SYLLABUS

CAMB 534  Spring 2009

Seminar on Current Genetic Research: Modeling Human Disease in Diverse Genetic Systems.

Instructors: Aaron Gitler, Todd Lamitina, Tom Jongens, Doug Epstein, Joe Zhou, David Raizen, Michael Pack, Sara Cherry

In the last decade it has become clear that many of the genes responsible for human diseases have orthologues in the genomes of a wide range of species. In this same period it has also become clear that the functions of genes are highly conserved across evolution. These facts have lead scientists to take advantage of the experimental prowess of organisms, such as the mouse, zebrafish, Drosophila, C. elegans, and yeast, to study human disease genes. In this course we will focus on examples of human disease gene models and examine how these genetic model systems can be used to learn more about how and why a disease occurs and how it might be better diagnosed or treated. The course will meet once a week for 1.5-2.0 hours. Prior to each class, the student discussion leader for the week is expected to meet at least once with the assigned faculty preceptor to discuss their presentation. An organizational meeting will take place Wednesday January 14th at 2pm in room Stellar-Chance Room 204. The course will meet on Wednesdays from 2-4 pm in Stellar-Chance Room 204.

During each class, the presenting student will give an introduction on the particular disease being discussed that week. This introduction usually contains some basic information about the disease, e.g. symptoms, incidence rate, diagnosis and prognosis as well as the known and unknown aspects of what causes the disease. The scope of information to be included in the introduction will be determined in meetings with the assigned preceptor for the week. Once the introduction is complete, the entire class will participate in discussing the assigned papers on the disease topic. This is done best by taking turns presenting individual figures from the assigned papers. The presenting student will guide the discussion during the presentation of the data and will also provide a wrap-up discussion that should include potential future directions. Following each class, the course director and/or faculty preceptor will meet with the presenting student to provide immediate feedback on their presentation and suggest areas for improvement. In addition to the presentation of a disease topic and participation of the course in each class, as a final assignment, pairs of students will be asked to write a “News and Views” type article on a recent or in-press article related to human disease modeling. These short preview articles will be revised under the supervision of the course directors and then submitted for publication to an appropriate journal, such as Disease Models and Mechanisms or the Journal of Neuroscience. Specific guidelines for this assignment will be provided during the semester.
Instructors email addresses/phone number/offices:

Todd Lamitina: lamitina@mail.med.upenn.edu /898-3223/ A702 Richards
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Class 1: Wed Jan 14 2008 2:00PM-4:00PM Stellar Chance 204

Class Orientation/Selection of Topics by Students (A. Gitler / T. Lamitina)

Class 2: Wed Jan 21 2008 2:00PM-4:00PM Stellar Chance 204

Parkinson’s Disease (A. Gitler)

Class 3: Wed Jan 28 2008 2:00PM-4:00PM Stellar Chance 204

Polyglutamine Diseases (T. Lamitina)

Class 4: Wed Feb 4 2008 2:00PM-4:00PM Stellar Chance 204

Alzheimer’s Disease (T. Lamitina)

Class 5: Wed Feb 11 2008 2:00PM-4:00PM Stellar Chance 204

Fragile X (T. Jongens)

Class 6: Wed Feb 18 2008 2:00PM-4:00PM Stellar Chance 204

Rett Syndrome (D. Epstein / J. Zhou?)

Class 7: Wed Feb 25 2008 2:00PM-4:00PM Stellar Chance 204

Deafness (D. Epstein)

Class 8: Wed Mar 4 2008 2:00PM-4:00PM Stellar Chance 204

Sleep Disorders (David Raizen)

Class 9: Wed Mar 11 2008 2:00PM-4:00PM Stellar Chance 204

Host / pathogen interactions (S. Cherry)
Class 10: Wed Mar 18 2008 2:00PM-4:00PM Stellar Chance 204
DiGeorge (A. Gitler)

Class 11: Wed Mar 25 2008 2:00PM-4:00PM Stellar Chance 204
NF1 (A. Gitler)

Class 12: Wed April 1 2008 2:00PM-4:00PM Stellar Chance 204
ALS (A. Gitler)

Class 13: Wed Apr 8 2008 2:00PM-4:00PM Stellar Chance 204
Muscular Dystrophy (T. Lamitina)

Class 14: Wed Apr 15 2008 2:00PM-4:00PM Stellar Chance 204
Digestive Disease / Diabetes (M. Pack)