

FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

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

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| | | | |
|---|---|---|--|
| 1. Name and Address of Reporting Person* <u>REYNOLDS FRANCIS</u> (Last) (First) (Middle) <u>C/O INVIVO THERAPEUTICS HOLDINGS CORP.</u> <u>ONE KENDALL SQUARE, SUITE B14402</u> (Street) <u>CAMBRIDGE MA 02139</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>01/10/2013</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 | | | |
| COMMON STOCK | 01/10/2013 | | s ⁽¹⁾ | | 2,150 | D | \$2.31 | 14,277,760 | D | |
| COMMON STOCK | 01/10/2013 | | s ⁽¹⁾ | | 100 | D | \$2.32 | 14,277,660 | D | |
| COMMON STOCK | 01/10/2013 | | s ⁽¹⁾ | | 1,000 | D | \$2.38 | 14,276,660 | D | |
| COMMON STOCK | 01/10/2013 | | s ⁽¹⁾ | | 1,000 | D | \$2.4 | 14,275,660 | D | |
| COMMON STOCK | 01/11/2013 | | s ⁽¹⁾ | | 1,000 | D | \$2.21 | 14,274,660 | D | |
| COMMON STOCK | 01/11/2013 | | s ⁽¹⁾ | | 1,000 | D | \$2.22 | 14,273,660 | D | |
| COMMON STOCK | 01/11/2013 | | s ⁽¹⁾ | | 1,250 | D | \$2.23 | 14,272,410 | D | |
| COMMON STOCK | 01/11/2013 | | s ⁽¹⁾ | | 1,000 | D | \$2.3 | 14,271,410 | D | |
| COMMON STOCK | 01/14/2013 | | s ⁽¹⁾ | | 1,000 | D | \$2.32 | 14,270,410 | D | |
| COMMON STOCK | 01/14/2013 | | s ⁽¹⁾ | | 2,000 | D | \$2.35 | 14,268,410 | D | |
| COMMON STOCK | 01/14/2013 | | s ⁽¹⁾ | | 1,250 | D | \$2.38 | 14,267,160 | 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) | 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) |
| | | | | | | | | | | | | | | | |

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
ATTORNEY IN FACT 01/14/2013

** 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.