UC DAVIS HEALTH | SCHOOL OF MEDICINE

Department of
Physiology and Membrane Biology

Distinguished Lecture Series in Physiology

Alexander Y. Payumo, Ph.D.

Assistant Professor
Department of Biological Sciences
San Jose State University

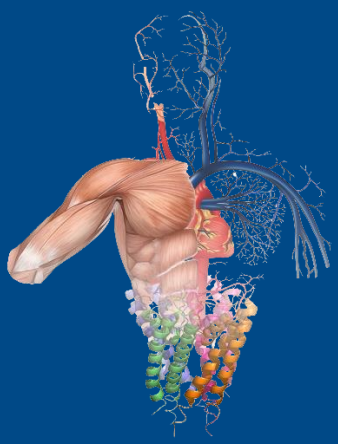
"Hormonal regulation of cardiomyocyte size and regenerative potential"

Cardiac regeneration in newborn rodents depends on the ability of pre-existing cardiomyocytes to proliferate and divide. This capacity is lost within the first week of postnatal development when these cells rapidly switch from hyperplasia to hypertrophy, withdraw from the cell cycle, become binucleated, and grow in size. Thyroid hormones increase in circulation after birth and limit mammalian cardiac regenerative capacity; however, the cellular mechanisms by which these hormones act remain incompletely understood. We innovate the application of a commercially available digital holographic imaging microscope, the Holomonitor M4, to evaluate the proliferative responses of primary cardiomyocytes in the presence or absence of thyroid hormone. This instrument coupled with the powerful Holomonitor App Suite software enables long-term label-free quantitative three-dimensional tracking of primary cardiomyocyte proliferative dynamics in real-time with single-cell resolution. Our preliminary findings suggest that thyroid hormone may act as an uncoupler of cardiomyocyte growth and cell cycle progression.

Thursday, January 16, 2025
GBSF and Zoom
12 p.m.

January
16

Alexander Y. Payumo, Ph.D.
Assistant Professor
Department of Biological Sciences
San Jose State University



Host: Theanne Griffith

tgriffith@ucdavis.edu