Osteochondral Transplant System—Week 10, Progress Report

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Team:
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Problem Statement
Osteochondral allografting is a common procedure performed on patients that require replacement of diseased bone. Current methods of implantation require the application of mechanical forces that have a detrimental effect on the live chondrocytes present on the implant. Maximizing the amount of viable tissue during and after the surgery is a crucial factor for the success of the procedure. Hence, the client requests a delivery system that will reduce the amount of mechanical forces required to securely place the implant into the donor site.

Previous Week's Goals
- Construct a protocol for data processing of images obtained from confocal microscope ✓
- Begin to obtain percent viability values for data samples ✓

Summary of Team Accomplishments
- Percent viability values were calculated for the control and threaded samples
- Discussed the benefits of using a dead stain (ethidium homodimer) in combination with a DAPI stain to assess viability in the next series of testing

This Week's Goals (Team and Individual)
- Research imaging protocols that use a DAPI stain to assess cell viability
- Agree on a protocol that will be used for final testing and imaging
- Seek out an alternative source on campus that can provide the team with tissue samples that are fresher than those previously obtained from butcher shops

Project Difficulties
- The calculated percent viability values obtained from the imaged samples were significantly low (much lower than the values obtained from testing last semester). It was noted that there were areas in some of the images that were not marked with fluorescent cells. However, it is possible that these areas contained live cells that were not detected by the calcein AM stain. For this reason, we have discussed the possibility of using a DAPI stain to detect live cells in the forthcoming testing procedure.

Expenses
No new expenses to report.

Individual Activity Log

Member	Task	Time (hr)	Weekly Total (hr)	Semester Total (hr)
Rodrigo (Leader)	Weekly progress report	0.5	2.5	54.5
	Adviser meeting	0.5		
	Team meeting	0.5		
	Individual research & team work	1		
Eduardo (Communicator)	Team meeting	0.5	2	48
	Adviser meeting	0.5		
	Individual research & team work	1		
Nick (BSAC & BWIG)	Adviser meeting	0.5	5	27
	Team Meeting	0.5		
	Individual research & work	4		
Bilin (BPAG)	Adviser Meeting	0.5	2	32
	Team Meeting	0.5		
	Individual research & work	1		

Project Timeline

	January		February				March				April				May	
Task	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8
Meetings																
Client		X														
Advisor	X		X	X	X	X	X	X	X							
Team	X	X	X	X	X	X	X	X	X							
Design Process																
Research	X	X	X													
PDS		X	X	X												
Protocol Write Up & Fabrication						X	X									
Testing & Data Processing								X	X	X						
Deliverables																
Progress Reports	X	X	X	X	X	X	X	X	X	X						
Preliminary Presentation					X											
Preliminary Report					X											
Final Presentation																
Final Report																