

BIOC 741

Contemporary Topics in Cell Signaling: GTPases

Tuesdays & Thursdays; 2:00 – 3:30 pm
GMB 3007

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Date	Topic
February 14	G proteins and GPCRs 1
February 19	G proteins and GPCRs 2
February 21	G proteins and GPCRs 3
February 26	Student-led workshop: Understanding G proteins through structure
February 28	GTPases, GEFs and GAPS
March 5	GTPases and effectors 1
March 7	GTPases and effectors 2
March 19	Student-led workshop: Understanding GTPases through structure
March 21	Migration, invasion and metastasis 1
March 26	Migration, invasion and metastasis 2

The first class will be a 90-minute lecture designed to introduce students to heterotrimeric G proteins. Introductory material will be provided and should be read before the start of the first class. Subsequent classes will be equally divided into a lecture and a student-led discussion related to assigned primary literature.

Pairs of research papers will be assigned:

- a classic paper in the field
- a more recent, related paper

Prior to the start of each class, students will prepare a written summary of the major findings of the classic paper and answer a set of questions about the more recent paper. The questions will be a mixture of fact-based queries and an open-ended analysis requiring interpretation of the results and their implications. A student will be chosen at random for a brief 15-minute synopsis of the paper. Answers to the assigned questions will form the framework of the student-based discussion. Assignments will be collected and graded.

The class will also consist of workshops that involve mastering the graphics program PyMOL in order to visualize, analyze, and present protein structures related to class topics. The associated primary literature and questions will guide each workshop. The class will be divided into two groups to cover the topic areas. At the start of each workshop, each group will discuss their results, generate consensus, and elect one group member to present their findings to the class at large.