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

DIVISION OF
CORPORATION FINANCE
Mail Stop 3030

July 17, 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 letter dated July 15, 2009 and have the following comments. Where indicated, we think you should revise your document in future filings in response to our comments. If you disagree, we will consider your explanation as to why our comments are 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.

1. We have reviewed your response to comment 2 in your letter dated July 15, 2009. We note from the website page www.interceptbloodsystems.com/plt_viruses.html that "[o]f the viruses tested to date, only HAV and PPV were resistant to inactivation" using the INTERCEPT Blood System. If that information is correct, please provide us with a response that details your understanding of why your system is unable to inactivate those viruses since it is unclear to us, based on the scientific principles you have described in your prior responses and current disclosure, why such pathogens would not be inactivated by your system. Also, please tell us which virus PPV refers to and if that virus is being used as a model for another virus (if so, please tell us which virus). At a minimum, if it is known that your system is incapable of inactivating any relevant pathogens, your future filings should specifically identify those pathogens, include appropriate risk factor

disclosure, and your claims regarding your system's efficacy in terms of inactivation of known, and unknown, pathogens should be sufficiently balanced with specific disclosure. In addition, please disclose under "Competition" in your future filings any disadvantages of your systems, as compared to products of your competitors, if your systems are incapable of inactivating any known pathogens. For example, please clarify why market participants would accept your product over the products of your competitors if the transfusion products treated by your systems may contain active forms of known pathogens such as HAV.

2. We note the portion of your response to comment 2 that you have seen no evidence that helicases can break the covalent bond of the psoralen-nucleic acid crosslink and that the psoralen-nucleic acid adducts and crosslinks have been shown to be capable of inhibiting the activity of enzymes that are required for pathogen replication or activity. While we understand that covalent bonds, such as those formed by the psoralen-nucleic acid adducts and cross-links, will have a higher bond energy than hydrogen bonds, we also note from the website page www.interceptbloodsystem.com/blood_safety_leukocytes.html that the INTERCEPT Blood System only introduces one nucleic acid crosslink at approximately every 83 to 89 base pairs. Given that, *in vivo*, helicase, DNA and RNA polymerases and reverse transcriptase operate at very high velocities and are powered by the energy released from ATP hydrolysis, please clarify for us what evidence you have that demonstrates that the periodic psoralen-nucleic acid adducts and crosslinks introduced by your system have a high enough bond energy to prevent breakage of the adduct or crosslink by helicase, DNA and RNA polymerases or reverse transcriptase, as applicable, *in vivo* given the force of each respective molecule in addition to the energy provided by the ATP hydrolysis. Given this and the other factors noted in the comment immediately above, please advise us how you can make any claims regarding the efficacy of your system against any pathogen until such time as efficacy tests are conducted *in vivo* with respect to such pathogen. In this regard, please provide us with an updated list which clearly shows which pathogens have been treated using your system and tested *in vivo* or *in vitro*, and the results of those studies.

3. We also note from your response to prior comment 2 that "[e]fficacy results of the inactivation of certain pathogens in *in vitro* testing cannot be directly compared with efficacy results of inactivation of different pathogens *in vivo* testing [emphasis added]." One of the purposes of our prior comment was to have you provide us with information as to whether there are any reasons to believe that the efficacy results from any *in vivo* studies you conduct would show different efficacy results as compared to the results from your *in vitro* efficacy studies for the same pathogen. For example, please tell us if there are any reasons to believe that even if your system was shown to be efficacious in inactivating HIV *in vitro*, that the same efficacy results would not be obtained when conducting those tests *in vivo*.

4. We note the results of the non-clinical studies presented at www.interceptbloodsystems.com/plt_viruses.html. Although it appears from those results that the extent of the inactivation of the pathogens listed is significant, please clarify for us whether your system completely inactivates all of the pathogens on the list or whether the system only reduces the activity level of the listed pathogens below the limit of detection of the applicable assay, as indicated in the first footnote to the table. Even if your systems are capable of reducing the activity of the pathogens below the limit of detection of the assay, please explain to us how you can determine that a sufficient quantity of pathogens are not still present in active form that would present a risk of infection to the transfused patient.

5. We also note that the presented studies on the webpage referred to in the prior comment only indicate the results for one strain of HBV and HCV. With a view towards revised disclosure, please tell us whether you have any studies which demonstrate that your systems are capable of sufficiently inactivating all strains of HBV and HCV that are present in or relevant to the markets in which you sell, or intend to sell, your systems.

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

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