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## Key Lecturer:

## Dr. Channing J. Der

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## Teaching Assistants:

## Tuesdays & Thursdays; 2:00 – 3:30 pm

## GMB 3007

## Contemporary Topics in

## Cell Signaling: GTPases

BIOC 741/PHCO 741

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| Date | Topic |
| February 10 | G proteins and GPCRs 1 |
| February 12 | G proteins and GPCRs 2 |
| February 17 | G proteins and GPCRs 3 |
| February 19 | Student-led workshop: Understanding G proteins through structure |
| February 24 | GTPases, GEFs and GAPS |
| February 26 | GTPases and effectors 1 |
| March 3 | GTPases and effectors 2 |
| March 5 | Student-led workshop: Understanding GTPases through structure |
| March 17 | Migration, invasion and metastasis 1 |
| March 19 | 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 aanalysis 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.