
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM S-3

**REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

GTx, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or Other Jurisdiction of Incorporation or Organization)

62-1715807
(I.R.S. Employer Identification No.)

**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)

Copies to:

**SUZANNE SAWOCHKA HOOPER, ESQ.
Cooley Godward Kronish LLP
Five Palo Alto Square
3000 El Camino Real
Palo Alto, CA 94306-2155
(650) 843-5000**

Approximate date of commencement of proposed sale to the public:
From time to time after the effective date of this registration statement

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

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. 333-127175

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.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities To Be Registered(1)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee(3)
Common Stock, par value \$.001 per share	\$10,133,000	\$1,084.24

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- (1) There are being registered hereunder such indeterminate number of shares of Common Stock as shall have an aggregate initial offering price not to exceed \$10,133,000.
- (2) The proposed maximum aggregate offering price per share will be determined from time to time by the Registrant in connection with the issuance by the Registrant of the shares of Common Stock registered hereunder. The Registrant previously registered shares of its Common Stock having a proposed maximum aggregate offering price of \$100,000,000 pursuant to a Registration Statement on Form S-3 (File No. 333-127175), which was declared effective by the Securities and Exchange Commission on August 17, 2005, and for which a fee of \$11,770.00 was paid. Of these shares, the Registrant sold 6,325,000 shares of its Common Stock at an aggregate offering price of \$49,335,000 pursuant to a Prospectus Supplement dated October 11, 2005, filed with the Securities and Exchange Commission pursuant to Rule 424(b)(5) under the Securities Act.
- (3) Calculated pursuant to Rule 457(o) under the Securities Act.
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EXPLANATORY NOTE AND INCORPORATION BY REFERENCE

This registration statement is being filed with respect to the registration of additional shares of Common Stock, par value \$.001 per share, of the Registrant pursuant to Rule 462(b) under the Securities Act of 1933, as amended.

The Registrant hereby incorporates by reference into this registration statement in its entirety the Registration Statement on Form S-3 (File No. 333-127175), which was declared effective by the Securities and Exchange Commission on August 17, 2005, including each of the documents filed by the Registrant with the Securities and Exchange Commission and incorporated or deemed to be incorporated by reference therein and all exhibits thereto. The required opinions and consents are listed on the Exhibit Index attached to and filed with this registration statement.

PART II
INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in the volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 and Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment 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.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

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- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (6) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of the securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 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 of 1933 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 Exchange Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Memphis, State of Tennessee, on December 13, 2006.

GTx, Inc.

By: /s/ MITCHELL S. STEINER
Mitchell S. Steiner, M.D., F.A.C.S.
Chief Executive Officer

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ MITCHELL S. STEINER</u> Mitchell S. Steiner, M.D., F.A.C.S	Chief Executive Officer, Vice-Chairman and Director <i>(Principal Executive Officer)</i>	December 13, 2006
<u>/s/ MARK E. MOSTELLER</u> Mark E. Mosteller	Chief Financial Officer <i>(Principal Accounting and Financial Officer)</i>	December 13, 2006
<u>/s/ J.R. HYDE, III*</u> J.R. Hyde, III	Chairman of the Board of Directors	December 13, 2006
<u>/s/ MARC S. HANOVER*</u> Marc S. Hanover	Director	December 13, 2006
<u>Michael G. Carter, M.D.</u> <u>/s/ ANDREW M. CLARKSON*</u> Andrew M. Clarkson	Director	December 13, 2006
<u>/s/ J. KENNETH GLASS*</u> J. Kenneth Glass	Director	December 13, 2006
<u>/s/ ROBERT W. KARR*</u> Robert W. Karr, M.D.	Director	December 13, 2006
<u>/s/ ROSEMARY MAZANET*</u> Rosemary Mazanet, M.D., Ph.D.	Director	December 13, 2006
<u>/s/ JOHN H. PONTIUS*</u> John H. Pontius	Director	December 13, 2006
<u>/s/ TIMOTHY R. G. SEAR*</u> Timothy R. G. Sear	Director	December 13, 2006
<u>*By: /s/ MARK E. MOSTELLER</u> Mark E. Mosteller Attorney-in-Fact		

EXHIBIT INDEX

Exhibit Number	Description of the Document
5.1	Opinion of Cooley Godward Kronish LLP
23.1	Consent of Independent Registered Public Accounting Firm
23.2	Consent of Cooley Godward Kronish LLP (included in Exhibit 5.1)
24.1	Power of Attorney (1)

(1) Previously filed on the signature page to the Registrant's Registration Statement on Form S-3 (File No. 333-127175), which was declared effective by the Securities and Exchange Commission on August 17, 2005, and incorporated by reference herein.



December 13, 2006

GTx, Inc.
3 N. Dunlap Street, 3rd Floor
Van Vleet Building
Memphis, TN 38163

Ladies and Gentlemen:

We have acted as counsel to GTx, Inc., a Delaware corporation (the "**Company**"), in connection with the filing of a Registration Statement on Form S-3 (the "**Registration Statement**") pursuant to Rule 462(b) of Regulation C promulgated under the Securities Act of 1933, as amended (the "**Securities Act**"), relating to an aggregate of \$10,133,000 of shares of common stock, par value \$0.001 per share ("**Common Stock**"), of the Company (the "**Shares**"). The Shares are being registered for offering and sale from time to time pursuant to Rule 415 of the General Rules and Regulations promulgated under the Securities Act (the "**Securities Act Rules**"). The Registration Statement incorporates by reference the Registration Statement on Form S-3 (No. 333-127175), which was declared effective on August 17, 2005, including the prospectus which forms a part of such Registration Statement (the "**Prospectus**"), as supplemented from time to time by one or more prospectus supplements (each, a "**Prospectus Supplement**").

In connection with this opinion, we have examined and relied upon the originals, or copies certified to our satisfaction, of such records, documents, certificates, opinions, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. As to certain factual matters, we have relied upon certificates of the officers of the Company and have not sought to independently verify such matters.

In rendering this opinion, we have assumed: (i) the genuineness and authenticity of all signatures on original documents; (ii) the authenticity of all documents submitted to us as originals; (iii) the conformity to originals of all documents submitted to us as copies; (iv) the accuracy, completeness and authenticity of certificates of public officials; and (v) the due authorization, execution and delivery of all documents where authorization, execution and delivery are prerequisites to the effectiveness of such documents. We have also assumed that, at the time of issuance and sale, a sufficient number of shares of Common Stock is authorized and reserved or available for issuance and that the consideration for the issuance and sale of such shares of Common Stock is not less than the par value of the Common Stock, and that, prior to any offering and sale of the Shares, the Company's board of directors (the "**Board**"), including any appropriate committee appointed thereby, will duly authorize the price at which the Shares are to be issued and sold.

Our opinion herein is expressed solely with respect to the federal laws of the United States and the Delaware General Corporation Law. We express no opinion as to whether the laws of any jurisdiction are applicable to the subject matter hereof. We are not rendering any opinion as to



GTx, Inc.
December 13, 2006
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compliance with any federal or state antifraud law, rule or regulation relating to securities, or to the sale or issuance thereof.

On the basis of the foregoing and in reliance thereon, and subject to the qualifications herein stated, we are of the opinion that, with respect to any offering of the Shares, provided that: (i) the Registration Statement, as finally amended, has become effective; (ii) an appropriate Prospectus Supplement with respect to the Shares has been prepared, delivered and filed in compliance with the Securities Act and the applicable Securities Act Rules; (iii) if the Shares are to be sold pursuant to a purchase, underwriting or similar agreement, such agreement has been duly authorized, executed and delivered by the Company and the other parties thereto and has become a valid and binding agreement of the Company; (iv) the Board, including any appropriate committee appointed thereby, and appropriate officers of the Company have taken all necessary corporate action to approve the issuance of the Shares and related matters; and (v) the issuance and sale of the Shares do not violate any applicable law or the operative certificate of incorporation or bylaws of the Company or result in a default under or breach of any agreement or instrument binding upon the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company, then the Shares, when issued and sold in accordance with any duly authorized, executed and delivered purchase, underwriting or similar agreement, will be duly authorized, validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the Prospectus included in the Registration Statement.

Very truly yours,

Cooley Godward Kronish LLP

/s/ Suzanne Sawochka Hooper

Suzanne Sawochka Hooper

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the reference to our firm under the caption "Experts" in the Registration Statement (Form S-3) and related Prospectus and Prospectus Supplement of GTx, Inc. for the registration of shares of its common stock totaling \$10,133,000 and to the incorporation by reference therein of our reports dated February 24, 2006, with respect to the financial statements of GTx, Inc., GTx, Inc. management's assessment of the effectiveness of internal control over financial reporting, and the effectiveness of internal control over financial reporting of GTx, Inc., all included in its Annual Report (Form 10-K) for the year ended December 31, 2005, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Memphis, Tennessee
December 12, 2006