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FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

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

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| stimated average burden | |
|-------------------------|-----|
| ours per response: | 0.5 |

| 1. Name and Address of Reporting Person* REYNOLDS FRANCIS | | | 2. Issuer Name and Ticker or Trading Symbol INVIVO THERAPEUTICS HOLDINGS | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) | | | | | |
|--|---------|----------|--|--|-------------------------------|---------|--------------------------|--|--|
| | | | CORP. [NVIV] | | Director | Х | 10% Owner | | |
| (Last) | (First) | (Middle) | | x | Officer (give title below) | | Other (specify below) | | |
| C/O INVIVO THERAPEUTICS HOLDINGS CORP. | | | 3. Date of Earliest Transaction (Month/Day/Year) 02/25/2013 | CEO, CFO | | | | | |
| ONE KENDALL SQUARE, SUITE B14402 | | E B14402 | | | | | | | |
| | | | 4. If Amendment, Date of Original Filed (Month/Day/Year) | 6. Individual or Joint/Group Filing (Check Applicable Line) | | | | | |
| (Street) | | 00400 | | X | Form filed by One I | Reporti | ing Person | | |
| CAMBRIDGE | MA | 02139 | | | Form filed by More Person | than C | One Reporting | | |
| (City) | (State) | (Zip) | | | | | | | |

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) | Code (| Transaction Disposed Of (D) (Instr. 3, 4 an Code (Instr. 5) | | | 5. Amount of Securities Beneficially Owned Following Reported | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership | |
|---------------------------------|--|---|-------------------------|--|--------|---------------|---|---|---|----------------------|
| | | | Code | v | Amount | (A) or (D) | Price | Transaction(s) (Instr. 3 and 4) | | (Instr. 4) |
| COMMON STOCK | 02/25/2013 | | S ⁽¹⁾ | | 4,250 | D | \$1.71 | 13,576,310 | D | |
| COMMON STOCK | 02/26/2013 | | S ⁽¹⁾ | | 3,250 | D | \$1.8 | 13,573,060 | D | |
| COMMON STOCK | 02/26/2013 | | S ⁽¹⁾ | | 1,000 | D | \$1.81 | 13,572,060 | D | |
| COMMON STOCK | 02/27/2013 | | S ⁽¹⁾ | | 3,000 | D | \$1.85 | 13,569,060 | D | |
| COMMON STOCK | 02/27/2013 | | S ⁽¹⁾ | | 1,250 | D | \$1.88 | 13,567,810 | D | |
| COMMON STOCK | | | | | | | | 19,579 | Ι | By 401(k) Plan |

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

| | (-5, | | | | | | | | | | | | | | |
|---|---|--|---|------------------------------|---|--|--|---------------------|--------------------|---|--|--|--|----------------------------------|--|
| 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. Transa Code (8) | | of Deriv Secu Acqu (A) of Dispo of (D) (Instr | 5. Number of Expiration Date Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | ate | d 7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4) | | curities Derivative Security derlying (Instr. 5) rivative curity (Instr. 3 | | Ownership Form: Direct (D) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
| | | | | Code | v | (A) | (D) | Date Exercisable | Expiration Date | 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 02/27/2013 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.