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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of
the Securities Exchange Act of 1934 (Amendment No.)

Filed by the Registrant

Filed by a Party other than the Registrant o

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material under §240.14a-12

GTx, Inc.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.
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 - (1) Amount Previously Paid:

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 - (3) Filing Party:

 - (4) Date Filed:



175 Toyota Plaza
7th Floor
Memphis, Tennessee 38103
(901) 523-9700
April 15, 2014

Dear Stockholder:

By now you should have received your proxy materials in connection with the 2014 Annual Meeting of Stockholders of GTx, Inc. to be held on Tuesday, May 6, 2014. Enclosed please find a supplement to our proxy statement that describes certain changes in our management and Board of Directors and related matters that occurred after the mailing of our proxy materials for the Annual Meeting.

Whether or not you plan to attend the Annual Meeting and regardless of the number of shares of common stock you own, it is important that your shares of GTx common stock are represented and voted at the Annual Meeting. If you have already voted, we thank you for taking the time to have your voice heard. **If you have not already voted or you would like to revoke or change your vote, please take a moment to vote your proxy at your earliest opportunity.** In deciding how to vote or to revoke or change your vote, you should read carefully and consider the information contained in the notice of annual meeting and proxy statement, dated March 24, 2014, which you should have already received, as well as the enclosed supplement to the proxy statement, dated April 15, 2014.

Thank you, in advance, for your prompt attention to this very important matter.

Sincerely,

A handwritten signature in black ink that reads 'Henry P. Doggrell'. The signature is written in a cursive, slightly slanted style.

Henry P. Doggrell
Vice President, Chief Legal Officer and Secretary



175 Toyota Plaza, 7th Floor
Memphis, Tennessee 38103
(901) 523-9700

**SUPPLEMENT TO THE PROXY STATEMENT FOR THE
ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD ON MAY 6, 2014**

We are furnishing to you this supplement to our proxy statement, dated April 15, 2014 (this "Supplement"), to supplement the Notice of Annual Meeting and Proxy Statement, dated March 24, 2014 (the "Proxy Statement"), with respect to the solicitation of proxies by the Board of Directors of GTx, Inc. for use at the 2014 Annual Meeting of Stockholders to be held on Tuesday, May 6, 2014 at 4:00 p.m., Central Daylight Time, at the Toyota Center, 175 Toyota Plaza, Memphis, Tennessee 38103.

The purpose of this Supplement is to provide information relating to recently announced changes in our management team and our Board of Directors, and in the compensation arrangements of certain of our executive officers.

This Supplement should be reviewed together with the Proxy Statement. Except as described in this Supplement, the information provided in the Proxy Statement continues to apply and should be considered in voting your shares of GTx common stock. To the extent that the information in this Supplement differs from or updates the information contained in the Proxy Statement, the information in this Supplement is more current and supersedes that information contained in the Proxy Statement.

In this Supplement, terms such as "we," "us" and "our" refer to GTx, Inc., which may also be referred to from time to time as "GTx."

MANAGEMENT AND BOARD CHANGES

On April 3, 2014, Mitchell S. Steiner, M.D. resigned from both his position as our Chief Executive Officer and Vice-Chairman of the Board of Directors, and as a member of the Board. In connection with Dr. Steiner's resignation, Marc S. Hanover was appointed as our interim Chief Executive Officer, and, upon the recommendation of the Nominating and Corporate Governance Committee of the Board, was elected to the Board effective immediately following the effectiveness of Dr. Steiner's resignation from the Board. Mr. Hanover was elected to the Board to fill the vacancy created by Dr. Steiner's resignation from the Board and Mr. Hanover therefore serves in the class of directors whose term of office expires at our 2015 Annual Meeting of Stockholders. Please note that you are not being asked to vote for the election of Mr. Hanover at the Annual Meeting.

In addition, James T. Dalton, Ph.D., our Chief Scientific Officer, has notified GTx of his decision to resign from GTx effective August 31, 2014. Dr. Dalton is leaving GTx to become Dean of the University of Michigan College of Pharmacy. Given Dr. Dalton's scientific expertise and service to GTx as its Chief Scientific Officer, we expect to engage Dr. Dalton as a consultant to GTx following his employment termination date. Although the terms on which Dr. Dalton would serve as a consultant to GTx following his employment termination date are yet to be finalized, we expect that we will enter into a consulting agreement with Dr. Dalton to provide him with a reasonable monthly consulting payment and the continued vesting of his stock options in consideration for his providing us with

ongoing scientific expertise and advice concerning the clinical development of our product candidates. We expect to finalize the consulting agreement and present it to the Compensation Committee for approval at its next regularly scheduled meeting. Since Dr. Dalton will continue to be employed by GTx beyond June 1, 2014, he will be eligible for all of the retention benefits, including the retention bonus payment and the vesting of the retention equity awards granted to Dr. Dalton, that are described under the caption "Compensation Discussion and Analysis—Retention Bonus Program" in the Proxy Statement.

Finally, in connection with Mr. Hanover's appointment as interim Chief Executive Officer, Mr. Hanover's duties as our acting principal financial officer were assigned to Jason T. Shackelford. Biographical information for Mr. Hanover and Mr. Shackelford follows.

Marc S. Hanover, age 51, a co-founder of GTx and our interim Chief Executive Officer, has served as our President and Chief Operating Officer since our inception in September 1997, and served as our acting principal financial officer from December 31, 2013 until his appointment as our interim Chief Executive Officer on April 3, 2014. Mr. Hanover also previously served as a member of the Board from our inception until August 2011, and was again elected to the Board on April 3, 2014. Prior to joining GTx, Mr. Hanover was a founder of Equity Partners International, Inc., a private equity firm in Memphis, Tennessee, and participated as a founder and investor in three healthcare companies. From 1985 to 1997, Mr. Hanover was a Senior Vice President and a member of the Executive Management Committee of National Bank of Commerce in Memphis, Tennessee. Mr. Hanover holds a B.S. in Biology from the University of Memphis and a MBA in Finance from the University of Memphis. Our Board of Directors has determined that Mr. Hanover should serve as a member of our Board of Directors since, as our current interim Chief Executive Officer and as our President and Chief Operating Officer since our inception, Mr. Hanover brings to our Board of Directors a detailed knowledge of our business and with his background in finance, banking and investments, provides our Board of Directors with needed expertise in corporate policy, governance, and risk management.

Jason T. Shackelford, age 38, has served as our Corporate Controller and Director of Accounting since July 2007, and has served as our acting principal accounting officer since December 31, 2013 and as our acting principal financial officer since April 3, 2014. Prior to joining GTx, Mr. Shackelford was a Senior Audit Manager at KPMG LLP. Mr. Shackelford is a Certified Public Accountant and holds a Bachelor of Business Administration and Master of Accountancy from the University of Mississippi.

COMPENSATORY MATTERS

Dr. Steiner's Severance Agreement. In connection with Dr. Steiner's resignation in April 2014 and in recognition of Dr. Steiner's term of service with us, the Board, upon the recommendation of the Compensation Committee, approved a severance package for Dr. Steiner. Pursuant to a severance agreement we entered into with Dr. Steiner, in exchange for Dr. Steiner's full general release of any claims that he may have on account of his employment with GTx, we provided Dr. Steiner with the following severance benefits:

- twelve months of base salary continuation payments;
- continued healthcare coverage through the earliest to occur of (i) December 31, 2014, (ii) the date he becomes eligible for group health insurance coverage through a new employer or (iii) the date Dr. Steiner ceases to be eligible for COBRA continuation coverage;
- GTx granted Dr. Steiner the right to have the life insurance policies that it has obtained on Dr. Steiner assigned to him for his benefit;
- the vesting of all outstanding stock options granted to Dr. Steiner by GTx (all of which stock options were "out of the money" on his employment termination date) was accelerated in full so that all of his unvested stock options became immediately vested and exercisable; and

- the post-termination exercise period applicable to all of Dr. Steiner's stock options was extended until April 13, 2019, subject in each case to the earlier expiration of the original term of the applicable stock option.

We have calculated the total value of those payments and benefits to be \$842,468, which consists of: (i) \$452,088, which represents twelve months of base salary continuation payments; (ii) a payout of accrued vacation of \$12,172; (iii) \$19,208 in continued healthcare coverage through December 31, 2014; and (iv) \$359,000, which represents the aggregate incremental fair value associated with the modifications of Dr. Steiner's stock options as calculated in accordance with FASB ASC Topic 718. There was no incremental cost to GTx with respect to the assignment to Dr. Steiner of the term life insurance policies referenced above. The incremental cost to GTx of the life insurance premiums paid to provide additional term life insurance benefits to Dr. Steiner are disclosed in the Summary Compensation Table in the Proxy Statement. The Compensation Committee's determination to recommend to the Board that it afford Dr. Steiner with these severance benefits resulted from the Compensation Committee's subjective assessment that this was a fair level of benefits in light of Dr. Steiner's long service with our company and his many contributions to our company over the years.

Compensatory Changes Applicable to Mr. Hanover. In connection with Mr. Hanover's appointment as our interim Chief Executive Officer, upon the recommendation of the Compensation Committee, the Board approved the provision of certain severance benefits to Mr. Hanover should Mr. Hanover's employment be involuntarily terminated by us (excluding a termination for cause, as defined in Mr. Hanover's current employment agreement with GTx) or should he voluntarily resign due to a "material demotion," in each case within six months of a new Chief Executive Officer becoming employed by GTx. "Material demotion" for these purposes means a material reduction in Mr. Hanover's authority, duties or responsibilities as GTx's President and Chief Operating Officer undertaken without Mr. Hanover's consent, including any reassignment of Mr. Hanover to a position other than President and Chief Operating Officer. In such event, Mr. Hanover would be entitled to the following severance benefits:

- twelve months of base salary continuation payments based on his base salary then in effect;
- the vesting and exercisability of all stock options previously granted to Mr. Hanover by GTx (other than the new option described below) would be accelerated in full;
- a number of shares subject to the new option described below would immediately vest and become exercisable as if Mr. Hanover's service had continued for a period of two years following his termination date; and
- the post-termination exercise period applicable to all of Mr. Hanover's outstanding vested stock options would be extended until the date five years from his termination date, subject in each case to the earlier expiration of the original term of the applicable stock option.

The Compensation Committee determined that such severance benefits were necessary to retain Mr. Hanover's services as our interim Chief Executive Officer and to motivate Mr. Hanover to act in the best interests of our stockholders by removing the distraction of uncertainties faced by Mr. Hanover with respect to his continued role as our President and Chief Operating Officer should we hire a new permanent Chief Executive Officer.

Also, on April 3, 2014, upon the recommendation of the Compensation Committee, the Board approved the grant of a stock option to Mr. Hanover under our 2013 Equity Incentive Plan to purchase 500,000 shares of GTx common stock. This option carries an exercise price of \$1.56, which is equal to 100% of the fair market value of our common stock on the date of grant as determined in accordance with the 2013 Equity Incentive Plan. This option has a term of ten years from the date of grant and vests in five equal annual installments beginning April 3, 2015, subject to vesting acceleration under certain circumstances as described in the Proxy Statement and above with respect to Mr. Hanover's

new severance benefits. In determining the size of the stock option grant, the Compensation Committee took into consideration that it had previously reduced Mr. Hanover's base salary by 20%, effective October 1, 2013, following disappointing results from our 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, and the Compensation Committee was not now adjusting Mr. Hanover's base salary following his appointment as our interim Chief Executive Officer. The Compensation Committee also noted that Mr. Hanover was not provided with a retention bonus opportunity or the retention equity awards granted to certain other of our executive officers and other employees, which retention benefits are described under the caption "Compensation Discussion and Analysis—Retention Bonus Program" in the Proxy Statement. The Compensation Committee felt that the grant of 500,000 stock options was consistent with the value attributable to the retention bonus opportunity and retention equity awards granted to certain other of our executive officers, and was the proper form of compensation for Mr. Hanover to assume the additional role of interim Chief Executive Officer and to incentivize him to focus GTX on fulfilling its goals and objectives to increase shareholder value. Accordingly, the size of Mr. Hanover's stock option grant was not determined in a formulaic setting but rather, reflected the Compensation Committee's subjective assessment of the appropriate grant level of in light of the above factors.

VOTING MATTERS; REVOCABILITY OF PROXIES

This Supplement does not change the proposals to be acted upon at the Annual Meeting, which proposals are described in the Proxy Statement, and there are no changes to the proxy card or voting instruction form previously mailed to stockholders.

If you have already voted by Internet, telephone or by mail, then you do not need to take any action unless you wish to change your vote. If you have already voted and wish to change your vote based on any of the information contained in this Supplement or otherwise, you may change your vote or revoke your proxy at any time before it is voted at the Annual Meeting. Important information regarding how to vote your shares of common stock and how to revoke or change a proxy already given is available in the Proxy Statement under the caption "Information About Voting—Can I change my vote after submitting my proxy card?" Shares of common stock represented by valid proxies already returned by stockholders (via Internet, telephone or mail) will be voted at the Annual Meeting in the manner indicated unless revoked or changed as provided in the Proxy Statement. Shares of common stock represented by valid proxies returned before the 2014 Annual Meeting, but for which no voting instructions have been provided, will be voted in accordance with the recommendations of the Board of Directors as set forth in the Proxy Statement under the caption "Information About Voting—What are the Board of Directors' recommendations?"

YOU ARE URGED TO READ THE PROXY STATEMENT AND THIS SUPPLEMENT CAREFULLY IN DECIDING HOW TO VOTE. As a stockholder, your vote is very important and the Board encourages you to exercise your right to vote whether or not you plan to attend the Annual Meeting and regardless of the number of shares of GTX common stock that you own.

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting of Stockholders to be Held on May 6, 2014, at the Toyota Center, 175 Toyota Plaza, Memphis, Tennessee 38103:

The Proxy Statement, this Supplement and annual report to stockholders are available at www.edocumentview.com/GTXI

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