

Murphy Michael R
 Form 3
 October 12, 2011

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL

OMB Number: 3235-0104
 Expires: January 31, 2015
 Estimated average burden hours per response... 0.5

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *

Discovery Group I, LLC
 (Last) (First) (Middle)

191 N. WACKER DRIVE
 SUITE 1685,

(Street)

CHICAGO, IL 60606

(City) (State) (Zip)

2. Date of Event Requiring Statement

(Month/Day/Year)
 10/10/2011

3. Issuer Name and Ticker or Trading Symbol
 Cardiovascular Systems Inc [CSII]

4. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

Director 10% Owner
 Officer Other
 (give title below) (specify below)

5. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)
 Form filed by One Reporting Person
 Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Beneficially Owned

| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---------------------------------|---|--|--|
| Common Stock | 1,616,794 ⁽¹⁾ | I | By Discovery Equity Partners, L.P. ⁽¹⁾ |
| Common Stock | 233,329 ⁽²⁾ | I | By Pleiades Investment Partners - D, L.P. ⁽²⁾ |

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

SEC 1473 (7-02)

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

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| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 5) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---|--|--|--|--|---|
| | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--|---------------|-----------|---------|-------|
| | Director | 10% Owner | Officer | Other |
| Discovery Group I, LLC 191 N. WACKER DRIVE SUITE 1685 CHICAGO, IL 60606 | ^ | ^ X | ^ | ^ |
| Donoghue Daniel J C/O DISCOVERY GROUP I, LLC 191 N. WACKER DRIVE SUITE 1685 CHICAGO, IL 60606 | ^ | ^ X | ^ | ^ |
| Murphy Michael R C/O DISCOVERY GROUP I, LLC 191 N. WACKER DRIVE SUITE 1685 CHICAGO, IL 60606 | ^ | ^ X | ^ | ^ |

Signatures

| | |
|---------------------------------------|------------|
| Michael R. Murphy, Managing Member | 10/12/2011 |
| **Signature of Reporting Person | Date |
| Daniel J. Donoghue | 10/12/2011 |
| **Signature of Reporting Person | Date |
| Michael R. Murphy | 10/12/2011 |
| **Signature of Reporting Person | Date |

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 5(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) Discovery Group I, LLC is the General Partner of Discovery Equity Partners, L.P., which is a discretionary client of the reporting person, that owns the reported securities. The reporting person disclaims beneficial ownership of the reported securities except to the extent of its pecuniary interest therein.
- (2) Discovery Group I, LLC is an investment manager for Pleiades Investment Partners - D, L.P., which is a discretionary client of the reporting person, that owns the reported securities. The reporting person disclaims beneficial ownership of the reported securities except to the extent of its pecuniary interest therein.

^

Remarks:

Michael R. Murphy and Daniel J. Donoghue are managing members of Discovery Group I, LLC, and

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securities except to the extent of his pecuniary interest therein.

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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