The Singapore Bioimaging Consortium (SBIC)
presents a seminar

on

"G_0/G_1 Switch Gene 2 : A Dual-Function Regulator of Lipid and Energy Metabolism"

Speaker: **Dr Liu Jun**
Associate Professor
Mayo Clinic College of Medicine
Host : **Dr Han Weiping**
Date : **Friday, 20 November 2015**
Time : **2.00pm – 3.00pm**
Venue : **SBIC Seminar Room**
11 Biopolis Way
Level 2, Helios Building, Singapore 138667
(Please enter via Level 1)

Abstract

In rodents and humans, fatty acids (FAs) are stored as triglycerides (TGs) in adipose tissue during energy surplus. In response to heightened metabolic demand, β-adrenergic hormones stimulate TG hydrolysis (lipolysis) in adipose tissue and subsequent release of free FAs and glycerol. In liver, FAs taken up often are esterified into TGs for temporary storage. Intrahepatic lipolysis provides FAs for mitochondrial β–oxidation and ketone body production to supply energy for other organs. Over the last decade the field of lipolysis has moved forward dramatically owing to the discovery of adipose triglyceride lipase (ATGL) as the rate-limiting enzyme in lipolysis. Work from my laboratory and others has since identified a small basic protein encoded by G_0/G_1 Switch Gene 2 (G0S2) as a potent inhibitor of ATGL. Our recent effort has also yielded novel evidence implicating an ATGL-independent role of G0S2 in the TG synthetic pathway. This talk will review how the discovery of G0S2 as a lipolytic inhibitor has led to a drastic revision of the complex model of lipolysis, how the differential expression of G0S2 is critical for adipose-liver FA flux and whole-body energy balance, how G0S2 as a FA sensor promotes ATGL-independent TG synthesis, and how the dysregulation of G0S2 expression contributes to hepatic steatosis and insulin resistance.

About the Speaker

Dr Liu is currently an Associate Professor of Biochemistry and Molecular Biology at the Mayo Clinic College of Medicine. The goal of his laboratory is to understand the molecular mechanisms governing tissue-specific lipolysis, and how their alterations in obesity contribute to the development of metabolic syndrome, insulin resistant

diabetes, and non-alcoholic fatty liver disease (NAFLD). Dr Liu obtained his Bachelor of Clinical Medicine degree from Shanghai Medical University (1990). He began his training as a metabolic biologist with Dr David Brautigan at the University of Virginia, from where he received his PhD degree in Microbiology (2000). After taking a postdoctoral research fellowship at the University Michigan (2001-2006), he worked under Dr Alan Saltiel on insulin-stimulated glucose transport and adipocyte differentiation. In 2006, Dr Liu set up his first independent research laboratory at the University of Kentucky, where he shifted focus to studying lipolytic regulation. Dr Liu joined the Metabolic HEALth program at the Mayo Clinic in 2011 and has since continued to work on all aspects with regard to lipid and energy metabolism.

--- Admission is free and all are welcome ---