

TOPICS IN MOLECULAR MEDICINE

CAMB/PHRM 5420-402

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Wednesdays at 5:15PM

Organizational Meeting Wednesday August 28 at 5:15pm in Hill Pavilion Room 222

General Instructions

This seminar course is designed to explore the interface between clinical problems and basic science. About three students working as a team will present each week under the guidance of a faculty mentor. One student presents the clinical aspects of a disease or condition. The second student presents basic science background and the assigned basic science paper. The third student discusses aspects of either Rigor and Reproducibility (R&R), Responsible Conduct of Research (RCR), or an interesting method in the papers. The third person also gives a summary of the clinical problem and the main conclusions of the basic science paper. It could be done as a single slide in a graphical abstract if that works well. The three to presenters should communicate well with each other and fuse their presentations into a single powerpoint presentation.

Good discussions are expected to be part of these presentations, therefore as a presenter your task is to draw the class into discussion. Each student presents twice during the semester. Some general instructions are below.

Clinical presentation (should be about 15 minutes)

1. Read the papers that are assigned (clinical and basic science).
2. Read additional background to gain a firm foundation on the clinical aspects of this disease or condition.
3. Begin organizing and preparing your presentation. Things to consider are:
 - a. What are the clinical manifestations of the disease or condition?
 - b. How common is the disease?
 - c. Are there ways to treat the disease? Is treatment effective?
 - d. What are some of the problems posed by the disease?
 - e. Are there problems with diagnosis, treatments, side effects?
 - f. Are there any major roadblocks or major outstanding questions about this disease?
4. Discuss what you are learning with your co-presenting classmates and compare notes.

5. Meet frequently for guidance with your faculty mentor.
6. Prepare a powerpoint presentation that should take about 15 minutes to present.

Basic Science presentation (should be about 20-30 minutes)

1. Read the papers that are assigned (clinical and basic science).
2. Read additional background to gain a firm foundation on the basic science aspects of this disease or condition.
3. Begin organizing and preparing your presentation. Things to consider are:
 - a. What is known about the basic science that provides a foundation for knowing about this disease?
 - b. What are the gaps in our knowledge?
 - c. What are the main questions that are being addressed in the assigned paper?
 - d. For each experiment/figure presented, what is the question, what are the methods, what are the results, and what are the conclusions?
 - e. Do you agree with the authors' conclusions?
 - f. Be thoughtful about the strengths and weaknesses of each experiment.
 - g. What are the major conclusions of the paper? Do you agree with them?
 - h. How do these conclusions fit into the general field?
 - i. Can you make a model, or some other summary of how this paper applies to the discipline?
4. Discuss what you are learning with your co-presenting classmates and compare notes.
5. Meet frequently for guidance with your faculty mentor.
6. Prepare a powerpoint presentation that should take about 30 minutes to present.

Methods, Rigor and Reproducibility, or Responsible Conduct presentations (about 15 minutes)

1. Read the papers that are assigned (clinical and basic science).
 - a. Pick out a method that is particularly interesting or complex and present that method to the class.
or
 - b. Consider aspects of rigor and reproducibility: number of replica experiments, statistical analyses, details of methods, information about commercial reagents and catalog numbers, etc.
or
 - c. Or consider aspects of responsible conduct of research. Ethical issues with clinical trials, ethical use of animals
2. Discuss what you are learning with your co-presenting classmates and compare notes.
3. Meet frequently for guidance with your faculty mentor.

4. Prepare a powerpoint presentation that should take about 10 minutes to present, and prepare a summary slide that wraps up the clinical problem and main results of the basic science paper. It could be done as a single slide as a graphical abstract if that works well.

On weeks when you are NOT presenting

1. Read the papers that are assigned (clinical and basic science).
2. Think (really).
3. Come with some questions and be ready for discussion. This is an exceptionally important part of the class.

A key goal is for you to get all students in the class involved in dialog. So ask questions to draw the class into discussion. Feel free to call on people if needed.

Date	Faculty	Topic	Clinical Presentation	Basic Presentation	Methods/Rigor and Reproducibility/ or RCR
August 27	Atchison/Mason	Orientation and course organization			
September 10	Andres Blanco	The role of histone demethylase KDM5C in Claes-Jensen Syndrome	Connor	Jared	Roxanne
September 17	Ricardo Castillo	Cystic echinococcosis and genomics-informed treatments	Jonas Cook	Sebastian Z	Caroline O'Rourke
September 24	Montserrat Anguera	Mechanisms underlying the female bias with autoimmune diseases	Kate Enquist	Savannah Knutson	Sebastian Z
October 1	William Beltran	Mutation-agnostic gene therapies for retinal degenerations	Winnie/Sydney	Renis	Megan
October 8	Louise Moncla	Outbreak reconstruction and epidemiology	Cecilia Horchos	Jonas Cook	Lydia/Lucinda
October 15	Michael Hogan	The quest to make an HIV vaccine	Renis	Megan/Sydney	Winnie
October 22	Marisa Bartolomei	Preimplantation genetic testing in IVF embryos and whether it should be done (or is even worth being done)	Alex Dai	Elise/Matt Schnell	Kate Enquist
October 29	Andrew Vaughan	Idiopathic pulmonary fibrosis	Brandon	Lydia	Jenny
November 5	Timour Baslan	Correcting mitochondrial mutations	Jared	Alex Vanover	Matt Schnell/ Lucinda
November 12	Andrew Modzelewski	Retrotransposons in Development and Disease	Roxanne	Connor	Elise
November 19	Antonia Rotolo	Chasing the Next Breakthrough in Brain Cancer: From Mouse Models to CAR-driven Cures in Patients	Caroline O'Rourke	Brandon	Alex V

December 3	Phil Scott	Neutrophil-mediated hypoxia and pathogenic responses to leishmaniasis	Savannah Knutson	Jenny	Cecilia Horchos
December 10	Ron Harty	Ebola Virus Infection and Disease	Alex Dai	Sara Hernandez	Sara Hernandez