

Advanced Research Scholar – PhD Dissertation

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Field of Study:
Research Period
US University
US Professor
Research Title

Type 2 Diabetes Mellitus and Obstructive Sleep Apnea
June 2017 – April 2018
Ohio State University
Dr. Ulysses J. Magalang
Role of hypoxia-inducible factor 1 α in intermittent-hypoxia induced adipose tissue dysfunction in type 2 diabetes mellitus

Describe your research conducted in the US.

My research explores the important mechanisms of how obstructive sleep apnea (OSA), a condition that is commonly found in patients with type 2 diabetes mellitus (T2DM), causes metabolic abnormalities through adipose tissue (AT) dysfunction. Using mouse model of diabetes, my goal is to elucidate the important role of a transcription factor, known as hypoxia-inducible factor 1 α (HIF1 α), in intermittent hypoxia-induced adipose tissue dysfunction that ultimately leads to insulin resistance. My lab is employing pharmacologic and genetic strategies in understanding the molecular pathophysiology linking these diseases. Knowledge of the underlying mechanisms leading to metabolic dysregulation is crucial to expedite the development of therapeutic strategies in the millions of patients with obstructive sleep apnea and type 2 diabetes.

What was the highlight of your research in the US?

As a visiting scholar at the Davis Heart and Lung Research Institute of The Ohio State University, I am privileged to have worked with physicians and scientists that share a common passion for patient-centered discovery. The engaging academic environment, world-class facilities, and innovative culture provided by The Ohio State University helped cultivate my scientific inquiry capability and creativity for translational research.

In what way has the USAID scholarship changed you?

The USAID STRIDE program has provided me the opportunity to perform cutting-edge molecular research, working side by side with world-renowned experts in the field of medicine. Such international collaboration and mentorship have inspired me to work at the frontiers of medicine, pushing the limits of science and achieving breakthroughs that will shape the future of health care, ultimately for the service of my fellow Filipinos.

How would you use the knowledge and skills gained through your research to contribute or influence economic growth in the country?

The tight linkage between T2DM, obesity, and OSA is a viable entry point for applied research in molecular medicine that may have significant impact at clinical scale. My proposed study will open avenues to novel treatment for T2DM, such as the potential use of HIF-1 α inhibitors to alleviate adipose tissue dysfunction in diabetics. Successful research in this area by a Filipino physician-scientist will directly benefit Filipino patients through better T2DM prevention and control methods, with indirect benefits to the Philippine economy in terms of revenues from potential pharmaceuticals.

As a young scientist, what do you envision for the Philippine science, technology and innovation ecosystem in the next 10 years?

The future for the Philippine science and technology is ripe with opportunities, as well as significant challenges. Through the growing support from the government through the Department of Science and Technology, and external institutions such as USAID, I envision a Filipino scientific community that is purposeful, collaborative, and cognizant of national health care and research needs.

After his return to the Philippines, Josept intends to finish his internship year in medicine. He also hopes to join the dynamic network of Filipino researchers at the National Institutes of Health (NIH) Philippines, establish his own research group dedicated to studying the different sleep disorders of Filipinos, and teach at the UP College of Medicine, with the hope of inspiring the medical students to pursue research as a career.

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