

**Title:** Microencapsulation of tissues and cells for treatment of hormone-related diseases.  
(microencapsulation), Project #4

**Client:** Dr. Craig Atwood

**Faculty Advisor:** Professor William Murphy

**Team Members:** Eric Lee (Team Leader)  
Yik Nong Wong (Jacqueline) (Communicator)  
Miguel Benson (Communicator)  
John Harrison (BSAC)  
Albert Kwansa (BWIG)

**Dates:** 2/17/07~2/23/07, Week 5

**Project Design Statement:** To investigate the effects of thickness, UV radiation exposure, and RGD adhesion molecules on the viability and testosterone production of human prostate cancer cells embedded within polyethylene glycol diacrylate hydrogel. The overall goal of this project is to design an encapsulation system that offers efficient immunoprotection and effective diffusion of oxygen, nutrients, hormones, and metabolic wastes. Conceptually, the stated encapsulation system, along with embedded human prostate cancer cells, will enable the restoration of un-regulated testosterone levels commonly observed in elders, and retard the symptoms of aging.

**Restatement of Previous Team Goals:**

1. Finalize K~12 outreach presentation
2. Finish purification of PEGdA
3. Get trained to maintain cell lines

**Summary of Team Accomplishments:**

1. Finalized K~12 outreach Powerpoint slides, the presentation is tentatively scheduled for Wednesday (3/7/07) at 8:25AM at Madison East high school
2. Lyophilized PEGdA and tested for gel formation with Miguel's UV lamp
  - Hydrogel formed under the UV lamp in Professor Master's lab in 4 minutes
3. Miguel's UV lamp outputs  $3.9\mu\text{W}/\text{cm}^2$  at a range of 1.5~1.75in as measured by the intensity meter in Professor Bebe's lab; the lamp was not able to induce hydrogel formation

**Current Individual Goals:**

- Eric Lee:  
Practice K~12 outreach presentation. Contact Amy to obtain HPLC data on our PEGdA product.
- Jacqueline Wong:  
Practice K~12 outreach presentation. Get trained to maintain cell lines on Monday.

- Miguel Benson:  
Practice K~12 outreach presentation. Contact Madison East high school to confirm Wednesday presentation date.
- John Harrison:  
Practice K~12 outreach presentation. Get trained to maintain cell liens on Monday.
- Albert Kwansa:  
Practice K~12 outreach presentation. Obtain a Team picture and work on the project website

**Summary of Team Goals:**

1. Team meeting to discuss and compile questions for Professor Tim Stiles of Medical physics department on using ultrasound as a measuring method for hydrogel thickness scheduled for Wednesday at 5:30PM
2. Contact client for training and an update on the cell line
3. Mock presentation of K~12 activity scheduled for Friday (3/9/07) after advisor meeting