The Singapore Bioimaging Consortium (SBIC)
presents a seminar

on

"Beneficial Effects of Inflammation in Obesity: Evidence from Animal and Human Studies"

Speaker: **Dr Ye Jianping**
Professor
Pennington Biomedical Research Center
Louisiana State University System

Date : **Friday, 30 November 2012**
Time : **11.00am – 12.00pm**
Venue : **SBIC Seminar Room**
11 Biopolis Way
Level 2, Helios Building
Singapore 138667
(Please use Level 1 entrance)

Abstract

Chronic inflammation is a characteristic of obesity and has been accepted as a pathogenic factor for metabolic disorders. In obesity, although the detrimental effects of inflammation have been known, their beneficial effects have not been well recognized. Inflammation stimulates energy metabolism and this effect explains the obese phenotype of knockout mice ofpro-inflammatory cytokine or their receptor. Loss of pro-inflammatory cytokines (such as TNF-a, IL-1, IL-6 and IL-18) leads to weight gain, adult-onset obesity and insulin resistance in transgenic mice. In contrast, enhanced inflammation in transgenic mice prevents obesity and attenuates insulin resistance. A growing body of evidence suggests that pro-inflammation is essential for adipose expansion and adipocyte differentiation. During adipose tissue expands, a local hypoxia together with the inflammation stimulates angiogenesis and triggers extracellular matrix remodeling to improve the microenvironment for adipocytes. Anti-inflammation therapies have been tested in more than a dozen of clinical trials to improve insulin sensitivity. Most of the studies have negative results in terms of improvement in insulin sensitivity. The beneficial effects of inflammation provide a potential explanation for the limited efficacy of anti-inflammatory therapies. Given the positive effects of inflammation in obesity, we recommend to keep the positive effects of inflammation in mind in understanding of inflammation in obesity and type 2 diabetes.

About the Speaker

Dr Ye's expertise is in the study of cellular and molecular mechanisms of inflammation in obesity. His current research is conducted to understand how inflammation occurs in obesity, and how the IKK/NF-kB pathway mediates inflammatory signals to regulate adipose tissue function. Their observations suggest that: (A) Adipose tissue inflammation is a result of local hypoxia response in obesity; (B) Inflammation has both beneficial and negative effects in the regulation of glucose metabolism in obesity; (C) In inflammation, macrophages contribute to the maintenance of adipose tissue function by stimulating angiogenesis, and inflammatory cytokines protect insulin sensitivity by enhancing energy expenditure in the body; (D) Activation of the IKK2/NF-kB signaling pathway by inflammation may lead to inhibition of adipocyte function by suppressing IRS-1 in the cytoplasm and PPARγ in the nucleus. These conclusions are derived from observations in molecular, cellular and animal models.

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