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: 4/13/07~4/18/07, Week 12

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. Split the cell lines and start testing for cell viability in our system.
2. Meet with Dr. Tim Stile to confirm hydrogel thickness
3. Work on outreach report and final report

Summary of Team Accomplishments:
1. Coated microscope slides with Sigmacote
2. Confirmed pre-swell hydrogel thickness of 220μm, and post swell hydrogel thickness 340μm. The calculated swelling ratio is 1.54, which reassured the swelling ratio value we obtained in previous experiments.

Current Individual Goals:
- Eric Lee:
  Edit the K~12 outreach report. Start writing the final reports. Look into PC3 cell type characteristics
- Jacqueline Wong:
  Work with John and Dr. Tim Stiles to use ultrasound to confirm hydrogel thickness.
- Miguel Benson:
  Contact Adriane (of Dr. Atwood’s lab) on the status of the cell line, and conduct the cell viability and testosterone production experiments of our project.
- John Harrison:
Write the biomaterials section of the outreach report. Work with Jacqueline and Dr. Tim Stiles to use ultrasound to confirm hydrogel thickness.

- Albert Kwansa:
  Conduct cell viability and testosterone production experiments for data collection of our project. Test the gelation of PEGdA with ordered UV light bulbs at Dr. Atwood’s laboratory

**Summary of Team Goals:**
1. Split the cell lines and start testing for cell viability and testosterone production in our system.
2. Confirm the pre/post swell thickness of our hydrogel using ultrasound
3. Finish editing the out-reach report.
4. Start writing various portions of the final report