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**Education**

- 1989-1993 B.S., Zoology, National Taiwan University, Taiwan
- 1993-1995 M.S., Fisheries Sciences, National Taiwan University, Taiwan
- 1998-2004 Ph.D., Biomedical Sciences, Cornell University, USA

Research and Professional Positions Held in Chronological Sequence

- 2004-2009 Visiting Fellow, National Heart, Lung, and Blood Institute, USA
- 2009-2010 Research Fellow, National Heart, Lung, and Blood Institute, USA
- 2010-2014 Assistant Professor, Institute of Biochemistry and Molecular Biology, Taiwan
- 2014-2018 Associate Professor, Institute of Biochemistry and Molecular Biology, Taiwan
- 2015- Director of the Environmental Protection and Occupational Safety and Health Center, College of Medicine, National Taiwan University
- 2018- -Professor, Institute of Biochemistry and Molecular Biology, Taiwan
-Assisting Dean, Office of International Affairs, College of Medicine, National Taiwan University

Research Interests

Our laboratory uses concepts and methods of systems biology to investigate regulatory processes that govern physiological phenomena. Specifically we apply methods of LC-MS/MS-based protein mass spectrometry, RNA sequencing, bioinformatics, JAVA scripting, biochemical methods, light and electron microscopy, and cell and molecular biology in cell and animal models to study the following three areas.

1) Hormone vasopressin-regulated processes that mediate renal water excretion

Vasopressin is a pituitary peptide hormone that regulates the molecular water channel protein aquaporin-2 in the renal collecting ducts. Upon binding to its V2 receptor, vasopressin activates a signaling network that regulates aquaporin-2 in two modes. In the short-term regulation mode, vasopressin induces trafficking of aquaporin-2 from the intracellular storage vesicles to the apical plasma membrane where AQP2 transports water from the urine back to the cells. Water leaves the cells via aquaporin-3 and aquaporin-4 at the basolateral membrane, returning to the interstitium. In the long-term regulation mode, vasopressin increases mRNA and protein levels of the aquaporin-2 gene. We are using systems approaches to investigate vasopressin signaling, aquaporin-2 trafficking, and gene expression in associated with water balance disorders.

2) Post-translational protein modifications that regulate hepatitis C virus life cycle

Chronic hepatitis C virus infection causes worldwide pandemic and often progresses into cirrhosis and liver cancer. We investigate how phosphorylation of its non-structural protein 5A (i.e. NS5A) regulates the life cycle using phosphoproteomics, phosphorylation-specific antibodies, and methods of molecular virology.

3) Strategies that eliminate mosquito-borne diseases

Taiwan is constantly threatened by mosquito-borne diseases including dengue fever, yellow fever, and encephalitis. In addition, global climate warming exacerbated concerns over spreading of mosquito-borne diseases. We are using systems approaches to identify mosquito genes that can be exploited for mosquito-borne virus control.

Major Honors and Awards

2013	Best Basic Science Teacher Award, College of Medicine, National Taiwan University
2013-2017	Teaching Excellence Award, National Taiwan University
2017	Best Mentor Award, College of Medicine, National Taiwan University