

Lecture Schedule
Molecular Mechanisms of Signal Transduction

Spring 2021

Course Number: MG7024/MEDS4024, 2 credit hours

WebEx, 11:00-11:55 a.m. (Tuesdays and Thursdays)

Course Director - William E. Miller, Ph.D.

<u>Day</u>	<u>Date</u>	<u>Topic</u>	<u>Lecturer</u>
T	1/12	Introduction to Signal Transduction and 2 nd Messengers	William Miller
R	1/14	G-protein Coupled Receptor Signal Transduction--Receptors	William Miller
T	1/19	<i>Paper/Discussion</i>	William Miller
R	1/21	G-protein Coupled Receptor Signal Transduction--G-Proteins	William Miller
T	1/26	<i>Paper/Discussion</i>	William Miller
R	1/28	G-protein Coupled Receptor Signal Transduction--Desensitization	William Miller
T	2/2	<i>Paper/Discussion</i>	William Miller
R	2/4	G-protein Coupled Receptor Signal Transduction--Non-Traditional	William Miller
T	2/9	Receptor Tyrosine Kinase Signaling	Tom Thompson
R	2/11	Wnt/ β -catenin Signaling	Tom Thompson
T	2/16	<i>Paper/Discussion</i>	Tom Thompson
R	2/18	TNF Receptor Signaling and NF-kB activation	Rhett Kovall
T	2/23	<i>Paper/Discussion</i>	Rhett Kovall
R	2/25	Exam I	WM, TT, RK
T	3/2	Notch Receptor Signaling I	Rhett Kovall
R	3/4	Notch Receptor Signaling II	Rhett Kovall
T	3/9	<i>Paper/Discussion</i>	Rhett Kovall
R	3/11	<i>Paper/Discussion</i>	Rhett Kovall
T	3/16	No Class-Spring Break	
R	3/18	No Class-Spring Break	
T	3/23	Hedgehog/Smoothed Receptor Signaling	Agnes Luo
R	3/25	<i>Paper/Discussion</i>	Agnes Luo
T	3/30	T-Cell Receptor Signal Transduction	William Miller
R	4/1	Regulation of Signaling by Heavy Metals	Katherine Vest
T	4/6	<i>Paper/Discussion</i>	Katherine Vest
R	4/8	Transforming Growth Factor β Receptor Signaling I	Tom Thompson
T	4/13	<i>Paper/Discussion</i>	Tom Thompson
R	4/15	Transforming Growth Factor β Receptor Signaling II	Tom Thompson
T	4/20	<i>Paper/Discussion</i>	Tom Thompson
R	4/22	Exam II (100 Points)	RK,AL,WM,KV,TT

Instructors

William Miller, Ph.D.
Tom Thompson, Ph.D.
Rhett Kovall, Ph.D.
Agnes Luo, Ph.D.
Katherine Vest, Ph.D.

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26M7024. Molecular Mechanisms of Signal Transduction. 2 credits. This upper level undergraduate and graduate level course provides a research literature-based view of modern aspects of signal transduction and includes student driven discussions of seminal papers in the signal transduction field. Topics include receptor mediated signal transduction originating at the plasma membrane and cover major effector pathways including those leading to second messenger generation, kinase cascade assembly, and activation of transcription factors. Signaling mechanisms related to cellular homeostasis, developmental biology, immunology, and cancer will also be discussed.

Prerequisites. The students need to have some background in biochemistry and/or genetics. Appropriate courses include CHEM3040, MG4010, MG6001, or GNTD7001. If you have taken a related biochemistry or genetics course, please contact Dr. Miller and you can be given permission to enroll.