



DIVISION OF
CORPORATION FINANCE

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

March 21, 2014

Via E-mail

Mr. Mark Selawski
Chief Financial Officer
AtheroNova, Inc.
2301 Dupont Drive, Suite 525
Irvine, California 92612

**Re: AtheroNova, Inc.
Preliminary Proxy Statement on Schedule 14A
Filed on March 14, 2014
File No. 000-52315**

Dear Mr. Selawski:

We have limited our review of your preliminary proxy statement to the issue we have addressed in our comment. Please respond to this letter by revising the proxy statement. Where you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to our comment, we may have additional comments.

1. We note that the reverse stock split discussed in Proposal 2 will result in an increase to the number of authorized but unissued shares available under your Amended and Restated Certificate of Incorporation. Please revise your disclosure to describe any specific plans, arrangements or understandings, whether written or oral, to issue any of the shares that will be newly available following the reverse stock split. If you have no such plans, arrangement or understandings, please revise your disclosure to so state.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comment, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;

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- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Johnny Gharib at (202) 551-3170, Bryan Pitko at (202) 551-3203 or me at (202) 551-3715 with any questions.

Sincerely,

/s/ Bryan J. Pitko for

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Michael Lawhead, Esq.
Stradling Yocca Carlson & Rauth, P.C.