



Academy of Cardiovascular Research Excellence
(ACRE)



Chinese American Academy of Cardiology
(CAAC)

ACRE-CAAC Joint Seminar Series



Guo Huang, PhD

Associate Professor, Department of Physiology
Investigator of Cardiovascular Research Institute

Investigator of Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research
University of California, San Francisco

Molecular Control of Heart Regeneration: Insight from Platypus, Anteaters, Bats and Whales

Moderator: Na Li, PhD

Associate Professor
Department of Medicine (Cardiovascular Research)
Baylor College of Medicine

December 8, 2021, Wednesday

12 PM, EST

9:00^{AM}
PST

11:00^{AM}
CST

5:00^{PM}
UK time

6:00^{PM}
German time

1:00^{AM}
China time (12/9/21)

Zoom: 842 4854 0800

Guo Huang, PhD

University of California, San Francisco
CVRI Room 352V, 555 Mission Bay Blvd South, MC 3120
San Francisco, CA 94158, USA
Phone: 415-502-2873
Email: Guo.Huang@ucsf.edu
Lab website: <http://www.cvri.ucsf.edu/~huang/lab/Research.html>

*For more information about the past and future seminars,
please visit my-acre.org or mycaac.org*

Why do mammalian organs including the heart lose regenerative potential during the perinatal window remains enigmatic. Through phylogenetic analysis of 41 vertebrate species, we show that the frequency of diploid cardiomyocytes, a proxy of cardiac regenerative potential, conforms to Kleiber's law - the 3/4-power law scaling of metabolism with bodyweight - and decreases during the ectotherm-to-endotherm transition. Further genetic and functional studies in mice and zebrafish uncover critical roles of two major thermogenic pathways, thyroid hormone and sympathetic nerve-adrenergic receptor signaling, in suppressing heart regenerative capacity. We propose that the limited regenerative capacity in various adult mammalian tissues may be a tradeoff for the acquisition of endothermy in ontogeny and phylogeny.