

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

**SCHEDULE 13G**

Under the Securities Exchange Act of 1934\*

**(Amendment No. 5)**

**GTx, Inc.**

(Name of Issuer)

**Common Stock, \$0.001 par value**

(Title of Class of Securities)

**40052B108**

(CUSIP Number)

**December 31, 2010**

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

\*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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<b>1</b>	NAME OF REPORTING PERSON S.S. OR I.R.S. IDENTIFICATION NO. OF ABOVE PERSON  Larry N. Feinberg	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) <input type="radio"/> (b) <input checked="" type="radio"/>	
<b>3</b>	SEC USE ONLY	
<b>4</b>	CITIZENSHIP OR PLACE OF ORGANIZATION  United States	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	<b>5</b>	SOLE VOTING POWER  16,600
	<b>6</b>	SHARED VOTING POWER  3,625,074
	<b>7</b>	SOLE DISPOSITIVE POWER  16,600
	<b>8</b>	SHARED DISPOSITIVE POWER  3,625,074
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  3,641,674	
<b>10</b>	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*  N/A	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9  7.2%	
<b>12</b>	TYPE OF REPORTING PERSON*  IN	

This Amendment No. 5 to Schedule 13G (this "Amendment No. 5") is being filed with respect to the Common Stock, par value \$0.001 ("Common Stock") of GTx, Inc., a Delaware corporation (the "Company"), to amend the Schedule 13G filed on February 9, 2005, as previously amended by Amendment No. 1, filed on February 7, 2006, by Amendment No. 2, filed on February 15, 2008, by Amendment No. 3, filed on May 20, 2009 and by Amendment No. 4, filed on February 2, 2010 (as so amended, the "Schedule 13G"), in accordance with the annual amendment requirements. Capitalized terms used but not defined herein have the meaning ascribed thereto in the Schedule 13G.

Item 4:      Ownership:

Item 4 of the Schedule 13G is hereby amended and restated as follows:

I. Current Ownership.

The beneficial ownership of Common Stock by the Reporting Persons, as of the date of this Amendment No. 5, is as follows:

A. Larry N. Feinberg

(a) Amount beneficially owned: 3,641,674

(b) Percent of class: 7.2%. The percentages used herein and in the rest of this Amendment No. 5, are calculated based upon a total of 50,719,187 shares of Common Stock issued and outstanding as of November 4, 2010, as reported in the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2010.

(c) Number of shares as to which such person has:

(i) Sole power to vote or direct the vote: 16,600

(ii) Shared power to vote or direct the vote: 3,625,074

(iii) Sole power to dispose or direct the disposition: 16,600

(iv) Shared power to dispose or direct the disposition: 3,625,074

II. December 31, 2010 Ownership.

The beneficial ownership of Common Stock by the Reporting Persons, as of December 31, 2010, is as follows:

A. Larry N. Feinberg

(a) Amount beneficially owned: 3,641,674

(b) Percent of class: 7.2%

(c) Number of shares as to which such person has:

(i) Sole power to vote or direct the vote: 16,600

(ii) Shared power to vote or direct the vote: 3,625,074

(iii) Sole power to dispose or direct the disposition: 16,600

(iv) Shared power to dispose or direct the disposition: 3,625,074

Item 10:    Certification:

Each of the Reporting Persons hereby makes the following certification:

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

[THE REMAINDER OF THIS PAGE LEFT INTENTIONALLY BLANK]

**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

DATED: February 4, 2011

/s/ Larry N. Feinberg \_\_\_\_\_  
Larry N. Feinberg

[SIGNATURE PAGE TO  
AMENDMENT NO. 5 TO  
SCHEDULE 13G WITH RESPECT TO GTX, INC.]