

PBIO 540: “Molecular Mechanisms of Cardiac Remodeling and Heart Failure”

SLN (Schedule Line Number): 19833

Instructor: Qinghang (Chris) Liu, PhD, Associate Professor, UW Physiology & Biophysics (qliu@uw.edu)

Autumn Quarter, 2020 (five Zoom meetings only) **Thursdays 3:00pm - 4:50pm** (Online with Zoom) **1 credit**

This 5-week mini-course will discuss recent advances regarding molecular mechanisms of cardiac hypertrophy, myocardial remodeling, and heart failure development. Novel methodologies in basic and translational cardiovascular research will also be covered. Topics include cardiac hypertrophy, myocardial remodeling and heart failure, myocardial cell death pathways, and animal models of heart disease. By the end of this course, students are expected to understand the mechanisms of cardiac remodeling and its implications in heart disease. This course will also help students improve their skills in project development and data presentation.

Lecture schedule:

Date	Lecture Topics	Papers for discussion
Oct 29	Cardiac Hypertrophy	Tran DH, et al. Chronic activation of hexosamine biosynthesis in the heart triggers pathological cardiac remodeling. <i>Nat Commun.</i> 2020;11(1):1771.
Nov 5	Myocardial Remodeling	Xiang FL, et al. Loss of β -catenin in resident cardiac fibroblasts attenuates fibrosis induced by pressure overload in mice. <i>Nat Commun.</i> 2017;8(1):712.
Nov 12	Myocardial Cell Death	Fang X, et al. Ferroptosis as a target for protection against cardiomyopathy. <i>PNAS.</i> 2019;116:2672-2680.
Nov19	Myocyte Contractility and Contractile Dysfunction	Pyun JH, et al. Cardiac specific PRMT1 ablation causes heart failure through CaMKII dysregulation. <i>Nat Commun.</i> 2018;9(1):5107.
Nov 26	Thanksgiving Holiday	No Class
Dec 3	Mouse Models of Heart Disease	Schiattarella GG, et al. Nitrosative stress drives heart failure with preserved ejection fraction. <i>Nature.</i> 2019;568(7752):351-356.