

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: 3/2/07~3/8/07, Week 7

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. Get HPLC data of our PEGdA product
2. Carry out hydrogel swelling ratio
3. Get trained and an update on the cell line
4. Obtain new bulb for the UV light
5. K~12 outreach activity

Summary of Team Accomplishments:

1. K~12 outreach presentation done at Madison East high school
2. Measured hydrogel equilibrium swelling ratio for PEGdA exposed to various duration of UV radiation
3. Finalized Powerpoint slides for mid-semester presentation

Current Individual Goals:

- Eric Lee:
Write the K~12 outreach report
- Jacqueline Wong:
Get trained to maintain cell lines on Monday. Contact Professor Wally Block to obtain information on possible contrasting agents for using ultrasound method to measure hydrogel thickness.
- Miguel Benson:
Search scholar literature for the bulk modulus of PEGdA (MW12000)

- John Harrison:
Get trained to maintain cell lines on Monday.
- Albert Kwansa:
Find more information on the UV light bulbs to be used in the client's lab.
Update project website

Summary of Team Goals:

6. Get HPLC data of our PEGdA product
7. Get trained and an update on the cell line
8. Obtain new bulb for the UV light
9. Get into contact with professors at Medical Physicals department and work out the details of using ultrasound to measure thickness