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# Progress Report

October 31, 2006 – November 7, 2006

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**Team:** Interpenetrating networks for delivery systems

**Team Members:** Ashley Huth- Team Leader  
Max Michalski- BWIG  
Claire Flanagan- Communicator  
Adam Rieves- BSAC

**Client:** Professor John Kao  
UW School of Pharmacy & Department of Biomedical Engineering  
7123 Rennebohm Hall  
Phone: 263-2998  
Email: wjkao@pharmacy.wisc.edu

## Problem Statement:

Interpenetrating networks are a type of biomaterials that polymerize in situ and have been used in drug delivery, wound healing, and tissue engineering applications. This design project involves the development of novel delivery mechanisms that should be clinically easy to use with improved storage life.

## This Week's Goals:

- Look into ordering different surfactants
  - Hexadecyltrimethylammonium bromide
  - Ethoxylate octylphenol
- Look into ordering different biological buffers
- Continue literature research
- Further testing
  - Using lower molecular weights (bloom 90-110)
  - Use spectroscopy to quantify dissolution

## Summary of Accomplishments:

- Picked up gelatin
- Tested 10% and 15% gelatin with Tween 20
  - 60 degree Celsius water
  - Room temperature water
  - Citrate buffer

Based on results of these test, tween did not seem to aid in the dissolution of the gelatin.

- Tested 10% gelatin in 60 degree Celsius water, room temperature water, citrate buffer, pH 13 and pH 1
  - 90-110 bloom
  - 175 bloom

Using a lower molecular weight gelatin seemed to aid in the dissolution. Like in previous trials the extreme pHs worked to dissolve the gelatin. Both the HEPES and Citrate buffers showed promising results that we would like to further explore.

- Ruled out using Sodium Dodecyl Sulfate as it is not biocompatible.

**Activities:**

*Team:* Met in class, researched additional supplies to purchase (2 hr)

*Ashley:* Wrote progress report, basic research, picked up supplies, testing (3 hr)

*Adam:* Basic research, attended BSAC meeting, testing (3 hr)

*Claire:* Basic research, testing (4 hr)

*Max:* Basic research, testing, updated website (3 hr)

**Total time this week:** 15 hrs

**Cumulative Time:** 123 hrs

**Project Timeline:**

| Task                      | September |    |    |    | October |    |    |    | November |    |    |    | December |   |    |
|---------------------------|-----------|----|----|----|---------|----|----|----|----------|----|----|----|----------|---|----|
|                           | 8         | 15 | 22 | 29 | 6       | 13 | 20 | 27 | 3        | 10 | 17 | 24 | 1        | 8 | 15 |
| <b>Design</b>             |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Design Brainstorming      |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Preliminary Design        |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Wednesday Team Meeting    |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Research                  |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| <b>Deliverables</b>       |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Progress Report           |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| PDS                       |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Mid Semester Paper        |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Mid Semester Presentation |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| End Semester Presentation |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| End Semester Paper        |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| <b>Meetings</b>           |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Client                    |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Advisor                   |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| Other                     |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| <b>Website</b>            |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |
| <b>BSAC</b>               |           |    |    |    |         |    |    |    |          |    |    |    |          |   |    |

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|--------|---|---|
|        | <b>Done</b>   | <b>Goal</b>   |
| All    |  |  |
| Adam   |  |  |
| Ashley |  |  |
| Claire |  |  |
| Max    |  |  |

