

FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

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

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 OF SECURITIES

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

(Print or Type Responses)

| | | | | | | | | |
|---|---------|----------|---|--|--|--|--|--|
| 1. Name and Address of Reporting Person * Bisgaier Charles PhD | | | 2. Issuer Name and Ticker or Trading Symbol PIPEX PHARMACEUTICALS, INC. [PP] | | | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input type="checkbox"/> Director <input type="checkbox"/> 10% Owner <input checked="" type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below) President | | |
| (Last) C/O PIPEX, 3930 VARSITY DRIVE | (First) | (Middle) | 3. Date of Earliest Transaction (Month/Day/Year) 07/16/2007 | | | 6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person | | |
| (Street) ANN ARBOR, MI 48108 | | | 4. If Amendment, Date Original Filed (Month/Day/Year) | | | | | |
| (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) | 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 | 11/02/2006 | | A | | 49,552 | A | \$ 2.02 | 49,552 | I | Bisgaier Family LLC |
| Common Stock | 11/02/2006 | | A | | 24,776 | A | \$ 2.02 | 74,328 | I | Stanley G. Bisgaier Trust |
| Common Stock | 11/02/2006 | | A | | 24,776 | A | \$ 2.02 | 99,104 | I | Dena M. Bisgaier Trust |
| Common Stock | 07/16/2007 | | P | | 10,000 | A | \$ 4.64 | 109,104 | D | |

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

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 control number. SEC 1474 (9-02)

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 Underlying Securities (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 of Derivative Security: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--|--|--------------------------------------|--|--------------------------------|---|---|--|-----------------------|---|----------------------------|--|--|--|--|
| | | | | Code | V | | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | | | | |
| Stock Options | \$ 1.83 | 05/30/2006 | | A | | 664,252 | (I) | 05/29/2016 | Common Stock | 664,252 | \$ 0 | 664,252 | D | |
| Warrants | \$ 2.22 | 11/02/2006 | | A | | 24,776 | | 11/02/2006 11/01/2011 | Common Stock | 24,776 | \$ 0 | 689,028 | I | Bisgaier Family LLC |
| Warrants | \$ 2.22 | 11/02/2006 | | A | | 12,388 | | 11/02/2006 11/01/2011 | Common Stock | 12,388 | \$ 0 | 701,416 | I | Stanley G. Bisgaier Trust |
| Warrants | \$ 2.22 | 11/02/2006 | | A | | 12,388 | | 11/02/2006 11/01/2011 | Common Stock | 12,388 | \$ 0 | 713,804 | I | Dena M. Bisgaier Trust |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--|---------------|-----------|-----------|-------|
| | Director | 10% Owner | Officer | Other |
| Bisgaier Charles PhD C/O PIPEX 3930 VARSITY DRIVE ANN ARBOR, MI 48108 | X | | President | |

Signatures

/s/ Charles Bisgaier

07/17/2007

Signature of Reporting
Person

Date

Explanation of Responses:

* 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).

(1) These options vest in equal quarterly increments over three years beginning from the date of grant. Of these options, 221,417 are currently vested.

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

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