UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-3030

DIVISION OF
CORPORATION FINANCE
Mail Stop 6010

May 21, 2009

*Via facsimile and U.S. mail*

Howard G. Ervin, Esq.
Vice President, Legal Affairs
Cerus Corporation
2411 Stanwell Drive
Concord, California 94520

**Re: Cerus Corporation**
**Annual Report on Form 10-K**
**for the fiscal year ended December 31, 2008**
**Filed March 13, 2009**
**File No. 000-21937**

Dear Mr. Ervin:

We have reviewed your filing and have the following 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.

Item 1. Business

Background, page 2

1. We note that the only disclosure in your filing regarding how your products work is that the "INTERCEPT Blood System is based on [y]our proprietary technology for controlling biological replication." We further understand from your website page, "How INTERCEPT Works," that your systems for treating platelets and plasma are based on your "proprietary Helinx technology for pathogen inactivation." From your website it appears that a small molecule, amotosalen, with respect to treating plasma and platelets, acts by blocking the replication of pathogens by cross-linking their DNA and RNA double helixes, to the extent double-stranded RNA occurs in helical form. With a view towards revised disclosure, so that your investors may better understand how your products work and may better understand the advantages, and potential disadvantages, of your systems, please respond to the following:

   - We note that most biologically active forms of RNA are single-stranded. Please explain how your cross-linking technology works on pathogens that contain single-stranded RNA. If the amotosalen molecule only cross-links where the single-stranded RNA has folded over on itself, please tell us whether that forms enough cross-links to prevent replication or gene expression;

   - Please tell us how your systems deactivate pathogens with single-stranded RNA when the RNA is wrapped around a protein complex. For example, please tell us how your systems deactivate HIV viruses which contain single-stranded RNA that is wrapped around nucleoplasmid protein complexes;

   - Please tell us whether your systems have been shown to inactivate all of the pathogens that may be present in the donated plasma or platelets. If less than all of the pathogens are inactivated, please explain to us how this affects the storage life of the platelets and plasma treated with your systems;

   - Please indicate whether your systems are capable of removing any of the inactivated pathogens;

   - If any of the inactivated pathogens are not removed, please tell us whether they are passed on to a recipient patient, and, if so, whether antibody tests conducted on the recipient patient would show positive antibody test results from exposure to the inactivated pathogen. For example, please tell us whether a recipient of plasma or platelets treated with your systems would test positive to exposure to HIV, HBV or HCV, or any other pathogens, including bacterial pathogens, etc., using an antibody test even though those pathogens

had been inactivated in terms of replication or gene expression. If any patients were to show antibody activity towards any pathogen your systems target, please explain whether they would be warned of that risk prior to receiving plasma or platelets treated by your systems and tell us if there would be any additional expenses incurred to rule out active infection versus benign exposure after transfusion or in the future. Also, tell us whether positive antibody results for any pathogen could complicate diagnosis or make diagnosis more expensive by requiring additional tests;

- In addition, if any of the inactivated pathogens are transfused into a recipient patient, please tell us whether the inactivated pathogens, in particular inactivated bacteria, could trigger an inflammatory response in the recipient patient, or if any of the components (e.g., components of the cell walls) of the inactivated pathogens contain endotoxins such as lipoteichoic acid, lipopolysaccharide or lipo-oligo-saccharide, etc., that could cause adverse side-effects in recipient patients. If there are possible side-effects, please tell us how your products compare to those of your competitors in this regard;

- Please tell us whether amotosalen is a proprietary molecule and, if so, how it is protected;

- Please tell us if all of the amotosalen that has been used to treat the platelets and plasma using your systems is removed prior to transfusion to recipient patients. If all of the amotosalen is not removed, please tell us whether there are any potential adverse side-effects to the patient from exposure to the amotosalen. We also understand from your website that the cross-links are formed after exposure to UVA illumination, if amotosalen is passed on to recipients, please tell us whether exposure to UVA or any other form of radiation would trigger the formation of cross-links anywhere in a recipient or only if exposure to the UVA, as generated by your systems, would form the cross-links. Please also tell us whether amotosalen can be metabolized by the recipient patient and how long that process takes; and

- We note from your disclosure in other portions of your filing that your systems do not inactivate prions. Please tell us whether the products of your competitors have the ability to screen for or inactivate prions.

Customers, page 8

2. We note your disclosure on page 81 that you had three customers who individually accounted for 33%, 14% and 10% of your product revenue in fiscal year 2008. In your applicable future filings, please disclose the names of these three customers in accordance with Item 101(c)(1)(vii) of Regulation S-K.

Exhibits

3. We note your disclosure on page 4 concerning your June 2004 and June 2005 definitive agreements with BioOne and your cooperative agreements with the Department of Defense. We also note that you have received significant payments under these contracts. Please tell us where you have filed these agreements. If you have not filed them to date, please do so in your next applicable Exchange Act filing, or explain to us why they are not material. Please refer to Item 601(b)(10) of Regulation S-K.

4. We note your disclosure that you entered into a senior secured revolving credit facility with Wells Fargo Bank which allows you to borrow up to $10.0 million to be used for working capital and general operating needs. Please file the agreement or explain to us why you believe that this facility is not material. Please refer to Item 601(b)(10) of Regulation S-K.

Please respond to these comments within 10 business days or tell us when you will provide us with a response. Please understand that we may have additional comments after reviewing your 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 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 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 Joe McCann, Staff Attorney, at (202) 551-6262, or me, at (202) 551-3635, with any questions.

Sincerely,

Tim Buchmiller
Senior Attorney