

CAMB 534 Spring 2017

Human Disease Modeling in Experimental Organisms

Instructor: Tom Jongens

In the last two decades it has become clear that many of the genes responsible for human diseases are present 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, *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 animal models 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 2.0 hours. An organizational meeting will take place Wednesday January 11th at 3pm in Stellar-Chance Room 601. The rest of the course will meet on Mondays from 3-5 pm in Stellar-Chance Room 601 from Jan 23rd to February 27th, then the class will join GCB 752 (directed by Dr. Sharon Diskin) in BRB 251 from March 13th until April 24th. During these last few weeks we will include diseases where the genetic causes of the disease are still in progress and where GWAS and other genomic approaches are being used to identify the disease “risk factors”. These classes will expose the students to the practical use of GWAS and other genomic based genetic approaches to identify disease genes.

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. What additional information will 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. In addition to the presentation of a disease topic and participation of the course in each class, each student will be asked to write a Nature News and Views type article on a human disease model that is not covered during the course. This paper will be due April 3rd, 2017 at 5pm.

Instructors/

Tom Jongens: jongens@mail.med.upenn.edu /573-9332/STRC 10-134

Sharon Diskin: DISKIN@email.chop.edu

	Date	Instructor	Topic/Papers
Week 1	Wednesday January 11	Tom Jongens	Introduction; brief organizational meeting. Selection/assignment of initial dates and topics for individual student presentations.
Week 2	January 16	Holiday	Martin Luther King Jr Day
Week 3	January 23	Aging/ Joseph Baur	Papers TBD
Week 4	January 30	Obesity/ Patrick Seale	Papers TBD
Week 5	February 6	Fragile X/ Jongens	Papers TBD
Week 6	February 13	Cornelia de Lange/ Jongens	Papers TBD
Week 7	February 20	Motor Neuron Disease/Kalb	Papers TBD
Week 8	February 27	Sleep/Raizen	Papers TBD
Week 9	March 4-12	NO CLASS	SPRING BREAK
Week 10	March 13	Genomics of Diabetes/Obesity	Papers TBD
Week 11	March 20	Diabetes models/ Tom Jongens, PhD	Papers TBD
Week 12	March 27	Cancer Genomics Yael Mosse, MD	Papers TBD
Week 13	April 3	Cancer Modeling Yael Mosse, MD	(News and Views) Due
Week 14	April 10	Genomics of Autism/ Maja Bucan	Papers TBD
Week 15	April 17	Autism Model/ Jongens	Papers TBD
Week 16	April 24	Sharon Diskin, PhD Tom Jongens, PhD	Wrap up