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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended June 30, 2018

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number: 000-50549

GTx, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**62-1715807**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
175 Toyota Plaza **7th Floor** **Memphis, Tennessee**	**38103**
(Address of principal executive offices)	(Zip Code)

(901) 523-9700
(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company x
	Emerging growth company o

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No x

As of August 09, 2018, 24,045,844 shares of the registrant's Common Stock were outstanding.

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PART I: FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

GTx, Inc.
CONDENSED BALANCE SHEETS
(in thousands, except share data)

	June 30, 2018 (unaudited)	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 16,511	$ 15,816
Short-term investments	29,205	28,083
Prepaid expenses and other current assets	1,864	2,178
Total current assets	47,580	46,077
Property and equipment, net	35	51
Intangible assets, net	101	108
Total assets	$ 47,716	$ 46,236
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,473	$ 2,604
Accrued expenses and other current liabilities	6,404	5,371
Total current liabilities	7,877	7,975
Commitments and contingencies		
Stockholders' equity:		
Common stock, $0.001 par value: 60,000,000 shares authorized at June 30, 2018 and December 31, 2017; 24,031,191 and 21,541,909 shares issued and outstanding at June 30, 2018 and December 31, 2017, respectively	24	22
Additional paid-in capital	625,024	599,876
Accumulated deficit	(585,209)	(561,637)
Total stockholders' equity	39,839	38,261
Total liabilities and stockholders' equity	$ 47,716	$ 46,236

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

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GTx, Inc.
CONDENSED STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)
(unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Expenses:				
Research and development expenses	$ 7,962	$ 4,448	$ 18,962	$ 8,641
General and administrative expenses	2,196	1,997	4,884	4,084
Total expenses	10,158	6,445	23,846	12,725
Loss from operations	(10,158)	(6,445)	(23,846)	(12,725)
Other income, net	143	40	274	67
Net loss	$ (10,015)	$ (6,405)	$ (23,572)	$ (12,658)
Net loss per share — basic and diluted	$ (0.43)	$ (0.40)	$ (1.04)	$ (0.79)
Weighted average shares outstanding:				
Basic and diluted	23,288,691	16,041,923	22,623,601	16,030,689

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

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GTx, Inc.
CONDENSED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Six Months Ended June 30,	
	2018	2017
Cash flows from operating activities:		
Net loss	$ (23,572)	$ (12,658)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	23	23
Share-based compensation	1,236	1,322
Directors' deferred compensation	83	83
Changes in assets and liabilities:		
Prepaid expenses and other assets	314	299
Accounts payable	(1,131)	(617)
Accrued expenses and other liabilities	1,033	1,191
Net cash used in operating activities	(22,014)	(10,357)
Cash flows from investing activities:		
Purchase of short-term investments, held to maturity	(34,111)	(11,200)
Proceeds from maturities of short-term investments, held to maturity	32,989	17,959
Net cash (used in) provided by investing activities	(1,122)	6,759
Cash flows from financing activities:		
Net proceeds from the issuance of common stock	24,474	—
Tax payments related to shares withheld for vested restricted stock units	(643)	(156)
Net cash provided by (used in) financing activities	23,831	(156)
Net decrease in cash and cash equivalents	695	(3,754)
Cash and cash equivalents, beginning of period	15,816	8,910
Cash and cash equivalents, end of period	$ 16,511	$ 5,156

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

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GTx, Inc.
NOTES TO THE CONDENSED FINANCIAL STATEMENTS
(in thousands, except share and per share data)
(unaudited)

1. Business and Basis of Presentation

GTx, Inc. ("GTx" or the "Company"), a Delaware corporation incorporated on September 24, 1997 and headquartered in Memphis, Tennessee, is a biopharmaceutical company dedicated to the discovery, development and commercialization of medicines to treat serious and/or significant unmet medical conditions, including stress urinary incontinence and prostate cancer.

The Company is developing selective androgen receptor modulators ("SARMs"), including its lead product candidate, enobosarm (GTx-024). SARMs are a class of drugs that the Company believes has the potential to treat serious medical conditions where unmet medical needs in muscle-related diseases may benefit from increasing muscle mass, such as stress urinary incontinence ("SUI").

In 2016, the Company initiated a Phase 2 open-label, non-placebo controlled, proof-of-concept clinical trial of enobosarm to treat postmenopausal women with SUI. Based on the results from this proof-of-concept clinical trial, the Company initiated in the third quarter of 2017 a randomized, placebo-controlled Phase 2 clinical trial to evaluate the change in the mean number of daily SUI episodes following 12 weeks of enobosarm treatment. This trial is evaluating the safety and efficacy of enobosarm (1 mg and 3 mg) compared with placebo in postmenopausal women who have demonstrated SUI symptoms for more than six months, with an average of 3 to 15 reported SUI episodes per day over a three-day period, and a positive bladder stress test. The primary endpoint for the clinical trial is the percentage of patients with at least a 50 percent reduction in mean leaks per day at week 12, compared to baseline. The trial has completed enrollment of 493 women and the Company expects top-line data early in the fourth quarter of 2018.

The Company previously announced that enobosarm achieved the pre-specified primary efficacy endpoint in both dose cohorts of the Phase 2 clinical trial designed to evaluate the efficacy and safety of a 9 mg and 18 mg dose of enobosarm in patients whose advanced breast cancer is both estrogen receptor ("ER") positive and androgen receptor ("AR") positive. After evaluating the breast cancer environment where the treatment paradigms are shifting to immunotherapies and/or combination therapies, the Company has decided that the time and cost of conducting the necessary clinical trials for potential approval in this indication does not warrant further development of enobosarm in this indication at this time.

In 2015, the Company entered into an exclusive license agreement with the University of Tennessee Research Foundation ("UTRF") to develop UTRF's proprietary selective androgen receptor degrader ("SARD") technology which may have the potential to provide compounds that can degrade multiple forms of AR to treat those patients who do not respond or are resistant to current therapies by inhibiting tumor growth in patients with progressive castration-resistant prostate cancer ("CRPC"). The Company has ongoing mechanistic preclinical studies to select the most appropriate SARD compound to potentially move into a first-in-human clinical trial.

The Company's ability to pursue the continued development of SARMs and its SARD program is contingent upon the Company's ability to obtain additional funding. Accordingly, the Company is actively seeking additional funds through potential collaborative, partnering or other strategic arrangements to provide the Company with the necessary resources for the development of enobosarm and its other SARM compounds, as well as its SARD technology.

During the three months ended June 30, 2018, the Company sold 1,501,501 shares of common stock under the At-the-Market Equity Offering℠ Sales Agreement (the "ATM Sales Agreement") with Stifel, Nicolaus & Company, Incorporated, as sales agent ("Stifel") for net proceeds of $24,474.

Basis of Presentation

The accompanying unaudited condensed financial statements reflect, in the opinion of management, all adjustments (consisting of normal recurring adjustments) necessary for a fair presentation of GTx's financial

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position, results of operations and cash flows for each period presented in accordance with accounting principles generally accepted in the United States for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States have been condensed or omitted from the accompanying condensed financial statements. These interim condensed financial statements should be read in conjunction with the audited financial statements and related notes thereto, which are included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 13, 2018. Operating results for the three and six months ended June 30, 2018 are not necessarily indicative of the results that may be expected for the entire fiscal year ending December 31, 2018.

Use of Estimates

The preparation of condensed 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 condensed financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual amounts and results could differ from those estimates.

Fair Value of Financial Instruments

The carrying amounts of the Company's financial instruments (which include cash, cash equivalents, short-term investments, and accounts payable) approximate their fair values. The Company's financial assets and liabilities are classified within a three-level fair value hierarchy that prioritizes the inputs used to measure fair value, which is defined as follows:

Level 1 — Quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date

Level 2 — Inputs other than quoted prices in active markets that are observable for the asset or liability, either directly or indirectly

Level 3 — Inputs that are unobservable for the asset or liability

As the Company has the positive intent and ability to hold its certificates of deposit classified as short-term investments until maturity, these investments have been classified as held to maturity investments and are stated at cost, which approximates fair value. The Company considers these to be Level 2 investments as the fair values of these investments are determined using third-party pricing sources, which generally utilize observable inputs, such as interest rates and maturities of similar assets.

Research and Development Expenses

Research and development expenses include, but are not limited to, the Company's expenses for personnel, supplies, and facilities associated with research activities, screening and identification of product candidates, formulation and synthesis activities, manufacturing, preclinical studies, toxicology studies, clinical trials, regulatory and medical affairs activities, quality assurance activities and license fees. The Company expenses these costs in the period in which they are incurred. The Company estimates its liabilities for research and development expenses in order to match the recognition of expenses to the period in which the actual services are received. As such, accrued liabilities related to third party research and development activities are recognized based upon the Company's estimate of services received and degree of completion of the services in accordance with the specific third party contract.

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GTx, Inc.
NOTES TO THE CONDENSED FINANCIAL STATEMENTS
(in thousands, except share and per share data)
(unaudited)

Cash, Cash Equivalents and Short-term Investments

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

At June 30, 2018 and December 31, 2017, short-term investments consisted of Federal Deposit Insurance Corporation insured certificates of deposit with original maturities of greater than three months and less than one year.

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 basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is provided when it is more likely than not that some portion or all of the deferred tax assets will not be realized. Accordingly, at June 30, 2018 and December 31, 2017, net of the valuation allowance, the net deferred tax assets were reduced to zero. Income taxes are described more fully in Note 8 to the Company's financial statements included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 13, 2018.

Other Income, net

Other income, net consists of foreign currency transaction gains and losses, interest earned on the Company's cash, cash equivalents and short-term investments, and other non-operating income or expense.

Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board issued Accounting Standard Update ("ASU") 2016-02, *Leases (Topic 842)*. This ASU requires that lessees recognize assets and liabilities on the balance sheet for the present value of the rights and obligations created by all leases with terms of more than 12 months. The ASU also will require disclosures designed to give financial statement users information on the amount, timing, and uncertainty of cash flows arising from leases. This new guidance will be effective for the Company as of January 1, 2019. The Company does not expect the adoption of the standard update to have a significant impact on its financial position or results of operations.

Subsequent Events

The Company has evaluated all events or transactions that occurred after June 30, 2018 up through the date the condensed financial statements were issued. There were no material recognizable or nonrecognizable subsequent events during the period evaluated.

2. Share-Based Compensation

Share-based payments include stock option grants and RSUs under the Company's stock option and equity incentive plans and deferred compensation arrangements for the Company's non-employee directors. The Company recognizes compensation expense for its share-based payments based on the fair value of the awards over the period during which an employee or non-employee director is required to provide service in exchange for the award. The Company's share-based compensation plans are described more fully in Note 3 to the Company's financial statements included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 13, 2018.

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GTx, Inc.
NOTES TO THE CONDENSED FINANCIAL STATEMENTS
(in thousands, except share and per share data)
(unaudited)

The following table summarizes share-based compensation expense included within the condensed statements of operations for the three and six months ended June 30, 2018 and 2017:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017

Research and development expenses	$ 254	$ 181	$ 535	$ 414
General and administrative expenses	377	520	784	991
Total share-based compensation	$ 631	$ 701	$ 1,319	$ 1,405

Share-based compensation expense recorded as general and administrative expense for the three months ended June 30, 2018 and 2017 included share-based compensation expense related to deferred compensation arrangements for the Company's non-employee directors of $41 and $42, respectively. Share-based compensation expense recorded as general and administrative expense for both the six months ended June 30, 2018 and 2017 included share-based compensation expense related to deferred compensation arrangements for the Company's non-employee directors of $83.

The Company uses the Black-Scholes Model to value stock options. The expected life of options is determined by calculating the average of the vesting term and the contractual term of the options. The expected price volatility is based on the Company's historical stock price volatility. The risk-free interest rate is determined using U.S. Treasury rates where the term is consistent with the expected life of the stock options. Expected dividend yield is not considered as the Company has not made any dividend payments and has no plans of doing so in the foreseeable future.

The fair value of options granted was estimated using the following assumptions for the periods presented:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Expected price volatility	93.5%	91.0%	93.1%	88.5%
Risk-free interest rate	2.9%	2.0%	2.4%	2.2%
Weighted average expected life in years	6 years	6 years	7 years	7 years

The following is a summary of stock option transactions for all of the Company's stock option and equity incentive plans since the Company's most recent fiscal year end:

	Number of Shares	Weighted Average Exercise Price Per Share
Options outstanding at December 31, 2017	1,900,496	$ 13.84
Options granted	459,000	13.12
Options forfeited or expired	(3,099)	170.97
Options outstanding at June 30, 2018	2,356,397	13.49

The Company estimates the fair value of RSUs using the closing price of its stock on the grant date. The fair value of RSUs is amortized on a straight-line basis over the requisite service period of the awards.

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GTx, Inc.
NOTES TO THE CONDENSED FINANCIAL STATEMENTS
(in thousands, except share and per share data)
(unaudited)

The following is a summary of the RSU transactions for all of the Company's equity incentive plans since the Company's most recent fiscal year end:

	Number of Shares
Nonvested RSUs at December 31, 2017	380,500
RSUs granted	—
RSUs vested	(363,833)
RSUs forfeited	—
Nonvested RSUs at June 30, 2018	16,667

3. Basic and Diluted Net Loss Per Share

Basic and diluted net income (loss) per share attributable to common stockholders is calculated based on the weighted average number of common shares outstanding during the period. Diluted net income (loss) per share gives effect to the dilutive potential of common stock consisting of stock options, unvested RSUs and common stock warrants.

Weighted average potential shares of common stock of 10,971,072 and 8,720,616 for the three months ended June 30, 2018 and 2017, respectively, and 11,414,458 and 8,490,229 for the six months ended June 30, 2018 and 2017, respectively, were excluded from the calculations of diluted net loss per share as inclusion of the potential shares would have had an anti-dilutive effect on the net loss per share for the periods.

4. Stockholders' Equity

On February 9, 2018, the Company entered into the ATM Sales Agreement with Stifel, pursuant to which the Company may offer and sell, from time to time, through Stifel, shares of the Company's common stock, having an aggregate offering price of up to $50,000. During the three months ended June 30, 2018, the Company sold 1,501,501 shares of common stock under the ATM Sales Agreement for net proceeds of $24,474. As of June 30, 2018, the Company had approximately $25,000 of common stock remaining available to be sold under the ATM Sales Agreement.

On September 29, 2017, the Company completed a private placement of units consisting of an aggregate of 5,483,320 shares of common stock and warrants to purchase an aggregate of 3,289,988 shares of its common stock for net proceeds of $45,648, after deducting placement agent fees and other offering expenses. The purchasers in the registered direct offering consisted solely of accredited investors that included certain institutional and existing stockholders, including a member of the Company's board of directors. The warrants, which have five year terms expiring on September 29, 2022, are

immediately exercisable and have a per share exercise price of $9.02. The Company assessed whether the warrants require accounting as derivatives. The Company determined that the warrants were indexed to the Company's own stock. As such, the Company has concluded the warrants meet the scope exception for determining whether the instruments require accounting as derivatives and are classified in stockholders' equity. The fair value of the warrants was estimated at $21,069 using the Black-Scholes Model with the following assumptions: expected volatility of 97%, risk free interest rate of 1.92%, expected life of five years and no dividends. The net proceeds from the private placement were allocated to the common stock and warrants based upon their relative fair values.

On November 14, 2014, the Company completed a private placement of units consisting of an aggregate of 6,431,111 shares of common stock and warrants to purchase an aggregate of 6,430,948 shares of its common stock for net proceeds of $42,814, after deducting offering expenses. The net proceeds from the private placement were allocated to the common stock and warrants based upon the fair value method. Similarly, the offering expenses were allocated between the common stock and warrants with the portion allocated to common stock offset against

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the proceeds allocated to stockholders' equity, whereas the portion allocated to the warrants was expensed immediately. The warrants have a per share exercise price of $8.50, became exercisable on May 6, 2015 and will continue to be exercisable for four years thereafter. In March 2018, certain holders of warrants issued in November 2014 exercised warrants covering 1,111,082 shares of common stock in a cashless exercise for which the Company issued an aggregate of 674,579 shares of common stock upon exercise.

5. University of Tennessee Research Foundation License Agreements

The Company and the University of Tennessee Research Foundation ("UTRF") are parties to a consolidated, amended and restated license agreement (the "SARM License Agreement") pursuant to which the Company was granted exclusive worldwide rights in all existing SARM technologies owned or controlled by UTRF, including all improvements thereto, and exclusive rights to future SARM technology that may be developed by certain scientists at the University of Tennessee or subsequently licensed to UTRF under certain existing inter-institutional agreements with The Ohio State University. Under the SARM License Agreement, the Company is obligated to pay UTRF annual license maintenance fees, low single-digit royalties on net sales of products and mid-single-digit royalties on sublicense revenues.

The Company and UTRF also entered into a license agreement (the "SARD License Agreement") in March 2015 pursuant to which the Company was granted exclusive worldwide rights in all existing SARD technologies owned or controlled by UTRF, including all improvements thereto. Under the SARD License Agreement, the Company is obligated to employ active, diligent efforts to conduct preclinical research and development activities for the SARD program to advance one or more lead compounds into clinical development. The Company is also obligated to pay UTRF annual license maintenance fees, low single-digit royalties on net sales of products and additional royalties on sublicense revenues, depending on the state of development of a clinical product candidate at the time it is sublicensed.

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ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the condensed financial statements and the notes thereto included in Part 1, Item 1 of this Quarterly Report on Form 10-Q.

Forward-Looking Information

This Quarterly Report on Form 10-Q contains forward-looking statements. The forward-looking statements are contained principally in the sections entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors." These statements involve known and unknown risks, uncertainties and other factors that 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 implementation of our business strategies, including our ability to preserve or realize any significant value from our selective androgen receptor modulator, or SARM, and selective androgen receptor degrader, or SARD, programs;
- the therapeutic and commercial potential of, and our ability to advance the development of, SARMs and our SARD program;
- the timing, scope and anticipated initiation, enrollment and completion of our ongoing clinical trials and any other future clinical trials that we may conduct;
- our ability to establish and maintain potential new collaborative, partnering or other strategic arrangements for the development and commercialization of enobosarm and any other SARM or SARD product candidates;
- the anticipated progress of our preclinical and clinical programs, including whether our ongoing clinical trials will achieve clinically relevant results;
- the timing of regulatory discussions and submissions, and the anticipated timing, scope and outcome of related regulatory actions or guidance;

- our ability to obtain and maintain regulatory approvals of enobosarm and any other SARM or SARD product candidates and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;

- our ability to market, commercialize and achieve market acceptance for our current and potential future product candidates;

- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others;

- our projected operating and financial performance; and

- our estimates regarding the sufficiency of our cash resources, expenses, capital requirements and needs for additional financing, and our ability to obtain additional financing.

In some cases, you can identify forward-looking statements by terms such as “anticipates,” “believes,” “could,” “envisions,” “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 are subject to risks, uncertainties and other important factors. We discuss many of these risks in this Quarterly Report on Form 10-Q in greater detail in the section entitled “Risk Factors” under Part II, Item 1A below. Given these risks, uncertainties and other important factors, 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 Quarterly Report on Form 10-Q. You should read this Quarterly Report on Form 10-Q and the documents that we incorporate by

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reference in and have filed as exhibits to this Quarterly Report on Form 10-Q, 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.

Overview

Business Overview

We are a biopharmaceutical company dedicated to the discovery, development and commercialization of medicines to treat serious and/or significant unmet medical conditions, including stress urinary incontinence, or SUI, and prostate cancer. Our current strategy is focused on the further development of selective androgen receptor modulators, or SARMs, a class of drugs that we believe has the potential to treat serious medical conditions where unmet medical needs in muscle-related diseases may benefit from increasing muscle mass, such as SUI. Under an exclusive worldwide license agreement with the University of Tennessee Research Foundation, or UTRF, we are developing UTRF’s proprietary selective androgen receptor degrader, or SARD, technology, which we believe has the potential to provide compounds that can degrade multiple forms of androgen receptor, or AR, by inhibiting tumor growth in patients with progressive castration-resistant prostate cancer, or CRPC, including those patients who do not respond to or are resistant to current therapies.

Business Highlights

Our lead SARM candidate, enobosarm (GTx-024), has to date been evaluated in 27 completed or ongoing clinical trials, including in nine Phase 2 and two Phase 3 clinical trials. These trials have enrolled over 2,100 subjects, of which approximately 1,500 subjects were treated with enobosarm. Enobosarm is the generic name given to the compound by the USAN Council and the World Health Organization and is the first compound to receive the SARM stem in its name, recognizing enobosarm as the first in this class of compounds. Enobosarm is currently our only clinical product candidate.

In 2016, we initiated a Phase 2 open-label, non-placebo controlled, proof-of-concept clinical trial of enobosarm to treat postmenopausal women with SUI. This is the first clinical trial to evaluate a SARM for the treatment of SUI. In this Phase 2 proof-of-concept clinical trial, enobosarm 3 mg is being assessed as a potential treatment for postmenopausal women who have demonstrated SUI symptoms for more than six months, with an average of 3 to 15 reported SUI episodes per day over a three-day period, and a positive bladder stress test. The primary endpoint for the clinical trial is the average number of SUI episodes per day on the 3-day voiding diary at 12 weeks, compared to baseline.

In the third quarter of 2017, we announced top-line clinical trial results from this proof-of-concept clinical trial demonstrating that a daily dose of enobosarm 3 mg substantially improved SUI in women, as well as related quality of life measurements. In this open-label clinical trial, a total of 19 postmenopausal women were enrolled by three clinical sites to receive enobosarm treatment. Of the 18 evaluable patients completing the required 12 weeks of daily treatment, all saw a clinically meaningful reduction (50 percent or greater) in stress leaks per day, compared to baseline. Additionally, data from the 18 evaluable patients completing treatment showed a mean decrease in stress leaks per day of 81 percent overall (5.17 mean leaks/day at baseline to 1.0 mean leaks/day at 12 weeks). Patients were followed for up to an additional seven months post-treatment to assess the durability of treatment effect. Further, women reported improved quality of life measurements at 12 weeks of treatment in various instruments collected in the clinical trial.

In March 2018, we announced updated results from this proof-of-concept clinical trial noting that to date, no patient, including 9 patients who had reached seven months post-treatment, had returned to baseline levels of SUI episodes. Additionally, magnetic resonance imaging, or MRI, was used to quantitatively measure muscle in the pelvic floor of 17 women at 12 weeks compared to baseline. The results demonstrated a statistically significant increase in pelvic floor muscle thickness and urethral muscle diameter after enobosarm treatment and support the mechanism of action of enobosarm on the pelvic floor. Further, while all of the women in the trial had predominant SUI, 11 of the 18 women completing 12 weeks of treatment were determined to have both SUI and urge incontinence, or UI, at baseline, and these 11 women with mixed incontinence demonstrated a mean reduction in their UI episodes of approximately 68 percent. 9 of 11 women demonstrated a reduction in their number of UI leaks, compared to baseline, with 8 of 11 demonstrating a clinically meaningful reduction in their UI episodes per day of at least 50 percent. In May 2018, we announced further updated results from this proof-of-concept clinical

trial noting that to date, no patient, including 17 patients who had reached seven months post-treatment, had returned to baseline levels of SUI episodes.

In this SUI proof-of-concept clinical trial, there were no serious adverse events reported and reported adverse events were minimal and included headaches, nausea, fatigue, hot flashes, insomnia, muscle weakness and acne. Mild transient elevations in liver enzymes that were within normal limits were observed, except for one patient with levels greater than 1.5 times the upper limit of normal which returned to normal following her 12-week treatment period. Reductions in total cholesterol, low-density lipoproteins, or LDL, high-density lipoproteins, or HDL, and triglycerides were also observed.

Based on the results from our enobosarm Phase 2 open-label, non-placebo controlled, proof-of-concept clinical trial, in the third quarter of 2017, we initiated a randomized, placebo-controlled Phase 2 clinical trial at over 60 clinical trial centers in the United States to evaluate the change in the mean number of daily SUI episodes following 12 weeks of enobosarm treatment. The trial is fully enrolled with 493 postmenopausal women and is evaluating the safety and efficacy of enobosarm (1 mg and 3 mg) compared with placebo in women who have demonstrated SUI symptoms for more than six months, with an average of 3 to 15 reported SUI episodes per day over a three-day period, and a positive bladder stress test. The primary endpoint for the clinical trial is a comparison of the percentage of responders between each treatment arm and placebo where a responder is defined as a patient with at least a 50 percent reduction in mean leaks per day at week 12 compared to baseline. We anticipate top-line data from this trial to be available early in the fourth quarter of 2018.

The placebo-controlled Phase 2 clinical trial also includes a four-month, off-drug durability assessment in the first 225 patients enrolled. This data will be announced simultaneously with the Phase 2 clinical trial top-line data. Once the 225-patient cohort completes the four-month, off-drug durability assessment, those patients will have the option to enter an additional five-month, off-drug extension to provide a total of nine months of off-drug durability assessment in those patients choosing to do so. We also have initiated an open-label safety extension study with each participating patient receiving 3 mg of oral enobosarm on a daily basis.

We commenced enrollment in 2015 in a Phase 2 clinical trial designed to evaluate the efficacy and safety of a 9 mg and 18 mg dose of enobosarm in patients whose advanced breast cancer is both estrogen receptor, or ER, positive and AR positive. We announced in November 2016 that enobosarm achieved the pre-specified primary efficacy endpoint in the 9 mg dose cohort with 9 patients achieving a clinical benefit response (CBR), defined as a complete response, partial response, or stable disease, among the first 22 evaluable patients in that cohort. In November 2017, we announced that in the 9 mg cohort, a total of 14 patients achieved a CBR following 24 weeks of treatment. We also announced in November of 2017 that the 18 mg cohort achieved the pre-specified primary efficacy endpoint as 12 patients achieved a CBR at 24 weeks. Although both the 9 mg and 18 mg cohorts met the primary efficacy endpoint in the Phase 2 clinical trial, after evaluating the breast cancer environment where the treatment paradigms are shifting to immunotherapies and/or combination therapies, we have decided that the time and cost of conducting the necessary clinical trials for potential approval in this indication does not warrant further development of enobosarm in this indication at this time.

In 2015, we also commenced enrollment in a Phase 2 proof-of-concept clinical trial designed to evaluate the efficacy and safety of an 18 mg dose of enobosarm in patients with advanced AR positive triple-negative breast cancer, or TNBC. This clinical trial was conducted utilizing a Simon's two-stage trial design whereby if at least 2 of the first 21 patients achieved clinical benefit, the trial was designed to enroll the second stage, which would result in enrolling 41 evaluable patients in the clinical trial. During the third quarter of 2017, we completed our review of the data from the first stage of the clinical trial. While our review of the data did not raise any safety concerns, it did confirm that there were insufficient patients achieving clinical benefit from enobosarm treatment to continue this clinical trial, and we are in the process of closing down the clinical trial.

We have also previously evaluated several SARM compounds in preclinical models of Duchenne muscular dystrophy, or DMD, where a SARM's ability to increase muscle mass may prove beneficial to patients suffering from DMD, which is a rare disease characterized by progressive muscle degeneration and weakness. However, we will pursue no further development of this program unless we enter into new collaborative arrangements or other strategic transactions with third parties with expertise in DMD and orphan drug indications.

With respect to SARDs, we believe this class of assets has the potential to treat prostate cancer, as well as other diseases such as benign prostatic hyperplasia and Kennedy's disease. We envision initially developing SARDs as a potentially novel treatment for men with CRPC, including those who do not respond or are resistant to currently

approved therapies. Our evaluation of the SARD program is at an early stage. We have ongoing mechanistic preclinical studies to select the most appropriate SARD compound to potentially move into a first-in-human clinical trial.

Our ability to pursue the continued development of SARMs and our SARD program is contingent upon our ability to obtain additional funding. Accordingly, we are actively seeking additional funds through potential collaborative, partnering or other strategic arrangements to provide us with the necessary resources for the development of enobosarm and our other SARMs, as well as our SARD technology. We may not be successful in entering into new collaborative, partnering or other strategic arrangements with third parties on acceptable terms, or at all. If we are unsuccessful in establishing such arrangements and we are otherwise unable to raise substantial additional capital, we will likely need to alter, delay or abandon our product candidate development plans.

Financial Highlights

Our net loss for the six months ended June 30, 2018 was $23.6 million. We expect to incur significant operating losses for the foreseeable future as we continue our preclinical and clinical development activities. We have funded our operations primarily through the sale of equity securities, collaboration and license agreements, and prior to September 2012, product revenue from sales of FARESTON®, the rights to which we sold to a third party in the third quarter of 2012. We do not expect that any of our product candidates, including enobosarm, will receive any regulatory approvals for the foreseeable future, and it is possible that none of our product candidates will ever receive any regulatory approvals.

At June 30, 2018, we had cash, cash equivalents and short-term investments of $45.7 million compared to $43.9 million at December 31, 2017. In the second quarter of 2018, we sold 1.5 million shares of common stock under our At-the-Market Equity Offering℠ Sales Agreement, or the ATM Sales Agreement, with Stifel, Nicolaus & Company, Incorporated, or Stifel, and raised net proceeds of $24.5 million.

Based on our current business plan and assumptions, we estimate that our current cash, cash equivalents and short-term investments, together with interest thereon, will be sufficient to meet our projected operating requirements for at least the next 12 months. We have based our cash sufficiency estimates on our current business plan and our assumptions that may prove to be wrong. We could utilize our available capital resources sooner than we currently expect, and we could need additional funding sooner than currently anticipated. Also, our clinical trials may encounter technical, enrollment or other difficulties that could increase our development costs beyond our current estimates or delay our development timelines, and we could otherwise exhaust our available financial resources sooner than we expect. In any event, to conduct and complete any additional clinical studies of enobosarm or to potentially advance a SARD compound to a first-in-human clinical trial, we would need to obtain additional funding for such development, either through financing or by entering into collaborative, partnering or other strategic arrangements with third parties for such further development.

While we have been able to fund our operations to date, we have no ongoing collaborations for the development and commercialization of our product candidates and no source of revenue, nor do we expect to generate product revenue for the foreseeable future. We do not have any commitments for future external funding. Until we can generate a sufficient amount of product revenue, which we may never do, we expect to finance future cash needs through potential collaboration, partnering or other strategic arrangements, as well as through public or private equity offerings or debt financings or a combination of the foregoing. If we are unable to raise additional funds when needed, we may need to reduce our expenditures, perhaps significantly, to preserve our cash. Cost-cutting measures that we may take in the future may not be sufficient to enable us to meet our cash requirements, and they may negatively affect our business and growth prospects.

Research and Development

Since our inception in 1997, we have been focused on drug discovery and development programs. Research and development expenses include, but are not limited to, our expenses for personnel and supplies associated with our research activities, screening and identification of product candidates, formulation and synthesis activities, manufacturing, preclinical studies, toxicology studies, clinical trials, regulatory and medical affairs activities, quality assurance activities and license fees. We expect that our research and development expenses for fiscal year 2018 will increase as compared to fiscal year 2017 primarily due to our ongoing Phase 2 placebo-controlled clinical trial of enobosarm for the treatment of SUI.

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There is a risk that any drug discovery and development program may not produce revenue. Moreover, because of the uncertainties inherent in drug discovery and development, including those factors described in Part II, Item 1A “Risk Factors” of this Quarterly Report on Form 10-Q, we may not be able to successfully develop and commercialize enobosarm or any other potential SARM or SARD product candidates.

Product Development Programs

The following table identifies the development phase and status for each of our clinical and preclinical product development programs:

Product Candidate/ Proposed Indication	Program	Development Phase	Status
Enobosarm Treatment of postmenopausal women with SUI (1 mg and 3 mg)	SARM	Phase 2	Previously announced results from a Phase 2 open-label, non-placebo controlled, proof-of-concept clinical trial evaluating enobosarm (3 mg) in postmenopausal women with SUI. Completed enrollment in a placebo-controlled Phase 2 clinical trial of enobosarm (1 mg and 3 mg) to treat postmenopausal women with SUI. Top-line data is expected to be available early in the fourth quarter of 2018. Durability and open-label safety extension trials initiated in the second quarter of 2018.
Enobosarm Treatment of women with ER positive/AR positive advanced breast cancer (9 mg and 18 mg)	SARM	Phase 2	Completing an ongoing Phase 2 open-label clinical trial evaluating enobosarm in patients whose advanced breast cancer is both ER positive and AR positive. Achieved primary efficacy endpoint in both the 9 mg and 18 mg cohorts. No further development of enobosarm in this indication planned at this time.
Enobosarm Treatment of women with advanced AR positive TNBC (18 mg)	SARM	Phase 2	Currently closing down the Phase 2 open-label proof-of-concept clinical trial evaluating enobosarm in patients with advanced AR positive TNBC as there were insufficient patients achieving clinical benefit from enobosarm treatment to continue the trial.
SARDs Treatment of castration resistant prostate cancer	SARD	Preclinical	Preclinical studies are ongoing to select the most appropriate SARD compound to potentially move into a first-in-human clinical trial.

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General and Administrative Expenses

Our general and administrative expenses consist primarily of salaries and other related costs for personnel serving executive, finance, legal, human resources, information technology, and investor relations functions. General and administrative expenses also include facility costs, insurance costs, and professional fees for legal, accounting, and public relation services.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these condensed financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements as well as the reported revenues and expenses during the reporting periods. On an ongoing basis, we evaluate our estimates and judgments related to revenue recognition, income taxes, intangible assets, long-term service contracts, share-based compensation, and other contingencies. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are more fully described in Note 2 to our financial statements appearing in our Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 13, 2018, we believe that the following accounting policies are most critical to aid you in fully understanding and evaluating our reported financial results.

Research and Development Expenses

Research and development expenses include, but are not limited to, our expenses for personnel, supplies, and facilities associated with research activities, screening and identification of product candidates, formulation and synthesis activities, manufacturing, preclinical studies, toxicology studies, clinical trials, regulatory and medical affairs activities, quality assurance activities and license fees. We expense these costs in the period in which they are incurred. We estimate our liabilities for research and development expenses in order to match the recognition of expenses to the period in which the actual services are received. As such, accrued liabilities related to third party research and development activities are recognized based upon our estimate of services received and degree of completion of the services in accordance with the specific third party contract.

Share-Based Compensation

We have stock option and equity incentive plans that provide for the purchase or acquisition of our common stock by certain of our employees and non-employees. We measure compensation expense for our share-based payments based on the fair value of the awards on the grant date and recognize the expense over the period during which an employee or non-employee director is required to provide service in exchange for the award.

The determination of the fair value of stock options on the date of grant is based upon the expected life of the award, the expected stock price volatility over the expected life of the awards, and risk-free interest rate. We estimate the expected life of options by calculating the average of the vesting term and contractual term of the options. We estimate the expected stock price volatility based on the historical volatility of our common stock. The risk-free interest rate is determined using U.S. Treasury rates where the term is consistent with the expected life of the stock options. Expected dividend yield is not considered as we have not made any dividend payments and have no plans of doing so in the foreseeable future. The fair value of each stock option is amortized into compensation expense on a straight-line basis between the grant date for the award and each vesting date.

Share-based compensation also includes restricted stock units, or RSUs, granted to employees. We estimate the fair value of RSUs using the closing price of our stock on the grant date. The fair value of RSUs is amortized on a straight-line basis over the requisite service period of the awards.

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The following table summarizes share-based compensation expense included within the condensed statements of operations for the three and six months ended June 30, 2018 and 2017:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(in thousands)		(in thousands)	
Research and development expenses	$ 254	$ 181	$ 535	$ 414
General and administrative expenses	377	520	784	991
Total share-based compensation	$ 631	$ 701	$ 1,319	$ 1,405

Share-based compensation expense recorded in the condensed statement of operations as general and administrative expense for the three months ended June 30, 2018 and 2017 included share-based compensation expense related to deferred compensation arrangements for our non-employee directors of $41,000 and $42,000, respectively. Share-based compensation expense recorded in the condensed statement of operations as general and administrative expense for both the six months ended June 30, 2018 and 2017 included share-based compensation expense related to deferred compensation arrangements for our non-employee directors of $83,000. At June 30, 2018, the total compensation cost related to non-vested stock options not yet recognized was approximately $9.4 million with a weighted average expense recognition period of 3.47 years. At June 30, 2018, the total compensation cost related to non-vested RSUs not yet recognized was approximately $8,400 with a weighted average expense recognition period of less than one month.

Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board issued Accounting Standard Update ("ASU") 2016-02, *Leases (Topic 842)*. This ASU requires that lessees recognize assets and liabilities on the balance sheet for the present value of the rights and obligations created by all leases with terms of more than 12 months. The ASU also will require disclosures designed to give financial statement users information on the amount, timing, and uncertainty of cash flows arising from leases. This new guidance will be effective for us as of January 1, 2019. We do not expect the adoption of the standard update to have a significant impact on our financial position or results of operations.

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Results of Operations

Three and Six Months Ended June 30, 2018 and 2017

Research and Development Expenses

The following table identifies the research and development expenses for enobosarm, as well as research and development expenses pertaining to our other research and development efforts, for each of the periods presented. Research and development spending for past periods is not indicative of spending in future periods.

Proposed Candidate / Proposed Indication	Program	Three Months Ended June 30, 2018	Three Months Ended June 30, 2017	Six Months Ended June 30, 2018	Six Months Ended June 30, 2017
				(in thousands)	
Enobosarm					
Treatment of postmenopausal women with SUI (1 mg and 3 mg)	**SARM**	$ 6,877	$ 1,494	$ 16,580	$ 2,283
Enobosarm					
Treatment of women with ER positive and AR positive advanced breast cancer (9 mg and 18 mg)	**SARM**	616	1,548	1,408	3,357
Enobosarm					
Treatment of women with advanced AR positive TNBC (18 mg)	**SARM**	158	742	395	1,627
Other research and development		311	664	579	1,374
Total research and development expenses		$ 7,962	$ 4,448	$ 18,962	$ 8,641

Research and development expenses increased to $8.0 million for the three months ended June 30, 2018 from $4.4 million for the three months ended June 30, 2017. Research and development expenses increased to $19.0 million for the six months ended June 30, 2018 from $8.6 million for the six months ended June 30, 2017.

Research and development expenses for the three and six months ended June 30, 2018 for enobosarm for the treatment of postmenopausal women with SUI substantially increased from prior comparable periods due primarily to the initiation of a placebo-controlled Phase 2 clinical trial of enobosarm to treat postmenopausal women with SUI, which opened for enrollment in the third quarter of 2017.

Research and development expenses for enobosarm for the treatment of women with ER positive and AR positive advanced breast cancer decreased from three and six months ended June 30, 2017 due primarily to the timing and nature of activities related to conducting the Phase 2 clinical trial evaluating enobosarm 9 mg and enobosarm 18 mg in this indication. The clinical trial commenced enrollment during the third quarter of 2015 and completed enrollment in the first quarter of 2017.

Research and development expenses for enobosarm for the treatment of women with AR positive TNBC decreased for both the three and six months ended June 30, 2018 from the prior year comparable periods due to the timing and nature of activities related to conducting the first stage of the Phase 2 clinical trial, which commenced enrollment during the fourth quarter of 2015. During the third quarter of 2017, we determined that there were insufficient patients achieving clinical benefit from enobosarm treatment to continue this clinical trial and we are in the process of closing down the clinical trial.

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"Other research and development" expenses for the three and six months ended June 30, 2018 decreased from the prior year comparable periods due to a decrease in expenses related primarily to fewer costs being incurred during the three and six months ended June 30, 2018 related to preclinical development of our SARD program than in the comparable periods.

General and Administrative Expenses

General and administrative expenses increased to $2.2 million for the three months ended June 30, 2018 from $2.0 million for the three months ended June 30, 2017. The increase in general and administrative expenses related primarily to increases in legal expenses incurred in the normal course of business, offset slightly by a decrease in share-based compensation expenses due to the vesting of employee RSUs on January 1, 2018.

General and administrative expenses increased to $4.9 million for the six months ended June 30, 2018 from $4.1 million for the six months ended June 30, 2017. The increase in general and administrative expenses related primarily to personnel costs, including bonuses paid to employees upon the achievement of certain development milestones in our placebo-controlled Phase 2 clinical trial of enobosarm to treat postmenopausal women with SUI and an increase in legal expenses incurred in the normal course of business. These increased expenses were offset slightly by a decrease in share-based compensation expenses due to the vesting of employee RSUs on January 1, 2018.

Liquidity and Capital Resources

At June 30, 2018, we had cash, cash equivalents and short-term investments of $45.7 million compared to $43.9 million at December 31, 2017. Net cash used in operating activities was $22.0 million and $10.4 million for the six months ended June 30, 2018 and 2017, respectively, and resulted primarily from funding our operations.

Net cash used in investing activities was $1.1 million for the six months ended June 30, 2018 and resulted primarily from the purchase of short-term investments of $34.1 million offset by maturities of short-term investments of $33.0 million. Net cash provided by investing activities was $6.8 million for the six months ended June 30, 2017 and resulted primarily from the maturities of short-term investments of $18.0 million offset by the purchase of short-term investments of $11.2 million.

Net cash provided by financing activities for the six months ended June 30, 2018 of $23.8 million resulted from the sale of common stock under the ATM Sales Agreement with Stifel, offset slightly by $643,000 of tax payments related to shares withheld for vested restricted stock units. Net cash used in financing activities for the six months ended June 30, 2017 was $156,000 for tax payments related to shares withheld for vested restricted stock units.

On February 9, 2018, we entered into an At-the-Market Equity Offering℠ Sales Agreement, or the sales agreement, with Stifel, Nicolaus & Company, Incorporated, or Stifel, as sales agent pursuant to which we may offer and sell, from time to time, through Stifel, shares of our common stock having an aggregate offering price of up to $50 million. We are not obligated to sell any shares under the sales agreement. Subject to the terms and conditions of the sales agreement, Stifel will use commercially reasonable efforts, consistent with its normal trading and sales practices, applicable state and federal law, rules and regulations and the rules of the NASDAQ Capital Market, to sell shares from time to time based upon our instructions, including any price, time or size limits specified by us. Under the sales agreement, Stifel may sell shares by any method deemed to be an "at-the-market" offering as defined in Rule 415 under the Securities Act of 1933, as amended, or any other method permitted by law, including in privately negotiated transactions. We will pay Stifel a commission of up to 3.0% of the aggregate gross proceeds from each sale of shares. In May 2018, we sold 1.5 million shares of common stock under the ATM Sales Agreement for net proceeds of $24.5 million. As of June 30, 2018, we had approximately $25.0 million of common stock remaining available to be sold under the ATM Sales Agreement. We cannot assure you that we will be able to sell all or any portion of the remaining shares subject to the sales agreement, particularly given the low trading volume of our common stock. In any event, even assuming we raise capital by selling some or all of the remaining shares subject to the sales agreement, we will continue to need to raise significant additional capital.

Based on our current business plan and assumptions, we estimate that our current cash, cash equivalents and short-term investments, together with interest thereon, will be sufficient to meet our projected operating requirements for at least the next 12 months. We have based our cash sufficiency estimates on our current business plan and our assumptions that may prove to be wrong. We could utilize our available capital resources sooner than

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we currently expect, and we could need additional funding sooner than currently anticipated. Also, our clinical trials may encounter technical, enrollment or other difficulties that could increase our development costs beyond our current estimates or delay our development timelines, and we could otherwise exhaust our available financial resources sooner than we expect. In any event, to conduct and complete any additional clinical studies of enobosarm or to potentially advance a SARD compound to a first-in-human clinical trial, we would need to obtain additional funding for such development, either through financing or by entering into collaborative, partnering or other strategic arrangements with third parties for such further development.

Our estimate of the period of time or events 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 under Part II, Item 1A "Risk Factors" section of this Quarterly Report on Form 10-Q. Because of the numerous risks and uncertainties associated with the development and potential commercialization 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 the future development of our product candidates, if any. Our future funding requirements will depend on many factors, including:

- the scope, rate of progress and cost of our preclinical and clinical development programs, including our ongoing and any future clinical trials of enobosarm;
- the terms and timing of any potential collaborative, licensing and other strategic arrangements that we may establish;
- the amount and timing of any licensing fees, milestone payments and royalty payments from potential collaborators, if any;
- future clinical trial results;
- the cost and timing of regulatory filings and/or approvals to commercialize our product candidates and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- 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, and the cost of defending any other litigation claims.

While we have been able to fund our operations to date, we have no ongoing collaborations for the development and commercialization of our product candidates and no source of revenue, nor do we expect to generate product revenue for the foreseeable future. We do not have any commitments for future external funding. Until we can generate a sufficient amount of product revenue, which we may never do, we expect to finance future cash needs through potential collaboration, partnering or other strategic arrangements, as well as through public or private equity offerings or debt financings or a combination of the foregoing. If we are unable to raise additional funds when needed, we may need to reduce our expenditures, perhaps significantly, to preserve our cash. Cost-cutting measures that we may take in the future may not be sufficient to enable us to meet our cash requirements, and they may negatively affect our business and growth prospects.

To the extent that we raise additional funds through potential collaborations, partnering or other strategic arrangements, it may be necessary to relinquish rights to some of our technologies or product candidates, or grant licenses on terms that are not favorable to us, any of which could result in the stockholders of GTx having little or no continuing interest in our SARMs and/or SARDs programs as stockholders or otherwise. To the extent we raise additional funds by issuing equity securities, our stockholders may experience significant dilution and debt financing, if available, may involve restrictive covenants. For example, we completed substantially dilutive private placements of our common stock and warrants in March 2014, November 2014 and September 2017, in addition to a registered direct offering of our common stock that we completed in October 2016 and the sale of our common stock pursuant to the sales agreement with Stifel. Our stockholders may experience additional, perhaps substantial, dilution should we again raise additional funds by issuing equity securities, including the issuance and sale of additional shares of our common stock pursuant to the sales agreement with Stifel. Any additional debt or equity financing that we raise may contain terms that are not favorable to us or our stockholders. Our ability to raise additional funds and the terms upon which we are able to raise such funds may be adversely impacted by the uncertainty regarding the prospects of our development of enobosarm for the treatment of postmenopausal women

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with SUI and our ability to advance the development of enobosarm or SARDs, whether through potential future collaborative, partnering or other strategic relationships or otherwise, if at all. Our ability to raise additional funds and the terms upon which we are able to raise such funds may also be adversely affected by the uncertainties regarding our financial condition, the sufficiency of our capital resources, recent and potential future management turnover, and continued volatility and instability in the global financial markets. As a result of these and other factors, we cannot be certain that sufficient additional funding will be available on acceptable terms, or at all.

Contractual Obligations

At June 30, 2018, we had contractual obligations as follows:

	Payment Due by Period (in thousands)				
Contractual Obligations(1)	**Total**	**Less than 1 year**	**1-3 years**	**4-5 years**	**More than 5 years**
Operating lease obligations(2)	$ 406	$ 406	$ —	$ —	$ —

(1) This table does not include any royalty obligations under our SARM and SARD license agreements with UTRF as the timing and likelihood of such payments are not known. In addition to the minimum payments due under our SARM and SARD license agreements, we may be required to pay royalties on any net sales of product if we receive regulatory approval for a SARM, including enobosarm, or SARD product candidate and successfully market the product. Additionally, if we sublicense rights under our SARM or SARD license agreements, we also are obligated to pay a sublicense royalty on any licensing fee or milestone payments we may receive from a sublicensee.

(2) Our long-term commitment under the operating lease consists of payments relating to a lease for office space at 175 Toyota Plaza, Memphis, Tennessee, which expires on April 30, 2019.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

During the six months ended June 30, 2018, there were no material changes to our market risk disclosures as set forth in Part II, Item 7A of our Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 13, 2018.

ITEM 4. CONTROLS AND PROCEDURES

We maintain disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities and Exchange Act of 1934, as amended (the “Exchange Act”)) that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms and that such information is accumulated and communicated to our management, including our Principal Executive Officer and Principal Financial Officer, as appropriate, to allow for timely decisions regarding required disclosures.

We have carried out an evaluation, under the supervision and with the participation of our management, including our Principal Executive Officer and Principal Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based on the evaluation of these disclosure controls and procedures, our Principal Executive Officer and Principal Financial Officer have concluded that our disclosure controls and procedures were effective.

There were no changes in our internal control over financial reporting during the second quarter of 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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PART II: OTHER INFORMATION

ITEM 1A. RISK FACTORS

We have identified the following risks and uncertainties that may have a material adverse effect on our business, financial condition or results of operations. Investors should carefully consider the risks described below before making an investment decision. Our business faces significant risks, and the risks described below may not be the only risks we face. Additional risks not presently known to us or that we currently believe are immaterial may also

significantly impair our business operations. If any of these risks occur, our business, results of operations or financial condition could suffer, the market price of our common stock could decline and you could lose all or part of your investment in our common stock.

We have marked with an asterisk (*) those risks described below that reflect substantive changes from the risks described under Part I, Item 1A "Risk Factors" included in our Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 13, 2018.

Risks Related to Our Financial Condition and Need for Additional Financing

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

As of June 30, 2018, we had an accumulated deficit of $585.2 million. Our net loss for the six months ended June 30, 2018 was $23.6 million and we expect to incur significant operating losses for the foreseeable future as we continue our preclinical and clinical development activities and, if our development activities are successful, potentially seek regulatory approval of our current and potential future product candidates. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity and working capital.

Our sole clinical product candidate, enobosarm (GTx-024), will require significant additional clinical development, financial resources and personnel in order to obtain necessary regulatory approvals for this product candidate and to develop it and our other SARMs into commercially viable products. While we announced in 2017 that our Phase 2 clinical trial of enobosarm to treat women with ER positive, AR positive advanced breast cancer achieved its primary efficacy endpoint in both the 9 mg and 18 mg cohorts, after evaluating the breast cancer environment where the treatment paradigms are shifting to immunotherapies and/or combination therapies, we decided that the time and cost of conducting the necessary clinical trials for potential approval in this indication does not warrant development of enobosarm in this indication at this time. Accordingly, our current strategy is focused on, and our prospects are substantially dependent on, the further development of enobosarm for the treatment of postmenopausal women with stress urinary incontinence, or SUI. However, the development of enobosarm for the treatment of postmenopausal women with SUI is at an early stage, is subject to the substantial risk of failure inherent in the development of early-stage product candidates, and will require significant additional financial resources and personnel in order for such development to continue. Our preclinical evaluation of our selective androgen receptor degrader, or SARD, technology will require significant additional financial resources and personnel to continue our development of the program. Because of the numerous risks and uncertainties associated with developing and commercializing small molecule drugs, we are unable to predict the extent of any future losses or when we will become profitable, if at all. In addition, we do not expect to obtain any regulatory approvals to market enobosarm or any other SARM or SARD product candidates for the foreseeable future, and it is possible that none of our product candidates will ever receive any regulatory approvals.

We have funded our operations primarily through public offerings and private placements of our securities, as well as payments from our former collaborators. We also previously recognized product revenue from the sale of FARESTON®, the rights to which we sold to a third party in the third quarter of 2012. Currently, we have no ongoing collaborations for the development and commercialization of our product candidates, and as a result of the sale of our rights and certain assets related to FARESTON®, we also currently have no sources of revenue.

If we and/or any potential collaborators are unable to develop and commercialize our SARMs or SARD technology, if development is further delayed or is eliminated, or if sales revenue from any SARM or SARD products upon receiving marketing approval, if ever, is insufficient, we may never become profitable and we will not be successful.

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We will need to raise substantial additional capital and may be unable to raise capital when needed, which would force us to delay, reduce or eliminate our development programs and could cause us to discontinue our operations. *

We will need to raise substantial additional capital to:

- fund our operations and conduct clinical trials;
- continue our research and development;
- seek regulatory approval for enobosarm and any other SARM or SARD product candidates; and
- commercialize such product candidates, if any such product candidates receive regulatory approval for commercial sale.

At June 30, 2018, we had cash, cash equivalents and short-term investments of $45.7 million. Based on our current business plan and assumptions, we estimate that our current cash, cash equivalents and short-term investments, together with interest thereon, will be sufficient to meet our projected operating requirements for at least the next 12 months. We have based our cash sufficiency estimates on our current business plan and our assumptions that may prove to be wrong. We could utilize our available capital resources sooner than we currently expect, and we could need additional funding sooner than currently anticipated. Also, our clinical trials may encounter technical, enrollment or other difficulties that could increase our development costs beyond our current estimates or delay our development timelines, and we could otherwise exhaust our available financial resources sooner than we expect. In any event, to conduct and complete any additional clinical studies of enobosarm or to potentially advance a SARD compound to a first-in-human clinical trial, we would need to obtain additional funding for such development, either through financing or by entering into collaborative, partnering or other strategic arrangements with third parties for such further development.

Our future funding requirements will depend on many factors, including:

- the scope, rate of progress and cost of our preclinical and clinical development programs, including our ongoing and any future clinical trials of enobosarm;
- the terms and timing of any potential collaborative, licensing and other strategic arrangements that we may establish;
- the amount and timing of any licensing fees, milestone payments and royalty payments from potential collaborators, if any;

- future clinical trial results;
- the cost and timing of regulatory filings and/or approvals to commercialize our product candidates and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- 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, and the cost of defending any other litigation claims.

While we have been able to fund our operations to date, we have no ongoing collaborations for the development and commercialization of our product candidates and no source of revenue, nor do we expect to generate product revenue for the foreseeable future. We do not have any commitments for future external funding. Until we can generate a sufficient amount of product revenue, which we may never do, we expect to finance future cash needs through potential collaboration, partnering or other strategic arrangements, as well as through public or private equity offerings or debt financings or a combination of the foregoing. If we are unable to raise additional funds when needed, we may need to reduce our expenditures, perhaps significantly, to preserve our cash. Cost-cutting measures that we may take in the future may not be sufficient to enable us to meet our cash requirements, and they may negatively affect our business and growth prospects.

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To the extent that we raise additional funds through potential collaborations, partnering or other strategic arrangements, it may be necessary to relinquish rights to some of our technologies or product candidates, or grant licenses on terms that are not favorable to us, any of which could result in the stockholders of GTx having little or no continuing interest in our SARMs and/or SARDs programs as stockholders or otherwise. To the extent we raise additional funds by issuing equity securities, our stockholders may experience significant dilution and debt financing, if available, may involve restrictive covenants. For example, we completed substantially dilutive private placements of our common stock and warrants in March 2014, November 2014 and September 2017, in addition to a registered direct offering of our common stock that we completed in October 2016 and the sale of our common stock pursuant to an At-the-Market Equity Offering℠ Sales Agreement, or the sales agreement, with Stifel, Nicolaus & Company, Incorporated, or Stifel. Our stockholders may experience additional, perhaps substantial, dilution should we again raise additional funds by issuing equity securities, including the issuance and sale of additional shares of our common stock pursuant to the sales agreement with Stifel. Any additional debt or equity financing that we raise may contain terms that are not favorable to us or our stockholders. Our ability to raise additional funds and the terms upon which we are able to raise such funds may be adversely impacted by the uncertainty regarding the prospects of our development of enobosarm for the treatment of postmenopausal women with SUI and our ability to advance the development of enobosarm or SARDs, whether through potential future collaborative, partnering or other strategic relationships or otherwise, if at all. Our ability to raise additional funds and the terms upon which we are able to raise such funds may also be adversely affected by the uncertainties regarding our financial condition, the sufficiency of our capital resources, recent and potential future management turnover, and continued volatility and instability in the global financial markets. As a result of these and other factors, we cannot be certain that sufficient additional funding will be available on acceptable terms, or at all.

Risks Related to Development of Product Candidates

We are substantially dependent on the success of enobosarm and our failure to advance the development of enobosarm or to obtain regulatory approval of enobosarm would significantly harm our prospects.*

Our current strategy is focused on, and our prospects are substantially dependent on, the further development of enobosarm for the treatment of postmenopausal women with SUI. Enobosarm is currently our only clinical product candidate. We are evaluating enobosarm for the treatment of postmenopausal women with SUI in Phase 2 clinical trials. Even if our ongoing clinical trials are successful, we will still need to conduct costly and time-consuming additional clinical trials of enobosarm to determine whether enobosarm is a safe and effective treatment for postmenopausal women with SUI.

Preclinical studies, including studies of SARMs in animal models of disease, may not accurately predict the results of subsequent human clinical trials of enobosarm, including the results of our randomized, placebo-controlled Phase 2 clinical trial of enobosarm to evaluate the change in the mean number of daily SUI episodes following 12 weeks of treatment. Similarly, the fact that we reported positive top-line data from our Phase 2 open-label, non-placebo controlled, proof-of-concept clinical trial evaluating enobosarm in postmenopausal women with SUI does not ensure that our randomized, placebo-controlled Phase 2 clinical trial of enobosarm to evaluate the change in frequency of daily SUI episodes following 12 weeks of treatment will be successful. For example, even though we reported positive results from our Phase 2 proof-of-concept clinical trial evaluating enobosarm 9 mg in women whose advanced breast cancer is both ER positive and AR positive, we determined during the third quarter of 2017 that there were insufficient patients achieving clinical benefit from enobosarm treatment to continue our Phase 2 proof-of-concept clinical trial evaluating enobosarm in patients with advanced AR positive triple-negative breast cancer, or TNBC. Accordingly, we are in the process of closing down this Phase 2 proof-of-concept clinical trial. Additionally, we have since decided not to pursue additional clinical development of enobosarm to treat women with ER positive, AR positive advanced breast cancer after evaluating the breast cancer environment where the treatment paradigms are shifting to immunotherapies and/or combination therapies, along with the time and cost of conducting the necessary clinical trials for potential approval, even though we recently announced our Phase 2 clinical trial of enobosarm in this indication achieved its primary efficacy endpoint in both the 9 mg and 18 mg cohorts of the clinical trial. In addition, a number of companies in the pharmaceutical industry, including us and those with greater resources and experience than we have, have suffered significant setbacks in Phase 3 and later-stage clinical trials, even after receiving encouraging results in earlier clinical trials. Due to the uncertain and time-consuming clinical development and regulatory approval process, we may not be successful in developing enobosarm for the treatment of postmenopausal women with SUI, or in developing or partnering any of our product candidates, and it is possible that none of our current product candidates will ever become commercial products.

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A substantial portion of our efforts and expenditures have been devoted to enobosarm 3 mg, which was the subject of our POWER 1 and POWER 2 Phase 3 clinical trials evaluating enobosarm 3 mg for the prevention and treatment of muscle wasting in patients with advanced non-small cell lung cancer, or NSCLC. Enobosarm 3 mg is also the subject of our randomized, placebo-controlled Phase 2 clinical trial of enobosarm to evaluate the change in the mean

number of daily SUI episodes following 12 weeks of treatment. We announced in August 2013 that our POWER 1 and POWER 2 Phase 3 clinical trials failed to meet the co-primary endpoints of lean body mass and physical function that were assessed statistically using responder analyses as required by the U.S Food and Drug Administration, or the FDA. The failure of the POWER trials to meet the primary statistical criterion for the co-primary endpoints agreed upon with the FDA significantly depressed our stock price and harmed our future prospects.

Our evaluation of our SARD program is at an early stage and to initiate and complete initial human clinical trials, we will require additional funding. Further, we will pursue no further development of SARMS as a potential treatment for Duchenne muscular dystrophy, or DMD, unless we enter into new collaborative arrangements or other strategic transactions with third parties with expertise in DMD and orphan drug indications. Accordingly, our current strategy and prospects are substantially dependent on the successful development of enobosarm for the treatment of postmenopausal women with SUI. If we are unable to successfully further the development of and obtain regulatory approval of enobosarm for the treatment of postmenopausal women with SUI, and to obtain the necessary funding to do so, our prospects would be significantly harmed and we might need to cease operations.

We and any potential collaborators will not be able to commercialize enobosarm or any SARM or SARD product candidates if our preclinical studies do not produce successful results or if our clinical trials do not adequately demonstrate safety and efficacy in humans.

Significant additional clinical development and financial resources will be required to obtain necessary regulatory approvals for our current and potential future product candidates and to develop them into commercially viable products. Preclinical and clinical testing is expensive, can take many years to complete and has an uncertain outcome. 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. In this regard, from time to time, we have and may in the future publish or report interim or preliminary data from our clinical trials. Interim or preliminary data from clinical trials that we may conduct may not be indicative of the final results of the trial and are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Interim or preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the interim or preliminary data. As a result, interim or preliminary data should be viewed with caution until the final data are available.

Typically, the failure rate for development candidates is high. If a product candidate fails at any stage of development, we will not have the anticipated revenues from that product candidate to fund our operations, and we will not receive any return on our investment in that product candidate. For example, during the third quarter of 2017, we determined that there were insufficient patients achieving clinical benefit from enobosarm treatment to continue our Phase 2 proof-of-concept clinical trial evaluating enobosarm in patients with advanced AR positive TNBC. Accordingly, we are in the process of closing down this clinical trial. Additionally, we have since decided not to pursue additional clinical development of enobosarm to treat women with ER positive, AR positive advanced breast cancer after evaluating the breast cancer environment where the treatment paradigms are shifting to immunotherapies and/or combination therapies, along with the time and cost of conducting the necessary clinical trials for potential approval, even though we recently announced our Phase 2 clinical trial of enobosarm in this indication achieved its primary efficacy endpoint in both the 9 mg and 18 mg cohorts of the clinical trial. In addition, we announced in August 2013 that our POWER 1 and POWER 2 Phase 3 clinical trials evaluating enobosarm for the prevention and treatment of muscle wasting in patients with advanced NSCLC failed to meet the co-primary endpoints of lean body mass and physical function that were assessed statistically using responder analyses as agreed upon with the FDA.

In the first quarter of 2015, we entered into an exclusive worldwide license agreement with the University of Tennessee Research Foundation, or UTRF, to develop its proprietary SARD technology. However, our evaluation of the SARD program is at an early stage and it is possible that we may determine not to move forward with any meaningful preclinical development of our SARD program. Even if we do determine to move forward with any meaningful preclinical development of our SARD program, to initiate and complete initial human clinical trials, we will require additional funding. Accordingly, as a result of our unsuccessful research and preclinical development

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and/or our inability to obtain sufficient funding to meaningfully advance preclinical development of our SARD program, we may fail to realize the anticipated benefits of our licensing of this program.

Significant delays in clinical testing could materially impact our product development costs. We do not know whether our ongoing clinical trials will need to be modified or will be completed on schedule, if at all. We or any potential collaborators may experience numerous unforeseen and/or adverse events during, or as a result of, preclinical testing and the clinical trial process that could delay or prevent our or our potential collaborators' ability to commercialize our product candidates, including:

- regulators or institutional review boards may not authorize us or any potential collaborators to commence a clinical trial or conduct a clinical trial at a prospective trial site, or we may experience substantial delays in obtaining these authorizations;
- preclinical or clinical trials may produce negative or inconclusive results, which may require us or any potential collaborators to conduct additional preclinical or clinical testing or to abandon projects that we expect to be promising;
- even if preclinical or clinical trial results are positive, the FDA or foreign regulatory authorities could nonetheless require us to conduct unanticipated additional clinical trials;
- registration or enrollment in clinical trials may be slower than we anticipate resulting in significant delays, additional costs and/or study terminations;
- we or any potential collaborators may suspend or terminate 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
- our product candidates may not have the desired effects or may include undesirable side effects.

If any of these events were to occur and, as a result, we or any potential collaborators have significant delays in or termination of clinical trials, our costs could increase and our ability to generate revenue could be impaired, which would materially and adversely impact our business, financial condition and

growth prospects.

If we or any potential collaborators observe serious or other adverse events during the time our product candidates are in development or after our products are approved and on the market, we or any potential collaborators may be required to perform lengthy additional clinical trials, may be required to cease further development of such product candidates, may be denied regulatory approval of such products, may be forced to change the labeling of such products or may be required to withdraw any such products from the market, any of which would hinder or preclude our ability to generate revenues.

In our Phase 2 clinical trials for enobosarm for the treatment of muscle wasting in patients with cancer and healthy older males and postmenopausal females, we observed mild elevations of hepatic enzymes, which in certain circumstances may lead to liver failure, in a few patients in both the placebo and enobosarm treated groups. Reductions in high-density lipoproteins, or HDL, have also been observed in subjects treated with enobosarm. Lower levels of HDL could lead to increased risk of adverse cardiovascular events. Mild transient elevations in liver enzymes that were within normal limits were observed in our Phase 2 open-label, non-placebo controlled, proof-of-concept clinical trial of enobosarm to treat postmenopausal women with SUI, except for one patient with levels greater than 1.5 times the upper limit of normal which returned to normal following her 12-week treatment period. Reductions in total cholesterol, low-density lipoproteins, or LDL, HDL and triglycerides were also observed. In addition, in our Phase 2 proof-of-concept clinical trial evaluating enobosarm in a 9 mg daily dose for the treatment of patients with ER positive and AR positive metastatic breast cancer, bone pain of the chest cage, a serious adverse event, or SAE, was assessed as possibly related to enobosarm. Although doses up to 30 mg have been evaluated in short duration studies, doses of 1 mg, 3 mg, 9 mg and 18 mg currently being tested in our ongoing longer duration Phase 2 clinical trials may increase the risk or incidence of known potential side effects of SARMs, including elevations in hepatic enzymes and further reductions in HDL, in addition to the emergence of side effects that have not been seen to date.

If the incidence of serious or other adverse events related to enobosarm or any other SARM or SARD product candidates increases in number or severity, if a regulatory authority believes that these or other events constitute an

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adverse effect caused by the drug, or if other effects are identified during clinical trials that we or any potential collaborators may conduct in the future or after any of our product candidates are approved and marketed:

- we or any potential collaborators may be required to conduct additional preclinical or clinical trials, make changes in the labeling of any such approved products, reformulate any such products, or implement changes to or obtain new approvals of our contractors' manufacturing facilities;
- regulatory authorities may be unwilling to approve our product candidates or may withdraw approval of our products;
- we may experience a significant drop in the sales of the affected products;
- our reputation in the marketplace may suffer; and
- we may become the target of lawsuits, including class action suits.

Any of these events could prevent approval or harm sales of the affected product candidates or products, or could substantially increase the costs and expenses of commercializing and marketing any such products.

Risks Related to Our Dependence on Third Parties

If we do not establish collaborations or other strategic arrangements for our SARM and SARD programs or otherwise raise substantial additional capital, we will likely need to alter, delay or abandon our development and any commercialization plans.*

Our strategy includes selectively partnering, collaborating, or entering into other strategic arrangements with other pharmaceutical and biotechnology companies to assist us in furthering development and potential commercialization of enobosarm and any other SARM and SARD product candidates, and to provide funding for such activities. We face significant competition in seeking appropriate collaborators, and collaborations are complex and time consuming to negotiate and document. We may not be successful in entering into new collaborative, partnering or other strategic arrangements with third parties for the further development of our SARM or SARD programs on acceptable terms, or at all. In addition, we are unable to predict when, if ever, we will enter into any additional collaborative, partnering or other such strategic arrangements because of the numerous risks and uncertainties associated with establishing such arrangements, and we have otherwise been unsuccessful, for many years, in our efforts to establish such arrangements. If we are unable to negotiate new collaborative, partnering or other strategic arrangements with third parties for the further development of our SARM or SARD programs, we may have to curtail the development of enobosarm, reduce, delay, or terminate its development or one or more of our other SARM or SARD programs, delay a product candidate's potential commercialization or reduce the scope of our sales or marketing activities or increase our expenditures and undertake development or commercialization activities at our own expense. For example, we may have to cease further development of our enobosarm program if we are unable to raise sufficient funding for any additional clinical development of enobosarm through new collaborative, partnering or other strategic arrangements with third parties or other financing alternatives. In this regard, if we decide to undertake any further development of our SARMs beyond our ongoing clinical trials and preclinical development, we would need to obtain additional funding for such development, either through financing or by entering into new collaborative, partnering or other strategic arrangements with third parties for any such further development. Likewise, to initiate and complete initial human clinical trials for our SARD program, we will require additional funding. There can be no assurances that we will be successful in obtaining additional funding in any event. If we are not able to raise substantial additional capital, either through financing or by entering into new collaborative, partnering or other strategic arrangements with third parties for the further development of our SARM and SARD programs, we will not be able to advance the development of enobosarm and/or our other SARM and SARD programs or otherwise bring our product candidates to market and generate product revenues.

Any collaborative arrangements that we establish in the future may not be successful or we may otherwise not realize the anticipated benefits from these collaborations. In addition, any future collaborative arrangements may place the development and commercialization of our product candidates outside our control, may require us to relinquish important rights or may otherwise be on terms unfavorable to us.

We have in the past established and intend to continue to seek to establish collaborations with third parties to develop and commercialize of our current and potential future product candidates, and these collaborations may not be successful or we may otherwise not realize the anticipated benefits from these collaborations. For example, in

March 2011, we and Ipsen Biopharm Limited, or Ipsen, mutually agreed to terminate our collaboration for the development and commercialization of our toremifene-based product candidate. As of the date of this report, we have no ongoing collaborations for the development and commercialization of any product candidate. We may not be able to locate third-party collaborators to develop and market enobosarm and other SARM and SARD product candidates, and we lack the capital and resources necessary to develop any product candidates alone.

Dependence on collaborative arrangements subjects us to a number of risks, including:

- we may not be able to control the amount and timing of resources that our potential collaborators may devote to our product candidates;
- potential collaborations may experience financial difficulties or changes in business focus;
- we may be required to relinquish important rights such as marketing and distribution rights;
- 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 the 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;
- under certain circumstances, a collaborator could move forward with a competing product candidate developed either independently or in collaboration with others, including our competitors; and
- collaborative arrangements are often terminated or allowed to expire, which could delay the development and may increase the cost of developing our product candidates.

If third parties do not manufacture our product candidates in sufficient quantities, in the required timeframe, at an acceptable cost, and with appropriate quality control, clinical development and commercialization of our product candidates would be delayed.

We do not currently own or operate manufacturing facilities, and we rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of our product candidates. Our current and anticipated future dependence upon others for the manufacture of our product candidates may adversely affect our future profit margins, if any, and our ability to develop product candidates and commercialize any product candidates on a timely and competitive basis.

We rely on third-party vendors for the manufacture of SARM and SARD drug substance. If the contract manufacturers that we are currently utilizing to meet our supply needs for enobosarm or any potential future SARM or SARD product candidates prove incapable or unwilling to continue to meet our supply needs, we could experience a delay in conducting any additional clinical trials of enobosarm or any potential future SARM or SARD product candidates. We may not be able to maintain or renew our existing or any other third-party manufacturing arrangements on acceptable terms, if at all. If our suppliers fail to meet our requirements for our product candidates for any reason, we would be required to obtain alternate suppliers. Any inability to obtain alternate suppliers, including an inability to obtain approval from the FDA of an alternate supplier, would delay or prevent the clinical development and commercialization of our product candidates.

Use of third-party manufacturers may increase the risk that we will not have adequate supplies of our product candidates.

Reliance on third-party manufacturers entails risks, to which we would not be subject if we manufactured our product candidates 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;
- the possible termination or non-renewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us; and
- drug product supplies not meeting the requisite requirements for clinical trial use.

If we are not able to obtain adequate supplies of our product candidates, it will be more difficult for us to develop our product candidates and compete effectively. Our product candidates and any products that we and/or

our potential collaborators may develop may compete with other product candidates and products for access to manufacturing facilities.

Our present or future manufacturing partners may not be able to comply with FDA-mandated current Good Manufacturing Practice regulations, 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 supplies of our product candidates.

If third parties on whom we rely do not perform as contractually required or expected, we may not be able to obtain regulatory approval for or successfully commercialize our product candidates.

We do not have the ability to independently conduct clinical trials for our product candidates, and we must rely on third parties, such as contract research organizations, or CROs, 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 our product candidates.

Risks Related to Our Intellectual Property

If we lose our licenses from UTRF, we may be unable to continue our business.

We have licensed intellectual property rights and technology from UTRF used in substantially all of our business. Our license agreements with UTRF, under which we were granted rights to SARM compounds and technologies, including enobosarm, and more recently, to SARD compounds and technology, may be terminated by UTRF if we are in breach of our obligations under, or fail to perform any terms of, the relevant agreement and fail to cure that breach. If one or both of these agreements are terminated, then we may lose our rights to utilize the SARM and/or SARD technology and intellectual property covered by those agreements to market, distribute and sell licensed products, which may prevent us from continuing our business and may cause us to cease operations altogether.

If some or all of our or our licensor's patents expire or are invalidated or are found to be unenforceable, or if some or all of our patent applications do not result in issued patents or result in patents with narrow, overbroad, or unenforceable claims, or claims that are not supported in regard to written description or enablement by the specification, or if we are prevented from asserting that the claims of an issued patent cover a product of a third party, we may be subject to competition from third parties with products in the same class of products as our product candidates or products with the same active pharmaceutical ingredients as our product candidates, including in those jurisdictions in which we have no patent protection.

Our commercial success will depend in part on obtaining and maintaining patent and trade secret protection for enobosarm and other SARM and SARD product candidates, as well as the methods for treating patients in the product indications using these product candidates. We will be able to protect our product candidates and the methods for treating patients in the product indications using these product candidates from unauthorized use by third parties only to the extent that we or our exclusive licensor owns or controls such valid and enforceable patents or trade secrets.

Even if our product candidates and the methods for treating patients for prescribed indications using these product candidates are covered by valid and enforceable patents and have claims with sufficient scope, disclosure and support in the specification, the patents will provide protection only for a limited amount of time. Our and our licensor's ability to obtain patents can be highly uncertain and involve complex and in some cases unsettled legal issues and factual questions. Furthermore, different countries have different procedures for obtaining patents, and patents issued in different countries provide different degrees of protection against the use of a patented invention by others. Therefore, if the issuance to us or our licensor, in a given country, of a patent covering an invention is not followed by the issuance, in other countries, of patents covering the same invention, or if any judicial interpretation of the validity, enforceability, or scope of the claims in, or the written description or enablement in, a patent issued

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in one country is not similar to the interpretation given to the corresponding patent issued in another country, our ability to protect our intellectual property in those countries may be limited. Changes in either patent laws or in interpretations of patent laws in the United States and other countries may materially diminish the value of our intellectual property or narrow the scope of our patent protection.

We may be subject to competition from third parties with products in the same class of products as our product candidates or products with the same active pharmaceutical ingredients as our product candidates in those jurisdictions in which we have no patent protection. Even if patents are issued to us or our licensor regarding our product candidates or methods of using them, those patents can be challenged by our competitors who can argue such patents are invalid or unenforceable, lack of utility, lack sufficient written description or enablement, or that the claims of the issued patents should be limited or narrowly construed. Patents also will not protect our product candidates if competitors devise ways of making or using these product candidates without legally infringing our patents. The Federal Food, Drug, and Cosmetic Act and FDA regulations and policies create a regulatory environment that encourages companies to challenge branded drug patents or to create non-infringing versions of a patented product in order to facilitate the approval of abbreviated new drug applications for generic substitutes. These same types of incentives encourage competitors to submit new drug applications that rely on literature and clinical data not prepared for or by the drug sponsor, providing another less burdensome pathway to approval.

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. 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.

If we infringe intellectual property rights of third parties, it may increase our costs or prevent us from being able to commercialize our product candidates.

There is a risk that we are infringing the proprietary rights of third parties because numerous United States and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields that are the focus of our development and manufacturing efforts. Others might have been the first to make the inventions covered by each of our or our licensor's pending patent applications and issued patents and/or might have been the first to file patent applications for these inventions. In addition, because patent applications take many months to publish and patent applications can take many years to

issue, there may be currently pending applications, unknown to us or our licensor, which may later result in issued patents that cover the production, manufacture, synthesis, commercialization, formulation or use of our product candidates. In addition, the production, manufacture, synthesis, commercialization, formulation or use of our product candidates may infringe existing patents of which we are not aware. Defending ourselves against third-party claims, including litigation in particular, would be costly and time consuming and would divert management's attention from our business, which could lead to delays in our development or commercialization efforts. If third parties are successful in their claims, we might have to pay substantial damages or take other actions that are adverse to our business.

As a result of intellectual property infringement claims, or to avoid potential claims, we might:

- be prohibited from selling or licensing any product that we and/or any potential collaborators may develop unless the patent holder licenses the patent to us, which the patent holder is not required to do;
- be required to pay substantial royalties or other amounts, or grant a cross license to our patents to another patent holder; or
- be required to redesign the formulation of a product candidate so that it does not infringe, which may not be possible or could require substantial funds and time.

Risks Related to Regulatory Approval of Our Product Candidates

If we or any potential collaborators are not able to obtain required regulatory approvals, we or such collaborators will not be able to commercialize our product candidates, and our ability to generate revenue will be materially impaired.

The activities associated with the development and commercialization of drug candidates are subject to

comprehensive regulation by the FDA, other regulatory agencies in the United States and by comparable authorities in other countries, including the European Medicines Agency, or EMA. Failure to obtain regulatory approval for a product candidate will prevent us or any potential collaborator from commercializing the product candidate. We have not received regulatory approval to market any product candidate in any jurisdiction, and we do not expect to obtain FDA, EMA or any other regulatory approvals to market enobosarm or any other SARM or SARD product candidates for the foreseeable future, if at all. 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.

Changes in the regulatory approval policy during the development period, changes in or the enactment of additional regulations or statutes, or changes in regulatory review for each submitted product application may cause delays in the approval or rejection of an application. Even if the FDA or the EMA approves a product candidate, the approval may impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, marketing and/or production of such product, and may impose ongoing requirements for post-approval studies, including additional research and development and clinical trials. Any FDA approval may also impose risk evaluation mitigation strategies, or REMS, on a product if the FDA believes there is a reason to monitor the safety of the drug in the market place. REMS may include requirements for additional training for health care professionals, safety communication efforts and limits on channels of distribution, among other things. The sponsor would be required to evaluate and monitor the various REMS activities and adjust them if need be. The FDA and EMA also may impose various civil or criminal sanctions for failure to comply with regulatory requirements, including withdrawal of product approval.

Furthermore, the approval procedure and the time required to obtain approval varies among countries and can involve additional testing beyond that required by the FDA. Approval by one regulatory authority does not ensure approval by regulatory authorities in other jurisdictions.

The FDA, the EMA and other foreign regulatory authorities have substantial discretion in the approval process and 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, in October 2009, we received a Complete Response Letter from the FDA regarding our NDA for toremifene 80 mg to reduce fractures in men with prostate cancer on ADT notifying us that the FDA would not approve our NDA as a result of certain clinical deficiencies identified in the Complete Response Letter. We have since discontinued our toremifene 80 mg development program, as well as other toremifene-based products. Although we evaluated the potential submission of a marketing authorization application, or MAA, to the EMA seeking marketing approval of enobosarm 3 mg in the European Union, or EU, for the prevention and treatment of muscle wasting in patients with advanced NSCLC, based on input from the Medicines and Healthcare Products Regulatory Agency, or MHRA, we determined that the data from the POWER trials was not sufficient to support the filing and approval of a MAA without confirmatory data from another Phase 3 clinical trial of enobosarm 3 mg. As a result of this input, we elected not to submit a MAA in the absence of such confirmatory data. In addition, since data from the two POWER trials failed to meet the primary statistical criterion pre-specified for the co-primary endpoints of lean body mass and physical function, the FDA would not accept a NDA for enobosarm 3 mg for the prevention and treatment of muscle wasting in patients with advanced NSCLC.

Additionally, there can be no assurance that the FDA will determine that the data from our ongoing or potential future clinical trials of enobosarm for the treatment of postmenopausal women with SUI will be sufficient for approval of enobosarm in any indications. For example, we may observe an unacceptable incidence of adverse events in our ongoing or potential future clinical trials of enobosarm, which could require us to abandon the development of enobosarm.

In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent regulatory approval of a product candidate. Even if we submit an application to the FDA, the EMA and other foreign regulatory authorities for marketing approval of a product candidate, it may not result in any marketing approvals.

We do not expect to receive regulatory approval for the commercial sale of enobosarm or any potential future SARM or SARD product candidates for the foreseeable future, if at all. The inability to obtain approval from the FDA, the EMA and other foreign regulatory authorities for our product candidates would prevent us or any potential collaborators from commercializing these product candidates in the United States, the EU, or other countries. See the section entitled "Business — Government Regulation" under Part 1, Item 1 of our Annual Report on Form 10-K filed with the SEC on March 13, 2018, for additional information regarding risks associated with marketing approval, as well as risks related to potential post-approval requirements.

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Risks Related to Commercialization

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

Any products that we and/or any potential collaborators may develop, including enobosarm, may not gain market acceptance for its stated indication among physicians, patients, health care payors and the medical community. If these products do not achieve an adequate level of acceptance, we may not generate material product revenues or receive royalties to the extent we currently anticipate, and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- efficacy and safety results in clinical trials;
- the prevalence and severity of any side effects;
- potential advantages over alternative treatments;
- whether the products we commercialize remain a preferred course of treatment;
- the ability to offer our product candidates 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 we are unable to establish sales and marketing capabilities or establish and maintain agreements with third parties to market and sell our product candidates, we may be unable to generate product revenue from such candidates.

We have limited experience as a company in the sales, marketing and distribution of pharmaceutical products. In the event one of our product candidates is approved, we will need to establish sales and marketing capabilities or establish and maintain agreements with third parties to market and sell our product candidates. We may be unable to build our own sales and marketing capabilities, and there are risks involved with entering into arrangements with third parties to perform these services, which could delay the commercialization of any of our product candidates if approved for commercial sale. In addition, 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 any products that we develop ourselves.

If we and/or any potential collaborators are unable to obtain reimbursement or experience a reduction in reimbursement from third-party payors for products we sell, our revenues and prospects for profitability will suffer.*

Sales of products developed by us and/or any potential collaborators are dependent on the availability and extent of reimbursement from third-party payors, both governmental and private. Changes in the reimbursement policies of these third-party payors that reduce reimbursements for any products that we and/or any potential collaborators may develop and sell could negatively impact our future operating and financial results.

Medicare coverage and reimbursement of prescription drugs exists under Medicare Part D for oral drug products capable of self-administration by patients. Our oral drug product candidates would likely be covered by Medicare Part D (if covered by Medicare at all). In March 2010, the United States Congress enacted the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act, or Healthcare Reform Act. The Healthcare Reform Act, among other initiatives, implemented cost containment and other measures that could adversely affect revenues from sales of product candidates, including an increase in drug rebates manufacturers must pay under Medicaid for brand name prescription drugs and extension of these rebates to Medicaid managed care and a requirement that manufacturers provide a 50% discount on the negotiated price of Medicare Part D brand name drugs utilized by Medicare Part D beneficiaries during the coverage gap (the so-called “donut hole”).

Some of the provisions of the Healthcare Reform Act have yet to be fully implemented, while certain provisions have been subject to judicial and Congressional challenges, as well as efforts by the Trump administration to modify certain requirements of the Healthcare Reform Act by executive branch order. For example, on January 20, 2017,

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President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the Healthcare Reform Act to waive, defer, grant exemptions from, or delay the implementation of any provision of the Healthcare Reform Act that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. In Congress, the U.S. House of Representatives passed Healthcare Reform Act replacement legislation known as the American Health Care Act of 2017 in May 2017, which was not introduced in the Senate. More recently, the Senate Republicans have proposed multiple bills to repeal or repeal and replace portions of the Healthcare Reform Act. Although none of these measures have been enacted, Congress may consider other legislation to repeal or replace certain elements of the Healthcare Reform Act. On October 12, 2017, President Trump signed another Executive Order directing certain federal agencies to propose regulations or guidelines to provide small businesses with greater opportunities to form association health plans, expand the availability of short-term, limited duration insurance, and allow employees to make use of certain employer-paid health benefits, called health reimbursement arrangements, to pay for health insurance that does not meet all Healthcare Reform Act requirements. In addition, citing legal guidance from the U.S. Department of Justice, the U.S. Department of Health and Human Services, concluded that cost-sharing reduction, or CSR, payments to insurance companies required under the Healthcare Reform Act had not received necessary

appropriations from Congress. President Trump subsequently discontinued these payments. The loss of the CSR payments is expected to increase premiums on certain policies issued by qualified health plans under the Healthcare Reform Act. Tax reform legislation enacted at the end of 2017 eliminated the tax penalty for individuals who do not maintain sufficient health insurance coverage beginning in 2019. The Bipartisan Budget Act of 2018 contained various provisions that affect coverage and reimbursement of drugs, including an increase in the discount that manufacturers of Medicare Part D brand name drugs must provide to Medicare Part D beneficiaries during the coverage gap from 50% to 70% starting in 2019. We continue to evaluate the effect that the Healthcare Reform Act and its possible repeal and replacement or administrative modification has on our business. This legislation and other healthcare reform measures that may be adopted in the future could have a material adverse effect on our industry generally and on our ability to successfully commercialize our product candidates, if approved.

Economic pressure on state budgets may result in states increasingly seeking to achieve budget savings through mechanisms that limit coverage or payment for drugs. State Medicaid programs are increasingly requesting manufacturers to pay supplemental rebates and requiring prior authorization for use of drugs where supplemental rebates are not provided. Private health insurers and managed care plans are likely to continue challenging the prices charged for medical products and services, and many of these third-party payors may 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 and/or any potential collaborators may develop or sell. These cost-control initiatives could decrease the price we might establish for products that we or any potential collaborators may develop or sell, which would result in lower product revenues or royalties payable to us.

Similar cost containment initiatives exist in countries outside of the United States, particularly in the countries of the EU, where the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can extend well beyond the receipt of regulatory marketing approval for a product and may require us or any potential collaborators to conduct a clinical trial that compares the cost effectiveness of our product candidates or products to other available therapies. The conduct of such a clinical trial could be expensive and result in delays in our or a potential collaborators' commercialization efforts. 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. Recently budgetary pressures in many EU countries are also causing governments to consider or implement various cost-containment measures, such as price freezes, increased price cuts and rebates. If budget pressures continue, governments may implement additional cost containment measures. Cost-control initiatives could decrease the price we might establish for products that we or any potential collaborators may develop or sell, which would result in lower product revenues or royalties payable to us.

Another development that could affect the pricing of drugs would be if the Secretary of Health and Human Services allowed drug reimportation into the United States. The Medicare Prescription Drug, Improvement and Modernization Act of 2003 gives discretion to the Secretary of Health and Human Services to allow drug reimportation into the United States under some circumstances from foreign countries, including from countries where the drugs are sold at a lower price than in the United States. If the circumstances were met and the Secretary exercised the discretion to allow for the direct reimportation of drugs, it could decrease the price we or any potential collaborators receive for any products that we and/or any potential collaborators may develop, negatively affecting our revenues and prospects for profitability.

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Health care reform measures could hinder or prevent our product candidates' commercial success.

Among policy makers and payors in the United States and elsewhere, there is significant interest in health care reform, as evidenced by the initial enactment of, as well as the efforts to repeal and replace the Healthcare Reform Act in the United States. Aside from the possible repeal and replacement of the Healthcare Reform Act, federal and state legislatures within the United States and foreign governments will likely continue to consider changes to existing health care legislation. These changes adopted by governments may adversely impact our business by lowering the price of health care products in the United States and elsewhere. For example, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several U.S. Congressional inquiries and legislative and administrative initiatives at the federal and state levels intended to, among other things, bring more transparency to drug pricing and modify government program reimbursement for drugs. We cannot predict what health care reform initiatives may be adopted in the future. Further federal, state and foreign legislative and regulatory developments are likely, and we expect ongoing initiatives to increase pressure on drug pricing, which could decrease the price we might establish for products that we or any potential collaborators may develop or sell, which would result in lower product revenues or royalties payable to us.

We operate in a highly regulated industry and new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to health care availability, method of delivery or payment for health care products and services, or sales, marketing and pricing practices could negatively impact our business, operations and financial condition.

If product liability lawsuits are brought against us, we may 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 our prior commercial sales of FARESTON® and the testing of our product candidates in human clinical trials, and we will face an even greater risk if we commercially sell any product that we may develop. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products;
- 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 for which we obtain or hold marketing approvals.

We have product liability insurance that covers our clinical trials and any commercial products up to a $25 million annual aggregate limit. 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 than any products that we and/or any potential collaborators may develop, our commercial opportunity will be reduced or eliminated.*

We face competition from commercial pharmaceutical and biotechnology enterprises, as well as from academic institutions, government agencies and private and public research institutions. Our commercial opportunities 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 and/or any potential collaborators may develop. Competition could result in reduced sales and pricing pressure on our product candidates, if approved, which in turn would reduce our ability to generate meaningful revenue and have a negative impact on our results of operations. In addition, significant delays in the development of our product candidates could allow our competitors to bring products to market before us and impair any ability to commercialize our product candidates.

Various products are currently marketed or used off-label for some of the diseases and conditions that we are targeting in our pipeline, and a number of companies are or may be developing new treatments. These product uses,

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as well as promotional efforts by competitors and/or clinical trial results of competitive products, could significantly diminish any ability to market and sell any products that we and/or any potential collaborators may develop.

With respect to our SARM program, there are other SARM product candidates in development that may compete with enobosarm and any future SARM product candidates, if approved for commercial sale. We are currently focused on the development of enobosarm for the treatment of postmenopausal women with SUI. There are a variety of treatments that may be used for SUI in women; however, currently, there are no available oral treatment options approved for the treatment of SUI in the United States. Behavioral modification and pelvic floor physical therapy are common initial treatment approaches. Bulking agents, including carbon coated beads (Durasphere® marketed by Coloplast Corp), calcium hydroxlapatite (Coaptite® marketed by BioForm Medical, Inc.) and silicon (Macroplastique® marketed by Cogentix Medical), can be injected into or around the urethra for treating intrinsic sphincter deficiency, a cause of SUI symptoms. Biologic bulking agents including patient-derived adipose stem cells and autologous muscle-derived stem cells (Cook Myosite) are being developed. Recently, an over-the-counter vaginal pessary (Impressa® marketed by Kimberly-Clark) has been approved for the temporary management of urine leakage in women with SUI. Finally, surgical procedures (e.g. sling; bladder neck suspension) have been demonstrated to be effective in some women.

We have entered into an exclusive worldwide license agreement with UTRF to develop its proprietary SARD technology which we believe has the potential to provide compounds that can degrade multiple forms of the AR by inhibiting tumor growth in patients with CRPC, including those patients who do not respond or are resistant to current therapies. Drugs in commercial development having potentially similar approaches to removing the AR by degradation include Arvinas Inc.'s ARV-110, which is a chimera with an AR binding moiety on one end and an E3 ligase recruiting element on the other that is in preclinical development for the treatment of advanced prostate cancer, and Androscience Corporation's androgen receptor degrader enhancer, ASC-J9, which is currently in development for acne and alopecia with the potential for development as a treatment for prostate cancer. Additionally, Essa Pharma Inc. recently completed a Phase 1 study with EPI-506, an AR antagonist that targets the N-terminal domain of the AR, and has plans to develop a second generation agent. C4 Therapeutics, Inc. is developing degronimids as means to degrade the AR through the ligand binding domain associated degradation. CellCentric is developing therapies that target the histone methyltransferase enzyme to lower AR levels, and recently initiated a clinical trial with CCS1477 in prostate cancer. Oric Pharmaceuticals is targeting the glucocorticoid receptor as a means to impact men that have CRPC, and has a lead candidate ORIC-101 in preclinical testing. In addition to this specific potential mechanistic competition, there are various products approved or under clinical development in the broader space of treating men with advanced prostate cancer who have metastatic CRPC which may compete with our proposed initial clinical objective for our SARD compounds. Pfizer and Astellas Pharma market XTANDI® (enzalutamide), an oral androgen receptor antagonist, for the treatment of metastatic CRPC in men previously treated with docetaxel as well as those that have not yet received chemotherapy. XTANDI® received FDA approval in July 2018 for the treatment of men with non-metastatic CRPC. Zytiga®, sold by Johnson & Johnson, has been approved for the treatment of metastatic CRPC and metastatic high-risk castration-sensitive prostate cancer. Johnson & Johnson also received FDA approval for a second generation anti-androgen ERLEADA (apalutamide) for the treatment of men with non-metastatic castrate-resistant prostate cancer. Bayer HealthCare and Orion Corporation are currently performing a Phase 3 study of darolutamide (ODM-201) in men with CRPC without metastases and with a rising PSA examining safety and efficacy by measuring metastatic free survival. Another target in prostate cancer that is being pursued by several companies is bromodomain inhibition. Zenith Epigenetics, Gilead Sciences Inc. and GlaxoSmithKline are evaluating BET inhibitors in Phase 1-2 trials.

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. 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.

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Risks Related to Employees, Growth and Other Aspects of Our Operations

Our internal computer and information technology systems, or those of our CROs or other contractors or consultants, may fail or suffer security breaches, or could otherwise face serious disruptions, which could result in a material disruption of our product development efforts and could result in significant financial, legal, regulatory, business and reputational harm to us.*

Despite the implementation of security measures, our internal computer and information technology systems and those of our CROs and other contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, and telecommunication and electrical failures. Such events could cause interruptions of our operations. For instance, the loss of preclinical data or data from our ongoing and potential future clinical trials involving our product candidates could result in delays in our development and regulatory filing efforts and significantly increase our costs. In addition, while all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the size, complexity, accessibility and distributed nature of our information technology systems, and the large amounts of sensitive information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external attacks on our technology environment. Potential vulnerabilities can be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, "hacktivists," nation states and others. To the extent that any disruption or security breach or incident were to result in a loss of, or damage to, our data, or inappropriate disclosure of confidential, proprietary or protected health information, we could be subject to significant legal, financial and regulatory exposure and suffer reputational harm, and the development of our product candidates could be delayed. In addition, security breaches and other inappropriate access events can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. Moreover, the prevalent use of mobile devices to access confidential information increases the risk of security breaches. While we have implemented security measures to protect our information technology systems and infrastructure, there can be no assurance that such measures will prevent service interruptions or security breaches that could adversely affect our business. In addition, our information technology and other internal infrastructure systems, including corporate firewalls, servers, leased lines and connection to the Internet, face the risk of systemic failure that could disrupt our operations. A significant disruption in the availability of our information technology and other internal infrastructure systems could cause delays in our research and development work and could otherwise adversely affect our business.

If we fail to attract and keep senior management and key scientific personnel, we may be unable to successfully develop or commercialize our product candidates.

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. 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 our product candidates. All of our employees are at-will employees and can terminate their employment at any time.

In October 2013, we announced a reduction of approximately 60% of our workforce following our announcement that our POWER trials failed to achieve the results required by the FDA to file a NDA for enobosarm 3 mg for the prevention and treatment of muscle wasting in patients with advanced NSCLC. In addition, since our October 2013 workforce reduction, our former Chief Executive Officer, former Chief Financial Officer and former Chief Scientific Officer have resigned. Primarily as a result of our October 2013 workforce reduction, only 27 employees remained as employees of GTx as of June 30, 2018. Accordingly, we have been and are operating with a shortage of resources and may not be able to effectively conduct our operations with this limited number of employees. In addition, we announced past workforce reductions in each of December 2009 and June 2011, and our history of implementing workforce reductions, along with the potential for future workforce reductions, may negatively affect our ability to retain or attract talented employees. Further, to the extent we experience additional management transition, competition for top management is high and it may take many months to find a candidate that meets our requirements. If we are unable to attract and retain qualified management personnel, our business could suffer.

We will need to hire additional employees in order to grow our business. Any inability to manage future growth could harm our ability to develop and commercialize our product candidates, increase our costs and adversely impact our ability to compete effectively.

As of June 30, 2018, we had only 27 employees and we will need to hire experienced personnel to develop and commercialize our enobosarm or any other SARM or SARD product candidates and to otherwise grow our business,

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and we will need to expand the number of our managerial, operational, financial and other employees to support that growth. Competition exists for qualified personnel in the biotechnology field.

Future growth, if any, 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 develop and commercialize our product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively.

Management transition creates uncertainties and could harm our business.

We have in the past, and may again in the future, experience significant changes in executive leadership. Changes to company strategy, which can often times occur with the appointment of new executives, can create uncertainty, may negatively impact our ability to execute quickly and effectively, and may ultimately be unsuccessful. In addition, executive leadership transition periods are often difficult as the new executives gain detailed knowledge of our operations, and friction can result from changes in strategy and management style. Management transition inherently causes some loss of institutional knowledge, which can negatively affect strategy and execution. Until we integrate new personnel, and unless they are able to succeed in their positions, we may be unable to successfully manage and grow our business, and our results of operations and financial condition could suffer as a result. In any event, changes in our organization as a result of executive management transition may have a disruptive impact on our ability to implement our strategy and could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Our Common Stock

The market price of our common stock has been volatile and may continue to be volatile in the future. This volatility may cause our stock price and the value of your investment to decline.*

The market prices for securities of biotechnology companies, including ours, have been highly volatile and may continue to be so in the future. In this regard, the closing sale price for our common stock has varied between a high of $23.25 on March 5, 2018 and a low of $5.16 on July 6, 2017 in the twelve-month period ended June 30, 2018. The market price of our common stock is likely to continue to be volatile and subject to significant price and volume

fluctuations. 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:

- new or continued delays in the initiation, enrollment and/or completion of our ongoing and any future clinical trials of enobosarm, or negative, inconclusive or mixed results reported in any of our ongoing and any future clinical trials of enobosarm;
- our ability to raise additional capital to carry through with our preclinical and clinical development plans, as well as our current and future operations, and the terms of any related financing arrangements;
- reports of unacceptable incidences of adverse events observed in any of our ongoing clinical trials of enobosarm;
- announcements regarding further cost-cutting initiatives or restructurings;
- uncertainties created by our past and potential future management turnover;
- our ability to enter into new collaborative, licensing or other strategic arrangements with respect to our SARM and SARD programs;
- the terms and timing of any future collaborative, licensing or other arrangements that we may establish;
- the timing of achievement of, or failure to achieve, our and any potential collaborators' 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 our product candidates or delays in or adverse events during the FDA review process;
- actions taken by regulatory agencies with respect to our product candidates or our clinical trials,

including regulatory actions requiring or leading to a delay or stoppage of our ongoing clinical trials;

- the commercial success of any product approved by the FDA or its foreign counterparts;
- introductions or announcements of technological innovations or new products by us, our potential collaborators, or our competitors, and the timing of these introductions or announcements;
- market conditions for equity investments in general, or the biotechnology or pharmaceutical industries in particular;
- regulatory developments in the United States and foreign countries;
- changes in the structure or reimbursement policies of health care payment systems;
- any intellectual property infringement lawsuit involving us;
- actual or anticipated fluctuations in our results of operations;
- changes in financial estimates or recommendations by securities analysts;
- hedging or arbitrage trading activity that may develop regarding our common stock;
- sales of our common stock and other securities by us, including pursuant to our sales agreement with Stifel;
- sales of our common stock by our executive officers, directors and significant stockholders;
- the low trading volume of our common stock;
- changes in accounting principles; and
- additional losses of any of our key scientific or management personnel.

In addition, the stock markets in general, and the markets for biotechnology and pharmaceutical stocks in particular, have experienced significant volatility that has often been unrelated to the operating performance of particular companies. For example, negative publicity regarding drug pricing and price increases by pharmaceutical companies has negatively impacted, and may continue to negatively impact, the markets for biotechnology and pharmaceutical stocks. Likewise, as a result of significant changes in U.S. social, political, regulatory and economic conditions or in laws and policies governing foreign trade and health care spending and delivery, including the possible repeal and/or replacement of all or portions of the Healthcare Reform Act or changes in tariffs and other restrictions on free trade stemming from the Trump Administration and foreign government policies, the financial markets could experience significant volatility that could also negatively impact the markets for biotechnology and pharmaceutical stocks. 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, which would hurt our financial condition and results of operations and divert management's attention and resources, which could result in delays of our clinical trials or commercialization efforts.

Our executive officers, directors and largest stockholders have the ability to control all matters submitted to stockholders for approval.

As of June 30, 2018, our executive officers, directors and holders of 5% or more of our outstanding common stock, including their affiliated or associated entities, held approximately 66.6% of our outstanding common stock, and our executive officers and directors alone, including their affiliated or associated entities, held approximately 30.1% of our outstanding common stock as well as warrants to purchase up to an additional 3.2 million shares of common stock. As a result, these stockholders, acting together, have the ability 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.

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If we fail to meet continued listing standards of The Nasdaq Stock Market LLC, our common stock may be delisted. Delisting could adversely affect the liquidity of our common stock and the market price of our common stock could decrease, and our ability to obtain sufficient additional capital to fund our operations would be substantially impaired.

Our common stock is currently listed on The Nasdaq Capital Market. The Nasdaq Stock Market LLC, or Nasdaq, has minimum requirements that a company must meet in order to remain listed on The Nasdaq Capital Market. These requirements include maintaining a minimum closing bid price of $1.00 per share, or the Bid Price Requirement, and the closing bid price of our common stock has in the past been well below $1.00 per share. In this regard, on December 5, 2016, we effected one-for-ten reverse stock split of our outstanding common stock, or the Reverse Stock Split, the primary purpose of which was to enable us to regain compliance with the Bid Price Requirement, which compliance was regained on December 20, 2016. However, there can be no assurance that the market price of our common stock will remain in excess of the $1.00 minimum bid price for a sustained period of time. In any event, there can be no assurance that we will continue to meet the Bid Price Requirement, or any other Nasdaq continued listing requirement, in the future. If we fail to meet these requirements, including the Bid Price Requirement and requirements to maintain minimum levels of stockholders' equity or market values of our common stock, Nasdaq may notify us that we have failed to meet the minimum listing requirements and initiate the delisting process. If our common stock is delisted, the liquidity of our common stock would be adversely affected and the market price of our common stock could decrease, and our ability to obtain sufficient additional capital to fund our operations would be substantially impaired.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

Our ability to use our federal and state net operating loss carryforwards to offset potential future taxable income and related income taxes that would otherwise be due is dependent upon our generation of future taxable income before the expiration dates of the net operating loss carryforwards, and we cannot predict with certainty when, or whether, we will generate sufficient taxable income to use all of our net operating loss carryforwards. On December 22, 2017, President Trump signed into law new tax legislation, or the Tax Reform Act. Under the Tax Reform Act, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the Tax Reform Act. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change," generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change taxable income or taxes may be limited. We completed a study through December 31, 2016 to determine whether any Section 382 limitations exist and, as a result of this study and our analysis of subsequent ownership changes, we do not believe that any Section 382 limitations exist through June 30, 2018. Section 382 of the Internal Revenue Code is an extremely complex provision with respect to which there are many uncertainties and we have not established whether the IRS agrees with our determination. In any event, our 2016 and 2017 equity offerings, our past and potential future issuances of common stock pursuant to the sales agreement with Stifel, other future equity offerings and/or changes in our stock ownership, some of which are outside of our control, could in the future result in an ownership change and an accompanying Section 382 limitation. If a limitation were to apply, utilization of a portion of our domestic net operating loss and tax credit carryforwards could be limited in future periods and a portion of the carryforwards could expire before being available to reduce future income tax liabilities.

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 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

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- 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 15% or more 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 15% or more 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.

If there are substantial sales of our common stock, the market price of our common stock could drop substantially, even if our business is doing well.*

For the 12-month period ended June 30, 2018, the average daily trading volume of our common stock on The Nasdaq Capital Market was only 79,963 shares. As a result, future sales of a substantial number of shares of our common stock in the public market, or the perception that such sales may occur, could adversely affect the then-prevailing market price of our common stock. As of June 30, 2018, we had 24,031,191 shares of common stock outstanding. In addition, as a result of the low trading volume of our common stock, which was exacerbated by the Reverse Stock Split, the trading of relatively small quantities of shares by our stockholders may disproportionately influence the market price of our common stock in either direction. Moreover, in February 2018, we entered into the sales agreement with Stifel under which we may offer and sell shares of our common stock, from time to time, having an aggregate offering price of up to $50.0 million through Stifel. The price for our shares could, for example, decline significantly in the event that a large number of our common shares are sold on the market, including pursuant to the sales agreement with Stifel, without commensurate demand, as compared to an issuer with a higher trading volume that could better absorb those sales without an adverse impact on its stock price.

In September 2017, we completed a private placement of 5.5 million shares of our common stock and warrants to purchase 3.3 million shares of our common stock. In November 2014, we completed a private placement of 6.4 million shares of our common stock and warrants to purchase 6.4 million shares of our common stock (as adjusted to give effect to the Reverse Stock Split). Similarly, in March 2014 we completed a private placement of 1.2 million shares of our common stock and warrants to purchase 1.0 million shares of our common stock (as adjusted to give effect to the Reverse Stock Split). Pursuant to the terms of the registration rights or securities purchase agreements we entered into in connection with these private placements, we have filed registration statements under the Securities Act registering the resale of an aggregate of approximately 23.8 million shares of common stock that we issued to, or are issuable upon the exercise of warrants that we issued to, the investors in these private placements, which investors include our largest stockholders. Moreover, J.R. Hyde, III and certain of his affiliates, have rights under a separate registration rights agreement with us to require us to file resale registration statements covering an additional 785,000 shares of common stock held in the aggregate or to include these shares in registration statements that we may file for ourselves or other stockholders. If Mr. Hyde or his affiliates or any of our other significant stockholders, including the other investors in our private placements, were to sell large blocks of shares in a short period of time, the market price of our common stock could drop substantially.

The comprehensive U.S. tax reform bill passed in 2017 could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed the Tax Reform Act into law, which significantly revises the Internal Revenue Code of 1986, as amended. The Tax Reform Act, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits (including reducing the business tax credit for certain clinical testing expenses incurred in the testing of certain drugs for rare diseases or conditions). Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new Tax Reform Act is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the Tax Reform Act. The impact of the Tax Reform Act on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to

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consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

ITEM 6. EXHIBITS

The exhibits listed on the accompanying Exhibit Index are filed or incorporated by reference (as stated therein) as part of this Quarterly Report on Form 10-Q.

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
2.1	Asset Purchase Agreement dated as of September 28, 2012 between the Registrant and Strakan International S.à r.l.	8-K	000-50549	2.1	10/03/2012
3.1	Restated Certificate of Incorporation of GTx, Inc.	S-3	333-127175	4.1	08/04/2005
3.2	Certificate of Amendment of Restated Certificate of Incorporation of GTx, Inc.	8-K	000-50549	3.2	05/06/2011
3.3	Certificate of Amendment of Restated Certificate of Incorporation of GTx, Inc.	8-K	000-50549	3.3	05/09/2014
3.4	Certificate of Amendment of Restated Certificate of Incorporation of GTx, Inc.	10-Q	000-50549	3.4	05/11/2015
3.5	Certificate of Amendment of Restated Certificate of Incorporation of GTx, Inc.	8-K	000-50549	3.1	12/05/2016
3.6	Amended and Restated Bylaws of GTx, Inc.	8-K	000-50549	3.2	07/26/2007
4.1	Reference is made to Exhibits 3.1, 3.2, 3.3, 3.4, 3.5 and 3.6	—	—	—	—

4.2	Specimen of Common Stock Certificate	S-1	333-109700	4.2	12/22/2003
4.3	Amended and Restated Registration Rights Agreement between Registrant and J. R. Hyde, III dated August 7, 2003	S-1	333-109700	4.4	10/15/2003
4.4	Consent, Waiver and Amendment between Registrant and J. R. Hyde, III and Pittco Associates, L.P. dated December 3, 2007	S-3	333-148321	4.6	12/26/2007
4.5	Waiver and Amendment Agreement among Registrant, J.R. Hyde, III and Pittco Associates, L.P. dated March 6, 2014	10-K	000-50549	4.5	03/12/2014
4.6	Amended and Restated Registration Rights Agreement among Registrant, J.R. Hyde, III and The Pyramid Peak Foundation, dated August 4, 2014	10-Q	000-50549	4.6	08/05/2014
4.7	Consent, Waiver and Amendment Agreement between Registrant and J.R. Hyde, III and Pittco Associates, L.P., dated August 4, 2014	10-Q	000-50549	4.8	08/05/2014
4.8	Form of Common Stock Warrant, issued on November 14, 2014 by Registrant pursuant to the Purchase Agreement, dated November 9, 2014, between Registrant and the purchasers identified in Exhibit A therein	10-K	000-50549	4.9	03/16/2015
4.9	Form of Warrant Amendment Agreement entered into effective as of March 25, 2016 between Registrant and each holder of a Common Stock Warrant originally issued on November 14, 2014	10-Q	000-50549	4.9	5/10/2016
4.10	Form of Common Stock Warrant, issued by Registrant	S-3	333-221040	4.9	10/20/2017

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	pursuant to the Purchase Agreement, dated September 25, 2017, between Registrant and the purchasers identified in Exhibit A therein				
31.1+	Certification of Principal Executive Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)	—	—	—	—
31.2+	Certification of Principal Financial Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)	—	—	—	—
32.1+	Certification of Principal Executive Officer, as required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350)(1)	—	—	—	—
32.2+	Certification of Principal Financial Officer, as required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350)(1)	—	—	—	—
101.INS+	XBRL Instance Document	—	—	—	—
101.SCH+	XBRL Taxonomy Extension Schema Document	—	—	—	—
101.CAL+	XBRL Taxonomy Extension Calculation Linkbase Document	—	—	—	—
101.DEF+	XBRL Taxonomy Extension Definition Linkbase Document	—	—	—	—
101.LAB+	XBRL Taxonomy Extension Labels Linkbase Document	—	—	—	—
101.PRE+	XBRL Taxonomy Extension Presentation Linkbase Document	—	—	—	—

+ Filed herewith

(1) This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

GTx, Inc.

Date: August 14, 2018

By: /s/ Marc S. Hanover
Marc S. Hanover, President,
Chief Executive Officer
(Principal Executive Officer)

Date: August 14, 2018

By: /s/ Jason T. Shackelford
Jason T. Shackelford, Vice President, Finance and Accounting and Principal Financial and Accounting Officer
(Principal Financial and Accounting Officer)

EXHIBIT 31.1

PRINCIPAL EXECUTIVE OFFICER CERTIFICATION

I, Marc S. Hanover, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of GTx, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 14, 2018

/s/ Marc S. Hanover
Marc S. Hanover
Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

PRINCIPAL FINANCIAL OFFICER CERTIFICATION

I, Jason T. Shackelford, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of GTx, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 14, 2018

/s/ Jason T. Shackelford
Jason T. Shackelford
Vice President, Finance and Accounting,
and Principal Financial and Accounting Officer
(Principal Financial and Accounting Officer)

EXHIBIT 32.1

CERTIFICATION PURSUANT TO
18 U. S. C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of GTx, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Marc S. Hanover, Chief Executive Officer of the Company certify, pursuant to Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 14, 2018

/s/ Marc S. Hanover
Marc S. Hanover
Chief Executive Officer
(Principal Executive Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934 (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

EXHIBIT 32.2

CERTIFICATION PURSUANT TO
18 U. S. C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of GTx, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jason T. Shackelford, Principal Financial Officer of the Company certify, pursuant to Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 14, 2018

/s/ Jason T. Shackelford
Jason T. Shackelford
Vice President, Finance and Accounting,
and Principal Financial and Accounting Officer
(Principal Financial and Accounting Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934 (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.