

Developmental Biology Lab
 Dr. Ettinger
 Spring 2010
 Miller 31, Wednesday 1-4

Lab schedule:

Date	Experiment	Manual Chapter(s)
January 20	Introduction	
January 27	Egg injections	10-11
	Dictyostelium	4
February 3	Egg harvest/analysis	10-11
	Dictyostelium manipulation	4
February 10	Egg harvest/analysis	10-11
	Dictyostelium manipulation	4
February 17	Microarray simulations, week 1	Handout
	Planaria manipulations	13
February 24	Microarray simulations, week 2	Handout
	Planaria analysis	13
March 3	Sea urchin Fertilization	6
March 10	Spring break	
March 17	Lab report #1 DUE (on Dictyostelium or Planaria)	
	Microarray analysis	
	Frog and Chick: Slides	14, 9
March 24	Sea urchin: Perturbing the embryo	6-7
	Microarray analysis	
March 31	Chick: Living specimens	10-11
	Chick teratogenesis: injections	10-11
April 7	Chick teratogenesis: initial assessment and fixation	10-11
April 14	Chick teratogenesis: analysis / further experiments	10-11
April 21	Posters DUE	
	Chick teratogenesis: analysis	10-11
April 28	Poster presentations	
	Completion of experiments, slide review	

Ongoing:

Chick – slides

Ch. 9-10

Frog – slides

Ch. 14

May 5 (last day of classes) Lab report #2 and lab notebook **DUE** to Dr. Ettinger's office
by 4 PM

Laboratory

Notebook and participation	10%
Reports (2)	25% each (50%)
Experimental Conclusions	10%
Poster and presentation	20%
Assignment on microarrays	10%

Lab Notebook and Participation: You should keep a well-organized lab notebook that includes all experimental design, protocols used, data collected, and analysis performed. Because you will be working independently, careful notes will be crucial to your success. Please use a bound notebook rather than loose-leaf. All writing should be in ink (note: the Tyler manual calls for pencil, which is NOT standard), with the exception of diagrams that you can draw with colored pencils. Entries should include a title and date, name of your partner if you are working with one, experimental design / protocol (in your own words), results, and discussion. Chapter 1 of the Tyler lab manual describes a laboratory notebook; you may also wish to consult your Biology 121-122 lab manual. Your overall effort in the lab will also contribute to this part of your grade.

Lab Reports: Two lab reports written as scientific manuscripts (see Tyler manual, Chapter 1) will give you a chance to report on your lab activities. You will not be judged on the success of your experiments, but rather on their design and implementation and on your presentation of the results. One lab report will focus on the chick teratogenesis experiments, and the other on a species of your choice.

Experimental Conclusions: For the species about which you do not write a lab report (Dictyostelium or Planaria, Sea Urchins) and for the slides of frog and chick development, you should write a one page explanation of your overall understanding of the species as an experimental model, any manipulations that were carried out, your observations, and conclusions.

Lab Poster and Presentation: You will be working with your lab partner(s) to create a research poster (42" X 36") that details the microarray project. This poster should include necessary background information on all relevant portions of the project, including chick development, microarrays, and the chemical that was used in your study and its effects on development (yes, this will require you to do some library investigation to find papers and you will need to include references). You should then outline the methods used in this lab, referencing sources as appropriate. All results that you have compiled should be clearly displayed on your poster, and proper figure legends should be included. Finally, you should include a discussion section that draws conclusions from your research and grounds your findings in the current body of literature. Of course, your poster should also have a reference section that lists the sources that you cited on your poster. You will submit this poster electronically (PowerPoint format) and it will be printed for you so that you may then present it in lab on April 28. You should use the posters hanging throughout the Science Center as

examples of how a research poster should look, and you are also encouraged to consult with your lab instructors and fellow labmates for revision suggestions.

Assignment on Microarrays: The microarray simulation exercises pose questions for you to answer. These should be completed within one week of carrying out the exercises.

Lab safety:

The following rules will be strictly enforced.

1. No eating, drinking, smoking, or application of cosmetics in the laboratory. Please do not bring any food or drink containers into the lab.
2. No sandals (even when the weather gets warm!)– wear shoes that cover the feet at all times
3. Use of the hood is required for some experiments. Please use it as directed.
4. Follow instructions carefully for disposal of glass, living tissue, etc

Lab supplies:

1. Lab notebook (bound)
2. Pen for writing notes (do not write in pencil!)
3. Sharpie marker for labeling plates and slides
4. Colored pens or pencils for making drawings.

A dissecting kit will be available for your use in the lab.