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

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No.)**

ACASTI PHARMA INC.
(Name of Issuer)

Common Shares, no par value
(Title of Class of Securities)

00430K105
(CUSIP Number)

Jean-Daniel Bélanger
Neptune Technologies & Bioressources Inc.
545 Promenade du Centropolis, Suite 100
Laval, Québec
Canada H7T 0A3
(450) 687-2262

(Name, Address and Telephone Number of Persons Authorized to Receive Notices and Communications)

December 3, 2013
(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition which is the subject of this Schedule 13D, and is filing this schedule because of Sections 240.13d-1(e), 240.13d-1(f) or 240.13(g), check the following box .

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7(b) for other parties to whom copies are to be sent.

SCHEDULE 13D

CUSIP No. 00430K105

| | |
|---|--|
| 1 | NAME OF REPORTING PERSON S.S. OR I.R.S. IDENTIFICATION NO. OF ABOVE PERSON Neptune Technologies & Biouressources Inc. |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input type="checkbox"/> |
| 3 | SEC USE ONLY |
| 4 | SOURCE OF FUNDS (See instructions) WC |
| 5 | CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e) <input type="checkbox"/> |
| 6 | CITIZENSHIP OR PLACE OF ORGANIZATION Quebec, Canada |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | |
| | 7 SOLE VOTING POWER 52,534,683 |
| | 8 SHARED VOTING POWER 0 |
| | 9 SOLE DISPOSITIVE POWER 52,534,683 |
| | 10 SHARED DISPOSITIVE POWER 0 |
| 11 | AGGREGATE AMOUNT OF BENEFICIALLY OWNED BY EACH REPORTING PERSON 52,534,683 |
| 12 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> |
| 13 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 50.5%¹ |
| 14 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) CO |

¹ This calculation is based on 103,986,388 common shares, no par value, of Acasti Pharma Inc. (the "Issuer") outstanding as of December 3, 2013 reported in the Issuer's Final Prospectus Supplement, dated November 27, 2013 to be outstanding immediately after the Issuer's offering of Units (including the exercise of the over-allotment option in full).

Item 1. Security and Issuer

This statement (the “Statement”) relates to the common shares, no par value (“Common Shares”), of Acasti Pharma Inc., a corporation incorporated in Québec, Canada whose principal executive offices are located at 545 Promenade du Centropolis, Suite 100, Laval, Québec H7T 0A3 (the “Issuer”).

Item 2. Identity and Background

(a) – (c)

The person filing this Statement is Neptune Technologies and Bioressources Inc., a corporation organized under the laws of Quebec, Canada (the “Reporting Person”).

The Reporting Person is a biotechnology company engaged primarily in the development, manufacture and commercialization of marine-derived omega-3 polyunsaturated fatty acids.

The Reporting Person’s principal business and principal office address is 545 Promenade du Centropolis, Suite 100, Laval, Québec H7T 0A3.

(d) – (f)

Schedule A attached to this Statement and incorporated herein by reference provides the requested information with respect to each executive officer and director, as applicable, of the Reporting Person (“Schedule A Persons”).

During the last five years, neither the Reporting Person nor any of the Schedule A Persons (to the knowledge of the Reporting Person) has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

During the last five years, neither the Reporting Person nor any of the Schedule A Persons (to the knowledge of the Reporting Person) has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and, as a result of such proceeding, is or was subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration

On December 3, 2013, in connection with the US\$23.0 million underwritten public offering (the "Offering") of units ("Units") of the Issuer, the Reporting Person acquired 592,500 Units at a price of US\$1.25 per unit, for a total consideration of US\$740,625. Each Unit consists of one Common Share and one Common Share purchase warrant ("Warrant") of the Issuer. Each Warrant entitles the holder to purchase one Common Share ("Warrant Share") at an exercise price of US\$1.50 per Warrant Share, subject to adjustment, at any time until December 3, 2018. The Reporting Person used working capital in the amount of \$740,625 to pay for the Units.

On December 4, 2012, the Reporting Person entered into a prepayment agreement with the Issuer pursuant to which the Issuer exercised its option under an exclusive technology license agreement between the parties to pay in advance all of the future royalties payable by the Issuer to the Reporting Person under such license agreement. The value of the prepayment, determined with the assistance of outside valuations specialists, using the pre-established formula set forth in the license agreement, was determined to be approximately Cdn\$15,500,000, which was settled by the Issuer through the issuance of 6,750,000 Common Shares, based upon a price of Cdn\$2.30 per Common Share, upon the exercise of a warrant delivered to the Reporting Person. On July 12, 2013, the warrant was exercised on a cashless basis and the Issuer issued 6,750,000 Common Shares to the Reporting Person.

Item 4. Purpose of Transaction

The Common Shares and Units of the Issuer were acquired by the Reporting Person for investment purposes only. The Reporting Person intends to review its investment in the Issuer on a continuing basis. Depending upon various factors, including, but not limited to, the Issuer's financial position and strategic direction, actions taken by the board of directors of the Issuer, price levels of the Common Shares, other investment opportunities available to the Reporting Person, conditions in the capital markets and general economic and industry conditions, the Reporting Person may, in the future, make a plan or proposal to the Issuer concerning one or more of the actions described in subsections (a) through (j) of Item 4 of Schedule 13D. From time to time and at any time, the Reporting Person may (i) acquire additional Common Shares in the open market, in private transactions or otherwise, (ii) dispose of Common Shares in private transactions or otherwise, (iii) engage in any hedging or similar transactions with respect to the Common Shares and/or (iv) otherwise change their intention with respect to any and all matters referred to in Item 4 of Schedule 13D.

Item 5. Interest in Securities of the Issuer

(a) The Reporting Person may be deemed to beneficially own 52,534,683 Common Shares, representing approximately 50.5% of the Issuer's outstanding Common Shares, which includes 592,500 Warrants that are exercisable at any time into 592,500 Warrant Shares at an exercise price of US\$1.50 per Warrant Share. The foregoing percentage was calculated in accordance with Rule 13d-3(d)(1) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), which specifically excludes from such calculations all shares which underlie options, warrants, rights or conversion privileges and which are beneficially owned by any person other than a Reporting Person and is based upon the 103,986,388 Common Shares the Issuer reported to be outstanding as of December 3, 2013 in the Issuer's Final Prospectus Supplement, dated November 27, 2013 immediately after the Issuer's Offering of Units (including the exercise of the over-allotment option in full).

(b) The Reporting Person has sole voting power and sole dispositive power with regard to the Common Shares.

(c) On December 3, 2013, in connection with the Offering of Units of the Issuer, the Reporting Person acquired 592,500 Units at a price of US\$1.25 per unit, for a total consideration of US\$740,625. Each Unit consists of one Common Share and one Warrant of the Issuer. Each Warrant entitles the holder to purchase one Warrant Share at an exercise price of US\$1.50 per Warrant Share, subject to adjustment, at any time until December 3, 2018.

(d) Not applicable.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

The Reporting Person has granted a total of 7,288,750 call-options to purchase Common Shares that the Reporting Person holds in the Issuer to certain employees, members of management and directors of the Reporting Person (the "Call Options"), as described below. 2,175,000 Call Options were granted on December 3, 2012 at an exercise price of Cdn\$2.75 per Common Share (the "December Call Options"), partially offsetting their salary reductions. 1,975,000 Call Options were granted on June 27, 2013 at an exercise price of Cdn\$3.00 per Common Share (the "June Call Options") as long-term retention incentives for management and key employees. The December Call Options and June Call Options vest gradually over a period of two years and are subject to the employees' continued service. The June Call Options are subject to non-market performance conditions, which primarily relate to certain performance goals of the Issuer, as well as each holder's individual performance. 3,153,750 Call Options were granted on October 1, 2013 (the "October Call Options") to certain employees, officers and directors of the Reporting Person and each October Call Option entitles its holder to purchase one Common Share from the Reporting Person at an exercise price between Cdn\$0.25 and Cdn\$0.50 per Common Share prior to October 1, 2017. There are no vesting conditions that apply to the October Call Options.

The number of Call Options awarded to each director and executive officer of the Reporting Person is set forth on Schedule A hereto. Other than as described in this Statement, the Reporting Person has no contract, arrangement, understanding or relationship (legal or otherwise) between the Reporting Person and any other person with respect to any securities of the Issuer.

Item 7. Material to be Filed as Exhibits

None.

SIGNATURES

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this Statement is true, complete and correct.

Dated: December 17, 2013

NEPTUNE TECHNOLOGIES & BIORESSOURCES INC.

By: /s/ André Godin
Name: André Godin
Title: President and Chief Financial Officer

**DIRECTORS AND EXECUTIVE OFFICERS
OF THE REPORTING PERSONS**

The following sets forth the name, position, principal occupation and citizenship of each director and executive officer of the Reporting Person. The business address of each director and executive officer is c/o Neptune Technologies & Bioressources Inc., 545 Promenade du Centropolis, Suite 100, Laval, Québec H7T 0A3. To the best of the Reporting Person's knowledge, except as set forth below, none of the directors or executive officers of the Reporting Person own any Common Shares.

NEPTUNE TECHNOLOGIES & BIOURESSOURCES INC.

| <u>Name</u> | <u>Position</u> | <u>Principal Occupation</u> | <u>Citizenship</u> | <u># of Acasti Shares Owned</u> | <u># of Call Options</u> |
|----------------------|--------------------------------------|---|---------------------------|--|-------------------------------------|
| Mr. Henri Harland | Chief Executive Officer and Director | President and Chief Executive Officer of Neptune Technologies & Bioressources Inc. and Acasti Pharma Inc. | Canadian | 911,750 | 2,023,013 |
| Mr. Ronald Denis | Director | Chief of Surgery at Sacré-Coeur Hospital in Montréal | Canadian | 52,500 | 157,500 |
| Mr. Valier Boivin | Director | President of VMCAP Inc. | Canadian | 0 | 75,000 |
| Mr. Daniel Perry | Director | President/Manager Société ADG | Canadian | 10,833 | 150,000 |
| Mr. Harlan W. Waksal | Director | Vice-President, Business and Scientific Affairs at Acasti Pharma Inc. | United States | 751,200 | 425,000 |
| Mr. Andre Godin | Chief Financial Officer | Chief Financial Officer of Neptune Technologies & Bioressources Inc. | Canadian | 300,514 | 965,514 |
| Ms. Tina Sampalis | Chief Global Strategy Officer | Chief Global Strategy Officer of Neptune Technologies & Bioressources Inc. | Canadian | 475,965 | 1,229,117 |