

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

Client: Dr. Craig Atwood (GRECC 11G, VA Hospital)

Faculty Advisor: Professor William Murphy (2154 ECB)

Team Members: Albert Kwansa (Team Leader)
John Harrison (Team Communicator)
Yik Ning Wong (Jacqueline) (BSAC Representative)
Eric Lee (BWIG)

Dates: 10/2/06 – 10/8/06, Week 4

Project Design Statement: To design polyethylene glycol diacrylate (PEGDA) hydrogels for the encapsulation of Murine Leydig Tumor Cells in an effort to increase cell viability and testosterone secretion. The PEGDA hydrogels must provide immunoprotection and allow for the effective diffusion of oxygen, nutrients, hormones, and metabolic wastes. The overall goal is to restore the testosterone level of castrated mice via injection or implantation of the PEGDA encapsulated cells.

Restatement of Previous Team Goals:

1. Present individual research to the rest of the team at 10/2 team meeting.
2. Continue to develop problem design statement (PDS).
3. Begin brainstorming design ideas.

Current Individual Goals:

- Albert Kwansa [Team Leader]:
Work on 4th progress report due Sunday, 10/8/06 by 5pm.
Begin collecting and drafting lab protocols for experiments.
- John Harrison [Team Communicator]:
Work with Eric to obtain information about pricing, delivery, and storage of reagents, materials, and kits needed for the proposed experiments.
- Yik Ning Wong (Jacqueline) [BSAC Representative]:
Continue to research components that make up the extracellular matrix (ECM) of leydig cells for possible incorporation in the hydrogel to promote cell adhesion and secretion of hormones (i.e., adhesion molecules).
Also, look into UV exposure time, UV wavelength, and their effects on cell viability.
- Eric Lee [BWIG]:
Work with John to obtain information about pricing, delivery, and storage of reagents, materials, and kits needed for the proposed experiments.

Summary of Team Accomplishments:

1. Established three possible areas to focus on, namely PEGDA hydrogel thickness and its influence on effective diffusion, adhesion peptides to promote cell viability and/or testosterone production, and UV photopolymerization time and intensity and its effects on cell viability.

Summary of Current Team Goals:

1. Present individual research to the rest of the team at 10/8 team meeting.
2. Development of a proposal to submit to our client including specific goals for the semester, proposed experiments, and funding requests.

Questions and Concerns:

- The project builder for BWIGs is currently not functioning properly.

Important Notes:

1. The mid-semester presentations have been changed from Fri, 10/20/06 to **Fri, 10/27/06** for BME 400 only.
2. Design notebooks are now due **Wed, 11/1/06**.

Fall Semester Schedule:

Week	Day	Date	Activities	Goals (From BME Design Schedule)
1	M	9/4	Labor Day	
	T	9/5		
	W	9/6		
	R	9/7		
	F	9/8	Take team photo. General research of project topic. Review past reports and presentations.	[Form teams. Select project. Contact client. E-mail team roles to advisor.]
2	M	9/11	Team meeting-1 on Mon, 9/11 at 11 am in ECB. (Develop list of questions for first client meeting)	[Literature search. Meet w/Client.]
	T	9/12		
	W	9/13		
	R	9/14		
	F	9/15	Client meeting-1 on Fri, 9/15 at 12:00 pm in GRECC, VA Hospital.	
3	M	9/18	Advisor meeting-1 on Mon, 9/18 at 4 pm near 2154 ECB.	[Develop understanding of project. Develop PDS.]
	T	9/19		
	W	9/20		
	R	9/21	Team meeting-2 on Thurs, 9/21 at 7:00 pm in ECB.	
	F	9/22		
4	M	9/25	Team meeting-3 on Mon, 9/25 at 2:30 pm in ECB. Advisor meeting-2 on Mon, 9/25 at 3:30 pm near 2154 ECB.	[Brainstorm]
	T	9/26	Team meeting-4 on Tues, 9/26 at 8:15 pm in ECB.	
	W	9/27		
	R	9/28		
	F	9/29	Advisor meeting-3 on Fri, 9/29 at 1:00 pm near 2154 ECB. (Evaluate current direction)	

Week	Day	Date	Activities	Goals
5	M	10/2	Team meeting-5 on Mon, 10/2 at 2:30 pm in ECB. Advisor meeting-4 on Mon, 10/2 at 3:30 pm near 2154 ECB. Team meeting-6 on Sun, 10/8 at 7:00 pm in ECB.	[Design Alternatives]
	T	10/3		
	W	10/4		
	R	10/5		
	F	10/6		
6	M	10/9	Advisor meeting-5 on Mon, 10/9 at 3:30 pm near 2154 ECB. Lecture: [Oral Presentation Guidelines, Peer Review of Report Drafts]	[Work on Mid-Semester Presentation & Report]
	T	10/10		
	W	10/11		
	R	10/12		
	F	10/13		
7	M	10/16	Work on Mid-Semester Presentation	
	T	10/17		
	W	10/18		
	R	10/19		
	F	10/20		
8	M	10/23	[MID-SEMESTER PRESENTATIONS] *NEW (BME 400 Only) Lecture: [Overview of Shop Facilities]	[Decide on Final Design]
	T	10/24		
	W	10/25		
	R	10/26		
	F	10/27		
9	M	10/30	[Design Notebooks Due to Advisor] **NEW	[Work on Design]
	T	10/31		
	W	11/1		
	R	11/2		
	F	11/3		
10	M	11/6	Lecture: [Intellectual Property Lecture]	[Work on Design]
	T	11/7		
	W	11/8		
	R	11/9		
	F	11/10		
11	M	11/13		[Work on Design]
	T	11/14		
	W	11/15		
	R	11/16		
	F	11/17		
12	M	11/20	THANKSGIVING	[Work on Design]
	T	11/21		
	W	11/22		
	R	11/23		
	F	11/24		
13	M	11/27		[Work on Design]
	T	11/28		
	W	11/29		
	R	11/30		
	F	12/1		

Week	Day	Date	Activities	Goals
14	M	12/4	[FINAL POSTER PRESENTATIONS]	[Work on Presentation]
	T	12/5		
	W	12/6		
	R	12/7		
	F	12/8		
15	M	12/11	[Final Report & Design Notebooks Due to Advisor]	[Final Meeting w/Advisor]
	T	12/12		
	W	12/13		
	R	12/14		
	F	12/15		