

UCSD Receives \$10 Million NIH Grant to Lead Hypoxia Tolerance Research Study

September 23, 2010

Debra Kain

Gabriel G. Haddad, MD, chair of the Department of Pediatrics at the University of California, San Diego School of Medicine and Physician-in-Chief at Rady Children's Hospital-San Diego has received a \$10 million grant from the National Institute of Health's Heart, Lung and Blood Institute.

A world renowned physician-scientist in pediatric pulmonary medicine, Haddad will lead a collaborative team of investigators from UC San Diego and the Sanford-Burnham Medical Research Institute to study the impact of low oxygen levels on cells and tissue in the heart, lung, and brain.

"Understanding the molecular, cellular, and genetic mechanisms that contribute to low oxygen tolerance or susceptibility will have a major impact on our treatments of central nervous system and cardio-respiratory diseases such as stroke, myocardial ischemia/infarction, obstructive sleep apnea and pulmonary hypertension," said Haddad.

The overall aims of this project are:

- To study the adaptive mechanisms to hypoxia in cardiovascular and respiratory systems at both cellular and molecular levels

- To study the fundamental genetic mechanisms of tolerance in a *Drosophila* (fruit fly) model

- To modulate or manipulate molecular mechanisms in mammalian cells/tissues/animals to render them hypoxia-tolerant after learning from a tolerant organism, e.g., the fly

- To identify molecular signatures of hypoxia tolerance and susceptibility that may be predictive clinically

The investigative team includes Jason Yuan, MD, PhD, professor, Pulmonary, Critical Care, and Sleep Medicine, University of Illinois at Chicago; Rolf Bodmer, PhD, professor and director, Development and Aging Program, Sanford-Burnham Institute for Medical Research; Andrew McCulloch, PhD, professor, UCSD Department of Bioengineering; Giovanni Paternostro, MD, PhD, assistant professor, The Sanford-Burnham Institute for Medical Research; and Frank Powell, PhD, professor, UCSD Department of Medicine and director, University of California's White Mountain Research Station.

Media Contact: Debra Kain, 619-543-6163, ddkain@ucsd.edu

