

BIO 438/ BIO 538 Immunology Labs**Spring 2006**

Instructor: Dr. Patty Zwollo,
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Laboratory hours: Wednesday or Thursday:1:00 PM-3:50 PM, Millington 315

Office hours: Monday 2-3 PM and Thursday 8-9 AM.

Course objectives. The course objective is to give you hands-on experience of selected important immunological techniques commonly used in immunology. This course lends itself well to integrating my research project with teaching. The experiments you will perform are based on ongoing projects in my own research lab. You will investigate the immune system of transgenic mice that overexpress a transcription factor that results in mice with increased B cell activity. During the course you will analyze the mice for changed expression patterns during B cell activation. You will learn how to design an experiment, perform it, and analyze and trouble shoot results. The latter will also help you to think about the principle and concepts of the methods. You will learn some commonly used immunological techniques, including cell cultures, cell purifications using magnetic beads, Western blot, SDS-PAGE, and ELISA. You will work in groups of two.

Notebooks: An important part of this lab experience is to learn how to keep a clear and accurate notebook. Each person is expected to keep their own notebook, even though you will be working in groups of two. The notebooks are to be kept in the lab. This is a good lab practice, as data that is brought home can be lost, altered, etc. You are free to look at your notebooks or write comments in them at any time as long as you do this in the lab. Each day's work must be entered into the notebook on the day it is done. The notebooks are yours at the end of the semester. I will check your notebook during the course, and this will determine 20% of your grade.

Lab report. As part of the lab course, you will write a report on the performed experiments. You will receive detailed information on the format of this research paper later. The paper is due on the Friday after your last lab.

Oral presentation. Each group will present their data during the last day of class in the form of an oral presentation. Each group has 10 minutes to present. More details on that later.

Grade:

Lab report:	70
Evaluation of lab notebook:	20
Subjective lab evaluation	10
<u>Oral presentation:</u>	<u>20</u>
Total:	120

TENTATIVE SCHEDULE:

January 25/26th	Lab#1: Introduction to labs and safety instructions.
February 1/2nd	Lab #2. Background information on project; general pipetting techniques.
February 8/9th	Lab #3. Introduction to tissue culture, counting cells, staining cells.
<u>February 15/16th</u>	<u>Lab #4. Practice round for EasySep magnetic bead cell isolation</u>
<u>February 22/23th</u>	<u>Lab #5. EasySep experiment, setting up activation cultures</u>
March 1/2 nd	Lab #6 Collecting cells from last week, processing sups and cells
March 15/16th	Lab #7. Coating of plates for ELISA.
<u>March 22/23th</u>	<u>Lab #8. ELISA</u>
March 29/30th	Lab #9. no labs
<u>April 5/6th</u>	<u>Lab #10. SDS-PAGE gel electrophoresis and transfer to nitrocellulose</u>
April 12/13th	Lab #11. Second day western blot analysis using anti-Pax-5 antibodies
April 19/20th	Lab #12. Western blot using a control antibody (TFIID).
April 26/27th	Lab #13: ORAL PRESENTATIONS.

Underlined labs are LONG LABS! May go until 5PM. Some other labs are shorter than 4PM.