

Mail Stop 6010

December 26, 2006

Timothy R. Surgenor
Chief Executive Officer
Cyberkinetics Neurotechnology Systems, Inc.
100 Foxborough Blvd., Suite 240
Foxborough, MA 02035

**Re: Cyberkinetics Neurotechnology Systems, Inc.
Registration Statement on Form SB-2
Filed December 1, 2006
File No. 333-139081**

Dear Mr. Surgenor:

We have limited our review of your filing to those issues we have addressed in our comments. Where indicated, we think you should revise your document in response to these comments. 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.

General

1. It appears that you intend your registration statement to cover the resale of securities that are being offered by affiliates in large amounts. Generally, we view resale transactions by related parties of this amount as an offering "by or on behalf of the issuer" for purposes of Rule 415(a)(4) of Regulation C. Under that rule, "equity securities" offered by or on behalf of the registrant cannot be sold as an "at the market offering" unless the offering comes within paragraph (a)(1)(x) of Rule 415. Your offering does not appear to meet that requirement. As such:

- Please revise your registration statement to price the common stock offered for resale by affiliates and disclose that those parties will conduct their offering at the fixed price for the duration of their offering. The prospectus should make clear that those persons are underwriters of the securities they are offering; and
- Because the offering of the shares of common stock underlying the warrants may not be done on a delayed or continuous basis under Rule 415(a)(1)(x), you may not file a resale registration statement related to the offering of those shares until the selling shareholders have acquired those shares. At that time, you may register the resale transaction if the offering is registered on a form on which you are eligible to register the transaction as a primary offering, the investors are identified as selling shareholders and as underwriters and you include the price at which the underwriters will sell the securities.

Form 10-KSB for the Year Ended December 31, 2005

Consolidated Financial Statements

Note 2. Summary of Significant Accounting Policies, page 44

Revenue Recognition and Accounts Receivable, page 46

2. We reference your disclosure that product sales do not contain multiple elements. However, we note your disclosure on page 3 that you intend to generate revenues through the sale of the NeuroPort data acquisition hardware and the sale of the disposable sensors. We also note that you sold one NeuroPort system during 2005. Please tell us how you will account for sales of the hardware and disposable sensors.
3. We presume that software is a significant component of your products. Please tell us how you considered the applicability of SOP 97-2 to your revenue policies.

Form 10-Q for the quarterly period ended September 30, 2006

Condensed Consolidated Financial Statements

Note 10. Acquisition of Andara Life Science, Inc., page 13

4. Please tell us and revise future filings to disclose how you determined the value of common stock issued to acquire Andara.
5. For the IPR&D charge in the acquisition of Andara please disclose the following in MD&A in future filings:

- A description of the nature of projects acquired;
- A summary of values assigned to IPR&D by technology / project;
- A description of the status of development at the acquisition date and the complexity or uniqueness of the work completed at the acquisition date;
- A description of the nature and timing of remaining efforts for completion, including estimated completion date and the extent of effort necessary to complete the in-process project(s), including costs;
- The risks and uncertainties associated with completing development within a reasonable period of time;
- The risks involved if the IPR&D is not completed on a timely basis; and,
- How periods subsequent to the acquisition have been affected by completion of the project and introduction of the technology, including discussion about the impact of any delays.

* * * * *

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

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 Act of 1933 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the 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 connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Kristin Lochhead at (202) 551-3664 or Brian Cascio at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. You may contact Tim Buchmiller at (202) 551-3635 or me at (202) 551-Peggy Fisher with any other questions.

Sincerely,

Peggy A. Fisher
Assistant Director

cc: Michael A. Hickey, Esq. (via fax)
John C. Cushing, Esq. (via fax)