

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

| | | |
|---|---|--|
| 1. Name and Address of Reporting Person* SPUDICH JAMES A _____ (Last) (First) (Middle) 280 EAST GRAND AVENUE _____ (Street) SOUTH SAN FRANCISCO CA 94080 _____ (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol CYTOKINETICS INC [CYTK] | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director 10% Owner Officer (give title below) Other (specify below) |
| | 3. Date of Earliest Transaction (Month/Day/Year) 01/04/2010 | |
| 4. If Amendment, Date of Original Filed (Month/Day/Year) | | |

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 | | | | | | | 180,600 | D | | |

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 |
| Non-Qualified Stock Option (right to buy) | \$3.11 | 01/04/2010 | | A | | 16,077 | | 02/04/2010 ⁽¹⁾ | 01/04/2020 | Common Stock | 16,077 | \$1.244 ⁽²⁾ | 16,077 | D | |
| Non-Qualified Stock Option (right to buy) | \$1.2 | | | | | | | 07/10/2002 ⁽³⁾ | 07/10/2012 | Common Stock | 10,000 | | 10,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$1.85 | | | | | | | 06/21/2009 ⁽⁴⁾ | 05/21/2019 | Common Stock | 15,000 | | 15,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$2.85 | | | | | | | 02/02/2009 ⁽⁵⁾ | 01/02/2019 | Common Stock | 17,543 | | 17,543 | D | |
| Non-Qualified Stock Option (right to buy) | \$3.73 | | | | | | | 08/01/2008 ⁽⁶⁾ | 07/01/2018 | Common Stock | 6,702 | | 6,702 | D | |

**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 | | | | |
| Non-Qualified Stock Option (right to buy) | \$3.83 | | | | | | | 06/22/2008 ⁽⁷⁾ | 05/22/2018 | Common Stock | 15,000 | | 15,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$5.55 | | | | | | | 05/19/2005 | 05/19/2015 | Common Stock | 7,500 | | 7,500 | D | |
| Non-Qualified Stock Option (right to buy) | \$6.55 | | | | | | | 05/24/2007 | 05/24/2017 | Common Stock | 10,000 | | 10,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$7.29 | | | | | | | 05/25/2006 | 05/25/2016 | Common Stock | 7,500 | | 7,500 | D | |

Explanation of Responses:

1. This option shall vest and become exercisable as to 16,077 shares divided into equal monthly installments such that the option shall be 100% vested on January 4, 2011.
2. This option was issued to the reporting person pursuant to the Cytokinetics 2004 Equity Incentive Plan in lieu of annual retainer of \$20,000.
3. This option is immediately exercisable upon grant and shall vest as to 417 shares on 06/01/02 and the balance of 9,583 divided into equal monthly installments thereafter such that the option shall be 100% vested on 05/01/04.
4. This option shall vest and become exercisable as to 15,000 shares divided into equal monthly installments such that the option shall be 100% vested on May 21, 2010.
5. This option shall vest and become exercisable as to 17,543 shares divided into equal monthly installments such that the option shall be 100% vested on January 2, 2010.
6. This option shall vest and become exercisable as to 6,702 shares divided into equal monthly installments such that the option shall be 100% vested on January 1, 2009.
7. This option shall vest and become exercisable as to 15,000 shares divided into equal monthly installments such that the option shall be 100% vested on May 22, 2009.

By: Sharon Barbari For: James A. Spudich, Ph.D. 01/04/2010

** 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.

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