

☐ Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL	
OMB Number:	3235-0287
Estimated average burden	
hours per response:	0.5

1. Name and Address of Reporting Person* <u>REYNOLDS FRANCIS</u> (Last) (First) (Middle) <u>C/O INVIVO THERAPEUTICS HOLDINGS CORP.</u> <u>ONE BROADWAY, 14TH FLOOR</u> (Street) <u>CAMBRIDGE MA 02142</u> (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>INVIVO THERAPEUTICS HOLDINGS CORP. [NVIV]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>CEO, CFO</u>
	3. Date of Earliest Transaction (Month/Day/Year) <u>03/15/2011</u>	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)		8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				
<u>Stock Option (right to buy)</u>	<u>\$1.2</u>	<u>03/15/2011</u>		<u>A</u>		<u>250,000</u>		<u>03/15/2012⁽¹⁾</u>	<u>03/15/2021</u>	<u>Common Stock</u>	<u>250,000</u>	<u>\$0</u>	<u>250,000</u>	<u>D</u>	

Explanation of Responses:

1. Option vests as to 25% of the shares subject to the option on each of the first, second, third and fourth anniversaries of the date of grant, provided the reporting person remains employed by the Company on each vesting date. Option not exercisable until the Company's 2010 Equity Incentive Plan is approved by the Company's stockholders and a registration statement on Form S-8 to register shares underlying such option is filed with the Securities and Exchange Commission.

/s/ Frank M. Reynolds

03/17/2011

** Signature of Reporting Person

Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.