF TERMINATION. Termination or expiration of this Agreement through any means and for any reason shall not relieve the Parties of any obligations accruing prior thereto and shall be without prejudice to the rights and remedies of either Party with respect to any prior breach of any of the provisions of this Agreement.

21. NOTICES

21.1 MANNER OF GIVING NOTICES. All notices required or permitted in connection with this Agreement shall be writing and may be given by personal delivery, prepaid registered or certified airmail letter, courier, facsimile, addressed to the Party to receive the same at its address

set forth below, or to such other address as it shall later designate by like notice to the other Party. Notice of termination of this Agreement if given by facsimile shall be confirmed by prepaid registered or certified airmail letter dated and posted within twenty-four (24) hours. The effective date of receipt of any notice if served by facsimile shall be deemed the first business day in the city of destination following the transmission or dispatch thereof and, if served by courier shall deemed the second business day in the city of destination following the dispatch thereof unless earlier received. Notice by personal delivery shall be effective as of the date of such delivery.

21.2 ADDRESSES FOR NOTICES

Notices to Orion shall be sent to:

Orion Corporation
Orion Pharma
Attn: President of Orion Pharma
Orionintie 1, P.O. Box 65
FIN-02101 Espoo
Finland
Facsimile: 358-9-429-3044

With a copy to:

Orion Corporation
Orion Pharma
Attn: Legal Counsel
Orionintie 1, P.O. Box 65
FIN-02101 Espoo
Finland
Facsimile: 358-9-429-4088

Notices to GTX shall be sent to:

GTx, Inc.
Attn: President, with a copy to the General Counsel
3 North Dunlap Avenue,
Van Vleet Building, Third Floor
Memphis, Tennessee 38163
U.S.A.
Telephone: 1-901-523-9700 x107
Facsimile: 1-901-523-9772

Cooley Godward LLP
Five Palo Alto Square
3000 El Camino Real
Palo Alto, CA 94306-2155

Attention: Robert Jones, Esq.

Telephone: (650) 843-5034
Facsimile: (650) 849-7400

22. INTEGRATION

This Agreement represents the entire Agreement between the Parties relating to the subject matter hereof and supersedes all prior arrangements, understandings, correspondence, notes, minutes and agreements between the Parties (or their predecessors in interest) whether written or oral. No supplement, modification or amendment of this Agreement shall be binding unless executed by the Parties in writing and signed by the duly authorized representatives of both Parties.

23. ASSIGNMENT

Neither Party may assign this Agreement or any of its rights hereunder, nor delegate any of its duties or obligations hereunder, to any Third Party without the prior written consent of the other Party, except to an Affiliate in accordance with the terms of this Agreement, in which case notification thereof shall be provided to the other Party no later than thirty (30) days prior to such assignment to an Affiliate. Neither Party shall unreasonably withhold its consent which shall be provided within thirty (30) days, to such contemplated assignment if such contemplated assignment is in connection with the sale by either Party of all or substantially all of its assets to a Third Party. Any assignment of this Agreement to an Affiliate of the assigning Party shall not relieve the assigning Party of its responsibilities and obligations hereunder.

24. GOVERNING LAW AND DISPUTE RESOLUTION

24.1 GOVERNING LAW. This Agreement, including the validity, construction, interpretation and performance thereof, shall be governed entirely by the laws of Sweden. It is the specific intent and agreement of the Parties that the United Nations Convention on the International Sale of Goods shall not apply to this Agreement.

24.2 DISPUTE RESOLUTION. All disputes arising out of or in connection with this Agreement (except those involving actions commenced by or involving Third Parties and affecting or involving only one of the Parties) shall be resolved with the following mechanism:

24.2.1 ATTEMPTED AMICABLE RESOLUTION. The Parties shall promptly give each other written notice of any disputes requiring resolution hereunder, which written notice shall specify the Section(s) of this Agreement the other Party is alleged to have breached and shall briefly state the initiating Party's claims, and the Parties shall use reasonable efforts to resolve any such disputes in an amicable manner.

Any disputes arising in connection with this Agreement which cannot be resolved in an amicable manner by representatives of the Parties shall be referred, not later than thirty (30) days after initiation of dispute resolution proceedings under this Section 24.2.1, to the following corporate officers of the Parties for resolution:

For GTX: President and Chief Executive Officer (or his or her designee)

For Orion: President of Orion-Pharma (or his or her designee)

Such officers (or their designees) shall attempt to resolve the dispute and shall communicate with each other by facsimile or telephone or in personal meetings in an effort to resolve the dispute.

24.2.2 ARBITRATION. Any disputes (excluding any dispute, controversy or claim arising out of or relating to the validity, enforceability, scope or infringement of patent or trademark rights) arising in connection with this Agreement which cannot be resolved by the Parties within forty-five (45) days after initiation of dispute resolution proceedings under Section 24.2.1 shall be finally settled by binding arbitration under the Rules of the Arbitration Institute of the Stockholm Chamber of Commerce, Stockholm, Sweden in accordance with said Rules then in effect with proceedings to be held in Stockholm, Sweden in the English language. Reasonable submission of evidence shall be permitted in any such proceeding to the extent permitted under and consistent with such Rules. Judgment upon any award rendered by the arbitrator(s) in such proceedings may be issued and enforced by any court having competent jurisdiction. Any disputes arising out of or relating to the validity, enforceability, scope or infringement of patent or trademark rights shall be submitted for resolution by a court of competent jurisdiction.

24.3 EFFECT OF COMMENCING DISPUTE RESOLUTION. If either Party in good faith commences dispute resolution proceedings under Section 24.2, (A) any applicable notice periods or cure periods hereunder (including but not limited to the periods referenced in Sections 20.2 and 20.4) shall be temporarily suspended pending the outcome of such dispute resolution proceedings and (B) the non-breaching Party may, at its option, pay any amounts payable to the other Party that are in dispute into an interest-bearing escrow account pending the outcome of such dispute resolution proceedings.

25. LIMITATION OF DAMAGES

Except for indirect damages resulting from breach of Section 8, in no event shall either Party be liable to the other Party for any indirect, consequential or punitive damages in connection with the performance of this Agreement or any breach of this Agreement (excluding such damages payable to a Third Party which are subject to the indemnification obligations of the Parties set forth in this Agreement.

26. FORCE MAJEURE

Neither Party shall be held in breach of this Agreement for failure to perform any of its obligations hereunder to the extent and for the time period such performance is prevented in whole or in part by reason of any Force Majeure event, including but not limited to industrial disputes, strikes, lockouts, riots, mobs, fires, floods, and other natural disasters and Acts of God, wars declared or undeclared, civil strife, embargo, delays in delivery or defects or shortages of raw materials from suppliers, loss or breakdown of any production equipment, losses or shortage of power, damage to or loss of goods in transit, currency restrictions, or events caused by reason of laws, regulations or orders by any government, governmental agency or instrumentality or by any other supervening unforeseeable circumstances whatsoever beyond the control of the Party

so affected. The Party so affected shall (A) give prompt written notice to the other Party of the nature and date of commencement of the Force Majeure event and its expected duration and (B) use its reasonable efforts to avoid or remove the Force Majeure event as soon as possible to the extent it is so able to do.

27. RELATIONSHIP OF PARTIES

The relationship of the Parties under this Agreement is that of independent contractors. Nothing contained in this Agreement shall be construed so as to constitute the Parties as partners, joint venturers or agents of the other. Neither Party has any express or implied right or authority under this Agreement to assume or create any obligations or make any warranties and representations on behalf of or in the name of the other Party, or to bind the other Party to any contract, agreement or undertaking with any Third Party, and no conduct of the Parties pursuant to the terms of this Agreement shall be deemed to establish such right or authority. Neither Party shall make any representation to Third Parties that the relationship created hereby constitutes a partnership, joint venture or agency relationship.

28. SEVERABILITY

In case one or more of the provisions contained in this Agreement shall, for any reason, be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement, but this Agreement shall be construed by limiting such invalid, illegal or unenforceable provision, if such is not possible, by deleting such provision from this Agreement.

29. NON-WAIVER

The failure by either Party at any time to enforce any of the terms or provisions or conditions of this Agreement or exercise any right hereunder shall not constitute a waiver of the same or affect that Party's rights thereafter to enforce or exercise the same. No waiver of any of the provisions of this Agreement shall be deemed binding unless executed in writing by the Party to be bound by it.

30. HEADINGS

The headings in this Agreement are for convenience of reference only and shall not be used in the interpretation of any provisions hereof.

31. GOVERNING LANGUAGE

The English language version of this Agreement shall be controlling in all respects regardless of whether any translations into any other languages are made.

32. EXECUTION

This Agreement shall be executed by the Parties in two (2) original counterparts, one (1) original counterpart being retained by each Party and either of which shall be deemed sufficient to prove the existence and terms and conditions hereof. This Agreement may be

executed by the Parties by the exchange of facsimile signature pages, with signed original counterparts of the Agreement to be exchanged by the Parties promptly thereafter.

IN WITNESS WHEREOF, the Parties' duly authorized representatives hereto have executed this Agreement as of the Amendment Date.

ORION CORPORATION		GTX, INC.	
By:	/s/ Jyrki Mattila --- Jyrki Mattila	By:	/s/ Mitchell S. Steiner MD --- Mitchell Steiner, M.D.
Title:	President Orion Corporation Orion Pharma	Title:	Vice-Chairman and CEO GTx, Inc.
By:	/s/ Timo Lappalainen --- Timo Lappalainen	By:	/s/ Marc Hanover --- Marc Hanover
Title:	Senior Vice President Business Development & Finance Orion Corporation Orion Pharma	Title:	President and COO GTx, Inc.

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

SCHEDULE A: PART I

COUNTRY/JURISDICTION	TITLE	INVENTORS	PATENT NO.	ISSUE DATE	STATUS
1. UNITED STATES	METHOD FOR CHEMOPREVENTION OF PROSTATE CANCER	1. MITCHELLS S. STENIER 2. SHARAN RAGHAW	6,265,448	July 24, 2001	Issued

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SCHEDULE A: PART II

APPLICATIONS FILED IN THE UNITED STATES

[*]

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APPLICATIONS FILED IN FOREIGN JURISDICTIONS

[*]

SCHEDULE B: PART I. ORION PATENTS

TITLE: Novel Alkane and Alkene Derivatives and their Preparation and Use (Toremifene)

Country		Patent No.	Expiry
AU	Australia	556608	May 25, 2008*
BG	Bulgaria	98379	May 20, 2003
CA	Canada	1185977	April 23, 2002
DK	Denmark	170927	December 21, 2003*
EP	Europe	95875	December 21, 2003*
CH	Switzerland	95875	May 19, 2008*
IT	Italy	95875	February 14, 2008*
SE	Sweden	95875	May 20, 2008*
FI	Finland	77839	December 21, 2003*
HK	Hong Kong	83/89	May 20, 2003
HU	Hungary	193536	May 26, 2003
HU	Hungary	200742	May 26, 2003
IE	Ireland	55023	December 21, 2003*
IL	Israel	68784	May 25, 2003
JP	Japan	2105540	May 25, 2003
JP	Japan	1739006	June 29, 2005*
JP	Japan	1959197	May 25, 2003
JP	Japan	1867986	May 25, 2003
LV	Latvia	5066	May 26, 2003
NO	Norway	156164	December 21, 2003*
NZ	New Zealand	204349	May 25, 2003
SG	Singapore	654/88	May 20, 2003
SU	Russia	1508955	May 26, 2003
US	USA	4696949	September 29, 2009*
US	USA	5491173	September 29, 2004
US	USA	4996225	February 17, 2008
ZA	South Africa	833803	May 25, 2003

EP= Germany, Belgium, Austria, Italy, Sweden, Netherlands, Switzerland, Liechtenstein, Luxembourg, Great Britain, France

* patent term extension

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SCHEDULE B: PART II. ORION PATENT APPLICATIONS

TITLE: [*]

Country		Patent No.
CN	China	[*]
RO	Romania	[*]

* Administrative protection based on [*]

** Pipe-line protection based on [*]

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

SCHEDULE C: SPECIFICATIONS

SPECIFICATIONS FOR [*] TABLETS

TEST	SPECIFICATION		
	[*]	[*]	[*]
CHARACTERS			
Colour	[*]	[*]	[*]
Shape	[*]	[*]	[*]
Score	[*]	[*]	[*]
Code	[*]	[*]	[*]
Coating	[*]	[*]	[*]
[*]			
[*]	[*]	[*]	[*]
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[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]

SCHEDULE D: GTS'S MSR OBLIGATION

(TO BE COMPLETED PURSUANT TO SECTION 6.1.1)

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SCHEDULE E: ORION PRODUCT APPROVALS

REGISTRATION STATUS 27.9.2001
ORION PHARMA

Status: Approved, Pending
Submission types: Marketing authorisations
(2 PAGES)

Sent Date	Appl. Date	Product	Country	Decision Date	Decision	M.A. holder
N=39						
[*]	[*]	[*]	[*]		[*]	[*]
[*]		[*]	[*]		[*]	[*]
[*]		[*]	[*]		[*]	[*]
[*]		[*]	[*]		[*]	[*]
[*]		[*]	[*]		[*]	[*]
[*]		[*]	[*]		[*]	[*]
30.12.87	30.12.87	Fareston 20 mg tablet	Finland	21.12.88	Approved	Orion-yhtyma Oy Farmos
27.12.88		Fareston 60 mg tablet	Russia	12.12.89	Approved	Orion Corporation
27.12.88		Fareston 20 mg tablet	Russia	12.12.89	Approved	Orion Corporation
26.02.93		Fareston 60 mg tablet	Latvia	20.05.93	Approved	Orion-yhtyma Oy Farmos
26.02.93		Fareston 20 mg tablet	Latvia	20.05.93	Approved	Orion-yhtyma Oy Farmos
26.05.92		Fareston 60 mg tablet	Norway	31.07.95	Approved	Orion Corporation
10.11.93		Fareston 60 mg tablet	Ukraine	02.02.96	Approved	Orion Corporation
10.11.93		Fareston 20 mg tablet	Ukraine	02.02.96	Approved	Orion Corporation
14.11.94	30.11.94	Fareston 60 mg tablet	Sweden	14.02.96	Approved	Orion Corporation
14.11.94	30.11.94	Fareston 60 mg tablet	Finland	14.02.96	Approved	Orion Corporation
27.11.94	30.11.94	Fareston 60 mg tablet	United Kingdom	14.02.96	Approved	Orion Corporation
27.11.94	30.11.94	Fareston 60 mg tablet	Spain	14.02.96	Approved	Orion Corporation
27.11.94	30.11.94	Fareston 60 mg tablet	Portugal	14.02.96	Approved	Orion Corporation
27.11.94	29.11.94	Fareston 60 mg tablet	Netherlands	14.02.96	Approved	Orion Corporation
27.11.94	29.11.94	Fareston 60 mg tablet	Luxembourg	14.02.96	Approved	Orion Corporation
27.11.94	28.11.94	Fareston 60 mg tablet	Italy	14.02.96	Approved	Orion Corporation
27.11.94	29.11.94	Fareston 60 mg tablet	Ireland	14.02.96	Approved	Orion Corporation
27.11.94	01.12.94	Fareston 60 mg tablet	Greece	14.02.96	Approved	Orion Corporation
27.11.94	28.11.94	Fareston 60 mg tablet	Germany	14.02.96	Approved	Orion Corporation
27.11.94	30.11.94	Fareston 60 mg tablet	France	14.02.96	Approved	Orion Corporation
27.11.94	30.11.94	Fareston 60 mg tablet	Belgium	14.02.96	Approved	Orion Corporation
17.11.92		Fareston 60 mg tablet	Austria	14.02.96	Approved	Orion Corporation
27.11.94		Fareston 60 mg tablet	Denmark	14.02.96	Approved	Orion Corporation
31.03.96		Fareston 60 mg tablet	Uzbekistan	16.09.96	Approved	Orion Corporation
31.03.96		Fareston 20 mg tablet	Uzbekistan	16.09.96	Approved	Orion Corporation

Sent Date	Appl. Date	Product	Country	Decision Date	Decision	M.A. holder
19.12.94	03.01.95	Fareston 60 mg tablet	United States of America	29.05.97	Approved	Orion Corporation
10.04.95	15.07.96	Fareston 60 mg tablet	Hungary	14.01.98	Approved	Orion Corporation
01.08.97	01.08.97	Fareston 60 mg tablet	Cyprus	23.04.98	Approved	Orion Corporation
10.07.96		Fareston 60 mg tablet	Taiwan, R.O.C.	29.09.98	Approved	Orion Corporation
31.03.95		Fareston 60 mg tablet	Dominican Republic	29.12.98	Approved	Orion Corporation
10.11.95	26.04.96	Fareston 60 mg tablet	China	13.02.99	Approved	Orion Corporation
30.07.01		Fareston 60 mg tablet	Georgia	30.07.01	Approved	Orion Corporation
30.07.01		Fareston 20 mg tablet	Georgia	30.07.01	Approved	Orion Corporation

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EXHIBIT 10.16

AMENDMENT

This Amendment made and executed as of this 5th day of March 2003 ("effective date") constitutes a valid and enforceable amendment to the Amended and Restated Toremifene License and Supply Agreement of the 22nd day of October 2001 (hereinafter referred to as the "Agreement") between Orion Corporation, a corporation existing under the laws of Finland and having its principal office at Orionintie 1, 02200 Espoo, Finland (hereinafter referred to as "ORION"), and GTx, Inc., a corporation organized and existing under the laws of the State of Tennessee, U.S.A. and having its principal office at 3 North Dunlap Avenue, Van Vleet Building, Third Floor, Memphis, Tennessee 38163, U.S.A. (hereinafter referred to as "GTx") (ORION and GTx collectively referred to herein as "Parties").

WHEREAS, the Parties have entered into the Agreement on October 22, 2001;

WHEREAS, the Parties wish to amend the Agreement on the terms and conditions contained herein; and

WHEREAS, The Parties wish that all other terms and conditions of the Agreement shall remain unchanged and shall be retained in full force and effect unless specifically agreed otherwise herein;

NOW, THEREFORE, the Parties hereto agree as follows:

The Parties have agreed to amend the Section 1.35 of the Agreement to read in its entirety as follows:

"Toremifene" shall mean [*].

The Parties have agreed to amend the Section "Definitions" by adding a new section 1.42:

"SERM" shall mean [*] as described in the Orion Patent Rights including its isomers, metabolites, derivatives and analogs, having either antiestrogenic or estrogenic pharmacological properties.

The parties have agreed that the phrase "...anti-estrogen and/or SERM..." as used in the Agreement shall hereby be amended to delete tHe reference to "anti-estrogen" and to limit the applicable sentence to only SERMs. By way of explanation, the definitions for "Competing Product" (Section 1.4), "GTX Know-How" (Section 1.10), "GTX Patents" (Section 1.11) and "GTX Patent Applications" (Section 1.12), are all hereby amended to delete the reference therein to "anti-estrogen" and to limit the definition to SERM as set forth in the applicable definition.

The Parties have agreed to amend the Section 1.6 of the Agreement to read in its entirety as follows:

> "Field" shall mean the prevention and treatment of prostate cancer, which shall mean for the purposes of hereof: preventing prostate carcinogenesis; suppressing or inhibiting prostate cancer; reducing the risk of developing prostate cancer; increasing the survival rate of a subject with prostate cancer; and treating prostate cancer. Furthermore, the Field shall include the prevention and/or treatment of osteoporosis, gynecomastia, and hot flashes, induced by chemical or surgical androgen deprivation therapy in the treatment of prostate cancer.

In consideration of the expansions of the definition of Field, and, as a consequence, GTx' rights under the Agreement, the Parties have agreed to:

(I) amend section 2.1.5(a) of the Agreement to read in its entirety as follows:

(a) Orion grants GTX, on a country by country basis, the right of first negotiation to negotiate further agreements under commercially reasonable terms and conditions regarding the further development, registration, promotion, marketing, sales and distribution of a pharmaceutical product for human use within the Field containing SERMs, as the active ingredient (a) which is covered by a Valid Claim within the GTX Patent Rights in such country; and (b) for which Orion has both a license or other right to develop and commercialize such products and within five (5) years after the Amendment Date, Orion has commenced Phase I clinical trials for such product anywhere in the world for a primary indication falling within the Field (a product fulfilling (a) and (b), hereinafter referred to as "Additional Product"). [*] after GTX's receipt in writing of a first offer from Orion regarding commercially reasonable terms and conditions for obtaining rights in and to such Additional Product, GTX shall notify Orion in writing if it wishes to enter into negotiations with respect to such Additional Product. Should GTX elect to exercise such right, the Parties agree to negotiate in good faith the commercially reasonable terms and conditions for a letter of intent to be completed [*] of receipt by Orion of such notification from GTX. Any deadlines may be extended by mutual written agreement. Should GTX fail to provide written notification to Orion by the end of [*], or GTX notifies Orion that it does not wish to enter into negotiations; or the Parties, despite conducting good faith negotiations, are unable to finalize the commercial terms of the letter of intent [*], GTX shall have no further rights in the SERM, and Orion shall be free to contract with a Third Party concerning same or itself further pursue the development, registration, promotion, marketing, sales and distribution of such Additional Product.

(II) amend section 2.1.5(b) of the Agreement to read as follows:

(b) During the term of any Orion Patents or the pendency of any Orion Patent Application in the relevant country, Orion grants GTX, on a country by country basis as set forth in this Section 2.1.5(b), a right of first negotiation to negotiate with Orion an agreement under which GTX would, on commercially reasonable terms and conditions, develop, register, promote, market, sell and distribute "Interchangeable Pharmaceutical Products Containing Toremifene" for use outside the Field ("Other Activities"), provided, however, that such right of first negotiation described in this Section 2.1.5(b) shall not extend to breast cancer indications. For purposes hereof, "Interchangeable Pharmaceutical Products Containing Toremifene" shall mean any pharmaceutical product containing Toremifene for use in humans which is sufficiently similar with any Product of GTx (for which at least a Phase II clinical trial has been commenced for such Product anywhere in the world) to be considered therapeutically equivalent ("Other Toremifene Product"), which equivalence reasonably may result in, or materially increase the likelihood for substitution by a health care provider of such Product of GTx for the Other Toremifene Product.

All other terms and conditions of the Agreement shall remain unchanged.

IN WITNESS WHEREOF, the Parties, through their authorized representatives, have executed two (2) identical copies of this Amendment as of the effective date.

Orion Corporation	GTx, Inc.
By: /s/ Timo Lappalainen	By: /s/ Henry P. Doggrell
Name: Timo Lappalainen	Name: Henry P. Doggrell
Title: Executive Vice President	Title: General Counsel / Secretary
By: /s/ M. Vahari	

Name: Matti Vahari

Title: Senior Vice President

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EXHIBIT 10.17

PRODUCTION AND MANUFACTURING AGREEMENT

This Production and Manufacturing Agreement (the "Agreement") is made and entered into this 9th day of September 2002 (the "Effective Date") by and between (i) ChemSyn Laboratories, a department of Eagle-Picher Technologies, LLC, with its principal place of business at 13605 W. 96th Terrace, Lenexa, Kansas 66215-1297 ("CSL "), and (ii) GTx, Inc., a Tennessee corporation with its principal place of business at 3 North Dunlap Street, 3rd Floor, Memphis, Tennessee 38163 ("GTx"), who, intending to be legally bound, hereby agree as follows:

WHEREAS, GTx has developed and owns the entire right, title and interest in and to [*] and [*] and pharmaceutical compositions comprising [*], [*] and other related pharmaceutical compositions (collectively the "Product") and desires to produce and manufacture the Product for preclinical studies and clinical trials and, if later approved by the requisite governmental authorities, for commercial sale;

WHEREAS, CSL is currently working with GTx under a contract dated March 9, 2001 (the "2001 Contract") to produce small quantities of [*] (the "[*] Product") (previously estimated to be [*] per batch) to develop a manufacturing process for the [*] Product and to manufacture the [*] Product for clinical and preclinical studies;

WHEREAS, CSL and GTx desire to enter into this Agreement to replace the 2001 Contract and to form the framework for additional work to be performed by CSL for GTx from time to time.

NOW, THEREFORE, for and in consideration of the terms and provisions set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, CSL and GTx agree as follows:

1. SERVICE

1.1 THE SERVICE. Schedule 1 sets forth a description and price for additional Services to be performed by CSL in accordance with the terms hereof. Any future Services pertaining to [*], [*] or other related compounds shall be performed by CSL under the terms of this Agreement by CSL and GTx executing an Addendum hereto identifying the additional Service to be performed, the price, time period, and other terms specific to the particular Service. Upon execution of the Addendum by the parties, the Addendum shall be considered an additional Schedule to his Agreement and a part hereof.

1.2 THE PROCESS. Operating under the 2001 Contract, CSL has synthesized [*] of material through [*] of a [*] process to manufacture the [*] Product. Current batch records documenting the manufacturing process ("Batch Records") through [*] for the manufacture of

[*] Product have been prepared by CSL and reviewed by GTx. CSL has used portions of this material to synthesize [*], under cGMP conditions, and to synthesize [*]. The remainder of the material will be stored by CSL and utilized in accordance with the agreement of GTX and CSL. Any additional Product to be manufactured in the future by CSL will be manufactured under cGMP or non-cGMP conditions, as specified in an Addendum to this Agreement.

CSL agrees that it will utilize the best available current technology known to it to synthesize [*], [*] and other compounds the parties may hereinafter agree upon, utilizing the most current Batch Records then available for a particular process. CSL also agrees that it will consult with GTx at all reasonable times during the manufacturing process to ensure that the desired Product is being manufactured in accordance with the current specifications then approved for the Product by the parties. For any Product being manufactured by CSL in accordance with then applicable Batch Records, GTx shall have the right to approve the master Batch Records for such Product, any planned deviations from the Batch Records (and GTx should be consulted as soon as possible regarding any emergency deviation from the Batch Records), as well as the final Batch records for the Product.

1.3 RECORD MAINTENANCE; BATCH RECORDS. For the term specified, CSL shall retain, by company Standard Operating Procedures (SOP), files, records, manufacturing logs, forms, laboratory data books and notebooks for any and all data, process information and results, for each of the Services performed under this Agreement; copies of all such records which are reasonably requested by GTx in writing shall be provided by ChemSyn's Standard Operating Procedures at GTx's expense. CSL will develop, document, and maintain current Batch Records for each step of the production process for each desired cGMP Product produced as a part of the Services hereunder, in accordance with good manufacturing practices and procedures and applicable FDA and other governmental agency requirements. CSL agrees to provide GTx with a copy of all Batch Records along with CSL's quality assurance review statement. CSL also shall provide GTx, at GTx's expense, with all information GTx may reasonably request in order to obtain or comply with any necessary regulatory approvals, permits, licenses, clearances and notifications for manufacture, shipment, sale or use of the Product. All CSL records pertaining to any GTx Product shall be maintained by CSL in accordance with applicable regulations.

1.4 TESTING. CSL will perform in-process testing for quality, quantity and yield in accordance with its planned manufacturing process for the production of each Product it is producing for GTx, including [*] and [*], and all such in-process testing for Product manufactured under cGMP conditions shall be done in accordance with then applicable regulations. Solvents and reagents used in the manufacturing process will require only an identification test by CSL and an accompanying Certification of Analysis. All test results of the Product will be shared with GTx. No other tests by CSL are contemplated under this Agreement, and any additional testing by CSL will be done only with both parties prior written approval at an agreed upon price.

1.5 TIMING. The Services to be performed hereunder are expected to take approximately the time period set forth in Schedule 1 hereof for each such Service. In the event a particular Service will exceed the estimated time period, CSL will consult with GTx to determine the appropriate additional time necessary to complete the Service. If additional manufacturing or process development time is required by CSL to complete the Service, no additional fee shall be

payable to CSL for additional work unless this Agreement shall be amended in writing by both parties.

1.6 INFORMATION. CSL will provide GTx with verbal weekly updates on the progress it is making under this Agreement, and written project updates monthly if requested by GTx. CSL also will provide to GTx copies of all test results, laboratory records, Batch Records, and other information pertaining to the Services it is performing for GTx under this Agreement.

1.7 INSPECTIONS. GTx or its designated agent may inspect CSL's production and testing facilities at Lenexa, Kansas, examine samples of the material and/or Product, as the case may be, review the records under Section 1.3 and review any other records applicable to any GTX Product including all test results, equipment, maintenance and calibration records, raw material and finished product storage area records, shipping records and all applicable SOP's developed and utilized by CSL for its development, manufacturing and/or testing processes and procedures. The inspections are limited to two (2) days per calendar year. If GTx requests additional time, then CSL shall be compensated by an amount to be agreed upon in a mutually agreed upon Addendum.

1.8 GOVERNMENT COMMUNICATION. CSL will promptly provide to GTx copies of all documents in its possession concerning communications to or from the FDA or prepared by the FDA, or to or from or prepared by any other governmental agency, which bear in any respect on compliance by CSL with FDA and other relevant governmental agency requirements pertaining to the development or manufacture of any Product under this Agreement.

2. PAYMENT AND DELIVERY

2.1 AMOUNT. The Project Fee for this Service is outlined in the workscope found in Schedule 1. The fees for subsequent projects shall be determined by GTx and CSL on a project by project basis, and will be attached to this Agreement an Addendum hereto. Applicable state sales taxes will be assessed on all shipments and/or services unless proof of exemption for the destination state(s) can be provided.

2.2 STORAGE FEE. Finished product (Active Pharmaceutical Ingredient) stored by CSL for GTx for [*] will be subject to a storage fee. The [*] storage fee for the stored finished product will be the [*]: (i) an amount equal to [*] of the contract pertaining to the stored finished product, or (ii) [*] per lot. For purposes hereof, a "lot" shall mean for each Service, the amount of finished product to be manufactured by CSL for GTx as specified for the Service. The storage fee will activate [*] after the completion of the project. In the event any finished product, which is being stored by CSL, is specified in writing by the Parties for use as an ingredient in another Product, the storage fee for such finished product shall be waived.

2.3 FIXED FEE PAYMENT. Upon execution of this Agreement, GTx will pay as an Initial Deposit [*] of the aggregate Project Fee for the initial project. GTx will pay to CSL [*] of the agreed upon amount for each additional Service upon execution of the Addendum adding each Service to this Agreement. Another [*] of the Project Fee for each such Service will be considered earned by CSL and due and payable to it upon completion of each such Service. Completion of Service will be defined as when CSL has Product packaged, batch records

reviewed and the Product is ready for shipment or is waiting for independent laboratory results to complete the certificate of analysis. A final payment of [*] of the Project Fee for each Service shall be due and payable to CSL upon CSL's completion of the Service and delivery of copies of any applicable Batch Records to GTx in accordance with this Agreement. All payments are to be made by GTx within [*] of CSL's issuance of its invoice.

2.4 TIME AND MATERIAL PAYMENT. If CSL is to perform services based on a Time and Material fee schedule, GTx will pay an Initial Deposit of [*] of each additional Service which is based on a Time and Material Addendum executed by both parties. GTx shall reimburse CSL for all related project costs including direct labor at specified hourly rates, direct material, direct suppliers and waste disposal, as well as all other reasonable out-of pocket costs incurred by CSL with unaffiliated third parties in the performance of each such additional Service thirty days after issuance by CSL of an itemized invoice of such costs. Upon completion of work covered by the Initial Deposit, CSL will commence monthly invoicing for the balance of the work preformed under the Time and Materials Addendum. CSL will invoice every thirty days for work completed during that period. All payments are to be made by GTx within [*] of CSL's issuance of its invoice.

2.5 DELIVERY. Unless otherwise stated in this Agreement, all goods are sold F.C.A. shipping point.

3. CHANGES AND DESIGNATED REPRESENTATIVES

3.1 CHANGE ORDERS. Any changes or modifications to this Agreement requiring the payment by GTx of additional fees or costs shall require the prior written approval of GTx. Any modification to the Project Fee on account of a change order will be paid in accordance with Section 2.3 or 2.4, whichever is applicable.

3.2 DESIGNATED REPRESENTATIVE. Any material change in the Services to be provided by CSL shall be confirmed in writing by the parties' authorized representative(s) designated to be anyone of the following persons:

	GTX
NAME	TITLE:
Marc Hanover	President, COO
Mark Mosteller	CFO
Karen Veverka	Director, ARTA Program
	CSL
Dr. Bill Griggs	Regional Accounts Manager
Scott B. Parker	Sales and Marketing Manager

4. INTELLECTUAL PROPERTY

4.1 CSL will acquire no rights of any kind with respect to the material or ingredients for any Product or any of the finished Product. GTx shall own the entire right, title and interest in and to the material, ingredients and the Products.

4.2 CSL will not sell or use the material, ingredients or Products for any purpose other than as provided herein without first receiving prior or written approval from GTx.

4.3 All intellectual property, information, discoveries, formulation, compounds, compositions, processes, Batch Records, test results, formulae, specifications, methods, techniques, or improvements, whether or not patentable ("Service Inventions") arising from the performance of the Services shall promptly be made known to GTx in writing, and GTx shall have sole and exclusive rights to all such Service Inventions, which shall be the sole property of GTx. CSL shall assign and will assign Service Inventions to GTx, at no cost to GTx, and execute any and all documents and do any and all things reasonably requested by GTx to vest and perfect GTx's interest in the Service Inventions. CSL further agrees to provide reasonable assistance to GTx, at GTx's expense, in making application for, obtaining, and from time to time, enforcing and defending GTx rights that may be required resulting from the Services performed, or to be performed, hereunder.

4.4 CSL shall not use the name of GTx in any advertising or sales promotional material or in any other way without the prior written consent of GTx, except where required to do so in compliance with an official government or government agency request for information.

5. PROPRIETARY INFORMATION

5.1 "Proprietary Information" shall include, but shall not be limited to, information pertaining to compounds, formulations, products, data, know-how, business strategy, ideas, and concepts and shall be (i) written or documentary technical and business information of any kind relating to the subject matter hereof and identified by the disclosing Party with a conspicuous legend appearing on such written or documentary information that it contain proprietary information of the disclosing Party; (ii) orally or visually disclosed technical and business information relating to the subject, matter hereof which is identified at the time of disclosure as confidential and which GTx or CSL reduces to writing, with the proprietary information specifically identified, bearing the legend described in subsection (i) above and delivers such writing to the receiving Party no later than thirty (30) days after such oral or visual disclosure; and (iii) models, tools or other hardware disclosed and identified and confirmed in writing, as described in subsection (ii) above.

5.2 CSL acknowledges and agrees that GTx will be disclosing Proprietary Information to CSL, (the "GTx Proprietary Information"). CSL agrees that it shall hold the GTx Proprietary Information in strict confidence, shall not disclose it to others or use it in any way, commercially or otherwise, except for purposes of performing its obligations under this Agreement. CSL further agrees to take all action necessary to protect the confidentiality of GTx including, without limitation, (a) implementing and enforcing operating procedures to minimize

the possibility of unauthorized use or copying of GTx Proprietary Information, and (b) obligating each of its subcontractors, by written agreement, to protect GTx's Proprietary Information.

5.3 GTx acknowledges and agrees that CSL will be disclosing Proprietary Information to GTX, (the "CSL Proprietary Information"). GTx agrees that it shall hold the CSL Proprietary Information in strict confidence, shall not disclose it to others or use it in any way, commercially or otherwise, except for purposes of performing its obligations under this Agreement. GTx further agrees to take all action necessary to protect the confidentiality of CSL including, without limitation, (a) implementing and enforcing operating procedures to minimize the possibility of unauthorized use or copying of CSL Proprietary Information, and (b) obligating each of its subcontractors, by written agreement, to protect CSL's Proprietary Information.

5.4 CSL shall not disclose, without the prior written consent of GTx, any GTx Proprietary Information, and any files, documents, records, data, results, experiments, formulations, manufacturing logs, specifications, compounds, compositions, and Batch Records arising from the Services to any third party without the prior written consent of GTx, except to the Food and Drug Administration upon inspection. If, during an inspection of CSL by the Food and Drug Administration (FDA), any work owned by GTx is examined, GTx must be notified in writing of the extent and nature of the review. GTx will be notified verbally when an FDA inspection of CSL is scheduled which might include a review of GTx intellectual property. Directed FDA inspections for GTx's Products are not included in the scope of work and pricing in the current Agreement. A separate addendum will be necessary for FDA inspections, should inspections be required. Any correspondence with the FDA outside the scope of an inspection where CSL discloses GTx Proprietary Information requires written approval by GTx.

5.5 All obligations of confidentiality and non-disclosure set forth herein will survive, without limitation, the expiration, or early termination, for any reason of this Agreement.

6. TERMINATION

6.1 TERM. The term of this Agreement shall commence upon the Effective Date hereof and shall remain in effect until the completion of each of the Services unless otherwise terminated in accordance with this Section.

6.2 TERMINATION BY GTX. In the event that GTx demonstrates that: 1) the material or any Product is not safe or is toxic in animal or human experiments; and/or 2) the process work indicates that GTx's proposed Product is not feasible, GTx shall promptly inform CSL of such determination and GTx may immediately and unilaterally terminate the particular Service being provided by CSL pursuant to this Agreement.

6.3 RENEWAL. This general terms of this Agreement will remain in effect for a term of five years, after which, both Parties can agree to renew or modify this Agreement.

6.4 TERMINATION FOR BREACH. This Agreement may be terminated by either party in the event that the other party has not performed any material obligation or has otherwise breached any material term of this Agreement upon the expiration of [*] (or any longer cure period authorized by the non-breaching party with respect to any individual breach) after receipt

of written notice thereof if the breach or nonperformance is capable of cure and has not then been cured.

6.5 EFFECT OF TERMINATION. Upon termination of any Service or termination of this Agreement, CSL shall immediately return to GTx at GTx's expense, all or any part of the material and any Product made as of the date of such Termination. CSL shall be entitled to reimbursement for all direct and indirect costs incurred or irrevocably obligated as of the date of such termination. In addition, CSL shall be entitled to [*] of the remaining amount of the contract price pertaining to any terminated Service which is unpaid at the time of termination, as set forth in Schedule 1 and each Addendum defining the then current Services. If the amount that GTx has previously paid to CSL exceeds the amount that is actually owed to it, CSL shall reimburse the balance to GTx within [*] of receipt of notice of termination. All materials provided by GTx unused at the effective date of termination shall be returned to GTx unless otherwise agreed to in writing.

7. NOTICE

7.1 All notices shall be in writing and shall be deemed to be delivered two (2) days after being deposited with a recognized international express courier service, or when sent by facsimile transmission promptly confirmed by return transmission. All notices shall be directed to CSL or GTx at the respective addresses first set forth above or to such other address as either party may, from time to time, designate by notice to the other party.

8. REGULATORY MATTERS

8.1 APPROVALS. CSL shall obtain all regulatory approvals, permits, licenses, clearances and notifications which it is required to have for the manufacture, shipment, sale or use of any product prior to any such manufacture, sale or use or shall ensure that such required approvals, permits, licenses, clearances and notifications are otherwise obtained. CSL shall provide GTx with all information that it may reasonably request in order to obtain or comply with any necessary regulatory approvals, permits, licenses, clearances and notifications for manufacture, shipment, sale or use of any product.

9. GENERAL PROVISIONS

9.1 WARRANTY. CSL warrants that it has the right to enter into the Agreement including these terms and conditions; that the execution of the Agreement and the terms and conditions and the performance by CSL of its obligations hereunder will not result in any breach or violation or default under any other agreement; that the execution, delivery and performance of the Agreement and the terms and conditions have been duly authorized; and that the Agreement and the terms and conditions constitute an agreement that is the legal, valid and binding obligation of CSL, enforceable against it in accordance with its terms.

CSL warrants that it has the appropriate registrations, licenses and any other governmental authorizations to carry out its obligations under the Agreement and the terms and conditions.

CSL warrants that it will perform all services and work under the Agreement and the terms and conditions in accordance with the Regulatory Requirements specified herein, and that it shall follow in all respects the terms and provisions of, and shall at all times meet the standards of quality specified in the Agreement and the terms and conditions.

9.3 DISCLAIMER. CSL HEREBY MAKES NO OTHER WARRANTIES UNDER THIS AGREEMENT, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY; OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

9.4 If, as a result of CSL's negligence any of the materials and/or Products manufactured by CSL for GTx does not conform to the applicable specifications, GTx shall give CSL written notice of the nonconformity. CSL shall promptly rework or replace the nonconforming shipment, without charge, with a like amount that satisfies the applicable specifications within a period of time to be mutually agreed to by both parties. In the event that CSL is unable to produce a replacement amount of materials and/or Products that satisfies the applicable specifications within a reasonable time after receipt of the notice of nonconformity, GTx shall have no obligation to CSL for payment for the nonconforming shipment, and if payment has already been made, GTx shall be entitled to an immediate refund of the price of the nonconforming material and/or Product.

9.5 CERTIFICATION OF ANALYSIS. Promptly on the date of each CSL shipment of any Product actually delivered to GTx or GTx designee and promptly on the date of each CSL shipment of Product, CSL shall furnish GTx with a certificate of analysis, in the form specified by GTx and signed by a CSL representative reasonably acceptable to GTx, which certifies the actual content of those components of the Product, which are identified in the applicable specifications. Notwithstanding the foregoing, GTx shall have the right to designate an independent laboratory to provide the certificate of analysis, in which case it shall so notify CSL in writing. No shipment of Product (except to the independent lab designated by GTx and except for developmental batches of Product provided to GTx or its designee) shall be made by CSL until it shall have received the appropriate certificate of analysis from the independent laboratory.

9.6 STOP WORK ORDERS. Stop work orders may be issued in writing by GTx for any Service under this Agreement for an effective period [*] but only if received in writing by CSL. GTx's stop work orders [*] shall constitute a termination and be subject to the terms set forth in Section 6.2 unless extensions of the [*] stop work period are agreed to in writing by CSL. GTx will be responsible for reasonable costs that were incurred due to stoppage of the Service prior to completion. CSL will provide a detailed written list of such costs to which both parties must agree.

9.7 LICENSES AND PERMITS (INTER-AND INTRASTATE SHIPMENTS). Persons intending to use any goods involving humans in clinical investigations must obtain an approved status for such use from the U.S. Food and Drug Administration. The responsibility to obtain appropriate

permits/licenses is that of GTx. Proof of permit/license may be requested at the discretion of the CSL.

9.8 SEVERABILITY. If any provision of this Agreement shall be held to be invalid, illegal or unenforceable for any reason, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

9.9 RELATIONSHIP OF THE PARTIES. For purposes of this Agreement, CSL and GTx will be and shall act as independent contractors, and neither party is authorized to act as an agent or partner of, or joint venturer with, the other party for any purpose. Neither party by virtue of this Agreement shall have any right, power, or authority to act or create any obligation, express or implied, on behalf of the other party.

9.10 FORCE MAJEURE. Neither party shall be liable for any damages or penalty for any delay in performance of, or failure to perform, any obligation hereunder or for failure to give the other party prior notice thereof when such delay or failure is due to the elements, acts of God, delays in transportation, strikes or labor disputes, delays in delivery by vendors or other causes beyond that party's reasonable control.

9.11 NO WAIVERS. No express or implied waiver by either party of any event of default hereunder shall in any way be or be construed as a waiver of any future or subsequent event of default.

9.12 SURVIVAL. The respective rights and obligations of the parties under Article 4, 5 and 8 shall survive the termination of this Agreement.

9.13 ENTIRE AGREEMENT. The parties acknowledge that this Agreement sets forth the complete, exclusive and integrated understanding of the parties which supersedes all proposals or prior agreements, oral or written, and all other prior communications between the parties relating to the subject matter of this Agreement.

9.14 ASSIGNMENT. Neither this Agreement nor any rights granted hereby may be assigned by CSL without GTx's prior written consent. Any assignment of this Agreement by GTx shall require that it notify CSL in writing of any assignment.

9.15 GOVERNING LAW. This Agreement, and any and all tort claims that may arise in connection with any product and any related services, will be governed by the substantive laws of the State of Missouri.

9.16 INDEMNIFICATION/LIMITATION OF LIABILITY. Seller's liability for damages whether based on seller's negligence, breach of contract, warranty or otherwise, shall not exceed [*]. Seller shall not indemnify buyer or otherwise be liable in contract or in tort for special, indirect, incidental, or consequential damages such as, but not limited to, loss of profits or revenue. Buyer assumes all risk and liability resulting from use of the products delivered hereunder whether used singly or in combination with other products.

9.17 Contract for Commercial Supplies. The parties acknowledge that this Agreement is for the manufacture and production of developmental material and services. If the manufacture

of commercial quantities of product is required, the parties will negotiate in good faith a commercial manufacturing agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed this 9th day of September, 2002.

CHEMSYN LABORATORIES A DEPARTMENT OF EAGLE-PICHER LABORATORIES, LLC	GTX, INC.
By: /s/ Bradley J. Waters	By: /s/ Henry P. Doggrell
Title: CFO, Eagle Picher Tech, LLC	Title: General Counsel
Date: 9-6-02	Date: Sept. 9, 2002

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SCHEDULE 1
PROJECT WORKSCOPE

RE: Please refer to CSL Inquiry No. 807836c

ChemSyn Laboratories (CSL) is pleased to submit this Project Workscope in response to your recent request.

I. Proposed Scope of Work:

Utilizing the current technology available, begin a synthesis of a variety of compounds and intermediates. [*] of the synthesis will begin with [*] of [*] to prepare intermediate [*]. All of the product will be carried forward to [*] to prepare intermediate [*]. Again, all of the product will be carried forward to [*] to prepare intermediate [*].

At this point the product will be [*]. [*] will be delivered to GTx Inc. ([*]). The [*] ([*]) will be converted to the [*] of [*] ([*]). The [*] ([*]) will be used to synthesize the [*] ([*]). Synthesis of the [*] compound ([*]) requires process development. [*] is assumed to be similar to [*] in terms of time and materials. GTx Inc. will be contacted to verify the quantity of [*] compound for each of the [*] parts. Note, [*] of [*] product yields approximately [*] of final product.

Phase I Process Development Costs

Perform two lab experiments [*]. These experiments allow the chemist to gain an understanding of the chemistry before the large batch is committed to the procedure. The first experiment will duplicate the best technology to date and identify any scale up issues with the small scale experimental procedure. The issues that are identified in the first experiment will cause changes to be tried in the second experiment before performing the large scale work.

Budget [*], [*]
Timing [*]

Phase II [*]
[*]

- Perform [*] of synthetic scheme starting from [*] of [*].
- The yield is expected to be approximately [*] of the [*].

Budget Synthesis	[*],	$[*]
Project Management [*],		$[*]
	Total	$[*]

Timing [*]

[*] ([*] intermediate, yield approx. [*])

Budget Synthesis	[*],	$[*]
In-Process HPLC, [*]		$[*]
Project Management [*],		$[*]
	Total	$[*]

Timing [*] after completion of any development work required.

[*] ([*], yield approx. [*])
Assumption is that the technology for [*] will work for this [*].

Budget Synthesis [*],		$[*]
In-Process HPLC, [*]		$[*]
Project Management [*],		$[*]
	Total	$[*]

Timing [*] after completion of any development work required.

II. Project Costs and Billing

Process Development [*]		$[*]
Synthesis [*]		$[*]
Perform [*]		$[*]
Perform [*]		$[*]
	Labor Total	$[*]
Materials Estimate (cost [*] fee)		$[*]
	Total	$[*]

GTx shall reimburse CSL for all related project costs (estimated above) including direct labor, direct material, direct suppliers and waste disposal, as well as all other reasonable out-of pocket costs incurred by CSL with unaffiliated third parties in the performance of the project thirty days after issuance by CSL of an itemized invoice of such costs. CSL will invoice every thirty days for work completed during that period. WE ASK THAT GTX REMIT TO CSL THE [*] OF CONTRACT AMOUNT ([*]) AT THE COMMENCEMENT OF THE PROJECT.

A formal costs accounting system is maintained that is approved by or capable of being approved by Deloitte and Touche, our independent auditors; as well as the U.S. Government. CSL represents and certifies that it will maintain all fiscal records for three years from the date of final payment and all costs will be allocated to this project in accordance with CSL's disclosed accounting practices. Costs outlined above do not include any applicable taxes. Applicable state sales taxes will be assessed on all shipments and/or services unless proof of exemption for the destination state(s) can be provided.

III. Period of Performance

Process Development [*]	[*]
Synthesis [*]	[*]
Synthesis of [*]	[*]
Synthesis of [*]	[*]

*- from the completion of any process development work required and from the completion of Synthesis [*]

IV. Authorization

The project described above may be authorized by returning to CSL a signed copy of our proposal and your purchase order. This proposal remains effective until Oct 05, 2002. Please reference Inquiry Number 807836c in all correspondence.

We appreciate your consideration of CSL to support your research endeavors. If you have questions or require additional information please contact me at (800) 233-6643. Thank you.

Sincerely,

/s/ Scott B. Parker

Scott B. Parker
Sales and Marketing Manager

Approved by GTx:

/s/ Karen Veverka

Karen Veverka, Ph.D.
Director ARTA Research
Date Sept. 09,2002

September 19, 2002

GTx, Inc. ("GTx") and ChemSyn Laboratories ("ChemSyn") herby agree to the following:

1. The attached Addendums 1 and 2 to Schedule 1 to the Production and Manufacturing Agreement dated September 9, 2002 (the "Contract"), describing additional Scope of Work to be undertaken by ChemSyn on behalf of GTx, is hereby approved by the Parties and shall become a part of the Contract.

2. Except as amended hereby, all other terms and provisions of the Contract shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have caused their duly authorized representatives to execute this Agreement as of this 19th day of September, 2002.

GTx, Inc.	ChemSyn Laboratories
By: /s/ Henry P. Doggrell	By: /s/ Donald R. Leggett
Title: General Counsel	Title: Business Unit Leader

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(CHEMSYN LABORATORIES LOGO)

Addendum 1

September 17, 2002

Dr. Karen Veverka
Director ARTA Research
GTx Inc.
3 North Dunlap
3rd Floor Van Vleet
Memphis, TN 38163

RE: Please refer to CSL Inquiry No. 807941a

Dear Karen:

ChemSyn Laboratories (CSL) is pleased to submit this proposal in response to your recent request.

I. Proposed Scope of Work:

[*] Synthesis ([*] Product)
- Perform [*] of synthetic scheme starting from [*] of [*].
- -The yield is expected to be approximately [*] of the [*].

II. Project Costs and Billing (Fixed Fee)

Budget Synthesis	[*],	$[*]
Project Management	[*],	$[*]
Materials (cost [*] fee)		$[*]
	Total	$[*]

WE ASK THAT GTX REMIT TO CSL THE [*] OF CONTRACT AMOUNT ($[*]) AT THE COMMENCEMENT OF THE PROJECT. Payment terms are specified in the Production and Manufacturing Agreement dated September 9, 2002

III. Deliverable

Approximately [*] of [*], [*] product

IV. Period of Performance

Synthesis [*] ([*] Product) [*]

V. Authorization

The project described above may be authorized by returning to CSL a signed copy of our proposal and your purchase order. This proposal remains effective until October 15, 2002. Terms and conditions are attached. Please reference Inquiry Number 807941a in all correspondence.

We appreciate your consideration of CSL to support your research endeavors. If you have questions or require additional information please contact me at (800) 233-6643. Thank you.

Sincerely,

/s/ Scott B. Parker

Scott B. Parker
Sales and Marketing Manager

Approved by GTx:

/s/ Karen Veverka / M.S. Macbeth 9/18/02

Karen Veverka, Ph.D.
Director ARTA Research
Date 9/17/02

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(CHEMSYN LABORATORIES LOGO)

Addendum 2

September 17, 2002

Dr. Karen Veverka
Director ARTA Research
GTx Inc.

3 North Dunlap
3rd Floor Van Vleet
Memphis, TN 38163

RE: Please refer to CSL Inquiry No. 808033a

Dear Karen:

ChemSyn Laboratories (CSL) is pleased to submit this proposal in response to your recent request.

1. Proposed Scope of Work:

This work is an extension of the Development Batch - Inquiry No. 807836c

Currently, [*] of [*] intermediate [*] ([*]) was prepared and [*] shipped to GTx for development work.

This proposal consists of splitting the [*] into [*], synthesis of [*], synthesis of [*], an additional shipment to GTx Inc., and process development work for [*] This proposal does not include final release testing.

1) [*].

[*] of [*] will be used to synthesis [*]. The scope includes starting from [*] of [*] and performing [*] to synthesis [*] using the best technology available, non-GMP. [*] of [*] will be shipped to GTx Inc., the remainder will be used in [*]. [*] will be performed under GMP conditions to yield [*]. The targeted amount is [*] of [*]. [*] will require dedicated glassware, estimated to be [*].

2) [*].

[*] of [*] will be used to synthesize [*]. Starting with [*] of [*] should yield approx [*] of [*] ([*] product) non-GMP. The scope of Inquiry number 807836c included [*] ([*] intermediate, yield approx [*]). No additional cost is required for the larger scale in this proposal. [*] will be invoiced under Inquiry number 807836c. This current inquiry includes [*] performed under GMP conditions to yield [*]. The targeted amount is [*] of [*].

3) Shipment to GTx

[*] of [*] will be shipped to GTx [*].

4) The remainder [*] of [*] will be used during Inquiry number 807836c for [*] for lab scale development of [*].

II. Project Costs and Billing (Fixed Fee)

1) [*]

[*] ([*] intermediate, starting with [*] of [*])

Budget	Synthesis [*]	$[*]
Project Management [*]		$[*]

[*] ([*] [*] GMP, yield target [*])

Budget	Synthesis [*]	$[*]
	In-Process HPLC, [*]	$[*]
	Project Management [*]	$[*]
Materials Estimate (cost [*] fee)		$[*]
Dedicated glassware		$[*]
	Total	$[*]

2) [*]

[*] ([*]) Included in Inquiry number 80 7836c

[*] ([*] [*] GMP, yield target [*])

Budget	Synthesis [*]	$[*]
	In-Process HPLC, [*]	$[*]
	Project Management [*]	$[*]
Materials Estimate (cost [*] fee)		$[*]
	Total	$[*]

3) Shipment of Intermediate Included in Inquiry number 807836c

4) Phase I Process Development Costs Included in Inquiry number 807836c

GRAND TOTAL $[*]

WE ASK THAT GTX REMIT TO CSL THE [*] OF CONTRACT AMOUNT ($[*]) AT THE COMMENCEMENT OF THE PROJECT. Payment terms are specified in the Production and Manufacturing Agreement dated September 9, 2002. Applicable state sales taxes will be assessed on all shipments and/or services unless proof of exemption for the destination state(s) can be provided.

(CHEMSYN LABORATORIES LOGO)

III. Deliverables

1) Approximately [*] of [*]
2) Approximately [*] of [*]
3) Shipment of [*] Included in Inquiry number 807836c
4) Process Development Report Included in Inquiry number 807836c

IV. Period of Performance

Synthesis of [*]	[*]
Synthesis of [*]	[*]
Synthesis of [*]	[*]

V. Authorization

The project described above may be authorized by returning to CSL a signed copy of our proposal and your purchase order. This proposal remains effective until Oct 15, 2002. Please reference Inquiry Number 808033a in all correspondence.

We appreciate your consideration of CSL to support your research endeavors. If you have questions or require additional information please contact me at (800) 233-6643. Thank you.

Sincerely,

/s/ Scott B. Parker

Scott B. Parker
Sales and Marketing Manager

Approved by GTx:

/s/ Karen Veverka / M.S. Macbeth 9/18/02

Karen Veverka, Ph.D.
Director ARTA Research
Date 9/17/02

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EXHIBIT 10.18

AMENDMENT

This Amendment to the Production and Manufacturing Agreement between GTx and ChemSyn is effective September 29, 2003.

GTx and CSL hereby agree to replace the original Fixed Fee Payment provision of the Agreement with the following:

Fixed Fee Payment. Upon execution of this Agreement, EPPS will invoice a milestone payment of [*] at the initiation of each phase of a GTx approved project or Addendum adding Services to this Agreement. [*] of the remaining Project Fee for each such Service will be deemed earned by EPPS and due and payable to it upon completion of each such Service. Completion of Service will be defined as when EPPS has Product packaged, batch records reviewed and the product is ready for shipment or is waiting for independent laboratory results to complete the certificate of analysis. The final [*] of the Project Fee for each Service shall be due and payable to EPPS upon EPPS's completion of the Service and delivery of copies of any applicable Batch Records to GTx in accordance with this Agreement. All payments are to be made by GTx within [*] of EPPS's issuance of its invoice.

Agreed by:

ChemSyn (EaglePicher):	GTx:
By: /s/ Emily S. Russell	By: /s/ Henry P. Doggrell
Name: Emily S. Russell	Name: Henry P. Doggrell
Title: Contracts Manager and Legal Administrator	Title: General Counsel / Secretary
Date: 9-29-03	Date: 9-30-03

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EXHIBIT 10.19

GTX INC.
[*]

INQUIRY NO. [*]

AUGUST 8, 2003

EAGLEPICHER

PHARMACEUTICAL SERVICES

CONFIDENTIAL AND RESTRICTED

This contract contains confidential and proprietary information of GTx, Inc. The contents of this contract will be restricted to those EPPS personal with a need to know the contents hereof.

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(CONTINUED)

I. INTRODUCTION

GTx Inc. has requested a quotation for [*] prepared under current good manufacturing practices (cGMP). Eagle Picher Pharmaceutical Services (EPPS) has extensive experience with [*] and we are excited to utilize this knowledge to assist GTx in the development and manufacturing of [*]. Our customer focus and commitment to delivering the right product at the right time and at the right price is unmatched by our competition.

II. PROPOSED SERVICES

SCOPE OF WORK SUMMARY

EPPS will manufacture [*] of [*] in our API plant equipment. This will involve scaling up the current manufacturing process [*] into our plant equipment ([*]). EPPS will make every effort to manufacture [*] with the same target purity as previous kilo lab campaigns.

A [*] process is used to manufacture [*]. The [*] are outlined in the `Detailed Scope of Work' section of this proposal. To limit the risk as larger production batches are manufactured and to continue the development of the process EPPS will execute the following activities:

Phase I- Analytical Method Transfer & Validation
-Demonstrate and incorporate assay methods for [*].
-Validate and incorporate [*].
-Transfer [*] assay methods from [*] to be used to assay the [*] and [*].
-Perform analytical method validations for key intermediate [*].
-Perform abbreviated analytical method validations for each of the [*] intermediates.
-Incorporate in-process monitoring assays for [*].
-Characterize a working standard for the [*].
-Set specifications for the release of the [*]. A lab batch will be performed to generate [*]. Specifications will be proposed based upon the analysis of these [*] of the [*].
-Validate analytical methods for release testing of [*] ([*]).

Phase II- GMP Set-up Activities for Pilot Plant Production of [*]
[*] batch records for plant equipment and processing.
[*] validation studies to develop [*] plant equipment.
-Project process training for [*].

Phase III- cGMP production of [*]
-[*] (assuming no [*] are removed)
-Certificate of Analysis for cGMP Batch

-Production Report

DETAILED SCOPE OF WORK

EPPS will manufacture [*] of [*] in our API Plant equipment. The manufacture of [*] is a [*] process and is outlined below. Prior to manufacture of each step in the plant equipment the analytical method transfer/validation and GMP set-up activities for that step will be completed. All EPPS analytical support for this project will be conducted at the [*] facility.

[*]

PHASE I- ANALYTICAL METHOD TRANSFER & VALIDATION

[*]
EPPS will validate the [*] from [*]. A validation protocol will be submitted to GTx for approval prior to execution. The validation protocol will follow the [*], and the method will be validated for the following:

- Specificity ([*]),
- Accuracy,
- Precision,
- Linearity,
- Quantitation Limit,
- Detection Limit,
- Robustness, and
- Range.

The validated procedure will be converted into EPPS's [*]. NOTE: A specification for [*] that includes an acceptable level of [*] will be defined before the validation protocol can be approved. The analytical method validation report will be provided to GTx as a deliverable. The [*] method will meet the validation parameters or GTx will be notified.

An assay method for [*] will be obtained from the vendor and used for the release testing. An STM will be written for use in the release testing of this raw material. The current standard test specifications (STS) for [*] will be updated to add this assay to the current specifications. Vendor specifications will be used for the STS.

An [*] test will be used to monitor the completion of the reaction in [*]. The proposed test will use the assay method supplied by [*]. The method will work to measure the [*] or GTx will be notified.

The [*] will be tested for release using the [*] assay method. A working standard of [*] will be characterized. The working standard of [*] (approximately [*]) will be characterized by [*]. The method to measure the assay [*] will have an abbreviated

validation performed using the following tests on one sample: Accuracy, Precision, Linearity, Quantitation Unit, and Stability [*]. The method will not be validated at this time. The method will be shown to be validatable by performing these tests on [*]. The method will perform adequately on the [*] or GTx will be notified. A report will be written summarizing the results.

Samples of [*] from previous work at EPPS will be tested by [*] to determine an [*] profile. The information obtained from this analysis will be used to establish release specifications for [*]. The standard test specification (STS) for [*] will be modified accordingly.

[*]
[*] will be tested using the manufacturer's method for assay. A Standard Test Method will be written for this raw material. The current STS for [*] will be updated to add an assay to the current specifications. Vendor specifications will be used for the STS.

The [*] is not isolated in the current process. However, the reaction to form [*] should be monitored for completion using an [*] test. EPPS will use [*] assay method for the in-process monitoring of [*]. The method will work to measure the disappearance of starting materials and/or appearance of the product in the reaction or GTx will be notified.

A working standard of [*] ([*]) will be characterized. The working standard will be characterized by [*]. The assay method for [*] will have an abbreviated validation performed using the following tests on one sample: Accuracy, Precision, Linearity, Quantitation Limit and Stability [*]. The method will not be validated at this time. The method will be shown to be validatable by performing these tests on one sample of intermediate. The method will perform adequately on the intermediate or GTx will be notified. A report will be written summarizing the results.

Samples of [*] from previous work at EPPS will be used to determine an impurity profile for this intermediate. This profile will be used to establish the standard test specifications (STS) for [*]. The STS will be modified to include an assay.

[*] is combined with [*] in the manufacturing process. The [*] method for [*] will be validated. A validation protocol will be submitted to GTx for approval prior to execution. The validation protocol will follow the [*], and the method will be validated for the following:

- Specificity,
- Accuracy,
- Precision,
- Linearity,
- Quantitation Limit,
- Detection Limit,

- o Robustness, and
- o Range.

The assay method will perform adequately or GTx will be notified. A validation report will be issued for this work.

A working standard of [*] will be prepared. The material will be characterized by [*]. Because [*] may be stored for longer periods of time, some stress studies will be performed to assess how labile the compound is under certain conditions. Forced degradation studies will examine [*].

Samples of [*] from previous work at EPPS will be used to determine the impurity profile of this material. This profile will be used in establishing the standard test specifications (STS) for [*]. The STS will be modified to include an assay in the specification.

[*]

[*] will be tested for release using the manufacturer's method for assay. A STM will be written for this raw material. The current STS for [*] will be updated to add an assay to the current release tests. Vendor specifications will be used for the STS.

An assay method for [*] will be obtained from the vendor and used for the release testing. A STM will be written to use for this raw material. The current STS for [*] will be updated to add an assay to the current specifications. Vendor specifications will be used for the STS.

In-process monitoring of [*] will use the assay method supplied by [*]. The method will work to measure the [*] or GTx will be notified.

The [*] will be tested for release using the [*] assay method. The scope for this [*] is similar to the scope of work proposed for [*]. A working standard of [*] will be characterized, The working standard ([*]) will be characterized by [*]. The [*] assay method for [*] will have an abbreviated validation performed using the following tests on one sample: Accuracy, Precision, Linearity, Quantitation Limit, and Stability per [*]. The method will not be validated at this time. The method will be shown to be validatable by performing these tests on one sample of [*]. The method will perform adequately on the [*] or GTx will be notified. A report will be written summarizing the results.

Samples of [*] from previous work at EPPS will be used to determine an [*]. This profile will be used in the determination of the standard specifications of [*]. The STS sheet will be modified to include a [*] assay.

[*]

The [*] will be tested using the manufacturer's method for assay. A STM will be written for the assay of this raw material. The current STS for [*] will be updated to add an assay to the current tests. Vendor specifications will be used for the STS.

Similarly, the [*] will be tested using the manufacturer's method for assay. A STM will be written for the assay of this raw material. The current STS for [*] will be updated to add an assay to the current tests. Vendor specifications will be used for the STS.

In-process [*] monitoring of the [*] reaction will use the assay method supplied by [*]. The method will work to measure the [*] or GTx will be notified.

The [*] methods ([*]) for release testing of [*] will be transferred to EPPS and validated on [*]. EPPS will write a validation protocol which will be approved by GTx prior to validation. Using [*], the method will be validated for the following; Specificity ([*]), Accuracy, Precision, Linearity, Quantitation Limit, Detection Limit, Robustness, and Range. Each method will be incorporated into a STM for GMP analysis. A validation report will be written. The methods will work properly or GTx will be notified.

The [*] method for [*] testing of [*] ([*]) will be transferred to EPPS and validated for [*]. The [*] methods for [*] will be validated. A validation protocol will be submitted to GTx for approval prior to execution. The validation protocol will follow the [*], and the method will be validated for the following:

- Specificity ([*]),
- Accuracy,
- Precision,
- Linearity,
- Quantitation Limit,
- Detection Limit,
- Robustness, and
- Range.

If portions of the validation program proposed above have been performed at [*] then that work will not be repeated. A validation report will be written. The methods will work properly or GTx will be notified.

Product specific methods for [*] will be validated by EPPS. EPPS will write a validation protocols and will submit these protocols to GTx for approval prior to implementation. Using the [*], the method will be validated for the following; Specificity and Accuracy. Each method will be incorporated into a STM. A validation report will be written. The methods will work properly or GTx will be notified.

PHASE II- GMP SET-UP ACTIVITIES FOR PILOT PLANT PRODUCTION OF [*]

A series of [*] are required prior to the pilot plant campaign.

- [*] will be rewritten for pilot plant production. The [*] will be submitted to GTx for approval then issued by EPPS's QA department.

- EPPS and GTx will review [*] prior to starting plant manufacturing.

- [*] will be performed to develop procedures that will be used to 1) [*] and 2) [*]. This usually entails [*] and [*] to document the [*] is sufficient.

- EPPS requires operator training and a safety review of the process before the start of manufacturing. The operators are trained on how to handle the chemicals used in the process and their hazards.

PHASE III- CGMP PRODUCTION OF [*]

A cGMP batch of [*] will be manufactured utilizing the best technology developed during previous [*]. [*] and [*] will be combined, as in the [*]. Each [*] will be released based on the specifications established in [*]. In-process reaction monitoring will be performed on [*].

GTx will supply the [*] starting material. EPPS will provide all [*] including the [*] and [*].

The [*] will include [*],

After completion of the production campaign, a production report will be issued which will include a summary of the [*].

The, QC department typically provides in-process results from production samples [*]. The analyses required to [*] typically has a [*] time. Final release testing usually takes about [*] for [*] and [*]. If any rush charges are incurred for rush analysis from outside vendors, the cost will be [*].

The storage conditions for [*] and the [*] will be at [*] unless otherwise requested by GTx. The final product will be packaged in [*] inside of [*]. The label is in accordance with the [*]. The scope of this work has incorporated [*].

GTx will always have the options to [*].

III. DELIVERABLES

- Validation Report - [*]
- Summary Report - [*]
- Summary Report - [*]
- Validation Report for [*]
- Summary Report - [*]
- Validation Report for [*]
- Validation Report for [*]
- Validation Report - [*]
- [*] of [*] ([*])
- Certificate of Analysis for cGMP Batch
- Production Report

IV. PROJECT BUDGET

PHASE	DESCRIPTION	COST
I	Analytical Method Transfer and Validation	[*]
II	GMP Set-up Activities	[*]
III	GMP Production ([*])	[*]
	Raw Materials and Waste	[*]
	TOTAL	[*]

V. TIMELINES

[*]

- Phase I - [*] from the date the proposal is signed. Phase I [*] with GMP production.
- Phase II - [*] from the date the proposal is signed.
- Phase III - [*] after completion of Phase II.

VI. ASSUMPTIONS

EPPS is providing this proposal with the following assumptions. Should any of these assumptions prove to be invalid; a revised scope of work with its associated cost will be submitted to GTx.

1. GTx will provide [*] at GTx expense. All remaining raw materials are included in this quote, including [*] and [*].

2. Any changes to this Agreement which effect cost, schedule, or alter this Agreement materially, such as changes in processes, protocols or additional testing or sampling,

shall be submitted in writing with any additional associated costs and mutually agreed to by both parties before continuation of the project.

3. The API manufactured at EPPS is not manufactured as a sterile API. The customer will ensure that if a sterile product is required that the formulated product will contain steps for terminal sterilization.

4. This proposal does not include costs for an FDA site inspection as a result of or in association with the manufacturing of the API named in this proposal.

5. EPPS makes no guarantees on yield or purity until [*] EPPS manufacturing runs provide adequate information for justification of yield and purity consistency.

6. GTx bears all sales tax liability under this agreement. GTx is not liable for taxes on EPPS income.

7. Costs outlined above do not include any shipping outside of the scope provided in this proposal, shipping insurance, applicable taxes or handling charges.

8. [*] analytical methods will be suitable and provide acceptable performance (validatable) for use as described in the detailed scope of work.

VII. DESIGNATED REPRESENTATIVES

GTX, INC

Karen Veverka, Ph.D.
Director ARTA Research
Three North Dunlap Avenue
Van Vleet Building Third Floor
Memphis, TN 38163
901-523 -9700 ext 104
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EAGLEPICHER EAGLEPICHER PHARMACEUTICAL SERVICES

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Contracts Manager and Legal Administrator
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Lenexa, Kansas 66215
800-233-6643
913-888-3582
Emily.russell@eaglepicher.com

VIII. STANDARD TERMS AND CONDITIONS

The terms and conditions between GTx and EPPS for this contract are covered under the Production and Manufacturing Agreement entered into on the 9th day of September 2002, (the "2002 Agreement"). In the event of a conflict between the terms hereof and any provision contained in the 2002 Agreement, the terms hereof shall control; otherwise, the 2002 Agreement shall be incorporated herein and form a put of this Agreement.

IX. INSURANCE

EPPS confirms that it has reasonable and adequate insurance in full force and effect with qualified insurers to fully insure GTx against loss of material or product resulting from a casualty occurring while such material or product is in control of or on the property of EPPS. EPPS will assume the risk of any loss to GTx material and property which is willingly under its control or located on its property, and in the event of a casualty, EPPS will promptly notify GTx. Pending resolution of any resulting insurance claim, EPPS will replace any lost or damaged material.

X. PROJECT AUTHORIZATION

The project described above may be authorized by returning to EaglePicher Pharmaceutical Services a signed copy of our proposal and your purchase order. This proposal remains effective until September 08, 2003. This proposal is subject to the attached Standard Terms and Conditions. Please reference EaglePicher Pharmaceutical Services Inquiry [*] in all correspondence. This agreement shall be interpreted and constructed in accordance with the laws of the state of Missouri. Termination of this agreement is subject to discussion and resolution of any outstanding issues between the involved parties.

Sincerely,	Accepted by GTx, Inc:
/s/ Emily S. Russell	/s/ Henry P. Doggrell Date: 8/13/03
Emily S. Russell	General Counsel
Contracts Manager and Legal Administrator	Secretary
EaglePicher Technologies, LLC	

EaglePicher Pharmaceutical Services looks forward to your response, and to proceeding as soon as possible.

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

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EXHIBIT 10.20

THE UNIVERSITY OF TENNESSEE RESEARCH CORPORATION AND

GTX, INC.

AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT

Exclusive License Agreement (hereinafter "Agreement") made and entered into this 23d day of August, 2000 (the "Effective Date") by and between The University Of Tennessee Research Corporation, a corporation duly organized and existing under the laws of the State of Tennessee and having its principal office at 1534 White Avenue, Knoxville, Tennessee, U.S.A. (hereinafter "UTRC"), and GTx, Inc. (formerly known as Genotherapeutics, Inc.) a Tennessee corporation, located at 3 N. Dunlap St., 3rd Floor, Memphis, Tennessee 38163 (hereinafter "GTx").

WHEREAS, UTRC is the owner of the Licensed Patents and Licensed Technology (as later defined herein) the subject matter of which was developed by James T. Dalton and Duane D.Miller, Leonid I. Kirkovsky, Arnab Mukherjee, Craig Marhefka, and Donghua Yin ("Contributors") in the course of employment with The University of Tennessee;

WHEREAS, UTRC is willing to grant and GTx desires to receive an exclusive worldwide license with rights to grant sublicenses and permit sub-sublicenses under the Licensed Patents and Licensed Technology.

NOW, THEREFORE, for and in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, UTRC and GTx (hereinafter referred to individually as a "Party" and collectively as the "Parties") hereto expressly agree as follows:

SECTION 1

Definitions

1.1 "Affiliates" shall mean any corporation, partnership, or other entity that at any time during the term of this Agreement, directly or through one or more intermediaries, Controls or is Controlled by or is under common Control with a party to this Agreement, but only for so long as the relationship exists. A corporation or other entity shall no longer be an Affiliate when through loss, divestment, dilution or other reduction of ownership, the requisite Control no longer exists.

1.2 "Alliance" shall mean a relationship (including any entity formed as a result thereof) entered into by GTx, with one or more third parties to manufacture, use or sell a Licensed Product, Licensed Process or Licensed Technology, which can include the

development, manufacturing, distribution and/or marketing of a Licensed Product, Licensed Process or Licensed Technology as a part of the relationship.

1.3 "Control" or "Controls" or "Controlled" shall mean: i) in the case of a corporation, ownership or control, directly or indirectly, of at least fifty one percent (51%) of the shares of stock entitled to vote for the election of directors; or ii) in the case of an entity other than a corporation, ownership or control, directly or indirectly, of at least fifty one percent (51%) of the assets of such entity.

1.4 "Generic Product(s)" shall mean a commercial product the use, sale or distribution of which utilizes Licensed Technology that is not covered in whole or in part by a Valid Claim of the Licensed Patents. A product that is sold, distributed or used for testing, development, or clinical trial purposes shall not be considered a commercial product.

1.5 "GTx" shall mean GTx and/or its Affiliates, unless otherwise clearly indicated by the context.

1.6 "Joint Alliance" shall mean an Alliance in which GTx either, (1) receives a royalty of at least [*] percent [*] of net sales of Licensed Product in any one or more of the Major Markets or (2) retains [*] percent [*] or more of the net profits from the sale of Licensed Product in any one or more of the Major Markets, determined in accordance with generally accepted accounting principles.

1.7 "Joint Alliance Party" or "Joint Alliance Parties" shall mean GTx and any other party who is a member of a Joint Alliance, including Sub-sublicensees.

1.8 "Joint Alliance Revenue" shall mean the amount received by a Joint Alliance or a Joint Alliance Party from Third Parties for the use, sale or distribution of a Licensed Product, Licensed Process or Generic Product, less:

I) discounts allowed in amounts customary in the trade for quantity purchases, cash payments, prompt payments, wholesalers and distributors;

II) sales, tariff duties and/or use taxes directly imposed and with reference to particular sales;

III) outbound transportation prepaid or allowed, amounts allowed or credited on returns, export licenses, import duties, value added tax, and prepaid freight;

IV) royalties, cash, fees, or other consideration paid to, or invoiced by, Third Parties to a Joint Alliance or a Joint Alliance Party which are considered payment of, or for technology and/or patent licensing fees for manufacture, use, or sale of a Licensed Product, Licensed Process or Generic Product; and

V) sales commissions paid to individuals who are not employees of a Joint Alliance or a Joint Alliance Party.

No deductions shall be made for sales commissions paid to individuals who are employees of a Joint Alliance or a Joint Alliance Party, or for cost of collections.

1.9 "Licensed Patents" shall mean the following:

(1) U.S. Patent No. [*], issued [*], entitled [*];

(2) U.S. Patent No. [*], issued [*], entitled [*];

(3) U.S. Patent No. [*], issued [*], entitled [*]; and

together with the list of patents pending and/or issued for the Licensed Technology set forth on Schedule 1 attached hereto and made a part hereof, and any other patent applications that may in the future be filed by GTX on the Licensed Technology and any patents issuing therefrom, including any application(s) filed by GTx pursuant to Articles 6.1 and 6.7 of this Agreement, whether in the United States of America or any other country, including any and all substitutions for and divisions, continuations, continuation-in-part, provisionals, and non-provisionals, renewals, reissues, any foreign patent applications and divisionals or national phase applications which claim priority of any of Provisional Application Serial Number [*], filed [*]; Provisional Application Serial Number [*], filed [*]; Provisional Application Serial Number [*], filed [*].

1.10 "Licensed Process(es)" shall mean any process which is covered in whole or in part by a Valid Claim of the Licensed Patents.

1.11 "Licensed Product(s)" shall mean any product that:

I) is covered in whole or in part by a Valid Claim of the Licensed Patents; or

II) is manufactured by using a process or is employed to practice a process which is covered in whole or in part by a Valid Claim of the Licensed Patents.

1.12 "Licensed Technology" shall mean any technology, trade secrets, methods, processes, know-how, show-how, data, information, or results relating to UTRC PD numbers [*] developed by the Contributors, and owned by UTRC, including: 1) agents, compositions, compounds, or analogs or isomers thereof, of nonsteroidal molecules which bind to androgen receptors, including radiolabeled, fluorescent, and radioisotopes incorporated thereto and small molecules of R-bicalutamide, androgen receptor targeting agents, oral testosterone compositions; 2) methods of making developing, or characterizing such agents, compositions, and composition, compounds of (1); and 3) any therapeutic, diagnostic, and prognostic methods of use, of such compounds or agents of (1) including but not limited to methods of treating prostate cancer, methods of imaging, or methods related to fertility, contraceptive, andropause and muscle or bone mass uses.

1.13 "Major Markets" shall mean and include the United States, Great Britain, France, Germany, and Japan.

1.14 "Residual Alliance" shall mean any Alliance that is not a Joint Alliance.

1.15 "Residual Alliance Party" or "Residual Alliance Parties" shall mean GTx, and any other party who is a member of a Residual Alliance, including Sub-sublicensees.

1.16 "Residual Alliance Revenue" shall mean all cash, Sublicense or Sub-sublicense fees, and running royalties and all other consideration paid to GTx by a Residual Alliance or a Residual Alliance Party in consideration for the granting of rights to the Licensed Patents and/or Licensed Technology.

1.17 "Sublicense(s)" shall mean any sublicense granted by GTx, to a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party.

1.18 "Sublicensee(s)" shall mean any Joint Alliance, Joint Alliance Party, Residual Alliance or Residual Alliance Party, to whom GTx has granted sublicenses pursuant to this Agreement.

1.19 "Sub-sublicense(s)" shall mean any sub-sublicense granted by a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party, other than GTx , to a Third Party or to an Affiliate of a Joint Alliance Party or Residual Alliance Party other than GTx.

1.20 "Sub-sublicensee(s)" shall mean any party to whom a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party, other than GTx, has granted Sub-sublicenses to pursuant to this Agreement.

1.21 "Third Party" or "Third Parties" shall mean any non-affiliated party or parties other than GTx, a Joint Alliance, a Joint Alliance Party, a Residual Alliance, a Residual Alliance Party, UTRC or The University of Tennessee.

1.22 "Valid Claim" shall mean (a) a claim of an issued patent which has not expired and which has not been held revoked, invalid or unenforceable by decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed with the time allowed for appeal having expired, and which has not been admitted to be invalid through reissue or disclaimer or otherwise; or (b) any claim of a pending patent application, which i) was filed in good faith; and ii) has not been pending for more than eight (8) years.

SECTION 2

Grant

2.1 UTRC hereby grants to GTx an exclusive, worldwide right and license, with the right to grant Sublicenses and to permit Sub-sublicenses to practice under and use the Licensed Patents and the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, and offer for sale any Licensed Product, Licensed Process or Generic Product. UTRC hereby agrees, subject to the terms and conditions herein contained, that the term "exclusive" means that UTRC shall not grant any other license to any third party or take any action inconsistent with the rights granted to GTx under this Agreement relating to the Licensed Patents or Licensed Technology.

2.2 GTx agrees that the Contributors and The University of Tennessee shall have the royalty-free right to practice under the Licensed Patents and to utilize the Licensed Technology for non-commercial educational, research, and academic purposes only.

2.3 GTx acknowledges that all or a portion of the Licensed Patents and Licensed Technology was developed with the support of the United States Government ("the Government"), and agrees that the Government retains rights in the Licensed Patents and Licensed Technology as set forth in Title 35 U.S.C. Section 200 et seq. All rights herein granted to GTx are subject to any such rights held by the Government and further subject to any restrictions or obligations that may be imposed by the Government pursuant to such riGhts.

2.4 GTx shall have the right to enter into Sublicenses and to permit Sub-sublicense agreements, as the case may be, with respect to the Licensed Patents and Licensed Technology, subject to notifying UTRC of the identity and address of each Sublicensee or Sub-sublicensee within thirty (30) days after execution of such agreement by the parties thereto. No GTx Affiliate, Joint Alliance, Joint Alliance Party, Residual Alliance, Residual Alliance Party, or their Affiliates, shall have the right to practice under the Licensed Patents or utilize the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, or offer for sale any Licensed Product, Licensed Process or Generic Product in the absence of a written Sublicense or Sub-sublicense. Any grant of rights by GTx, a Joint Alliance, a Joint Alliance Party, a Residual Alliance, a Residual Alliance Party, or their Affiliates, to practice under the Licensed Patents or to utilize the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, or offer for sale any Licensed Product, Licensed Process or Generic Product shall constitute a Sublicense or Sub-sublicense, as the case may be. All Sublicenses and Sub-sublicenses granted by GTx hereunder shall be subject to this Agreement in all respects and shall include provisions that such Sublicensee or Sub-sublicensee is being granted a license under the Licensed Patents and Licensed Technology as described herein.

2.5 GTx shall be responsible for its Affiliates, Sublicensees and Sub-sublicensees and shall not grant any rights that are inconsistent with the rights granted to and obligations of GTx hereunder. Each such Sublicense and Sub-sublicense agreement shall include a requirement that the Sublicensee or Sub-sublicensees, as the case may be, use its best efforts to bring the subject matter of the Sublicense or Sub-sublicense, as the case may be, into commercial use. In addition, each such Sublicense and Sub-sublicense agreement shall include a requirement that the Sublicensee or Sub-sublicensee, as the case may be, assign, transfer and convey to UTRC all right, title and interest in and to Licensed Patents. Upon termination of this Agreement, each Sublicensee's or Sub-sublicensee's as the case may be, rights under any Sublicense agreement shall also terminate. No Sublicense Or Sub-sublicense shall relieve GTx of any of its obligations under this Agreement. GTx shall forward to UTRC a complete copy of each Sublicense or Sub-sublicense agreement, as the case may be (including, without limitation, all amendments and addenda), granted hereunder within thirty (30) days after execution of such agreement by the parties thereto, provided that UTRC shall receive such information and documents in confidence and shall not publicly disclose, discuss or release such information or document without the prior written approval of GTx except for the purposes of enforcement of UTRC's rights. GTx shall be responsible for payment of royalties from Joint Alliance Revenue and Residual Alliance Revenue provided, however, that GTx may arrange for such payments to be made to UTRC by an Affiliate, Sublicensee or Sub-sublicensee, with the understanding that UTRC's acceptance of

such payments from an Affiliate, Sublicensee, or Sub-sublicensee does not relieve GTx of the ultimate responsibility for any other or future payment required hereunder. Each such Sublicense or Sub-sublicense agreement shall include an audit right by UTRC of the same scope as provided in Article 5.1 herein with respect to GTx.

2.6 Any act or omission of an Affiliate, Sublicensee or Sub-sublicensee which would constitute a breach of this Agreement if performed by GTx shall be deemed to be a breach by GTx of this Agreement, subject however to the same cure provisions in favor of GTx or such Affiliate, Sublicensee or Sub-sublicensee, as the case may be, as are otherwise provided herein for breach by GTx.

SECTION 3

Diligence

3.1 GTx shall use its commercially reasonable best efforts to develop and commercialize Licensed Products and Generic Products through a commercially reasonable program for exploitation of the Licensed Patents and the Licensed Technology.

SECTION 4

Payments And Royalties

4.1 For the rights, privileges and license granted hereunder, GTx shall pay royalties to UTRC in the manner hereinafter provided until this Agreement shall expire or be terminated. GTx shall pay to UTRC:

A) License Issue Fee in the amount of [*], which UTRC acknowledges has been fully paid by GTx.

B) Annual License Maintenance Fees in the amount of [*], with the first such License Maintenance Fee being due and payable on the [*] and each succeeding License Maintenance Fee being due on the [*] of the Agreement; provided, however, that running royalties payable in a given year shall be creditable pro rata against the License Maintenance Fee already paid for that year. License Maintenance Fees paid in excess of running royalties shall not be creditable to running royalties for future years. The Annual License Maintenance Fee shall be [*] at such time as GTx enters into a Joint Alliance, a Residual Alliance or grants a Sublicense to a Third Party as described in Article 2.4. [*] for the remainder of the Term of this Agreement, regardless of whether any such Joint Alliance, Residual Alliance or Sublicense is terminated. This increase shall not apply to a Sublicense granted to a GTx Affiliate that is 100% owned by GTx.

C) Reimbursement of Patent fees and expenses (including attorney fees) incurred by UTRC, in the amount of [*] due within [*] from the Effective Date of the Agreement, which UTRC acknowledges has been fully paid by GTx. In addition, GTx will reimburse UTRC within [*] after receipt of an invoice for any additional Patent fees and expenses incurred prior to assumption by GTx of control of patent matters as provided in Article 6.1. As of the Effective Date of this Amended and Restated Exclusive License Agreement, the

amounts due for additional Patent fees and expenses that remain not invoiced by UTRC total [*].

4.2 In addition to the foregoing fees, GTx shall pay to UTRC the following royalties for the term of this Agreement:

A) [*] of Joint Alliance Revenue attributable to the use, sale or distribution of License Products and Licensed Processes and a reduced percentage of Joint Alliance Revenue attributable to the use, sale or distribution of Generic Products, which reduced percentage shall be determined on a country-by-country basis and in each country shall be calculated as the [*] during the quarter divided by [*] during the same quarter [*] (provided that in no event shall the reduced percentage [*]); and

B) [*] of Residual Alliance Revenue attributable to the use, sale or distribution of License Products and Licensed Processes and a reduced percentage of Residual Alliance Revenue attributable to the use, sale or distribution of Generic Products, which reduced percentage shall be determined on a country-by-country basis and in each country shall be calculated as the [*] during the quarter divided by [*] during the same quarter [*] (provided that in no event shall the reduced percentage [*]).

4.3 In the event that GTx, its Sublicensees or Sub-sublicensees manufacture, make, use, sell import, or license a Licensed Product or perform a Licensed Process using technologies for which royalties may be payable to UTRC under this Article 4 and under one or more other UTRC/GTx license agreements, GTx shall only be required to pay UTRC royalties under one such license agreement, subject to the provisions of Article 5.2.

4.4 Within [*] following the close of each calendar quarter in which Joint Alliance Revenue is received by a Joint Alliance or Joint Alliance Party, Residual Alliance Revenue is received by GTx, or amounts are received by a Joint Alliance or Residual Alliance on account of the use, sale or distribution of a Generic Product, as the case may be, payments shall be paid to UTRC or its designee in United States dollars in Knoxville, Tennessee, or at such other place as UTRC may reasonably designate consistent with the laws and regulations controlling in any foreign country. In the event GTx arranges for any payment under this Article 4.5 to be made to UTRC by an Affiliate, Sublicensee or Sub-sublicensee pursuant to Article 2.5, if such payment is not received by UTRC within the [*] period set forth herein, GTx shall be deemed to be in breach of this Agreement, subject to the same cure provisions in favor of GTx as set forth in Article 12. If any currency conversion shall be required in connection with the payment of royalties hereunder, such conversion shall be made by using the exchange rate prevailing at the Chase Manhattan Bank (N.A.) on the last business day of the calendar quarterly reporting period to which such royalty payments relate.

SECTION 5

Reports And Records

5.1 UTRC or its accounting agents shall have the right to inspect the books of account of GTx. GTx shall keep full, true and accurate books of account containing all particulars that

may be necessary for the purpose of showing the amounts payable to UTRC hereunder. Said books of account shall be kept at GTx's principal place of business or the principal place of business of the appropriate division or Affiliate of GTx to which this Agreement relates. Said books and the supporting data shall be open at all reasonable times for [*] following the end of the calendar year to which they pertain, to the inspection of UTRC or its accounting agents for the purpose of verifying GTx's royalty statement. If any examination reveals a shortage in amounts paid to UTRC equal to or greater than [*] of the total amount due in the period under audit, GTx shall promptly reimburse UTRC for the cost of the examination as well as the shortage, together with interest thereon as provided in Article 5.4.

5.2 GTx shall deliver to UTRC true and accurate reports to confirm a royalty accounting hereunder within [*] after the close of each calendar quarter in which Joint Alliance Revenue is received by a Joint Alliance or Joint Alliance Party, or Residual Alliance Revenue is received by GTx, as the case may be.

These reports shall include at least the following, on a country-by-country basis:

(1) number of Licensed Products, Licensed Processes, or Generic Products manufactured, used or sold by and/or for GTx and all Joint Alliance Parties and Residual Alliance Parties;

(2) total amounts received by GTx, a Joint Alliance or a Joint Alliance Party for Licensed Products, Licensed Processes and Generic Products manufactured, used or sold by and/or for GTx and any Joint Alliance, Joint Alliance Party, Residual Alliance, or Residual Alliance Party.

(3) accounting, for Joint Alliance Revenue or Residual Alliance Revenue;

(4) royalties due to UTRC pursuant to Sections 4.2 and 4.3 including (i) the manner in which such royalties were calculated and (ii) in the event any such royalties are payable to UTRC under this Agreement and under one or more other UTRC/GTx license agreements, and notwithstanding that GTx is required to pay such royalties under only one such license agreement, GTx shall set out in its report the amount of such royalties covered by multiple license agreements and identify all such license agreements to which such royalties apply;

(5) names and addresses of all Joint Alliance Parties and Residual Alliance Parties, including an identification of whether the party is a Joint Alliance Party or a Residual Alliance Party;

(6) dates that any Residual Alliance Revenue is received by GTx from a Residual Alliance or any Residual Alliance Party and other information pertaining to the determination of revenues due to UTRC; and

(7) upon request by UTRC, any other information that may be necessary for the purpose of showing the amounts payable to UTRC hereunder.

5.3 With each such report submitted, GTx shall pay to UTRC the royalties due and payable under this Agreement. If no royalties shall be due, GTx shall so report.

5.4 Any amount owed by GTx under this Agreement that is not received by UTRC on or before the date due shall bear interest at a per annum rate [*] above the prime rate in effect at the Chase Manhattan Bank (N.A.) on the date due. GTx shall also pay all reasonable collection costs at any time incurred by UTRC in obtaining payment of amounts past due, including reasonable attorneys fees. If the transfer or the conversion into United States Dollar equivalents in any such instance is not lawful or possible, the payment of such part of the royalties as is necessary shall be made by the deposit thereof, in the currency of the country where the sales were made on which the royalty was based, to the credit and account of UTRC or its nominee in any commercial bank or trust company of its choice located in that country, prompt notice of which shall be given by GTx to UTRC.

SECTION 6

Patent Prosecution

6.1 GTx shall assume complete control of the maintenance of the Licensed Patents and will be responsible for preparing, filing, prosecuting and maintaining all patent applications and patents, corresponding to or arising out of the Licensed Technology. GTx shall use patent counsel of its own choice, at its own expense. GTx agrees to pay all costs incident to the United States and foreign applications, patents and like protection relating to the Licensed Patents and the Licensed Technology, including all costs incurred for filing, prosecution, issuance and maintenance fees as well as any costs incurred in filing continuations, continuations-in-part, divisionals or related applications and any re-examination or reissue proceedings. Subject to the provisions of Article 6.4, GTx shall file and maintain patent applications corresponding to the Licensed Technology in such countries as GTx in its sole discretion shall select. UTRC shall have the sole and exclusive right, title and ownership in and to all Licensed Patents corresponding to or arising out of the Licensed Technology, which now exist or may exist in the future, including all United States and foreign patent applications filed and patents issued pursuant to this Article 6. GTx, its Sublicensees and Sub-sublicensees shall assign, transfer and convey to UTRC all right, title and interest in and to all such Licensed Patents. GTx shall be responsible for recording an assignment to UTRC of patent applications filed pursuant to this Article 6 with the United States Patent and Trademark Office and with each foreign Patent Office in which such applications are filed. Upon request by GTx, UTRC will amend this Agreement as reasonably necessary to confirm GTX's exclusive license in all such inventions conveyed to UTRC as provided in this Section.

6.2 GTx agrees to keep UTRC informed, at GTx's expense, of filing and prosecutions pursuant to this Article 6 including submitting to UTRC copies of all patent applications, official actions and responses thereto within thirty (30) days of filing or receipt, as the case may be. GTx agrees that it will reimburse UTRC for its reasonable attorneys fees that UTRC reasonably incurs for review by outside counsel of the material received from GTx. GTx shall consult with UTRC regarding any abandonment of the Licensed Patents or the prosecution of patent applications described in Article 6.1 prior to such abandonment.

6.3 UTRC agrees to reasonably cooperate with GTx, at GTx's request and expense, to whatever extent is reasonably necessary to procure patent protection of any rights, including fully agreeing to execute any and all documents to provide GTx the full benefit of the licenses granted herein with copies of correspondence with Patent Offices concerning the Licensed Patents.

6.4 In the event that GTx decides not to continue prosecution of any United States or foreign patent application to issuance or maintain any United States or foreign patent on technology described or claimed in the Licensed Patents or the Licensed Technology in a certain jurisdiction, GTx shall timely notify UTRC in writing in order that UTRC may continue said prosecution or maintenance of such patent applications or patents at its option and at its own expense in such jurisdiction. GTx's right under this Agreement to practice the invention(s) under such patents and patent applications shall immediately terminate in such jurisdiction upon UTRC's assuming said costs provided that the application, in which GTx decides not to continue prosecution or the patent which GTx decides not to maintain, is before the Patent Offices of a country included in Major Markets. GTx shall not be considered in default and this Agreement shall not terminates to any particular jurisdiction, if GTx decides not to continue prosecution of a patent application to issuance or maintain any patent in any other country besides those included in Major Markets. If GTx fails to notify UTRC in sufficient time for UTRC to continue prosecution, or the maintenance of, a patent or patent application in a Major Market, GTx shall be considered in default of this Agreement.

6.5 GTx and all its Sublicensees and Sub-sublicensees shall mark all products covered by Licensed Patents with patent numbers in accordance with the statutory requirements in the country (ies) of manufacture, use, and sale.

6.6 At such time as it is reasonable to do so, but in any event prior to any statutory bar date for filing a patent application of which GTx has been made aware, GTx shall prepare and submit a patent application directed toward [*], entitled [*].

SECTION 7

Infringement

7.1 GTx shall inform UTRC and UTRC shall inform GTx, promptly in writing of any alleged assertion and/or claim of infringement of the Licensed Patents by a Third Party and of any available evidence thereof.

7.2 GTx shall have the right, but shall not be obligated, to prosecute at its own expense all infringements of the Licensed Patents and, in furtherance of such right, UTRC hereby agrees that GTx may include UTRC as a party plaintiff in any such suit, without expense to UTRC. The total cost of any such infringement action commenced or defended by GTx shall be borne by GTx. After deduction of outstanding expenses, including attorneys fees of GTx, the balance remaining from any such recovery shall be divided equally between GTx and UTRC until UTRC shall have recovered in full any royalty payments to which it would have been otherwise entitled to receive hereunder, but for such infringement, and any remaining balance, if

any, shall be retained by GTx. No settlement, consent, judgment or other voluntary dismissal of such suits may be entered into without the consent of UTRC, provided that such consent shall not be unreasonably withheld and that UTRC shall not condition such consent on an increase in payments to UTRC hereunder.

7.3 If within six (6) months after having been notified of an alleged infringement, GTx has not brought or is not diligently prosecuting an infringement action, or if GTx has notified UTRC at any time prior thereto of its intention not to bring suit against any alleged infringement of the Patents, then, and in those events only, UTRC shall have the right, but shall not be obligated, to prosecute at its own expense any infringement of the Licensed Patents, and UTRC may, for such purposes, use the name of GTx as party plaintiff. No settlement, consent judgment or other voluntary final disposition of the suit may be entered into without the consent of GTx, which consent shall not unreasonably be withheld. After deduction of outstanding expenses of UTRC, including attorney fees and any expenses of GTx, including attorney fees incurred prior to UTRC's pursuit of such infringement, the balance remaining from any such recovery shall be divided equally between GTx and UTRC.

7.4 In the event that GTx undertakes the enforcement and/or defense of the Licensed Patents by litigation or an inter partes proceeding in the United States or a foreign country against a Third Party, GTx may withhold up to [*] of the payments otherwise thereafter due UTRC under Article 4 that are attributable to sales in the country where such litigation or inter partes proceeding takes place and apply the same toward reimbursement of up to half of GTx's expenses, including reasonable attorneys' fees, in connection therewith. GTx may not withhold any portion of the payments due UTRC under Article 4 in the event that GTx undertakes the enforcement and/or defense of the Licensed Patents by litigation or an inter partes proceeding in the United States or a foreign country against an Affiliate, a Joint Alliance Party or a Residual Alliance Party. Any recovery of damages by GTx for each such suit shall be applied first in satisfaction of any unreimbursed expenses and legal fees of GTx relating to such suit, and next toward reimbursement of UTRC for any payments under Article 4 past due or withheld and applied pursuant to this Article 7.

7.5 In the event that a declaratory judgment action alleging invalidity or noninfringement of any of the Licensed Patents shall be brought against UTRC, GTx at its option shall have the right, within thirty (30) days after commencement of such action, to intervene and take over the sole defense of the action at its own expense.

SECTION 8

Liability And Indemnification

8.1 GTx shall at all times during the term of this Agreement, indemnify, defend and hold UTRC, The University of Tennessee, and their respective trustees, directors, officers, employees and Affiliates, harmless against all claims, proceedings, demands and liabilities of any kind whatsoever, including legal expenses and reasonable attorneys fees (collectively, the "Claims"), arising out of the death of or injury to any person or persons or out of any damage to property, resulting from the production, manufacture, sale, use, lease, or consumption of the Licensed Products, Licensed Processes or Licensed Technology or arising from any obligation or

act of GTx hereunder, except for Claims arising from the willful misconduct or misrepresentation by UTRC, The University of Tennessee, and their respective trustees, directors, officers, employees and Affiliates. Infringement by a Joint Alliance Party, a Residual Alliance Party, Sublicensees or Sub-sublicensees of a Third Party patent shall not be deemed for purposes of this Agreement as an improper action, omission, or negligent act on the part of UTRC, The University of Tennessee or their respective trustees, directors, officers, employees or Affiliates.

8.2 GTx shall obtain and carry in full force and effect from the first manufacture, use or sale of the Licensed Products, Licensed Processes or Licensed Technology to [*] such manufacturing, use or sales cease, commercial, general liability insurance which shall protect GTx and UTRC with respect to events covered by Paragraph 8.1 above. Such insurance shall be written by a reputable insurance company, shall list UTRC as an additional named insured thereunder, shall be endorsed to include product liability coverage and shall require thirty (30) days written notice to be given to UTRC prior to any cancellation or material change thereof. The limits of such insurance shall not be less than [*] per occurrence with an aggregate of [*] for personal injury or death. GTx shall provide UTRC with Certificates of Insurance evidencing the same.

8.3 UTRC, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES MAKE NO REPRESENTATIONS AND EXTEND NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE, IN ANY LICENSED PRODUCT, LICENSED PROCESS, LICENSED TECHNOLOGY OR GENERIC PRODUCT. IN NO EVENT SHALL UTRC, THE UNIVERSITY OF TENNESSEE, OR THEIR RESPECTIVE TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES OR AFFILIATES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING, WITHOUT LIMITATION, ECONOMIC DAMAGE, INJURY TO PROPERTY OR LOST PROFITS, REGARDLESS OF WHETHER UTRC OR THE UNIVERSITY SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF ANY OF THE FOREGOING, EXCEPT FOR NEGLIGENCE, FRAUD, OR MISREPRESENTATION BY UTRC, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS:

A. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT THE PRACTICE BY GTx OF THE LICENSE GRANTED HEREUNDER SHALL NOT INFRINGE THE PATENTS OF ANY THIRD PARTY;

B. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT ANY PATENT APPLICATION INCLUDED IN THE PATENTS WILL ULTIMATELY ISSUE AS A PATENT;

C. A REPRESENTATION MADE OR WARRANTY GIVEN THAT GTx SHALL HAVE THE RIGHT TO USE ANY PORTION OF THE LICENSED PATENTS THAT IS CLAIMED IN A PATENT OF ANY THIRD PARTY;

D. A REQUIREMENT THAT UTRC SHALL BE RESPONSIBLE FOR THE EXPENSES OF FILING OR PROSECUTING ANY PATENT APPLICATION OR MAINTAINING ANY LICENSED PATENTS IN FORCE;

E. AN OBLIGATION ON THE PART OF UTRC TO BRING OR PROSECUTE ACTIONS OR SUITS AGAINST THIRD PARTIES FOR INFRINGEMENT OF THE LICENSED PATENTS OR FOR UNAUTHORIZED USE OF THE PATENTS OR MISAPPROPRIATION OF THE LICENSED TECHNOLOGY;

F. AN OBLIGATION ON THE PART OF UTRC TO DEFEND ANY ACTION OR SUIT BROUGHT BY ANY THIRD PARTY;

G. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC AS TO THE SAFETY, RELIABILITY OR EFFICACY OF: 1) THE LICENSED TECHNOLOGY OR THE INVENTIONS COVERED BY THE LICENSED PATENTS; OR 2) ANY LICENSED PRODUCT OR LICENSED PROCESS THAT INCORPORATES THE LICENSED PATENTS OR UTILIZES THE LICENSED PATENTS IN ITS PRODUCTION, MANUFACTURE OR PERFORMANCE OR ANY GENERIC PRODUCT THAT INCORPORATES THE LICENSED TECHNOLOGY OR UTILIZES THE LICENSED TECHNOLOGY IN ITS PRODUCTION, MANUFACTURE OR PERFORMANCE; and

H. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT ANY OF THE CONTRIBUTORS WILL AGREE TO PROVIDE TECHNICAL ASSISTANCE OR CONSULTATION TO GTx, OR THAT SUCH TECHNICAL ASSISTANCE OR CONSULTATION, IF PROVIDED, WOULD BE SUFFICIENT TO ENABLE GTx TO SUCCESSFULLY EXPLOIT THE LICENSED TECHNOLOGY OR THE LICENSED PATENTS.

8.4 UTRC represents and warrants that to the best of its actual knowledge: (i) the Licensed Patents are valid and enforceable; (ii) it has the full power to enter into this Agreement, to carry out its obligations under this Agreement, and to grant the rights granted to GTx herein; (iii) it has not previously granted and shall not grant to any Third Party any rights which are inconsistent with the rights granted to GTx herein, (iv) it is the sole owner of the entire right, title, and interest in and to the Licensed Patents and Licensed Technology; and (v) it has fully complied with all requirements of 35 U.S.C. Section 200 et seq. and all implementing regulations necessary to perfect title to the rights and license granted to GTx herein.

8.5 UTRC acknowledges and understands that Dr. Mitchell S. Steiner is an employee of The University of Tennessee and that he was and is currently the Chief Executive Officer of GTx.

8.6 GTx represents that: 1) it has full corporate power and authority to enter into this Agreement and carry out all the provisions of this Agreement; 2) it is authorized to execute this Agreement on its behalf; 3) the person executing this Agreement is duly authorized to do so; and 4) no consent, approval or authorization of any other party is required.

SECTION 9

Export Controls

9.1 GTx acknowledges that it is subject to United States laws and regulations controlling the export of technical data, computer software, laboratory prototypes and other commodities (including the Arms Export Control Act, as amended, and the United States Department of Commerce Export Administration Regulations). The transfer of such items may require a license from the cognizant agency of the United States Government and/or written assurances by GTx that GTx shall not export data or commodities to certain foreign countries without prior approval of such agency. UTRC neither represents that a license shall not be required nor that, if required, it shall be issued.

SECTION 10

Non-Use Of Names

10.1 GTx shall not use the names or trademarks of UTRC or the University of Tennessee, nor any adaptation thereof, in any advertising, promotional or sales literature without prior written consent obtained from UTRC, except that GTx may state that it has licensed the Licensed Patents and Licensed Technology from UTRC.

10.2 UTRC shall not use the names or trademarks of GTx, nor any adaptation thereof in any advertising, promotional or sales literature without prior written consent obtained from GTx except that UTRC may state that it has licensed the Licensed Patents and Licensed Technology to GTx.

SECTION 11

Dispute Resolution

11.1 Except for the right of either party to apply to a court of competent jurisdiction for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or to prevent irreparable harm, any and all claims, disputes or controversies arising under, out of, or in connection with this Agreement, shall be resolved upon thirty (30) days written notice of either party to the other by final and binding arbitration in Knoxville, Tennessee under the Commercial Arbitration Rules of the American Arbitration Association, or the Patent Arbitration Rules if applicable, then in effect. The arbitrator(s) shall have no power to add to, subtract from or modify any of the terms or conditions of this Agreement, nor to award punitive damages. The prevailing party in any such arbitration shall, in addition to recovering reasonable out-of-pocket costs of the arbitration, be entitled to an award of reasonable attorneys fees incurred in connection with the arbitration, with any action necessary to perfect the arbitration award as a judgment, and for any collection action required to secure payment of any arbitration award. Any award rendered in such arbitration may be entered and enforced by either party in either the courts of the State of Tennessee or in the United States District Court for the Eastern District of Tennessee, to whose jurisdiction for such purposes UTRC and GTx each hereby irrevocably consents and submits, or in any other United States court having jurisdiction.

11.2 Notwithstanding the foregoing, nothing in this Article shall be construed to waive any rights or timely performance of any obligations existing under this Agreement.

SECTION 12

Term Of Agreement And Termination

12.1 Unless earlier terminated, as hereinafter provided, the Term of this Agreement shall be for the longer of twenty (20) years or the last to expire term of any patent or patent application having a Valid Claim covering the Licensed Patents. After such expiration, GTx shall have a perpetual, royalty-free license to the Licensed Patents and Licensed Technology.

12.2 In the event of default or failure by GTx to perform any of the terms, covenants or provisions of this Agreement, GTx shall have thirty (30) days after the giving of written notice of such default by UTRC to correct such default. If such default is not corrected within the said thirty (30) day period, UTRC shall have the right, at its option, to cancel and terminate this Agreement. The failure of UTRC to exercise such right of termination for non-payment of royalties or otherwise shall not be deemed to be a waiver of any right UTRC might have, nor shall such failure preclude UTRC from exercising or enforcing said right upon any subsequent failure by GTx.

12.3 UTRC shall have the right, at its option, to cancel and terminate this Agreement in the event that GTx shall become involved in insolvency, dissolution, bankruptcy or receivership proceedings affecting the operation of its business. In the event of termination of this Agreement pursuant to Articles 12.2 or 12.3 hereof, all rights to the Licensed Patents shall revert to UTRC.

12.4 Upon termination of this Agreement for any reason, nothing herein shall be construed to release either party from any obligation that matured prior to the effective date of such termination; and Articles 1, 5, 8, 9-12, 18, 20, and 21 shall survive any such termination.

12.5 No termination of this Agreement shall constitute a termination or a waiver of any rights of either Party against the other Party accruing at or prior to the time of such termination. The obligations of Articles 5 and 13 shall survive termination of this Agreement.

12.6 GTx shall have the right to terminate this Agreement at any time on three (3) months notice to UTRC, and upon payment of all amounts due UTRC through the effective date of the termination.

SECTION 13

Assignability

13.1 This Agreement shall be binding upon and shall inure to the benefit of UTRC and its assigns and successors in interest, and shall be binding upon and shall inure to the benefit of GTx and its assigns and successors to all or substantially all of its assets or business to which this Agreement relates, but shall not otherwise be assignable or assigned by GTx without prior written approval by UTRC being first obtained, which approval shall not be unreasonably withheld; provided that, for purposes hereof, GTx shall have the right to assign this Agreement

to an Affiliate of GTx (or any entity into which GTx shall have been merged or consolidated, provided that at least 51% of such merged or consolidated entity is owed by shareholders holding at least 51% of GTx immediately prior to such merger or consolidation) without obtaining the prior written approval of UTRC. No assignment shall be deemed effective unless such assignee has agreed in writing to be bound by the terms and provisions of this Agreement. Any attempt to assign or assignment made in violation of this Article 13.1, shall be void ab initio.

SECTION 14

Governmental Compliance

14.1 GTx shall at all times during the term of this Agreement and for so long as it shall make, use or sell Licensed Products, Licensed Processes or Licensed Technology comply and cause its sublicensees to comply with all laws that may control the import, export, manufacture, use, sale, marketing, distribution and other commercial exploitation of Licensed Products, Licensed Processes or Licensed Technology or any other activity undertaken pursuant to this Agreement.

SECTION 15

Notices

15.1 Any notice or other communication under this Agreement shall be in writing and shall be deemed to have been given: when delivered personally against receipt therefor; one day after being sent by Federal Express or similar overnight delivery; or three days after being mailed registered or certified mail, postage prepaid, to a party hereto at the address set forth below, or to such address as such party shall give by notice hereunder to the other party to this Agreement.

If to UTRC: The University of Tennessee Research Corporation
1534 White Avenue, Suite 403
Knoxville, Tennessee, U.S.A. 37996-1527
Attn: President

If to GTx: 3 N. Dunlap Street, 3rd Floor
Memphis, Tennessee 38163
Attn: Dr. Mitchell Steiner
Title: Chief Executive Officer

with a copy to: Henry P. Doggrell, General Counsel, GTx, Inc.

SECTION 16

Severability Of Provisions

16.1 If any provision of this Agreement shall be declared by a court of competent jurisdiction to be invalid, illegal or incapable of being enforced in whole or in part, the remaining conditions and provisions or portions thereof shall nevertheless remain in full force and effect

and enforceable to the extent they are valid, legal and enforceable, and no provision shall be deemed dependent upon any other covenant or provision unless so expressed herein.

SECTION 17

Governing Law

17.1 This Agreement shall be deemed to be subject to, and have been made under, and shall be construed and interpreted in accordance with the laws of the State of Tennessee. This Agreement is expressly acknowledged to be subject to all federal laws including but not limited to the Export Administration Act of the United States of America. No conflict-of-laws rule or law that might refer such construction and interpretation to the laws of another state, republic, or country shall be considered. The Parties irrevocably and unconditionally agree that the exclusive place of jurisdiction for any action, suit or proceeding for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or to prevent irreparable harm, arising under, out of, or in connection with this Agreement ("Actions"), shall be in the courts of the United States of America sitting in the city, state and country of State of Tennessee, or, if such courts shall not have jurisdiction over the subject matter thereof, in the courts of the State of Tennessee sitting therein, and each such party hereby irrevocably and unconditionally agrees to submit to the jurisdiction of such courts for the purposes of any such Actions. If any such State court also does not have jurisdiction over the subject matter thereof, then such an Action may be brought in the federal or state courts located in the states of the principal place of business of any Party hereto.

SECTION 18

Confidentiality

18.1 Nothing herein shall preclude a Party from disclosing the existence of this Agreement and the general scope of the license granted hereunder. However, neither Party shall disclose the economic terms of this Agreement.

18.2 Subject to the exceptions set forth herein, all information or material disclosed pursuant to this Agreement and/or related to the Licensed Patents, Licensed Products, Licensed Process, Licensed Technology and Generic Products shall be confidential ("Confidential Information"). Recipient of the Confidential Information ("Receiving Party") agrees to hold in confidence, and not to distribute or disseminate to any Person or entity, for any reason for a period of five (5) years after receipt, any Confidential Information received, under or relating to this Agreement, except for Confidential Information which:

(I) was known or used by the Receiving Party prior to the date of disclosure to the Receiving Party as evidenced by written records; or

(II) either before or after the date of disclosure is lawfully disclosed to the Receiving Party by sources other than the Providing Party which are rightfully in possession of the Confidential Information and not subject to any obligation of confidentiality, as evidenced by written records; or

(III) either before or after the date of disclosure to the Receiving Party becomes published, through no fault or omission on the part of the Receiving Party; or

(IV) is independently developed by or for the Receiving Party without reference to, knowledge of, or reliance upon the Confidential Information as evidenced by written records;

(V) is required to be disclosed by the Receiving Party to comply with applicable laws, to defend or prosecute litigation or to comply with governmental regulations, provided that the Receiving Party provides prior written notice of such disclosure to the Providing Party and takes reasonable and lawful actions to avoid and/or minimize the degree of such disclosure, provided that specific information shall not be deemed to be within any of these exclusions merely because it is embraced by more general information falling with these exclusions; or

(VI) is developed by or for the Receiving Party without reference to, knowledge of, or reliance upon any of the Confidential Information.

18.3 The Parties recognize that GTx has entered into certain research agreement(s) with The Ohio State University Research Foundation, The University of Tennessee has entered into certain subcontract agreement(s) with The Ohio State University Research Foundation and that GTx has entered into certain consulting agreement(s) with one or more of the Contributors, which agreements may contain confidentiality obligations and/or restrictions on publication regarding, information or material related to this Agreement, the Licensed Patents and/or the Licensed Technology. While UTRC acknowledges the need for such confidentiality obligations and restrictions on publication in order for GTx to preserve United States and foreign patent rights, UTRC makes no representations or warranties, and has no obligation hereunder, regarding the confidentiality or publication obligations of The University of Tennessee, the Contributors or The Ohio State University Research Foundation.

18.4 The Parties agree that counsel of the Parties, who have a duty of confidentiality to the respective Parties, may receive Confidential Information.

SECTION 19

Reformation

19.1 All Parties hereby agree that neither Party intends to violate any public policy, statutory or common law, rule, regulation, treaty or decision of any government agency or executive body thereof of any country or community or association of countries; that if any word, sentence, paragraph or clause or combination thereof of this Agreement is found, by a court or executive body with judicial powers having jurisdiction over this Agreement or any of its Parties hereto, in a final unappealed order to be in violation of any such provision in any country or community or association of countries, such words, sentences, paragraphs or clauses or combination shall be inoperative in such country or community or association of countries, and the remainder of this Agreement shall remain binding upon the Parties hereto.

SECTION 20

Non-Waiver

20.1 The Parties covenant and agree that if a Party fails or neglects for any reason to take advantage of any of the terms provided for the termination of this Agreement or if a Party, having the right to declare this Agreement terminated, shall fail to do so, any such failure or neglect by such Party shall not be a waiver or be deemed or be construed to be a waiver of any cause for the termination of this Agreement subsequently arising, or as a waiver of any of the terms, covenants or conditions of this Agreement or of the performance thereof. None of the terms, covenants and conditions of this Agreement may be waived by a Party except by its written consent.

SECTION 21

Entire Agreement

21.1 This Agreement, as amended and restated herein, contains the entire agreement and understanding of the parties as of the Effective Date with respect to the subject matter hereof, supersedes any prior agreements and understandings with respect thereto and cannot be modified, amended or waived, in whole or in part, except in writing signed by the Party to be charged. Any such purported non-written modification, amendment, or waiver shall be null and void. A discharge of the terms of this Agreement shall not be deemed valid unless by full performance of the Parties hereto or by writing signed by the Parties hereto. A waiver by UTRC of any breach by GTx of any provision or condition of this Agreement to be performed by GTx shall not be deemed a waiver of similar or dissimilar provisions or conditions at the same or any prior or subsequent time.

In Witness Whereof, the Parties hereto have executed and delivered this Agreement in multiple originals by their duly authorized officers and representatives on the respective dates shown below, but effective as of the Agreement Date. The undersigned representative of UTRC is authorized to execute this Agreement on its behalf and bind UTRC to the terms and conditions set forth.

The University Of Tennessee Research Corporation ("UTRC")	Gtx, Inc. ("GTx")
By: /s/ Ann J. Roberson	By: /s/ Mitchell S. Steiner
Name: Ann J. Roberson	Name: Mitchell S. Steiner
Title: President	Title: Chairman and Chief Executive Officer
Date: 6-3-02	Date: 6/3/02

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

SCHEDULE 1

EPLC FILE NO.	TITLE	INVENTOR(S)/APPLICANT	SERIAL NOD PA NO.	FILING DATE	STATUS
[*]	[*]	[*]	[*]	[*]	[*]

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

EXHIBIT 10.21

THE UNIVERSITY OF TENNESSEE RESEARCH CORPORATION AND

GTX, INC.

AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT

Exclusive License Agreement (hereinafter "Agreement") made and entered into this 23d day of August, 2000 (the "Effective Date") by and between The University Of Tennessee Research Corporation, a corporation duly organized and existing under the laws of the State of Tennessee and having its principal office at 1534 White Avenue, Knoxville, Tennessee, U.S.A. (hereinafter "UTRC"), and GTx, Inc. (formerly known as Genotherapeutics, Inc.) a Tennessee corporation, located at 3 N. Dunlap St., 3d Floor, Memphis, Tennessee 38163 (hereinafter "GTx").

WHEREAS, UTRC is the owner of the Licensed Patents and Licensed Technology (as later defined herein) the subject matter of which was developed by James T. Dalton, Duane D. Miller, Donghua Yin and Yali He ("Contributors") in the course of employment with The University of Tennessee;

WHEREAS, UTRC is willing to grant and GTx desires to receive an exclusive worldwide license with rights to grant sublicenses and permit sub-sublicenses under the Licensed Patents and Licensed Technology.

NOW, THEREFORE, for and in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, UTRC and GTx (hereinafter referred to individually as a "Party" and collectively as the "Parties") hereto expressly agree as follows:

SECTION 1

Definitions

1.1 "Affiliates" shall mean any corporation, partnership, or other entity that at any time during the term of this Agreement, directly or through one or more intermediaries, Controls or is Controlled by or is under common Control with a party to this Agreement, but only for so long as the relationship exists. A corporation or other entity shall no longer be an Affiliate when through loss, divestment, dilution or other reduction of ownership, the requisite Control no longer exists.

1.2 "Alliance" shall mean a relationship (including any entity formed as a result thereof) entered into by GTx, with one or more third parties to manufacture, use or sell a Licensed Product, Licensed Process or Licensed Technology, which can include the

development, manufacturing, distribution and/or marketing of a Licensed Product, Licensed Process or Licensed Technology as a part of the relationship.

1.3 "Control" or "Controls" or "Controlled" shall mean: i) in the case of a corporation, ownership or control, directly or indirectly, of at least fifty one percent (51%) of the shares of stock entitled to vote for the election of directors; or ii) in the case of an entity other than a corporation, ownership or control, directly or indirectly, of at least fifty one percent (51%) of the assets of such entity.

1.4 "Generic Product(s)" shall mean a commercial product the use, sale or distribution of which utilizes Licensed Technology that is not covered in whole or in part by a Valid Claim of the Licensed Patents. A product that is sold, distributed or used for testing, development, or clinical trial purposes shall not be considered a commercial product.

1.5 "GTx" shall mean GTx and/or its Affiliates, unless otherwise clearly indicated by the context.

1.6 "Joint Alliance" shall mean an Alliance in which GTx either, (1) receives a royalty of at least [*] percent [*] of net sales of Licensed Product in any one or more of the Major Markets or (2) retains [*] percent [*] or More of the net profits from the sale of Licensed Product in any one or more of the Major Markets, determined in accordance with generally accepted accounting principles.

1.7 "Joint Alliance Party" or "Joint Alliance Parties" shall mean GTx and any other party who is a member of a Joint Alliance, including Sub-sublicensees.

1.8 "Joint Alliance Revenue" shall mean the amount received by a Joint Alliance or a Joint Alliance Party from Third Parties for the use, sale or distribution of a Licensed Product, Licensed Process or Generic Product, less:

I) discounts allowed in amounts customary in the trade for quantity purchases, cash payments, prompt payments, wholesalers and distributors;

II) sales, tariff duties and/or use taxes directly imposed and with reference to particular sales;

III) outbound transportation prepaid or allowed, amounts allowed or credited on returns, export licenses, import duties, value added tax, and prepaid freight;

IV) royalties, cash, fees, or other consideration paid to, or invoiced by, Third Parties to a Joint Alliance or a Joint Alliance Party which are considered payment of, or for technology and/or patent licensing fees for manufacture, use, or sale of a Licensed Product, Licensed Process or Generic Product; and

V) sales commissions paid to individuals who are not employees of a Joint Alliance or a Joint Alliance Party.

No deductions shall be made for sales commissions paid to individuals who are employees of a Joint Alliance or a Joint Alliance Party, or for cost of collections.

1.9 "Licensed Patents" shall mean any of the pending patent applications set forth on Schedule 1 attached hereto and made a part hereof, and any patents issuing, therefrom, and any other patent applications that may in the future be filed by GTX on the Licensed Technology and any patents issuing therefrom, including any application(s) filed by GTx pursuant to Article 6.1 of this Agreement, whether in the United States of America or any other country, including any and all substitutions for and divisions, continuations, continuation-in-part, provisionals, and non-provisionals, renewals, reissues, any foreign patent applications and divisionals or national phase applications which claim priority from any of the pending patent applications set forth in Schedule 1.

1.10 "Licensed Process(es)" shall mean any process which is covered in whole or in part by a Valid Claim of the Licensed Patents.

1.11 "Licensed Product(s)" shall mean any product that:

I) is covered in whole or in part by a Valid Claim of the Licensed Patents; or

II) is manufactured by using a process or is employed to practice a process which is covered in whole or in part by a Valid Claim of the Licensed Patents.

1.12 "Licensed Technology" shall mean any technology, trade secrets, methods, processes, know-how, show-how, data, information, or results relating to the patent applications set forth in Schedule 1 attached hereto, developed by the Contributors and owned by UTRC, including: 1) agents, compositions, compounds, or analogs or isomers thereof, of nonsteroidal molecules which bind to androgen receptors, including radiolabeled, fluorescent, and radioisotopes incorporated thereto and small molecules of R-bicalutamide, androgen receptor targeting agents, oral testosterone compositions; 2) methods of making developing, or characterizing such agents, compositions, and compounds of (1); and 3) any therapeutic, diagnostic, and prognostic methods of use, of such compounds or agents of (1) including but not limited to methods of treating prostate cancer, methods of imaging, or methods related to fertility, contraceptive, andropause and muscle or bone mass uses.

1.13 "Major Markets" shall mean and include the United States, Great Britain, France, Germany, and Japan.

1.14 "Residual Alliance" shall mean any Alliance that is not a Joint Alliance.

1.15 "Residual Alliance Party" or "Residual Alliance Parties" shall mean GTx, and any other party who is a member of a Residual Alliance, including Sub-sublicensees.

1.16 "Residual Alliance Revenue" shall mean all cash, Sublicense or Sub-sublicense fees, and running royalties and all other consideration paid to GTx by a Residual Alliance or a Residual Alliance Party in consideration for the granting of rights to the Licensed Patents and/or Licensed Technology.

1.17 "Sublicense(s)" shall mean any sublicense granted by GTx, to a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party.

1.18 "Sublicensee(s)" shall mean any Joint Alliance, Joint Alliance Party, Residual Alliance or Residual Alliance Party, to whom GTx has granted sublicenses pursuant to this Agreement.

1.19 "Sub-sublicense(s)" shall mean any sub-sublicense granted by a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party, other than GTx, to a Third Party or to an Affiliate of a Joint Alliance Party or Residual Alliance Party other than GTx.

1.20 "Sub-sublicensee(s)" shall mean any party to whom a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party, other than GTx, has granted Sub-sublicenses to pursuant to this Agreement.

1.21 "Third Party" or "Third Parties" shall mean any non-affiliated party or parties other than GTx, a Joint Alliance, a Joint Alliance Party, a Residual Alliance, a Residual Alliance Party, UTRC or The University of Tennessee.

1.22 "Valid Claim" shall mean (a) a claim of an issued patent which has not expired and which has not been held revoked, invalid or unenforceable by decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed with the time allowed for appeal having expired, and which has not been admitted to be invalid through reissue or disclaimer or otherwise; or (b) any claim of a pending patent application, which i) was filed in good faith; and ii) has not been pending for more than eight (8) years.

SECTION 2

Grant

2.1 UTRC hereby grants to GTx an exclusive, worldwide right and license, with the right to grant Sublicenses and to permit Sub-sublicenses to practice under and use the Licensed Patents and the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, and offer for sale any Licensed Product, Licensed Process or Generic Product. UTRC hereby agrees, subject to the terms and conditions herein contained, that the term "exclusive" means that UTRC shall not grant any other license to any third party or take any action inconsistent with the rights granted to GTx under this Agreement relating to the Licensed Patents or Licensed Technology.

2.2 GTx agrees that the Contributors and The University of Tennessee shall have the royalty-free right to practice under the Licensed Patents and to utilize the Licensed Technology for non-commercial educational, research, and academic purposes only.

2.3 GTx acknowledges that all or a portion of the Licensed Patents and Licensed Technology was developed with the support of the United States Government ("the Government"), and agrees that the Government retains tights in the Licensed Patents and Licensed Technology as set forth in Title 35 U.S.C. Section 200 et seq. All rights herein granted to

GTx are subject to any such rights held by the Government and further subject to any restrictions or obligations that may be imposed by the Government pursuant to such riGhts.

2.4 GTx shall have the right to enter into Sublicenses and to permit Sub-sublicense agreements, as the case may be, with respect to the Licensed Patents and Licensed Technology, subject to notifying UTRC of the identity and address of each Sublicensee or Sub-sublicensee within thirty (30) days after execution of such agreement by the parties thereto. No GTx Affiliate, Joint Alliance, Joint Alliance Party, Residual Alliance, Residual Alliance Party, or their Affiliates, shall have the right to practice under the Licensed Patents or utilize the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, or offer for sale any Licensed Product, Licensed Process or Generic Product in the absence of a written Sublicense or Sub-sublicense. Any grant of rights by GTx, a Joint Alliance, a Joint Alliance Party, a Residual Alliance, a Residual Alliance Party, or their Affiliates, to practice under the Licensed Patents or to utilize the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, or offer for sale any Licensed Product, Licensed Process or Generic Product shall constitute a Sublicense or Sub-sublicense, as the case may be. All Sublicenses and Sub-sublicenses granted by GTx hereunder shall be subject to this Agreement in all respects and shall include provisions that such Sublicensee or Sub-sublicensee is being granted a license under the Licensed Patents and Licensed Technology as described herein.

2.5 GTx shall be responsible for its Affiliates, Sublicensees and Sub-sublicensees and shall not grant any rights that are inconsistent with the rights granted to and obligations of GTx hereunder. Each such Sublicense and Sub-sublicense agreement shall include a requirement that the Sublicensee or Sub-sublicensees, as the case may be, use its best efforts to bring the subject matter of the Sublicense or Sub-sublicense, as the case may be, into commercial use. In addition, each such Sublicense and Sub-sublicense agreement shall include a requirement that the Sublicensee or Sub-sublicensee, as the case may be, assign, transfer and convey to UTRC all right, title and interest in and to Licensed Patents. Upon termination of this Agreement, each Sublicensee's or Sub-sublicensee's as the case may be, rights under any Sublicense agreement shall also terminate. No Sublicense or Sub-sublicense shall relieve GTx of any of its obligations under this Agreement. GTx shall forward to UTRC a complete copy of each Sublicense or Sub-sublicense agreement, as the case may be (including, without limitation, all amendments and addenda), granted hereunder within thirty (30) days after execution of such agreement by the parties thereto, provided that UTRC shall receive such information and documents in confidence and shall not publicly disclose, discuss or release such information or document without the prior written approval of GTx except for the purposes of enforcement of UTRC's rights. GTx shall be responsible for payment of royalties from Joint Alliance Revenue and Residual Alliance Revenue provided, however, that GTx may arrange for such payments to be made to UTRC by an Affiliate, Sublicensee or Sub-sublicensee, with the understanding that UTRC's acceptance of such payments from an Affiliate, Sublicensee, or Sub-sublicensee does not relieve GTx of the ultimate responsibility for any other or future payment required hereunder. Each such Sublicense or Sub-sublicense agreement shall include an audit right by UTRC of the same scope as provided in Article 5.1 herein with respect to GTx.

2.6 Any act or omission of an Affiliate, Sublicensee or Sub-sublicensee which would constitute a breach of this Agreement if performed by GTx shall be deemed to be a breach by GTx of this Agreement, subject however to the same cure provisions in favor of GTx or such

Affiliate, Sublicensee or Sub-sublicensee, as the case may be, as are otherwise provided herein for breach by GTx.

SECTION 3

Diligence

3.1 GTx shall use its commercially reasonable best efforts to develop and commercialize Licensed Products and Generic Products through a commercially reasonable program for exploitation of the Licensed Patents and the Licensed Technology.

SECTION 4

Payments And Royalties

4.1 For the rights, privileges and license granted hereunder, GTx shall pay royalties to UTRC in the manner hereinafter provided until this Agreement shall expire or be terminated. GTx shall pay to UTRC:

A) License Issue Fee in the amount of [*] which UTRC acknowledges has been fully paid by GTx.

B) Annual License Maintenance Fees in the amount of [*] with the first such License Maintenance Fee being due and payable on the [*] and each succeeding License Maintenance Fee being due on the [*] of the Agreement; provided, however, that running royalties payable in a given year shall be creditable pro rata against the License Maintenance Fee already paid for that year. License Maintenance Fees paid in excess of running royalties shall not be creditable to running royalties for future years. The Annual License Maintenance Fee shall be [*] at such time as GTx enters into a Joint Alliance, a Residual Alliance or grants a Sublicense to a Third Party as described in Article 2.4. This [*] of the Term of this Agreement, regardless of whether any such Joint Alliance, Residual Alliance or Sublicense is terminated. This [*] to a Sublicense granted to a GTx Affiliate that is 100% owned by GTx.

4.2 In addition to the foregoing fees, GTx shall pay to UTRC the following royalties for the term of this Agreement:

A) [*] of Joint Alliance Revenue attributable to the use, sale or distribution of License Products and Licensed Processes and a reduced percentage of Joint Alliance Revenue attributable to the use, sale or distribution of Generic Products, which reduced percentage shall be determined on a country-by-country basis and in each country shall be calculated as the [*] during the quarter divided by [*] during the same quarter [*] (provided that in no event shall the reduced percentage [*]); and

B) [*] of Residual Alliance Revenue attributable to the use, sale or distribution of License Products and Licensed Processes and a reduced percentage of Residual Alliance Revenue attributable to the use, sale or distribution of Generic Products, which reduced percentage shall be determined on a country-by-country basis and in each country shall be

calculated as the [*] during the quarter divided by [*] during the same quarter [*] (provided that in no event shall the reduced percentage [*]).

4.3 In the event that GTx, its Sublicensees or Sub-sublicensees manufacture, make, use, sell import, or license a Licensed Product or perform a Licensed Process using technologies for which royalties may be payable to UTRC under this Article 4 and under one or more other UTRC/GTx license agreements, GTx shall only be required to pay UTRC royalties under one such license agreement, subject to the provisions of Article 5.2.

4.4 Within [*] following the close of each calendar quarter in which Joint Alliance Revenue is received by a Joint Alliance or Joint Alliance Party, Residual Alliance Revenue is received by GTx, or amounts are received by a Joint Alliance or Residual Alliance on account of the use, sale or distribution of a Generic Product, as the case may be, payments shall be paid to UTRC or its designee in United States dollars in Knoxville, Tennessee, or at such other place as UTRC may reasonably designate consistent with the laws and regulations controlling in any foreign country. In the event GTx arranges for any payment under this Article 4.5 to be made to UTRC by an Affiliate, Sublicensee or Sub-sublicensee pursuant to Article 2.5, if such payment is not received by UTRC within the [*] period set forth herein, GTx shall be deemed to be in breach of this Agreement, subject to the same cure provisions in favor of GTx as set forth in Article 12. If any currency conversion shall be required in connection with the payment of royalties hereunder, such conversion shall be made by using the exchange rate prevailing at the Chase Manhattan Bank (N.A.) on the last business day of the calendar quarterly reporting period to which such royalty payments relate.

SECTION 5

Reports And Records

5.1 UTRC or its accounting agents shall have the right to inspect the books of account of GTx. GTx shall keep full, true and accurate books of account containing all particulars that may be necessary for the purpose of showing the amounts payable to UTRC hereunder. Said books of account shall be kept at GTx's principal place of business or the principal place of business of the appropriate division or Affiliate of GTx to which this Agreement relates. Said books and the supporting data shall be open at all reasonable times for [*] following the end of the calendar year to which they pertain, to the inspection of UTRC or its accounting agents for the purpose of verifying GTx's royalty statement. If any examination reveals a shortage in amounts paid to UTRC equal to or greater than [*] of the total amount due in the period under audit, GTx shall promptly reimburse UTRC for the cost of the examination as well as the shortage, together with interest thereon as provided in Article 5.4.

5.2 GTx shall deliver to UTRC true and accurate reports to confirm a royalty accounting hereunder within [*] after the close of each calendar quarter in which Joint Alliance Revenue is received by a Joint Alliance or Joint Alliance Party, or Residual Alliance Revenue is received by GTx, as the case may be.

These reports shall include at least the following, on a country-by-country basis:

(1) number of Licensed Products, Licensed Processes, or Generic Products manufactured, used or sold by and/or for GTx and all Joint Alliance Parties and Residual Alliance Parties;

(2) total amounts received by GTx, a Joint Alliance or a Joint Alliance Party for Licensed Products, Licensed Processes and Generic Products manufactured, used or sold by and/or for GTx and any Joint Alliance, Joint Alliance Party, Residual Alliance, or Residual Alliance Party.

(3) accounting, for Joint Alliance Revenue or Residual Alliance Revenue;

(4) royalties due to UTRC pursuant to Sections 4.2 and 4.3 including (i) the manner in which such royalties were calculated and (ii) in the event any such royalties are payable to UTRC under this Agreement and under one or more other UTRC/GTx license agreements, and notwithstanding that GTx is required to pay such royalties under only one such license agreement, GTx shall set out in its report the amount of such royalties covered by multiple license agreements and identify all such license agreements to which such royalties apply;

(5) names and addresses of all Joint Alliance Parties and Residual Alliance Parties, including an identification of whether the party is a Joint Alliance Party or a Residual Alliance Party;

(6) dates that any Residual Alliance Revenue is received by GTx from a Residual Alliance or any Residual Alliance Party and other information pertaining to the determination of revenues due to UTRC; and

(7) upon request by UTRC, any other information that may be necessary for the purpose of showing the amounts payable to UTRC hereunder.

5.3 With each such report submitted, GTx shall pay to UTRC the royalties due and payable under this Agreement. If no royalties shall be due, GTx shall so report.

5.4 Any amount owed by GTx under this Agreement that is not received by UTRC on or before the date due shall bear interest at a per annum rate [*] above the prime rate in effect at the Chase Manhattan Bank (N.A.) on the date due. GTx shall also pay all reasonable collection costs at any time incurred by UTRC in obtaining payment of amounts past due, including reasonable attorneys fees. If the transfer or the conversion into United States Dollar equivalents in any such instance is not lawful or possible, the payment of such part of the royalties as is necessary shall be made by the deposit thereof, in the currency of the country where the sales were made on which the royalty was based, to the credit and account of UTRC or its nominee in any commercial bank or trust company of its choice located in that country, prompt notice of which shall be given by GTx to UTRC.

SECTION 6

Patent Prosecution

6.1 GTx shall assume complete control of the prosecution of the Licensed Patents and will be responsible for maintaining any patents issuing therefrom. GTx will also be responsible for preparing, filing prosecuting and maintaining all patent applications and patents, corresponding to or arising out of the Licensed Technology. GTx shall use patent counsel of its own choice, at its own expense. GTx agrees to pay all costs incident to the United States and foreign applications, patents and like protection relating to the Licensed Patents and the Licensed Technology, including all costs incurred for filing, prosecution, issuance and maintenance fees as well as any costs incurred in filing continuations, continuations-in-part, divisionals or related applications and any re-examination or reissue proceedings. Subject to the provisions of Article 6.4, GTx shall file and maintain patent applications corresponding to the Licensed Technology in such countries as GTx in its sole discretion shall select. UTRC shall have the sole and exclusive right, title and ownership in and to all Licensed Patents, including Licensed Patents corresponding to or arising out of the Licensed Technology, which now exist or may exist in the future, including all United States and foreign patent applications filed and patents issued pursuant to this Article 6. GTx, its Sublicensees and Sub-sublicensees shall assign, transfer and convey to UTRC all right, title and interest in and to all such Licensed Patents. GTx shall be responsible for recording an assignment to UTRC of patent applications filed pursuant to this Article 6 with the United States Patent and Trademark Office and with each foreign Patent Office in which such applications are filed. Upon request by GTx, UTRC will amend this Agreement as reasonably necessary to confirm GTX's exclusive license in all such inventions conveyed to UTRC as provided in this Section.

6.2 GTx agrees to keep UTRC informed, at GTx's expense, of filing and prosecutions pursuant to this Article 6 including submitting to UTRC copies of all patent applications, official actions and responses thereto within thirty (30) days of filing or receipt, as the case may be. GTx agrees that it will reimburse UTRC for its reasonable attorneys fees that UTRC reasonably incurs for review by outside counsel of the material received from GTx. GTx shall consult with UTRC regarding any abandonment of the Licensed Patents or the prosecution of patent applications described in Article 6.1 prior to such abandonment.

6.3 UTRC agrees to reasonably cooperate with GTx, at GTx's request and expense, to whatever extent is reasonably necessary to procure patent protection of any rights, including fully agreeing to execute any and all documents to provide GTx the full benefit of the licenses granted herein with copies of correspondence with Patent Offices concerning the Licensed Patents.

6.4 In the event that GTx decides not to continue prosecution of any United States or foreign patent application to issuance or maintain any United States or foreign patent on technology described or claimed in the Licensed Patents or the Licensed Technology in a certain jurisdiction, GTx shall timely notify UTRC in writing in order that UTRC may continue said prosecution or maintenance of such patent applications or patents at its option and at its own expense in such jurisdiction. GTx's right under this Agreement to practice the invention(s) under such patents and patent applications shall immediately terminate in such jurisdiction upon

UTRC's assuming said costs provided that the application, in which GTx decides not to continue prosecution or the patent which GTx decides not to maintain, is before the Patent Offices of a country included in Major Markets. GTx shall not be considered in default and this Agreement shall not terminates to any particular jurisdiction, if GTx decides not to continue prosecution of a patent application to issuance or maintain any patent in any other country besides those included in Major Markets. If GTx fails to notify UTRC in sufficient time for UTRC to continue prosecution, or the maintenance of, a patent or patent application in a Major Market, GTx shall be considered in default of this Agreement.

6.5 GTx and all its Sublicensees and Sub-sublicensees shall mark all products covered by Licensed Patents with patent numbers in accordance with the statutory requirements in the country (ies) of manufacture, use, and sale.

SECTION 7

Infringement

7.1 GTx shall inform UTRC and UTRC shall inform GTx, promptly in writing of any alleged assertion and/or claim of infringement of the Licensed Patents by a Third Party and of any available evidence thereof.

7.2 GTx shall have the right, but shall not be obligated, to prosecute at its own expense all infringements of the Licensed Patents and, in furtherance of such right, UTRC hereby agrees that GTx may include UTRC as a party plaintiff in any such suit, without expense to UTRC. The total cost of any such infringement action commenced or defended by GTx shall be borne by GTx. After deduction of outstanding expenses, including attorneys fees of GTx, the balance remaining from any such recovery shall be divided equally between GTx and UTRC until UTRC shall have recovered in full any royalty payments to which it would have been otherwise entitled to receive hereunder, but for such infringement, and any remaining balance, if any, shall be retained by GTx. No settlement, consent, judgment or other voluntary dismissal of such suits may be entered into without the consent of UTRC, provided that such consent shall not be unreasonably withheld and that UTRC shall not condition such consent on an increase in payments to UTRC hereunder.

7.3 If within six (6) months after having been notified of an alleged infringement, GTx has not brought or is not diligently prosecuting an infringement action, or if GTx has notified UTRC at any time prior thereto of its intention not to bring suit against any alleged infringement of the Patents, then, and in those events only, UTRC shall have the right, but shall not be obligated, to prosecute at its own expense any infringement of the Licensed Patents, and UTRC may, for such purposes, use the name of GTx as party plaintiff. No settlement, consent judgment or other voluntary final disposition of the suit may be entered into without the consent of GTx, which consent shall not unreasonably be withheld. After deduction of outstanding expenses of UTRC, including attorney fees and any expenses of GTx, including attorney fees incurred prior to UTRC's pursuit of such infringement, the balance remaining from any such recovery shall be divided equally between GTx and UTRC.

7.4 In the event that GTx undertakes the enforcement and/or defense of the Licensed Patents by litigation or an inter partes proceeding in the United States or a foreign country against a Third Party, GTx may withhold up to [*] of the payments otherwise thereafter due UTRC under Article 4 that are attributable to sales in the country where such litigation or inter partes proceeding takes place and apply the same toward reimbursement of up to half of GTx's expenses, including reasonable attorneys' fees, in connection therewith. GTx may not withhold any portion of the payments due UTRC under Article 4 in the event that GTx undertakes the enforcement and/or defense of the Licensed Patents by litigation or an inter partes proceeding in the United States or a foreign country against an Affiliate, a Joint Alliance Party or a Residual Alliance Party. Any recovery of damages by GTx for each such suit shall be applied first in satisfaction of any unreimbursed expenses and legal fees of GTx relating to such suit, and next toward reimbursement of UTRC for any payments under Article 4 past due or withheld and applied pursuant to this Article 7.

7.5 In the event that a declaratory judgment action alleging invalidity or noninfringement of any of the Licensed Patents shall be brought against UTRC, GTx at its option shall have the right, within thirty (30) days after commencement of such action, to intervene and take over the sole defense of the action at its own expense.

SECTION 8

Liability And Indemnification

8.1 GTx shall at all times during the term of this Agreement, indemnify, defend and hold UTRC, The University of Tennessee, and their respective trustees, directors, officers, employees and Affiliates, harmless against all claims, proceedings, demands and liabilities of any kind whatsoever, including legal expenses and reasonable attorneys fees (collectively, the "Claims"), arising out of the death of or injury to any person or persons or out of any damage to property, resulting from the production, manufacture, sale, use, lease, or consumption of the Licensed Products, Licensed Processes or Licensed Technology or arising from any obligation or act of GTx hereunder, except for Claims arising from the willful misconduct or misrepresentation by UTRC, The University of Tennessee, and their respective trustees, directors, officers, employees and Affiliates. Infringement by a Joint Alliance Party, a Residual Alliance Party, Sublicensees or Sub-sublicensees of a Third Party patent shall not be deemed for purposes of this Agreement as an improper action, omission, or negligent act on the part of UTRC, The University of Tennessee or their respective trustees, directors, officers, employees or Affiliates.

8.2 GTx shall obtain and carry in full force and effect from the first manufacture, use or sale of the Licensed Products, Licensed Processes or Licensed Technology to [*] after such manufacturing, use or sales cease, commercial, general liability insurance which shall protect GTx and UTRC with respect to events covered by Paragraph 8.1 above. Such insurance shall be written by a reputable insurance company, shall list UTRC as an additional named insured thereunder, shall be endorsed to include product liability coverage and shall require thirty (30) days written notice to be given to UTRC prior to any cancellation or material change thereof. The limits of such insurance shall not be less than [*] per occurrence with an aggregate of [*]

for personal injury or death. GTx shall provide UTRC with Certificates of Insurance evidencing the same.

8.3 UTRC, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES MAKE NO REPRESENTATIONS AND EXTEND NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE, IN ANY LICENSED PRODUCT, LICENSED PROCESS, LICENSED TECHNOLOGY OR GENERIC PRODUCT. IN NO EVENT SHALL UTRC, THE UNIVERSITY OF TENNESSEE, OR THEIR RESPECTIVE TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES OR AFFILIATES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING, WITHOUT LIMITATION, ECONOMIC DAMAGE, INJURY TO PROPERTY OR LOST PROFITS, REGARDLESS OF WHETHER UTRC OR THE UNIVERSITY SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF ANY OF THE FOREGOING, EXCEPT FOR NEGLIGENCE, FRAUD, OR MISREPRESENTATION BY UTRC, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS:

A. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT THE PRACTICE BY GTx OF THE LICENSE GRANTED HEREUNDER SHALL NOT INFRINGE THE PATENTS OF ANY THIRD PARTY

B. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT ANY PATENT APPLICATION INCLUDED IN THE PATENTS WILL ULTIMATELY ISSUE AS A PATENT;

C. A REPRESENTATION MADE OR WARRANTY GIVEN THAT GTx SHALL HAVE THE RIGHT TO USE ANY PORTION OF THE LICENSED PATENTS THAT IS CLAIMED IN A PATENT OF ANY THIRD PARTY;

D. A REQUIREMENT THAT UTRC SHALL BE RESPONSIBLE FOR THE EXPENSES OF FILING OR PROSECUTING ANY PATENT APPLICATION OR MAINTAINING ANY LICENSED PATENTS IN FORCE;

E. AN OBLIGATION ON THE PART OF UTRC TO BRING OR PROSECUTE ACTIONS OR SUITS AGAINST THIRD PARTIES FOR INFRINGEMENT OF THE LICENSED PATENTS OR FOR UNAUTHORIZED USE OF THE PATENTS OR MISAPPROPRIATION OF THE LICENSED TECHNOLOGY;

F. AN OBLIGATION ON THE PART OF UTRC TO DEFEND ANY ACTION OR SUIT BROUGHT BY ANY THIRD PARTY;

G. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC AS TO THE SAFETY, RELIABILITY OR EFFICACY OF: 1) THE LICENSED TECHNOLOGY OR THE INVENTIONS COVERED BY THE LICENSED PATENTS; OR 2) ANY LICENSED PRODUCT OR LICENSED PROCESS THAT INCORPORATES THE LICENSED PATENTS

OR UTILIZES THE LICENSED PATENTS IN ITS PRODUCTION, MANUFACTURE OR PERFORMANCE OR ANY GENERIC PRODUCT THAT INCORPORATES THE LICENSED TECHNOLOGY OR UTILIZES THE LICENSED TECHNOLOGY IN ITS PRODUCTION, MANUFACTURE OR PERFORMANCE; and

H. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT ANY OF THE CONTRIBUTORS WILL AGREE TO PROVIDE TECHNICAL ASSISTANCE OR CONSULTATION TO GTx, OR THAT SUCH TECHNICAL ASSISTANCE OR CONSULTATION, IF PROVIDED, WOULD BE SUFFICIENT TO ENABLE GTx TO SUCCESSFULLY EXPLOIT THE LICENSED TECHNOLOGY OR THE LICENSED PATENTS.

8.4 UTRC represents and warrants that to the best of its actual knowledge: (i) the Licensed Patents are valid and enforceable; (ii) it has the full power to enter into this Agreement, to carry out its obligations under this Agreement, and to grant the rights granted to GTx herein; (iii) it has not previously granted and shall not grant to any Third Party any rights which are inconsistent with the rights granted to GTx herein, (iv) it is the sole owner of the entire right, title, and interest in and to the Licensed Patents and Licensed Technology; and (v) it has fully complied with all requirements of 35 U.S.C. Section 200 et seq. and all implementing regulations necessary to perfect title to the rights and license granted to GTx herein.

SECTION 9

Export Controls

9.1 GTx acknowledges that it is subject to United States laws and regulations controlling the export of technical data, computer software, laboratory prototypes and other commodities (including the Arms Export Control Act, as amended, and the United States Department of Commerce Export Administration Regulations). The transfer of such items may require a license from the cognizant agency of the United States Government and/or written assurances by GTx that GTx shall not export data or commodities to certain foreign countries without prior approval of such agency. UTRC neither represents that a license shall not be required nor that, if required, it shall be issued.

SECTION 10

Non-Use Of Names

10.1 GTx shall not use the names or trademarks of UTRC or the University of Tennessee, nor any adaptation thereof, in any advertising, promotional or sales literature without prior written consent obtained from UTRC, except that GTx may state that it has licensed the Licensed Patents and Licensed Technology from UTRC.

10.2 UTRC shall not use the names or trademarks of GTx, nor any adaptation thereof in any advertising, promotional or sales literature without prior written consent obtained from GTx except that UTRC may state that it has licensed the Licensed Patents and Licensed Technology to GTx.

SECTION 11

Dispute Resolution

11.1 Except for the right of either party to apply to a court of competent jurisdiction for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or to prevent irreparable harm, any and all claims, disputes or controversies arising under, out of, or in connection with this Agreement, shall be resolved upon thirty (30) days written notice of either party to the other by final and binding arbitration in Knoxville, Tennessee under the Commercial Arbitration Rules of the American Arbitration Association, or the Patent Arbitration Rules if applicable, then in effect. The arbitrator(s) shall have no power to add to, subtract from or modify any of the terms or conditions of this Agreement, nor to award punitive damages. The prevailing party in any such arbitration shall, in addition to recovering reasonable out-of-pocket costs of the arbitration, be entitled to an award of reasonable attorneys fees incurred in connection with the arbitration, with any action necessary to perfect the arbitration award as a judgment, and for any collection action required to secure payment of any arbitration award. Any award rendered in such arbitration may be entered and enforced by either party in either the courts of the State of Tennessee or in the United States District Court for the Eastern District of Tennessee, to whose jurisdiction for such purposes UTRC and GTx each hereby irrevocably consents and submits, or in any other United States court having jurisdiction.

11.2 Notwithstanding the foregoing, nothing in this Article shall be construed to waive any rights or timely performance of any obligations existing under this Agreement.

SECTION 12

Term Of Agreement And Termination

12.1 Unless earlier terminated, as hereinafter provided, the Term of this Agreement shall be for the longer of twenty (20) years or the last to expire term of any patent or patent application having a Valid Claim covering the Licensed Patents. After such expiration, GTx shall have a perpetual, royalty-free license to the Licensed Patents and Licensed Technology.

12.2 In the event of default or failure by GTx to perform any of the terms, covenants or provisions of this Agreement, GTx shall have thirty (30) days after the giving of written notice of such default by UTRC to correct such default. If such default is not corrected within the said thirty (30) day period, UTRC shall have the right, at its option, to cancel and terminate this Agreement. The failure of UTRC to exercise such right of termination for non-payment of royalties or otherwise shall not be deemed to be a waiver of any right UTRC might have, nor shall such failure preclude UTRC from exercising or enforcing said right upon any subsequent failure by GTx.

12.3 UTRC shall have the right, at its option, to cancel and terminate this Agreement in the event that GTx shall become involved in insolvency, dissolution, bankruptcy or receivership proceedings affecting the operation of its business. In the event of termination of this Agreement pursuant to Articles 12.2 or 12.3 hereof, all rights to the Licensed Patents shall revert to UTRC.

12.4 Upon termination of this Agreement for any reason, nothing herein shall be construed to release either party from any obligation that matured prior to the effective date of such termination; and Articles 1, 5, 8, 9-12, 18, 20, and 21 shall survive any such termination.

12.5 No termination of this Agreement shall constitute a termination or a waiver of any rights of either Party against the other Party accruing at or prior to the time of such termination. The obligations of Articles 5 and 13 shall survive termination of this Agreement.

12.6 GTx shall have the right to terminate this Agreement at any time on three (3) months notice to UTRC, and upon payment of all amounts due UTRC through the effective date of the termination.

SECTION 13

Assignability

13.1 This Agreement shall be binding upon and shall inure to the benefit of UTRC and its assigns and successors in interest, and shall be binding, upon and shall inure to the benefit of GTx and its assigns and successors to all or substantially all of its assets or business to which this Agreement relates, but shall not otherwise be assignable or assigned by GTx without prior written approval by UTRC being first obtained, which approval shall not be unreasonably withheld; provided that, for purposes hereof, GTx shall have the right to assign this Agreement to an Affiliate of GTx (or any entity into which GTx shall have been merged or consolidated, provided that at least 51% of such merged or consolidated entity is owed by shareholders holding at least 51% of GTx immediately prior to such merger or consolidation) without obtaining the prior written approval of UTRC. No assignment shall be deemed effective unless such assignee has agreed in writing to be bound by the terms and provisions of this Agreement. Any attempt to assign or assignment made in violation of this Article 13.1, shall be void ab initio.

SECTION 14

Governmental Compliance

14.1 GTx shall at all times during the term of this Agreement and for so long as it shall make, use or sell Licensed Products, Licensed Processes or Licensed Technology comply and cause its sublicensees to comply with all laws that may control the import, export, manufacture, use, sale, marketing, distribution and other commercial exploitation of Licensed Products, Licensed Processes or Licensed Technology or any other activity undertaken pursuant to this Agreement.

SECTION 15

Notices

15.1 Any notice or other communication under this Agreement shall be in writing and shall be deemed to have been given: when delivered personally against receipt therefor; one day after being sent by Federal Express or similar overnight delivery; or three days after being mailed registered or certified mail, postage prepaid, to a party hereto at the address set forth

below, or to such address as such party shall give by notice hereunder to the other party to this Agreement.

If to UTRC: The University of Tennessee Research Corporation
1534 White Avenue, Suite 403
Knoxville, Tennessee, U.S.A. 37996-1527
Attn: President

If to GTx: 3 N. Dunlap Street, 3rd Floor
Memphis, Tennessee 38163
Attn: Dr. Mitchell Steiner
Title: Chief Executive Officer

with a copy to: Henry P. Doggrell, General Counsel, GTx, Inc.

SECTION 16

Severability Of Provisions

16.1 If any provision of this Agreement shall be declared by a court of competent jurisdiction to be invalid, illegal or incapable of being enforced in whole or in part, the remaining conditions and provisions or portions thereof shall nevertheless remain in full force and effect and enforceable to the extent they are valid, legal and enforceable, and no provision shall be deemed dependent upon any other covenant or provision unless so expressed herein.

SECTION 17

Governing Law

17.1 This Agreement shall be deemed to be subject to, and have been made under, and shall be construed and interpreted in accordance with the laws of the State of Tennessee. This Agreement is expressly acknowledged to be subject to all federal laws including but not limited to the Export Administration Act of the United States of America. No conflict-of-laws rule or law that might refer such construction and interpretation to the laws of another state, republic, or country shall be considered. The Parties irrevocably and unconditionally agree that the exclusive place of jurisdiction for any action, suit or proceeding for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or to prevent irreparable harm, arising under, out of, or in connection with this Agreement ("Actions"), shall be in the courts of the United States of America sitting in the city, state and country of State of Tennessee, or, if such courts shall not have jurisdiction over the subject matter thereof, in the courts of the State of Tennessee sitting therein, and each such party hereby irrevocably and unconditionally agrees to submit to the jurisdiction of such courts for the purposes of any such Actions. If any such State court also does not have jurisdiction over the subject matter thereof, then such an Action may be brought in the federal or state courts located in the states of the principal place of business of any Party hereto.

SECTION 18

Confidentiality

18.1 Nothing herein shall preclude a Party from disclosing the existence of this Agreement and the general scope of the license granted hereunder. However, neither Party shall disclose the economic terms of this Agreement.

18.2 Subject to the exceptions set forth herein, all information or material disclosed pursuant to this Agreement and/or related to the Licensed Patents, Licensed Products, Licensed Process, Licensed Technology and Generic Products shall be confidential ("Confidential Information"). Recipient of the Confidential Information ("Receiving Party") agrees to hold in confidence, and not to distribute or disseminate to any person or entity, for any reason for a period of five (5) years after receipt, any Confidential Information received, under or relating to this Agreement, except for Confidential Information which:

(I) was known or used by the Receiving Party prior to the date of disclosure to the Receiving Party as evidenced by written records; or

(II) either before or after the date of disclosure is lawfully disclosed to the Receiving Party by sources other than the Providing Party which are rightfully in possession of the Confidential Information and not subject to any obligation of confidentiality, as evidenced by written records; or

(III) either before or after the date of disclosure to the Receiving Party becomes published, through no fault or omission on the part of the Receiving Party; or

(IV) is independently developed by or for the Receiving Party without reference to, knowledge of, or reliance upon the Confidential Information as evidenced by written records;

(V) is required to be disclosed by the Receiving Party to comply with applicable laws, to defend or prosecute litigation or to comply with governmental regulations, provided that the Receiving Party provides prior written notice of such disclosure to the Providing Party and takes reasonable and lawful actions to avoid and/or minimize the degree of such disclosure, provided that specific information shall not be deemed to be within any of these exclusions merely because it is embraced by more general information falling with these exclusions; or

(VI) is developed by or for the Receiving Party without reference to, knowledge of, or reliance upon any of the Confidential Information.

18.3 The Parties recognize that GTx has entered into certain research agreement(s) with The Ohio State University Research Foundation, The University of Tennessee has entered into certain subcontract agreement(s) with The Ohio State University Research Foundation and that GTx has entered into certain consulting agreement(s) with one or more of the Contributors, which agreements may contain confidentiality obligations and/or restrictions on publication regarding information or material related to this Agreement, the Licensed Patents and/or the

Licensed Technology. While UTRC acknowledges the need for such confidentiality obligations and restrictions on publication in order for GTx to preserve United States and foreign patent rights, UTRC makes no representations or warranties, and has no obligation hereunder, regarding the confidentiality or publication obligations of The University of Tennessee, the Contributors or The Ohio State University Research Foundation.

18.4 The Parties agree that counsel of the Parties, who have a duty of confidentiality to the respective Parties, may receive Confidential Information.

SECTION 19

Reformation

19.1 All Parties hereby agree that neither Party intends to violate any public policy, statutory or common law, rule, regulation, treaty or decision of any government agency or executive body thereof of any country or community or association of countries; that if any word, sentence, paragraph or clause or combination thereof of this Agreement is found, by a court or executive body with judicial powers having jurisdiction over this Agreement or any of its Parties hereto, in a final unappealed order to be in violation of any such provision in any country or community or association of countries, such words, sentences, paragraphs or clauses or combination shall be inoperative in such country or community or association of countries, and the remainder of this Agreement shall remain binding upon the Parties hereto.

SECTION 20

Non-Waiver

20.1 The Parties covenant and agree that if a Party fails or neglects for any reason to take advantage of any of the terms provided for the termination of this Agreement or if a Party, having the right to declare this Agreement terminated, shall fail to do so, any such failure or neglect by such Party shall not be a waiver or be deemed or be construed to be a waiver of any cause for the termination of this Agreement subsequently arising, or as a waiver of any of the terms, covenants or conditions of this Agreement or of the performance thereof. None of the terms, covenants and conditions of this Agreement may be waived by a Party except by its written consent.

SECTION 21

Entire Agreement

21.1 This Agreement, as amended and restated herein, contains the entire agreement and understanding of the parties as of the Effective Date with respect to the subject matter hereof, supersedes any prior agreements and understandings with respect thereto and cannot be modified, amended or waived, in whole or in part, except in writing signed by the Party to be charged. Any such purported non-written modification, amendment, or waiver shall be null and void. A discharge of the terms of this Agreement shall not be deemed valid unless full performance of the Parties hereto or by writing signed by the Parties hereto. A waiver by UTRC

of any breach by GTx of any provision or condition of this Agreement to be performed by GTx shall not be deemed a waiver of similar or dissimilar provisions or conditions at the same or any prior or subsequent time.

In Witness Whereof, the Parties hereto have executed and delivered this Agreement in multiple originals by their duly authorized officers and representatives on the respective, dates shown below, but effective as of the Agreement Date. The undersigned representative of UTRC is authorized to execute this Agreement on its behalf and bind UTRC to the terms and conditions set forth.

The University Of Tennessee Research Corporation ("UTRC")	Gtx, Inc. ("GTx")
By: /s/ Ann J. Roberson	By: /s/ Henry P. Doggrell
Name: Ann J. Roberson	Name: Henry P. Doggrell
Title: President	Title: General Counsel
Date: 6-14-02	Date: June 13, 2002

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

SCHEDULE 1

United States Provisional Patent Application(s):

[*]

United States Patent Application(s):

[*]

United States Patents: [*]

Foreign Patent Applications:

[*]

Designations: All countries

[*]

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

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EXHIBIT 10.22

THE UNIVERSITY OF TENNESSEE RESEARCH CORPORATION

AND

GTX, INC.

AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT

This Amended and Restated Exclusive License Agreement (hereinafter "Agreement") made and entered into as of the 24th day of July, 1998 (the "Effective Date") and previously amended the 14th day of March, 2000, by and between The University of Tennessee Research Corporation, a corporation duly organized and existing under the laws of the State of Tennessee and having its principal office at 1534 White Avenue, Knoxville, Tennessee, U.S.A. (hereinafter "UTRC"), and GTx, Inc. (formerly known as Genotherapeutics, Inc.), a Tennessee corporation, located at 3 N. Dunlap St., 3rd Floor, Memphis, Tennessee 38163 (hereinafter "GTx").

WHEREAS, UTRC is the owner of the Licensed Patents and Licensed Technology (as later defined herein) the subject matter of which was developed by Mitchell S. Steiner and Sharan Raghow ("Contributors") in the course of their employment with The University of Tennessee;

WHEREAS, UTRC is willing to grant and GTx desires to receive an exclusive worldwide license with rights to grant sublicenses and permit sub-sublicenses under the Licensed Patents and Licensed Technology.

NOW, THEREFORE, for and in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, UTRC and GTx (hereinafter referred to individually as a "Party" and collectively as the "Parties") hereto expressly agree as follows:

SECTION 1

Definitions

1.1 "Affiliates" shall mean any corporation, partnership, or other entity that at any time during the term of this Agreement, directly or through one or more intermediaries, Controls or is Controlled by or is under common Control with a party to this Agreement, but only for so long as the relationship exists. A corporation or other entity shall no longer be an Affiliate when through loss, divestment, dilution or other reduction of ownership, the requisite Control no longer exists.

1.2 "Alliance" shall mean a relationship (including any entity formed as a result thereof) entered into by GTx, with one or more third parties to manufacture, use or sell a

Licensed Product, Licensed Process or Licensed Technology, which can include the development, manufacturing, distribution and/or marketing of a Licensed Product, Licensed Process or Licensed Technology as a part of the relationship.

1.3 "Control" or "Controls" or "Controlled" shall mean: i) in the case of a corporation, ownership or control, directly or indirectly, of at least fifty one percent (51%) of the shares of stock entitled to vote for the election of directors; or ii) in the case of an entity other than a corporation, ownership or control, directly or indirectly, of at least fifty one percent (51%) of the assets of such entity.

1.4 "Generic Product(s)" shall mean a commercial product the use, sale or distribution of which utilizes Licensed Technology that is not covered in whole or in part by a Valid Claim of the Licensed Patents. A product that is sold, distributed or used for testing, development, or clinical trial purposes shall not be considered a commercial product.

1.5 "GTx" shall mean GTx and/or its Affiliates, unless otherwise clearly indicated by the context.

1.6 "Joint Alliance" shall mean an Alliance in which GTx either, (1) receives a royalty of at least [*] percent [*] of net sales of Licensed Product in any one or more of the Major Markets or (2) retains [*] percent [*] or more of the net profits from the sale of Licensed Product in any one or more of the Major Markets, determined in accordance with generally accepted accounting principles.

1.7 "Joint Alliance Party" or "Joint Alliance Parties" shall mean GTx and any other party who is a member of a Joint Alliance, including Sub-sublicensees.

1.8 "Joint Alliance Revenue" shall mean the amount received by a Joint Alliance or a Joint Alliance Party from Third Parties for the use, sale or distribution of a Licensed Product, Licensed Process or Generic Product, less:

(I) discounts allowed in amounts customary in the trade for quantity purchases, cash payments, prompt payments, wholesalers and distributors;

(II) sales, tariff duties and/or use taxes directly imposed and with reference to particular sales;

(III) outbound transportation prepaid or allowed, amounts allowed or credited on returns, export licenses, import duties, value added tax, and prepaid freight;

(IV) royalties, cash, fees, or other consideration paid to, or invoiced by, Third Parties to a Joint Alliance or a Joint Alliance Party which are considered payment of, or for technology and/or patent licensing fees for manufacture, use, or sale of a Licensed Product, Licensed Process or Generic Product; and

(V) sales commissions paid to individuals who are not employees of a Joint Alliance or a Joint Alliance Party.

No deductions shall be made for sales commissions paid to individuals who are employees of a Joint Alliance or a Joint Alliance Party, or for cost of collections.

1.9 "Licensed Patents" shall mean the issued patents and the pending patent applications set forth on Schedule 1 attached hereto and made a part hereof, and any patents issuing therefrom, and any other patent applications not identified on Schedule 1 that have been filed or that may in the future be filed by GTX on the Licensed Technology and any patents issuing therefrom, including any application(s) filed by GTx pursuant to Article 6.1 of this Agreement, whether in the United States of America or any other country, including any and all substitutions for and divisions, continuations, continuation-in-part, provisionals, and non-provisionals, renewals, reissues, any foreign patent applications and divisionals or national phase applications which claim priority from any of the pending patent applications set forth in Schedule 1.

1.10 "Licensed Process(es)" shall mean any process which is covered in whole or in part by a Valid Claim of the Licensed Patents.

1.11 "Licensed Product(s)" shall mean any product that:

(I) is covered in whole or in part by a Valid Claim of the Licensed Patents; or

(II) is manufactured by using a process or is employed to practice a process which is covered in whole or in part by a Valid Claim of the Licensed Patents.

1.12 "Licensed Technology" shall mean any technology, trade secrets, methods, processes, know-how, show-how, data, information, or results relating to the patent applications set forth in Schedule 1 attached hereto, developed by the Contributors and owned by UTRC, including the chemoprevention of prostate cancer and, more particularly, to a method of administering to a subject an effective dose of a chemopreventive agent or pharmaceutical preparation comprising an anti-estrogen or SERM, including, toremifene and analogs or metabolites thereof, to prevent recurrence of, suppress or inhibit prostate carcinogenesis.

1.13 "Major Markets" shall mean and include the United States, Great Britain, France, Germany, and Japan.

1.14 "Residual Alliance" shall mean any Alliance that is not a Joint Alliance.

1.15 "Residual Alliance Party" or "Residual Alliance Parties" shall mean GTx, and any other party who is a member of a Residual Alliance, including Sub-sublicensees.

1.16 "Residual Alliance Revenue" shall mean all cash, Sublicense or Sub-sublicense fees, and running royalties and all other consideration paid to GTx by a Residual Alliance or a Residual Alliance Party in consideration for the granting of rights to the Licensed Patents and/or Licensed Technology.

1.17 "Sublicense(s)" shall mean any sublicense granted by GTx, to a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party.

1.18 "Sublicensee(s)" shall mean any Joint Alliance, Joint Alliance Party, Residual Alliance or Residual Alliance Party, to whom GTx has granted sublicenses pursuant to this Agreement.

1.19 "Sub-sublicense(s)" shall mean any sub-sublicense granted by a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party, other than GTx, to a Third Party or to an Affiliate of a Joint Alliance Party or Residual Alliance Party other than GTx.

1.20 "Sub-sublicensee(s)" shall mean any party to whom a Joint Alliance, Joint Alliance Party, Residual Alliance or a Residual Alliance Party, other than GTx, has granted Sub-sublicenses to pursuant to this Agreement.

1.21 "Third Party" or "Third Parties" shall mean any non-affiliated party or parties other than GTx, a Joint Alliance, a Joint Alliance Party, a Residual Alliance, a Residual Alliance Party, UTRC or The University of Tennessee.

1.22 "Valid Claim" shall mean (a) a claim of an issued patent which has not expired and which has not been held revoked, invalid or unenforceable by decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed with the time allowed for appeal having expired, and which has not been admitted to be invalid through reissue or disclaimer or otherwise; or (b) any claim of a pending patent application, which i) was filed in good faith; and ii) has not been pending for more than eight (8) years.

SECTION 2

Grant

2.1 UTRC hereby grants to GTx an exclusive, worldwide right and license, with the right to grant Sublicenses and to permit Sub-sublicenses to practice under and use the Licensed Patents and the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, and offer for sale any Licensed Product, Licensed Process or Generic Product. UTRC hereby agrees, subject to the terms and conditions herein contained, that the term "exclusive" means that UTRC shall not grant any other license to any third party or take any action inconsistent with the rights granted to GTx under this Agreement relating to the Licensed Patents or Licensed Technology.

2.2 GTx agrees that the Contributors and The University of Tennessee shall have the royalty-free right to practice under the Licensed Patents and to utilize the Licensed Technology for non-commercial educational, research, and academic purposes only.

2.3 GTx acknowledges that all or a portion of the Licensed Patents and Licensed Technology was developed with the support of the United States Government ("the Government"), and agrees that the Government retains rights in the Licensed Patents and Licensed Technology as set forth in Title 35 U.S.C. Section 200 et seq. All rights herein granted to GTx are subject to any such rights held by the Government and further subject to any restrictions or obligations that may be imposed by the Government pursuant to such rights.

2.4 GTx shall have the right to enter into Sublicenses and to permit Sub-sublicense agreements, as the case may be, with respect to the Licensed Patents and Licensed Technology, subject to notifying UTRC of the identity and address of each Sublicensee or Sub-sublicensee within thirty (30) days after execution of such agreement by the parties thereto. No GTx Affiliate, Joint Alliance, Joint Alliance Party, Residual Alliance, Residual Alliance Party, or their Affiliates, shall have the right to practice under the Licensed Patents or utilize the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, or offer for sale any Licensed Product, Licensed Process or Generic Product in the absence of a written Sublicense or Sub-sublicense. Any grant of rights by GTx, a Joint Alliance, a Joint Alliance Party, a Residual Alliance, a Residual Alliance Party, or their Affiliates, to practice under the Licensed Patents or to utilize the Licensed Technology to make, have made, use, market, sell, have sold, import, distribute, or offer for sale any Licensed Product, Licensed Process or Generic Product shall constitute a Sublicense or Sub-sublicense, as the case may be. All Sublicenses and Sub-sublicenses granted by GTx hereunder shall be subject to this Agreement in all respects and shall include provisions that such Sublicensee or Sub-sublicensee is being granted a license under the Licensed Patents and Licensed Technology as described herein.

2.5 GTx shall be responsible for its Affiliates, Sublicensees and Sub-sublicensees and shall not grant any rights that are inconsistent with the rights granted to and obligations of GTx hereunder. Each such Sublicense and Sub-sublicense agreement shall include a requirement that the Sublicensee or Sub-sublicensees, as the case may be, use its best efforts to bring the subject matter of the Sublicense or Sub-sublicense, as the case may be, into commercial use. In addition, each such Sublicense and Sub-sublicense agreement shall include a requirement that the Sublicensee or Sub-sublicensee, as the case may be, assign, transfer and convey to UTRC all right, title and interest in and to Licensed Patents. Upon termination of this Agreement, each Sublicensee's or Sub-sublicensee's as the case may be, rights under any Sublicense agreement shall also terminate. No Sublicense or Sub-sublicense shall relieve GTx of any of its obligations under this Agreement. GTx shall forward to UTRC a complete copy of each Sublicense or Sub-sublicense agreement, as the case may be (including, without limitation, all amendments and addenda), granted hereunder within thirty (30) days after execution of such agreement by the parties thereto, provided that UTRC shall receive such information and documents in confidence and shall not publicly disclose, discuss or release such information or document without the prior written approval of GTx except for the purposes of enforcement of UTRC's rights. GTx shall be responsible for payment of royalties from Joint Alliance Revenue and Residual Alliance Revenue provided, however, that GTx may arrange for such payments to be made to UTRC by an Affiliate, Sublicensee or Sub-sublicensee, with the understanding that UTRC's acceptance of such payments from an Affiliate, Sublicensee, or Sub-sublicensee does not relieve GTx of the ultimate responsibility for any other or future payment required hereunder. Each such Sublicense or Sub-sublicense agreement shall include an audit right by UTRC of the same scope as provided in Article 5.1 herein with respect to GTx.

2.6 Any act or omission of an Affiliate, Sublicensee or Sub-sublicensee which would constitute a breach of this Agreement if performed by GTx shall be deemed to be a breach by GTx of this Agreement, subject however to the same cure provisions in favor of GTx or such Affiliate, Sublicensee or Sub-sublicensee, as the case may be, as are otherwise provided herein for breach by GTx.

SECTION 3

Diligence

3.1 GTx shall use its commercially reasonable best efforts to develop and commercialize Licensed Products and Generic Products through a commercially reasonable program for exploitation of the Licensed Patents and the Licensed Technology.

SECTION 4

Payments and Royalties

4.1 For the rights, privileges and license granted hereunder, GTx shall pay royalties to UTRC in the manner hereinafter provided until this Agreement shall expire or be terminated. GTx shall pay to UTRC:

(A) Patent Expense Fee in the amount of [*] which UTRC acknowledges has been fully paid by GTx.

(B) Annual License Maintenance Fees in the amount of [*] each, being due and payable on July 1, 2003 and each succeeding July 1 thereafter during the term of this Agreement; provided, however, that the Annual License Maintenance Fee shall be reduced by the amount of running royalties actually paid to UTRC in the immediately preceding 12-month period prior to the due date of the Annual License Maintenance Fee. The Annual License Maintenance Fee shall be [*] at such time as GTx [*] as described in Article 2.4. This [*] of the Term of this Agreement, regardless of whether any such Joint Alliance, Residual Alliance or Sublicense is terminated. This [*] to a Sublicense granted to a GTx Affiliate that is 100% owned by GTx.

4.2 In addition to the foregoing fees, GTx shall pay to UTRC the following royalties for the term of this Agreement:

(A) [*] of Joint Alliance Revenue attributable to the use, sale or distribution of License Products and Licensed Processes and a reduced percentage of Joint Alliance Revenue attributable to the use, sale or distribution of Generic Products, which reduced percentage shall be determined on a country-by-country basis and in each country shall be calculated as the [*] during the quarter divided by [*] during the same quarter [*] (provided that in no event shall the reduced percentage [*]); and

(B) [*] of Residual Alliance Revenue attributable to the use, sale or distribution of License Products and Licensed Processes and a reduced percentage of Residual Alliance Revenue attributable to the use, sale or distribution of Generic Products, which reduced percentage shall be determined on a country-by-country basis and in each country shall be calculated as the [*] during the quarter divided by [*] during the same quarter [*] (provided that in no event shall the reduced percentage [*]).

4.3 In the event that GTx, its Sublicensees or Sub-sublicensees manufacture, make, use, sell import, or license a Licensed Product or perform a Licensed Process using technologies

for which royalties may be payable to UTRC under this Article 4 and under one or more other UTRC/GTx license agreements, GTx shall only be required to pay UTRC royalties under one such license agreement, subject to the provisions of Article 5.2.

4.4 Within [*] following the close of each calendar quarter in which Joint Alliance Revenue is received by a Joint Alliance or Joint Alliance Party, Residual Alliance Revenue is received by GTx, or amounts are received by a Joint Alliance or Residual Alliance on account of the use, sale or distribution of a Generic Product, as the case may be, payments shall be paid to UTRC or its designee in United States dollars in Knoxville, Tennessee, or at such other place as UTRC may reasonably designate consistent with the laws and regulations controlling in any foreign country. In the event GTx arranges for any payment under this Article 4.5 to be made to UTRC by an Affiliate, Sublicensee or Sub-sublicensee pursuant to Article 2.5, if such payment is not received by UTRC within the [*] period set forth herein, GTx shall be deemed to be in breach of this Agreement, subject to the same cure provisions in favor of GTx as set forth in Article 12. If any currency conversion shall be required in connection with the payment of royalties hereunder, such conversion shall be made by using the exchange rate prevailing at the Chase Manhattan Bank (N.A.) on the last business day of the calendar quarterly reporting period to which such royalty payments relate.

SECTION 5

Reports and Records

5.1 UTRC or its accounting agents shall have the right to inspect the books of account of GTx. GTx shall keep full, true and accurate books of account containing all particulars that may be necessary for the purpose of showing the amounts payable to UTRC hereunder. Said books of account shall be kept at GTx's principal place of business or the principal place of business of the appropriate division or Affiliate of GTx to which this Agreement relates. Said books and the supporting data shall be open at all reasonable times for [*] following the end of the calendar year to which they pertain, to the inspection of UTRC or its accounting agents for the purpose of verifying GTx's royalty statement. If any examination reveals a shortage in amounts paid to UTRC equal to or greater than [*] of the total amount due in the period under audit, GTx shall promptly reimburse UTRC for the cost of the examination as well as the shortage, together with interest thereon as provided in Article 5.4.

5.2 GTx shall deliver to UTRC true and accurate reports to confirm a royalty accounting hereunder within [*] after the close of each calendar quarter in which Joint Alliance Revenue is received by a Joint Alliance or Joint Alliance Party, or Residual Alliance Revenue is received by GTx, as the case may be.

These reports shall include at least the following, on a country-by-country basis:

(1) number of Licensed Products, Licensed Processes, or Generic Products manufactured, used or sold by and/or for GTx and all Joint Alliance Parties and Residual Alliance Parties;

(2) total amounts received by GTx, a Joint Alliance or a Joint Alliance Party for Licensed Products, Licensed Processes and Generic Products manufactured,

used or sold by and/or for GTx and any Joint Alliance, Joint Alliance Party, Residual Alliance, or Residual Alliance Party.

(3) accounting for Joint Alliance Revenue or Residual Alliance Revenue;

(4) royalties due to UTRC pursuant to Sections 4.2 and 4.3 including (i) the manner in which such royalties were calculated and (ii) in the event any such royalties are payable to UTRC under this Agreement and under one or more other UTRC/GTx license agreements, and notwithstanding that GTx is required to pay such royalties under only one such license agreement, GTx shall set out in its report the amount of such royalties covered by multiple license agreements and identify all such license agreements to which such royalties apply;

(5) names and addresses of all Joint Alliance Parties and Residual Alliance Parties, including an identification of whether the Party is a Joint Alliance Party or a Residual Alliance party;

(6) dates that any Residual Alliance Revenue is received by GTx from a Residual Alliance or any Residual Alliance Party and other information pertaining to the determination of revenues due to UTRC; and

(7) upon request by UTRC, any other information that may be necessary for the purpose of showing the amounts payable to UTRC hereunder.

5.3 With each such report submitted, GTx shall pay to UTRC the royalties due and payable under this Agreement. If no royalties shall be due, GTx shall so report.

5.4 Any amount owed by GTx under this Agreement that is not received by UTRC on or before the date due shall bear interest at a per annum rate [*] above the prime rate in effect at the Chase Manhattan Bank (N.A.) on the date due. GTx shall also pay all reasonable collection costs at any time incurred by UTRC in obtaining payment of amounts past due, including reasonable attorneys fees. If the transfer or the conversion into United States Dollar equivalents in any such instance is not lawful or possible, the payment of such part of the royalties as is necessary shall be made by the deposit thereof, in the currency of the country where the sales were made on which the royalty was based, to the credit and account of UTRC or its nominee in any commercial bank or trust company of its choice located in that country, prompt notice of which shall be given by GTx to UTRC.

SECTION 6

Patent Prosecution

6.1 GTx shall assume complete control of the prosecution of the Licensed Patents and will be responsible for maintaining any patents issued or issuing therefrom. GTx will also be responsible for preparing, filing, prosecuting and maintaining all patent applications and patents, corresponding to or arising out of the Licensed Technology. GTx shall use patent counsel of its own choice, at its own expense. GTx agrees to pay all costs incident to the United States and

foreign applications, patents and like protection relating to the Licensed Patents and the Licensed Technology, including all costs incurred for filing, prosecution, issuance and maintenance fees as well as any costs incurred in filing continuations, continuations-in-part, divisionals or related applications and any reexamination or reissue proceedings. Subject to the provisions of Article 6.4, GTx shall file and maintain patent applications corresponding to the Licensed Technology in such countries, as GTx in its sole discretion shall select. UTRC shall have the sole and exclusive right, title and ownership in and to all Licensed Patents, including Licensed Patents corresponding to or arising out of the Licensed Technology, which now exist or may exist in the future, including all United States and foreign patent applications filed and patents issued pursuant to this Article 6. GTx, its Sublicensees and Sub-sublicensees shall assign, transfer and convey to UTRC all right, title and interest in and to all such Licensed Patents. GTx shall be responsible for recording an assignment to UTRC of patent applications filed pursuant to this Article 6 with the United States Patent and Trademark Office and with each foreign Patent Office in which such applications are filed. Upon request by GTx, UTRC will amend this Agreement as reasonably necessary to confirm GTX's exclusive license in all such inventions conveyed to UTRC as provided in this Section.

6.2 GTx agrees to keep UTRC informed, at GTx's expense, of filing and prosecutions pursuant to this Article 6 including submitting to UTRC copies of all patent applications, official actions and responses thereto within thirty (30) days of filing or receipt, as the case may be. GTx agrees that it will reimburse UTRC for its reasonable attorneys fees that UTRC reasonably incurs for review by outside counsel of the material received from GTx. GTx shall consult with UTRC regarding any abandonment of the Licensed Patents or the prosecution of patent applications described in Article 6.1 prior to such abandonment.

6.3 UTRC agrees to reasonably cooperate with GTx, at GTx's request and expense, to whatever extent is reasonably necessary to procure patent protection of any rights, including fully agreeing to execute any and all documents to provide GTx the full benefit of the licenses granted herein with copies of correspondence with Patent Offices concerning the Licensed Patents.

6.4 In the event that GTx decides not to continue prosecution of any United States or foreign patent application to issuance or maintain any United States or foreign patent on technology described or claimed in the Licensed Patents or the Licensed Technology in a certain jurisdiction; GTx shall timely notify UTRC in writing in order that UTRC may continue said prosecution or maintenance of such patent applications or patents at its option and at its own expense in such jurisdiction. GTx's right under this Agreement to practice the invention(s) under such patents and patent applications shall immediately terminate in such jurisdiction upon UTRC's assuming said costs provided that the application, in which GTx decides not to continue prosecution or the patent which GTx decides not to maintain, is before the Patent Offices of a country included in Major Markets. GTx shall not be considered in default and this Agreement shall not terminates to any particular jurisdiction, if GTx decides not to continue prosecution of a patent application to issuance or maintain any patent in any other country besides those included in Major Markets. If GTx fails to notify UTRC in sufficient time for UTRC to continue prosecution, or the maintenance of, a patent or patent application in a Major Market, GTx shall be considered in default of this Agreement.

6.5 GTx and all its Sublicensees and Sub-sublicensees shall mark all products covered by Licensed Patents with patent numbers in accordance with the statutory requirements in the country (ies) of manufacture, use, and sale.

SECTION 7

Infringement

7.1 GTx shall inform UTRC and UTRC shall inform GTx, promptly in writing of any alleged assertion and/or claim of infringement of the Licensed Patents by a Third Party and of any available evidence thereof.

7.2 GTx shall have the right, but shall not be obligated, to prosecute at its own expense all infringements of the Licensed Patents and, in furtherance of such right, UTRC hereby agrees that GTx may include UTRC as a party plaintiff in any such suit, without expense to UTRC. The total cost of any such infringement action commenced or defended by GTx shall be borne by GTx. After deduction of outstanding expenses, including attorneys fees of GTx, the balance remaining from any such recovery shall be divided equally between GTx and UTRC until UTRC shall have recovered in full any royalty payments to which it would have been otherwise entitled to receive hereunder, but for such infringement, and any remaining balance, if any, shall be retained by GTx. No settlement, consent, judgment or other voluntary dismissal of such suits may be entered into without the consent of UTRC, provided that such consent shall not be unreasonably withheld and that UTRC shall not condition such consent on an increase in payments to UTRC hereunder.

7.3 If within six (6) months after having been notified of an alleged infringement, GTx has not brought or is not diligently prosecuting an infringement action, or if GTx has notified UTRC at any time prior thereto of its intention not to bring suit against any alleged infringement of the Patents, then, and in those events only, UTRC shall have the right, but shall not be obligated, to prosecute at its own expense any infringement of the Licensed Patents, and UTRC may, for such purposes, use the name of GTx as party plaintiff No settlement, consent judgment or other voluntary final disposition of the suit may be entered into without the consent of GTx, which consent shall not unreasonably be withheld. After deduction of outstanding expenses of UTRC, including attorney fees and any expenses of GTx, including attorney fees incurred prior to UTRC's pursuit of such infringement, the balance remaining from any such recovery shall be divided equally between GTx and UTRC.

7.4 In the event that GTx undertakes the enforcement and/or defense of the Licensed Patents by litigation or an inter partes proceeding in the United States or a foreign country against a Third Party, GTx may withhold up to [*] of the payments otherwise thereafter due UTRC under Article 4 that are attributable to sales in the country where such litigation or inter partes proceeding takes place and apply the same toward reimbursement of up to half of GTx's expenses, including reasonable attorneys' fees, in connection therewith. GTx may not withhold any portion of the payments due UTRC under Article 4 in the event that GTx undertakes the enforcement and/or defense of the Licensed Patents by litigation or an inter partes proceeding in the United States or a foreign country against an Affiliate, a Joint Alliance Party or a Residual Alliance Party. Any recovery of damages by GTx for each such suit shall be applied first in

satisfaction of any unreimbursed expenses and legal fees of GTx relating to such suit, and next toward reimbursement of UTRC for any payments under Article 4 past due or withheld and applied pursuant to this Article 7.

7.5 In the event that a declaratory judgment action alleging invalidity or noninfringement of any of the Licensed Patents shall be brought against UTRC, GTx at its option shall have the right, within thirty (30) days after commencement of such action, to intervene and take over the sole defense of the action at its own expense.

SECTION 8

Liability and Indemnification

8.1 GTx shall at all times during the term of this Agreement, indemnify, defend and hold UTRC, The University of Tennessee, and their respective trustees, directors, officers, employees and Affiliates, harmless against all claims, proceedings, demands and liabilities of any kind whatsoever, including legal expenses and reasonable attorneys fees (collectively, the "Claims"), arising out of the death of or injury to any person or persons or out of any damage to property, resulting from the production, manufacture, sale, use, lease, or consumption of the Licensed Products, Licensed Processes or Licensed Technology or arising from any obligation or act of GTx hereunder, except for Claims arising from the willful misconduct or misrepresentation by UTRC, The University of Tennessee, and their respective trustees, directors, officers, employees and Affiliates. Infringement by a Joint Alliance Party, a Residual Alliance Party, Sublicensees or Sub-sublicensees of a Third Party patent shall not be deemed for purposes of this Agreement as an improper action, omission, or negligent act on the part of UTRC, The University of Tennessee or their respective trustees, directors, officers, employees or Affiliates.

8.2 GTx shall obtain and carry in full force and effect from the first manufacture, use or sale of the Licensed Products, Licensed Processes or Licensed Technology to [*] such manufacturing, use or sales cease, commercial, general liability insurance which shall protect GTx and UTRC with respect to events covered by Paragraph 8.1 above. Such insurance shall be written by a reputable insurance company, shall list UTRC as an additional named insured thereunder, shall be endorsed to include product liability coverage and shall require thirty (30) days written notice to be given to UTRC prior to any cancellation or material change thereof. The limits of such insurance shall not be less than [*] per occurrence with an aggregate of [*] for personal injury or death. GTx shall provide UTRC with Certificates of Insurance evidencing the same.

8.3 UTRC, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES MAKE NO REPRESENTATIONS AND EXTEND NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE, IN ANY LICENSED PRODUCT, LICENSED PROCESS, LICENSED TECHNOLOGY OR GENERIC PRODUCT. IN NO EVENT SHALL UTRC, THE UNIVERSITY OF TENNESSEE, OR THEIR RESPECTIVE TRUSTEES, DIRECTORS,

OFFICERS, EMPLOYEES OR AFFILIATES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING, WITHOUT LIMITATION, ECONOMIC DAMAGE, INJURY TO PROPERTY OR LOST PROFITS, REGARDLESS OF WHETHER UTRC OR THE UNIVERSITY SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF ANY OF THE FOREGOING, EXCEPT FOR NEGLIGENCE, FRAUD, OR MISREPRESENTATION BY UTRC, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS:

A. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT THE PRACTICE BY GTx OF THE LICENSE GRANTED HEREUNDER SHALL NOT INFRINGE THE PATENTS OF ANY THIRD PARTY;

B. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT ANY PATENT APPLICATION INCLUDED IN THE PATENTS WILL ULTIMATELY ISSUE AS A PATENT;

C. A REPRESENTATION MADE OR WARRANTY GIVEN THAT GTx SHALL HAVE THE RIGHT TO USE ANY PORTION OF THE LICENSED PATENTS THAT IS CLAIMED IN A PATENT OF ANY THIRD PARTY,

D. A REQUIREMENT THAT UTRC SHALL BE RESPONSIBLE FOR THE EXPENSES OF FILING OR PROSECUTING ANY PATENT APPLICATION OR MAINTAINING ANY LICENSED PATENTS IN FORCE,

E. AN OBLIGATION ON THE PART OF UTRC TO BRING OR PROSECUTE ACTIONS OR SUITS AGAINST THIRD PARTIES FOR INFRINGEMENT OF THE LICENSED PATENTS OR FOR UNAUTHORIZED USE OF THE PATENTS OR MISAPPROPRIATION OF THE LICENSED TECHNOLOGY;

F. AN OBLIGATION ON THE PART OF UTRC TO DEFEND ANY ACTION OR SUIT BROUGHT BY A THIRD PARTY;

G. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC AS TO THE SAFETY, RELIABILITY OR EFFICACY OF: 1) THE LICENSED TECHNOLOGY OR THE INVENTIONS COVERED BY THE LICENSED PATENTS; OR 2) ANY LICENSED PRODUCT OR LICENSED PROCESS THAT INCORPORATES THE LICENSED PATENTS OR UTILIZES THE LICENSED PATENTS IN ITS PRODUCTION, MANUFACTURE OR PERFORMANCE OR ANY GENERIC PRODUCT THAT INCORPORATES THE LICENSED TECHNOLOGY OR UTILIZES THE LICENSED TECHNOLOGY IN ITS PRODUCTION, MANUFACTURE OR PERFORMANCE; and

H. A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRC THAT ANY OF THE CONTRIBUTORS WILL AGREE TO PROVIDE TECHNICAL ASSISTANCE OR CONSULTATION TO GTx, OR THAT SUCH TECHNICAL ASSISTANCE OR CONSULTATION, IF PROVIDED, WOULD BE SUFFICIENT

TO ENABLE GTx TO SUCCESSFULLY EXPLOIT THE LICENSED TECHNOLOGY OR THE LICENSED PATENTS.

8.4 UTRC represents and warrants that to the best of its actual knowledge: (i) the Licensed Patents are valid and enforceable; (ii) it has the full power to enter into this Agreement, to carry out its obligations under this Agreement, and to grant the rights granted to GTx herein; (iii) it has not previously granted and shall not grant to any Third Party any rights which are inconsistent with the rights granted to GTx herein, (iv) it is the sole owner of the entire right, title, and interest in and to the Licensed Patents and Licensed Technology; and (v) it has fully complied with all requirements of 35 U.S.C. Section 200 et seq. and all implementing regulations necessary to perfect title to the rights and license granted to GTx herein.

8.5 UTRC acknowledges and understands that Dr. Mitchell S . Steiner is an employee of The University of Tennessee and that he was and is currently the Chief Executive Officer of GTx.

8.6 GTx represents that: 1) it has full corporate power and authority to enter into this Agreement and carry out all the provisions of this Agreement; 2) it is authorized to execute this Agreement on its behalf; 3) the person executing this Agreement is duly authorized to do so; and 4) no consent, approval or authorization of any other party is required.

SECTION 9

Export Controls

9.1 GTx acknowledges that it is subject to United States laws and regulations controlling the export of technical data, computer software, laboratory prototypes and other commodities (including the Arms Export Control Act, as amended, and the United States Department of Commerce Export Administration Regulations). The transfer of such items may require a license from the cognizant agency of the United States Government and/or written assurances by GTx that GTx shall not export data or commodities to certain foreign countries without prior approval of such agency. UTRC neither represents that a license shall not be required nor that, if required, it shall be issued.

SECTION 10

Non-Use of Names

10.1 GTx shall not use the names or trademarks of UTRC or the University of Tennessee, nor any adaptation thereof, in any advertising, promotional or sales literature without prior written consent obtained from UTRC, except that GTx may state that it has licensed the Licensed Patents and Licensed Technology from UTRC.

10.2 UTRC shall not use the names or trademarks of GTx, nor any adaptation thereof in any advertising, promotional or sales literature without prior written consent obtained from GTx except that UTRC may state that it has licensed the Licensed Patents and Licensed Technology to GTx.

SECTION 11

Dispute Resolution

11.1 Except for the right of either party to apply to a court of competent jurisdiction for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or to prevent irreparable harm, any and all claims, disputes or controversies arising under, out of, or in connection with this Agreement, shall be resolved upon thirty (30) days written notice of either party to the other by final and binding arbitration in Knoxville, Tennessee under the Commercial Arbitration Rules of the American Arbitration Association, or the Patent Arbitration Rules if applicable, then in effect. The arbitrator(s) shall have no power to add to, subtract from or modify any of the terms or conditions of this Agreement, nor to award punitive damages. The prevailing party in any such arbitration shall, in addition to recovering reasonable out-of-pocket costs of the arbitration, be entitled to an award of reasonable attorneys fees incurred in connection with the arbitration, with any action necessary to perfect the arbitration award as a judgment, and for any collection action required to secure payment of any arbitration award. Any award rendered in such arbitration may be entered and enforced by either party in either the courts of the State of Tennessee or in the United States District Court for the Eastern District of Tennessee, to whose jurisdiction for such purposes UTRC and GTx each hereby irrevocably consents and submits, or in any other United States court having jurisdiction.

11.2 Notwithstanding the foregoing, nothing in this Article shall be construed to waive any rights or timely performance of any obligations existing under this Agreement.

SECTION 12

Term of Agreement and Termination

12.1 Unless earlier terminated, as hereinafter provided, the Term of this Agreement shall be for the longer of twenty (20) years or the last to expire term of any patent or patent application having a Valid Claim covering the Licensed Patents. After such expiration, GTx shall have a perpetual, royalty-free license to the Licensed Patents and Licensed Technology.

12.2 In the event of default or failure by GTx to perform any of the terms, covenants or provisions of this Agreement, GTx shall have thirty (30) days after the giving of written notice of such default by UTRC to correct such default. If such default is not corrected within the said thirty (30) day period, UTRC shall have the right, at its option, to cancel and terminate this Agreement. The failure of UTRC to exercise such right of termination for non-payment of royalties or otherwise shall not be deemed to be a waiver of any right UTRC might have, nor shall such failure preclude UTRC from exercising or enforcing said right upon any subsequent failure by GTx.

12.3 UTRC shall have the right, at its option, to cancel and terminate this Agreement in the event that GTx shall become involved in insolvency, dissolution, bankruptcy or receivership proceedings affecting the operation of its business. In the event of termination of this Agreement pursuant to Articles 12.2 or 12.3 hereof, all rights to the Licensed Patents shall revert to UTRC.

12.4 Upon termination of this Agreement for any reason, nothing herein shall be construed to release either party from any obligation that matured prior to the effective date of such termination; and Articles 1, 5, 8, 9-12, 18, 20, and 21 shall survive any such termination.

12.5 No termination of this Agreement shall constitute a termination or a waiver of any rights of either Party against the other Party accruing at or prior to the time of such termination. The obligations of Articles 5 and 13 shall survive termination of this Agreement.

12.6 GTx shall have the right to terminate this Agreement at any time on three (3) months notice to UTRC, and upon payment of all amounts due UTRC through the effective date of the termination.

SECTION 13

Assignability

13.1 This Agreement shall be binding upon and shall inure to the benefit of UTRC and its assigns and successors in interest, and shall be binding upon and shall inure to the benefit of GTx and its assigns and successors to all or substantially all of its assets or business to which this Agreement relates, but shall not otherwise be assignable or assigned by GTx without prior written approval by UTRC being first obtained, which approval shall not be unreasonably withheld; provided that, for purposes hereof, GTx shall have the right to assign this Agreement to an Affiliate of GTx (or any entity into which GTx shall have been merged or consolidated, provided that at least 51% of such merged or consolidated entity is owed by shareholders holding at least 51% of GTx immediately prior to such merger or consolidation) without obtaining the prior written approval of UTRC. No assignment shall be deemed effective unless such assignee has agreed in writing to be bound by the terms and provisions of this Agreement. Any attempt to assign or assignment made in violation of this Article 13.1 shall be void ab initio.

SECTION 14

Governmental Compliance

14.1 GTx shall at all times during the term of this Agreement and for so long as it shall make, use or sell Licensed Products, Licensed Processes or Licensed Technology comply and cause its sublicensees to comply with all laws that may control the import, export, manufacture, use, sale, marketing, distribution and other commercial exploitation of Licensed Products, Licensed Processes or Licensed Technology or any other activity undertaken pursuant to this Agreement.

SECTION 15

Notices

15.1 Any notice or other communication under this Agreement shall be in writing and shall be deemed to have been given: when delivered personally against receipt therefore; one day after being sent by Federal Express or similar overnight delivery; or three days after being mailed registered or certified mail, postage prepaid, to a party hereto at the address set forth

below, or to such address as such party shall give by notice hereunder to the other party to this Agreement.

If to UTRC:

The University of Tennessee Research Corporation
1534 White Avenue, Suite 403
Knoxville, Tennessee, U.S.A. 37996-1527
Attn: President

If to GTx:

3 N. Dunlap Street, 3rd Floor
Memphis, Tennessee 38163
Attn: Dr. Mitchell Steiner
Title: Chief Executive Officer

with a copy to:
Henry P. Doggrell
General Counsel, GTx, Inc.

SECTION 16

Severability of Provisions

16.1 If any provision of this Agreement shall be declared by a court of competent jurisdiction to be invalid, illegal or incapable of being enforced in whole or in part, the remaining conditions and provisions or portions thereof shall nevertheless remain in full force and effect and enforceable to the extent they are valid, legal and enforceable, and no provision shall be deemed dependent upon any other covenant or provision unless so expressed herein.

SECTION 17

Governing Law

17.1 This Agreement shall be deemed to be subject to, and have been made under, and shall be construed and interpreted in accordance with the laws of the State of Tennessee. This Agreement is expressly acknowledged to be subject to all federal laws including but not limited to the Export Administration Act of the United States of America. No conflict-of-laws rule or law that might refer such construction and interpretation to the laws of another state, republic, or country shall be considered. The Parties irrevocably and unconditionally agree that the exclusive place of jurisdiction for any action, suit or proceeding for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or to prevent irreparable harm, arising under, out of, or in connection with this Agreement ("Actions"), shall be in the courts of the United States of America sitting in the city, state and country of State of Tennessee, or, if such courts shall not have jurisdiction over the subject matter thereof, in the courts of the State of Tennessee sitting therein, and each such party hereby irrevocably and unconditionally agrees to submit to the jurisdiction of such courts for the purposes of any such Actions. If any such State court also does not have jurisdiction over the subject matter thereof,

then such an Action may be brought in the federal or state courts located in the states of the principal place of business of any Party hereto.

SECTION 18

Confidentiality

18.1 Nothing herein shall preclude a Party from disclosing the existence of this Agreement and the general scope of the license granted hereunder. However, neither Party shall disclose the economic terms of this Agreement.

18.2 Subject to the exceptions set forth herein, all information or material disclosed pursuant to this Agreement and/or related to the Licensed Patents, Licensed Products, Licensed Process, Licensed Technology and Generic Products shall be confidential ("Confidential Information"). Recipient of the Confidential Information ("Receiving Party") agrees to hold in confidence, and not to distribute or disseminate to any person or entity, for any reason for a period of five (5) years after receipt, any Confidential Information received, under or relating to this Agreement, except for Confidential Information which:

(i) was known or used by the Receiving Party prior to the date of disclosure to the Receiving Party as evidenced by written records; or

(ii) either before or after the date of disclosure is lawfully disclosed to the Receiving Party by sources other than the Providing Party which are rightfully in possession of the Confidential Information and not subject to any obligation of confidentiality, as evidenced by written records; or

(iii) either before or after the date of disclosure to the Receiving Party becomes published, through no fault or omission on the part of the Receiving Party; or

(iv) is independently developed by or for the Receiving Party without reference to, knowledge of, or reliance upon the Confidential Information as evidenced by written records;

(v) is required to be disclosed by the Receiving Party to comply with applicable laws, to defend or prosecute litigation or to comply with governmental regulations, provided that the Receiving Party provides prior written notice of such disclosure to the Providing Party and takes reasonable and lawful actions to avoid and/or minimize the degree of such disclosure, provided that specific information shall not be deemed to be within any of these exclusions merely because it is embraced by more general information falling with these exclusions; or

(vi) is developed by or for the Receiving Party without reference to, knowledge of, or reliance upon any of the Confidential Information.

18.3 The Parties recognize that GTx has entered into certain research agreement(s) with The Ohio State University Research Foundation, The University of Tennessee has entered into certain subcontract agreement(s) with The Ohio State University Research Foundation and

that GTx has entered into certain consulting agreement(s) with one or more of the Contributors, which agreements may contain confidentiality obligations and/or restrictions on publication regarding information or material related to this Agreement, the Licensed Patents and/or the Licensed Technology. While UTRC acknowledges the need for such confidentiality obligations and restrictions on publication in order for GTx to preserve United States and foreign patent rights, UTRC makes no representations or warranties, and has no obligation hereunder, regarding the confidentiality or publication obligations of The University of Tennessee, the Contributors or The Ohio State University Research Foundation.

18.4 The Parties agree that counsel of the Parties, who have a duty of confidentiality to the respective Parties, may receive Confidential Information.

SECTION 19

Reformation

19.1 All Parties hereby agree that neither Party intends to violate any public policy, statutory or common law, rule, regulation, treaty or decision of any government agency or executive body thereof of any country or community or association of countries; that if any word, sentence, paragraph or clause or combination thereof of this Agreement is found, by a court or executive body with judicial powers having jurisdiction over this Agreement or any of its Parties hereto, in a final unappealed order to be in violation of any such provision in any country or community or association of countries, such words, sentences, paragraphs or clauses or combination shall be inoperative in such country or community or association of countries, and the remainder of this Agreement shall remain binding upon the Parties hereto.

SECTION 20

Non-Waiver

20.1 The Parties covenant and agree that if a Party fails or neglects for any reason to take advantage of any of the terms provided for the termination of this Agreement or if a Party, having the right to declare this Agreement terminated, shall fail to do so, any such failure or neglect by such Party shall not be a waiver or be deemed or be construed to be a waiver of any cause for the termination of this Agreement subsequently arising, or as a waiver of any of the terms, covenants or conditions of this Agreement or of the performance thereof. None of the terms, covenants and conditions of this Agreement may be waived by a Party except by its written consent.

SECTION 21

Entire Agreement

21.1 This Agreement, as amended and restated herein, contains the entire agreement and understanding of the parties as of the Effective Date with respect to the subject matter hereof, supersedes any prior agreements and understandings with respect thereto and cannot be modified, amended or waived, in whole or in part, except in writing signed by the Party to be

charged. Any such purported non-written modification, amendment, or waiver shall be null and void. A discharge of the terms of this Agreement shall not be deemed valid unless by full performance of the Parties hereto or by writing signed by the Parties hereto. A waiver by UTRC of any breach by GTx of any provision or condition of this Agreement to be performed by GTx shall not be deemed a waiver of similar or dissimilar provisions or conditions at the same or any prior or subsequent time.

In Witness Whereof, the Parties hereto have executed and delivered this Agreement in multiple originals by their duly authorized officers and representatives on the respective dates shown below, but effective as of the Agreement Date. The undersigned representative of UTRC is authorized to execute this Agreement on its behalf and bind UTRC to the terms and conditions set forth.

The University of Tennessee Research Corporation ("UTRC")	GTx, Inc . (" GTx")
By: /s/ Ann J. Roberson	By: /s/ Henry P. Doggrell
Name: Ann J. Roberson	Name: Henry P. Doggrell
Title: President	Title: General Counsel
Date: 8-22-02	Date: 8/30/02

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

SCHEDULE 1

THE UNIVERSITY OF TENNESSEE RESEARCH CORPORATION

AND

GTX, INC.

AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT

PATENTS COVERING SERM PRODUCTS

OWNER/ASSIGNEE: UTRC [*]

[*] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 OF THE SECURITIES ACT OF 1933, AS AMENDED.

EXHIBIT 23.1

CONSENT OF INDEPENDENT AUDITORS

We consent to the reference to our firm under the caption "Experts", "Selected Financial Data", and "Summary Financial Data" and to the use of our report dated May 9, 2003, except note 13, as to which the date is October 14, 2003 in the Registration statement (Form S-1 No. 333-00000) and related Prospectus of GTx, Inc. for the registration of 000,000 shares of its common stock.

Ernst & Young LLP

Memphis, Tennessee
October 14, 2003

The foregoing consent is in the form that will be signed upon the completion of GTx's reincorporation in the State of Delaware as described in Note 13 to the financial statements.

/s/ Ernst & Young LLP

Memphis, Tennessee
October 14, 2003