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

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of August 2013.

Commission File Number: **001-35776**

Acasti Pharma Inc.
(Translation of registrant's name into English)

545 PROMENADE DU CENTROPOLIS, SUITE 100
LAVAL QUEBEC H7T 0A3
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.
Form 20-F [ ] Form 40-F [x]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ___

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ___

Note: Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's "home country"), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

On August 13, 2013 the Registrant issued a press release, a copy of which is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

(c) Exhibit 99.1. Press release dated August 13, 2013

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Acasti Pharma Inc.
(Registrant)

Date: August 13, 2013

/s/ HENRI HARLAND
Henri Harland
CEO

Acasti Announces Positive Phase II Open Label Clinical Trial Results

LAVAL, Quebec, Aug. 13, 2013 (GLOBE NEWSWIRE) -- Acasti Pharma ("Acasti" or the "Corporation") (Nasdaq:ACST) (TSX-V:APO), a Neptune Technologies & Bioressources Inc.'s ("Neptune") subsidiary, announces positive results for its Phase II "randomized, open-label, dose-ranging, multi-center trial" designed to assess the safety and efficacy of its investigational new drug candidate CaPre® in the treatment of mild to severe hypertriglyceridemia.

CaPre® was found to be safe and effective with significant mean triglyceride reductions above 20% after 8 weeks of treatment with both daily doses of 4g and 2g.

Trial Highlights

- Primary objective was met: CaPre was shown to be safe and effective
- Statistically significant reduction in triglycerides: achieved greater than 20% reductions
- Efficacy of CaPre® increases from 4 to 8 weeks
- CaPre® efficacy at all doses facilitates dose adjustment for better patient management, providing potential advantage over other competitive omega-3 drugs
- Statistically significant HDL increase
- Reductions in LDL and non-HDL

The primary objective of the study was to evaluate the safety and efficacy of CaPre® at different doses over a 4-week treatment period in patients with mild to severe hypertriglyceridemia as compared to Standard of Care alone. Standard of Care could be any treatment physicians considered appropriate in a real-life clinical setting and included lifestyle modifications as well as lipid modifying agents, such as statins, ezetimibe and fibrates. Demographics and baseline characteristics of the patient population were balanced in terms of age, race and gender. Over 230 patients completed the 8 weeks treatment, which exceeded the targeted number of evaluable patients. From this patient population, 88% had mild to moderate baseline triglycerides between 200 and 500mg/dL (2.28 to 5.7 mmol/L).

The study met its primary objective showing CaPre® to be safe and effective in reducing triglycerides in patients with mild to severe hypertriglyceridemia. After only a 4-week treatment, CaPre® achieved a statistically significant triglyceride reduction as compared to Standard of Care. Patients treated with 4g of CaPre® a day over 4 weeks reached a mean triglyceride decrease of 15.5% from baseline and an absolute mean improvement of 18.1% as compared to Standard of Care.

Results also showed increased benefits after 8 weeks of treatment, with patients on a daily dose of 4g of CaPre®, registering a mean triglyceride decrease of 21.6% and an absolute mean improvement of 14.3% as compared to Standard of Care, in which, due to lipid lowering medication adjustment, a significant improvement in triglyceride levels was observed during the trial between 4 weeks and 8 weeks.

No serious adverse events were reported, indicating that CaPre® is safe and tolerable at all doses tested. Furthermore, data revealed a positive risk/benefit ratio for CaPre®, with patients on CaPre ® showing a lower incidence of adverse events compared to the Standard of Care group.

In addition, after doubling the daily dosage of CaPre® from 4 to 8 weeks, the results indicate a dose response relationship revealing a maintained and improved efficacy of CaPre® after an 8-week period. The efficacy of CaPre® at all doses and increased effect with dose escalation suggests that CaPre® may be titratable, allowing physicians to adjust dosage in order to better manage patients' medical needs.

After 8 weeks of treatment, patients under a daily dose of 4g of CaPre® had a mean LDL decrease of 8.3% and non-HDL decrease of 14.3%, while lower doses did not show deleterious effect on LDL or non-HDL. Moreover there was, after a 4 week treatment, a statistically significant HDL increase of 11.1% between the Standard of Care and the 4.0g CaPre® treatment groups.

"Our investigational new drug CaPre® is showing significant statistical and clinical benefits in treating mild to moderate hypertriglyceridemia patients. This harder-to-treat population represents over 40 million people in the U.S.A, for which no Omega-3 prescription drug has yet been approved by the U.S. Food and Drug Administration (FDA). These results can also indicate that CaPre® could be as efficient, if not even more successful, in treating patients with

baseline triglycerides above 500mg/dL," highlighted Dr. Harlan W. Waksal, M.D., Executive Vice President, Business and Scientific Affairs at Acasti. "We also foresee that CaPre® could become a multi-faceted drug, whereby medical practitioners would tailor the dosage levels to a patient's need and use it separately or in combination with statin therapy," added Dr. Waksal.

About Acasti Pharma Inc.

Acasti is developing a product portfolio of proprietary novel long-chain omega-3 phospholipids. Phospholipids are the major component of cell membranes and are essential for all vital cell processes. They are one of the principal constituents of High Density Lipoprotein (good cholesterol) and, as such, play an important role in modulating cholesterol efflux. Acasti's proprietary novel phospholipids carry and functionalize the polyunsaturated omega-3 fatty acids EPA and DHA, which have been shown to have substantial health benefits and which are stabilized by potent antioxidants. Acasti is focusing initially on treatments for chronic cardiovascular and cardiometabolic conditions within the medical food and prescription drug markets.

"Neither NASDAQ nor the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release."

Statements in this press release that are not statements of historical or current fact constitute "forward-looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and Canadian securities laws. Such forward-looking statements involve known and unknown risks, uncertainties, and other unknown factors that could cause the actual results of the Corporation to be materially different from historical results or from any future results expressed or implied by such forward-looking statements. In addition to statements which explicitly describe such risks and uncertainties, readers are urged to consider statements labeled with the terms "believes," "belief," "expects," "intends," "anticipates," "will," or "plans" to be uncertain and forward-looking. The forward-looking statements contained herein are also subject generally to other risks and uncertainties that are described from time to time in the Corporation's reports filed with the Securities and Exchange Commission and the Canadian securities commissions.

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