

Progress Report 2: February 2 to February 8, 2007

MALDI-MSI Tissue Coating Device

Client: Dr. Amy Harms, Ph.D., Biotechnology Center

Advisor: Professor Brenda Ogle, Biomedical Engineering

Team Members: Laura Piechura (Leader)

Kellen Sheedy (Communicator)

Holly Liske (BWIG)

Jenna Spaeth (BSAC)

Problem Statement

Matrix-assisted laser desorption/ionization mass spectrometric imaging (MALDI-MSI) is an imaging method that allows for label-free spatial analysis of biological tissue samples. This technology can be used to identify and quantify proteins, monitor protein biomarkers, and sequence polypeptide chains, techniques that can be applied to proteomic analysis of disease formation. However, sample preparation methods, especially with regard to the application of the matrix tissue coating, are difficult to control but require accuracy and precision. A device must be developed to apply a fine, uniform coating of light-absorbing compounds in order to simplify the sample preparation process. The goal is to provide a reliable tool to enhance the MALDI-MSI technique in order to speed and simplify potentially life-saving research.

Last Week's Goals

- Meet Friday, February 2, 12:00 in Engineering Hall as a group, then with Dr. Harms at 12:30
- Take group photo
- Create a preliminary Product Design Specification with information from Dr. Harms
- Begin brainstorming design ideas

Summary of Accomplishments

- We took a group photo in Engineering Hall on Friday, February 2nd, that Holly posted on the team web page along with Progress Report 1.
- We met with our client on Friday, February 2nd, to discuss the project's motivation and her ideal design specifications.
- With the criteria presented by Dr. Harms, we began investigating possible design solutions.
- We met as a team on Wednesday, February 7th, to discuss possible design alternatives and work on the PDS. Each team member was assigned a portion of the report which will be assembled on Friday during class.

The Week's Goals

- Complete the PDS in class on Friday, February 9th, and post it on the team web page.
- As a group, rework the project timeline to include more time for construction and testing now that we know the requirements of the design.
- Continue brainstorming design alternatives and establish a meeting with our client on Friday, February 16th, to discuss our ideas and ensure that we have met her project needs.

