

Bronchoalveolar Lavage Trap

Group 17

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Team: Laura Zeitler (Team Leader)

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Problem Statement:

In order to diagnose respiratory problems in immunosuppressed patients, bronchoalveolar lavage is used to obtain a bronchiole fluid sample. A bronchoscope is guided through the respiratory tract and wedged into a bronchiole, which is then flushed with saline solution. The solution is then extracted with a vacuum and accumulates in the sterile collection trap. In the current procedural setup, the lavage trap is free-hanging and unstable. Manipulation of the bronchoscope and surrounding movement can displace the trap resulting in loss of sample to the vacuum line. To prevent unnecessary expense and patient inconvenience from sample loss, a new trap needs to be developed.

Last Week's Goals

- Meet with polymer lab TA, determine if we can fabricate at least a testable prototype on the lab
- Find a device to measure pressure of vacuum in hospital
- Research into materials, using calculations or trial and error to determine necessary weight of ball in cage.
- Finish mid-semester paper

Summary of Accomplishments

- Finished mid-semester paper
- Met with polymer lab, their facilities will probably not be an option for us due to expense

This Week's Goals

- Find materials to create a testable prototype-McMaster, Menards?
- Find a device to measure pressure of vacuum in hospital
- Find necessary weight of ball

Project Difficulties

We are unsure of whether we should find the necessary weight of the ball using trial and error and a vacuum source or if there is a calculation we can use to find the right density if we know the exact range of vacuum pressure. Either way, we need to create a prototype to hook up to the vacuum source to test this, and since that requires fabrication and materials we do not have yet, we are hoping to get some help from the polymer lab.

We thought that the polymer lab would be a feasible prototyping route, but it seems to be too costly for us to consider at this point. The mold alone for the outside cylinder of our design would cost over \$2000. We are now looking into our other fabrication and material options.

Activities

| Collaboration Group Activities | | |
|--------------------------------|---------------------|----------|
| Date | Activity | Duration |
| 3/6/09 | Group Presentations | 2 hours |

| Team Member | Date | Activity | Duration |
|---------------|-----------|----------------------------------------------|---------------------|
| Ali Johnson | 3/5/2009 | Individual presentation preparation | 1 hour |
| | 3/6/2009 | Midsemester Paper | 4 hour |
| | 3/7/2009 | Editing/Formatting midsemester paper | 1 hour |
| | 3/10/2009 | Editing/Formatting midsemester paper/website | 1 hour |
| Kim Kamer | 3/6/2009 | Midsemester Paper | 4 hour |
| | 3/7/2009 | Midsemester Paper | 45 minutes |
| | 3/9/2009 | Midsemester Paper | 45 minutes |
| | 3/10/2009 | Midsemester Paper | 1 hour |
| Elise Larson | 3/5/2009 | Report, PPT Image/Citation | 1 hour |
| | 3/6/2009 | Midsemester Paper (Analysis, Citations) | 2 hours |
| | 3/7/2009 | Midsemester Paper | 30 minutes |
| | 3/10/2009 | Edit Midsemester Paper | 2 hours, 15 minutes |
| | 3/10/2009 | Midsemester Paper | 25 minutes |
| Laura Zeitler | 3/7/2009 | Edititing midsemester paper | 1 hour |
| | 3/10/2009 | Polymer Lab Meeting | 40 minutes |
| | 3/12/2009 | Progress Report | 20 minutes |

Expenses

| Date | Item | Cost | Comments |
|------|------|------|-----------------|
| N/A | N/A | 0.00 | No Expenses Yet |

