Mitochondrial Signaling
BIMM 194 | Fall 2021

Mondays 3:30 – 4:50 pm
YORK 3010

DATE	LECTURE & PRESENTATION TOPIC
Sept 27	Course Intro/How to read a scientific paper (Guest lecturer Molly Maddy, Ph.D.)
Oct 4	Mitochondria Introductionand Energetic Stress Signaling (Dr. Shadel)
Oct 11	Mitochondrial ROS Signaling
Oct 18	Mitochondrial Metabolite Signaling
Oct 25	Mitochondrial Cell Death Signaling
Nov 1	Signaling from the Mitochondrial Surface
Nov 8	Innate Immune Signaling 1
Nov 15	Innate Immune Signaling 2
Nov 22	Mitochondrial UPR
Nov 29	Mitohormesis

Professor Gerald Shadel
Email: gsshadel@ucsd.edu
Office hours by appointment
Office: Salk Institute for Biological Studies

Individual class structure

Lecture to introduce topic of the week (Dr. Shadel)	10 minutes
Paper 1 presentation led by a 2-student team	25 minutes
Paper 1 discussion	10 minutes
Paper 2 presentation led by a 2-student team	25 minutes
Paper 2 Discussion	10 minutes

Presenters. The presentation should be a single file in projector-compatible slide format (e.g. powerpoint, keynote). Each person in the 2-student team is required to contribute equally to the oral presentation. Presentations should include 1) a brief introduction of the background knowledge needed to understand the article, 2) a description of <u>key</u> results use the actual figures/Tables from the paper (you will not have time to cover all the data, so decide on what you think are just the most important results), and 3) main conclusions and broader implication of the study offered by the authors. Grades will be based on the overall presentation/slide quality and each student's ability to convey the material and answer questions in the discussion period. The following website provides some useful guidance on how to prepare and deliver an effective oral journal presentation: https://www.ibiology.org/professional-development/scientific-presentations/

Non-presenters. For each class, <u>all</u> non-presenters must have read both journal articles and be prepared to discuss them. To facilitate this, all non-presenters must turn in (at beginning of each class) a short summary of both papers consisting of at least 3 one-sentence bullet points of the main results, at least 3 one-sentence bullet points of the authors main discussion points (interpretations, broader significance of the results, etc.) and 2 specific questions/comments for the presenters during discussion period. Students will be called upon to relay their questions/comments to begin the discussion period.

<u>Final writing assignment (Due Friday December 3rd)</u>
All students will write a 'mini-review' related to one of the lectures topics on mitochondrial signaling. This will be a synthesis of recent articles on the topic (within last 10 years). The piece must be 1500-2000 words (word count does not include the references cited section) and specifically cite at least 15 papers. An example of a minireview is provided on the course website (although your article will be significantly shorter as indicated).

<u>Useful Websites for journal article searches</u>
PubMed: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tool=cdl&holding=ucsdlib
Google Scholar: http://scholar.google.com

Background/Source reading. There is no textbook for this course. Some of the papers we will cover are seminal papers in the field, findings from which now appear in textbooks. Below are a few review articles on mitochondrial signaling that provide background and other source information that will help you better navigate this course if you read them. You can download these from the *PubMed* site using the links below and you can search yourself on *PubMed* or *Google Scholar* for others:

https://pubmed.ncbi.nlm.nih.gov/15068799/
https://pubmed.ncbi.nlm.nih.gov/31900386/
https://pubmed.ncbi.nlm.nih.gov/24884669/
https://pubmed.ncbi.nlm.nih.gov/34386501/
https://pubmed.ncbi.nlm.nih.gov/21619928/
https://pubmed.ncbi.nlm.nih.gov/26097715/
https://pubmed.ncbi.nlm.nih.gov/26496603/

Grading
Oral presentation and discussion: 35%
Weekly article summaries and preparedness for/participation in discussions: 35%
Final writing assignment (review article writing) 30%

Course website:
https://canvas.ucsd.edu/courses/29241