

New Insights into Cellular Lipid Trafficking and Storage: Implications for Metabolic and Neurodegenerative Disorders

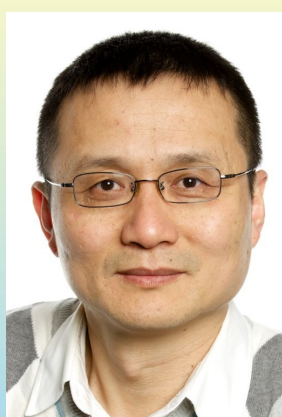
ABOUT THE LECTURE

Berardinelli-Seip Congenital Lipodystrophy type 2 (BSCL2) is the most severe form of human lipodystrophy and is caused by loss-of-function mutations in the BSCL2/seipin gene. Seipin is an integral membrane protein of the endoplasmic reticulum and has a conserved function in the formation of lipid droplets (LDs). Mechanisms by which Seipin function remain unclear. In this seminar, I will present genetic and biochemical evidence that link Seipin function with regulating phosphatidic acid (PA) levels, and describe our newly solved structure of Seipin revealing a PA lipid binding fold. Moreover, our results *in vitro* and *in vivo* further demonstrate that Seipin functions to inhibit the activity of glycerol-3-phosphate acyltransferases (GPATs) to control the level of PA on the ER. Collectively, these data suggest that Seipin functions to maintain phospholipid homeostasis of the ER, and that GPAT inhibitors may be used to treat BSCL2.

- Speaker:** **Prof Hongyuan Robert Yang**
 Professor
 School of Biotechnology and Biomolecular Sciences
 The University of New South Wales
- Host:** **Prof David Lawrence Silver**
 Professor and Deputy Programme Director
 Cardiovascular and Metabolic Disorders Programme
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- Co-Host:** **Dr Sun Lei**
 Associate Professor
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- Date:** Tuesday, 5 November 2019
- Time:** 12.00 PM - 1.00 PM
 (Light refreshments will be served at 11.30 AM)
- Venue:** Duke-NUS Medical School
 Amphitheatre, Level 2
- Contact:** Ms Serene Wie, Duke-NUS Research Affairs Department
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ABOUT THE SPEAKER

Dr. Hongyuan (Robert) Yang obtained his PhD from Columbia University and is currently a professor at the School of Biotechnology and Biomolecular Sciences, University of New South Wales, Sydney, Australia and a senior research fellow of the NHMRC. His lab has made major contributions to the study of lipid storage and trafficking in eukaryotic cells and animals, particularly the elucidation of the function and structure of Seipin, and function of oxysterol binding proteins. His work has been published in high impact journals such as *Science*, *Molecular Cell*, *Developmental Cell*, *J Cell Biol.*, *Nature Comms*, *Diabetes* and *Cell Reports* etc.



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