

Mail Stop 6010

October 15, 2008

VIA U.S. MAIL AND FAX (206) 902-2019

Mr. Raymond N. Calvert
Vice President, Finance, Chief Financial Officer and Secretary
Northstar Neuroscience, Inc.
2401 Fourth Avenue, Suite 300
Seattle, Washington 98121

**Re: Northstar Neuroscience, Inc.
Form 10-K for the year ended December 31, 2007
Filed March 17, 2008
File No. 001-34078**

Dear Mr. Calvert:

We have reviewed your filings and have the following comment. We have limited our review to only your financial statements and related disclosures and do not intend to expand our review to other portions of your documents. Where indicated, we think you should revise future filings in response to this comment. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the Year Ended December 31, 2007

Financial Statements, page F-1

Note 8. Net Loss Per Common Share, page F-21

1. We note your use of non-GAAP pro forma net loss per share applicable to common shareholders in the footnotes to the financial statements. Please tell us the authoritative literature that you believe requires or permits these disclosures. Specifically tell us how your disclosure is permitted by Item 10(e)(1) of Regulation S-K.

Exhibit 31

2. We note that the identification of the certifying individual at the beginning of the certification required by Exchange Act Rule 13a-14(a) or Rule 15d-14(a) also includes the title of the certifying individual. In future filings, the identification of the certifying individual at the beginning of the certification should be revised so as not to include the individual's title.

As appropriate, please respond to this comment within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter that keys your response to our comment and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your response to our comment.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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 connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that:

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

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Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Julie Sherman, Staff Accountant, at (202) 551-3640 or me at (202) 551-3603 if you have any questions regarding these comments. In this regard, do not hesitate to contact Angela Crane, Accounting Branch Chief, at (202) 551-3554.

Sincerely,

Jay Webb
Reviewing Accountant