

Mail Stop 6010

November 3, 2006

Neil H. Riordan
Medistem Laboratories, Inc.
2027 East Cedar Street, Suite 102
Tempe, Arizona 85281

**Re: Medistem Laboratories, Inc.
Amendment No. 1 to the Registration Statement on Form SB-2
Filed November 2, 2006
File Number 333-137493**

Dear Mr. Riordan:

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.

Calculation of Registration Fee Table

1. In our previous comment, we noted that your Calculation of Registration Fee table included 15,428,574 shares that you were registering, but had noted your disclosure that such shares had not been acquired. We asked you to include such shares in your Selling Shareholders table. Please revise your Calculation of Registration Fee table and your Selling Shareholders table, if necessary, to indicate how the 15,428,574 shares will be acquired by the shareholder. For example, may such shares be acquired pursuant to a stock option or convertible debenture? If these shares are not yet outstanding, please remove the resale portion of these shares from your registration statement as you cannot register the resale of shares that are not currently outstanding.

Selling Stockholders, page 12

2. We note you have revised your table in response to our one comment we issued in a letter dated September 27, 2006. The table indicates that the total amount being sold by shareholders amounts to 52,642,813. However, it does not appear the column entitled "Number of Shares to be Offered" totals that amount. Please explain the discrepancy or revise the document accordingly.

3. Additionally, we note the amount to be sold by Joe Paoli. The table indicates that before the offering he beneficially owns 128,571 shares yet the number of shares he intends to sell is 200,000. If the remaining shares are to be acquired pursuant to an option, warrant, debenture or another instrument, please state so in a footnote and also disclose when he may do so.

* * *

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 supplemental information. Detailed cover letters greatly facilitate our review. Please furnish your letter to us via EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

Please contact Song P. Brandon at (202) 551-3621 or me at (202) 551-3710 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Gregory R. Hall, Esq.
Squire, Sanders & Dempsey LLP
Two Renaissance Square
40 North Central Avenue, Suite 2700
Phoenix, Arizona 85004-4498