

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF
SECURITIESFiled 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* <u>KIMBERLIN KEVIN</u> (Last) (First) (Middle) <u>1700 EAST PUTNAM AVENUE</u> <u>SUITE 401</u> (Street) <u>GREENWICH CT</u> <u>06870</u> (City) (State) (Zip) | 2. Date of Event Requiring Statement (Month/Day/Year) <u>03/16/2012</u> | 3. Issuer Name and Ticker or Trading Symbol <u>ORGANOVO HOLDINGS, INC. [ONVO.PK]</u> | |
| | | 4. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below) | 5. 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 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 | 1,082,490 | I | By Spencer Trask Investment Partners, LLP ⁽¹⁾⁽²⁾ |

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

| 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: 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 | | | |
| Warrant (right to purchase) | 02/08/2012 | 10/18/2016 | Common Stock | 110,155 | 1 | I | By Spencer Trask Ventures, Inc. ⁽¹⁾⁽²⁾⁽³⁾ |
| Warrant (right to purchase) | 02/08/2012 | 02/07/2017 | Common Stock | 2,000,200 | 1 | I | By Spencer Trask Ventures, Inc. ⁽¹⁾⁽²⁾⁽³⁾ |
| Warrant (right to purchase) | 03/16/2012 | 03/15/2017 | Common Stock | 2,296,588 | 1 | I | By Spencer Trask Ventures, Inc. ⁽¹⁾⁽²⁾⁽³⁾ |

Explanation of Responses:

- The Reporting Person has sole voting and dispositive control over these securities and disclaims beneficial ownership of these securities held indirectly for purposes of Section 16, except to the extent of his pecuniary interest therein, and this report shall not be deemed an admission that the Reporting Person is the beneficial owner of such securities for the purposes of Section 16 or for any other purpose.
- Does not include an aggregate of 1,244,484 shares of Common Stock which the Reporting Person has asserted to the Issuer should be beneficially owned by ST Breakthrough Partners LLC, an entity controlled by the Reporting Person.
- Spencer Trask Ventures, Inc. received the reported securities as partial compensation for acting as a placement agent in connection with a private placement of the Issuer's securities.

/S/ KEVIN KIMBERLIN04/27/2012

** 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 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).

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.