FORM 4

obligations may continue. See Instruction 1(b).

Check this box if no longer subject to Section 16. Form 4 or Form 5

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

| STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP |
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Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| Name and Address of Reporting Person* REYNOLDS FRANCIS (Last) (First) (Middle) | | | | | | | 2. Issuer Name and Ticker or Trading Symbol INVIVO THERAPEUTICS HOLDINGS CORP. [NVIV] | | | | | | | | | | all app | er (give title w) | X | 10% C Other below) | wner (specify | |
|--|--|-------|--|-------------------|------------|--|---|---|-------------------------------------|-------------------------|-----------------------|------------------------------------|----------------------------|---|--|---|---|-------------------------------|---|--|--|--|
| C/O INVIVO THERAPEUTICS HOLDINGS CORP. | | | | | | | 3. Date of Earliest Transaction (Month/Day/Year) 01/29/2013 | | | | | | | | | | | CEO |), CF | U | | |
| ONE KENDALL SQUARE, SUITE B14402 (Street) | | | | | | 4. If Amendment, Date of Original Filed (Month/Day/Year) | | | | | | | | | | 6. Individual or Joint/Group Filing (Check Applicable Line) X Form filed by One Reporting Person | | | | | | |
| CAMBRIDGE MA 02139 | | | | | | | | | | | | | | | Form filed by More than One Reporting Person | | | | | | | |
| (City) | | (Stat | | Zip) | | | | | | | | | | | | | | | | | | |
| Table I - Non-De 1. Title of Security (Instr. 3) 2. Ti | | | | | 1-Deriv | | | | | quired, | Disp | | r Bend Acquired | | | | ount of | 6. Ownership | | 7. Nature | | |
| '''' ''' | | | | | Date | | | Execution Date, if any (Month/Day/Year) | | Transa Code (| | Disposed Of (D) (Instr. 3, 4 | | | | 4 and Secur Benef Owne | | ties cially d Following | Form: Direct (D) or Indirect (I) (Instr. 4) | | of Indirect Beneficial Ownership (Instr. 4) | |
| | | | | | | | | | | Code | v | Amount | | (A) or (D) | Price | | Reported Transaction(s) (Instr. 3 and 4) | | | (instr | | |
| COMMON STOCK | | | | | | 01/29/2013 | | | | S ⁽¹⁾ | | 4,250 |) | D | \$2.45 | | 14,224,660 | | | D | | |
| COMMON STOCK | | | | | 01/30/2013 | | 3 | | | S ⁽¹⁾ | S ⁽¹⁾ 1,10 | |) | D | \$2.36 | | 14,223,560 | | | D | | |
| COMMON STOCK 0: | | | | | 01/31/2013 | | | | S ⁽¹⁾ | | 2,050 |) | D | \$2.02 | | 14,221,510 | | | D | | | |
| COMMON STOCK 01/31 | | | | | | 31/2013 | | | | S ⁽¹⁾ | | 700 | | D | \$2.04 | | 14,220,810 | | | D | | |
| COMMON STOCK 01/3 | | | | | | 1/2013 | ′2013 | | | S ⁽¹⁾ | | 1,500 | | D | \$2.05 | | 14,219,310 | | | D | | |
| COMMON STOCK | | | | | | | | | | | | | | | | | 13,603 | | | I | By 401(k) Plan | |
| 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) | ative Conversion Date Execution rity or Exercise (Month/Day/Year) if any | | | Date, Transaction | | | n of | | 6. Date E. Expiratio (Month/D | n Date | | Amour Securi Under Deriva | | ount of surities sterlying (livative surity (Instr. 3 | | rice of vative urity tr. 5) | 9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s (Instr. 4) | F D O | Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) | | |
| | | | | Code V | | v | (A) | (D) | Date Exercisal | ate Ex xercisable Da | | Title | Amount or Number of Shares | | | | | | | | | |

Explanation of Responses:

1. The sales reported in this Form 4 were effected pursuant to a Rule 10b5-1 trading plan adopted by the reporting person on December 4, 2012.

/S/ ELIZABETH FRASER, AS 01/31/2013 **ATTORNEY IN FACT**

** 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.