SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Schedule 13G/A

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, 2009

(Date of Event Which Requires Filing of this Statement)

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

o Rule 13d-1(b)

o Rule 13d-1(c)

☑ Rule 13d-1(d)

The information required in 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).

^{*} 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.

NAME OF REPORTING PERSON									
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2,064,131(1)									
PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9 11	11	PERCE							
7.7%	11								
TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)*	10	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)*							
$ 12 _{\text{IN}}$									
(1) Shares owned by Dr. Steiner's spouse, as to which Dr. Steiner disclaims beneficial interest	(1) Sh		d by D	r. Steiner's spouse, as to which Dr. Steiner disclaims beneficial interest					

Item 1(a). Name of Issuer:				GTx, Inc.			
Item 1(b).	Address of Issuer's Principal E	Executive Offices:		175 Toyota Plaza, 7th Floor, Memphis, Tennessee 38103			
Item 2(a).	Name of Person Filing:			Mitchell S. Stei	ner, M.D., F.A.C.S		
Item 2(b).	Address of Principal Business (Office or, if none, Residence:		175 Toyota Plaza, 7th Floor, Memphis, Tennessee 38103			
Item 2(c).	Organization/Citizenship:			United States of	America		
Item 2(d).	<u>Title of Class</u> <u>Of Securities:</u>			Common Stock	, \$0.001 par value		
Item 2(e).	CUSIP Number:			40052B108			
Item 3.	<u>Inapplicable.</u>						
Item 4.	Ownership.						
<u>Person</u> Mitchell S. Stein	ier, M.D., F.A.C.S.	Total Shares of Common Stock Beneficially Owned 2,805,416	Percent of Class(1) 7.7%	Sole Voting Power 2,064,132	Shared Voting Power 741,284	Sole Power to Dispose 2,064,132	Shared Power to Dispose 741,284

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⁽¹⁾ Based on **36,420,901** shares of Common Stock outstanding as of December 31, 2009.

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Item 5. <u>Ownership of Five Percent or Less of a Class</u> . Inapplicable		
Item 6. <u>Ownership of More than Five Percent on Behalf of</u> Inapplicable	Another Person.	
Item 7. <u>Identification and Classification of the Subsidiary V</u> Inapplicable	Which Acquired the Security Being Reported on b	y the Parent Holding Company.
Item 8. <u>Identification and Classification of Members of the</u> Inapplicable	Group.	
Item 9. <u>Notice of Dissolution of Group</u> . Inapplicable		
Item 10. <u>Certification</u> . Inapplicable		

40052B108

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.

2/12/2010

Date

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

(Signature)

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

Chief Executive Officer and Vice Chairman of the Board of Directors of GTx, Inc.