

Spring 2009 SEMINAR SERIES

F21C Bioprocessing & Biosensing Center

• DIVISION OF FOOD SYSTEMS & BIOENGINEERING •

PRESENTER: **Dr. James W. Perfield**, Assistant Professor
Department of Nutrition and Exercise Physiology
Human Environmental Sciences, University of Missouri

TITLE: **The physiology of obese adipose tissue: understanding a
“growing” problem**

ABSTRACT:

Being obese greatly increases a person's risk of being afflicted by chronic diseases such as diabetes, cardiovascular disease and stroke, and certain cancers. To identify preventive and therapeutic strategies we must understand the mechanisms by which obesity is linked to these diseases. Obesity is associated with chronic, low-grade inflammation, and this inflammation is now believed to be a critical factor in the development of the obesity-related complications. It was recently determined that inflammatory pathways are activated in adipose tissue as immune cells (macrophages) are drawn to dead or damaged adipose cells (adipocytes). As adipose tissue expands with obesity there is an increased occurrence of adipocyte death causing a chronic state of inflammation in adipose tissue which spills over systemically to other tissues leading to the adverse metabolic conditions mentioned above. This seminar will provide an overview of the physiologic state associated with obesity and highlight events occurring in adipose tissue. It will briefly cover potential nutritional and pharmaceutical therapeutic strategies for obesity and its associated metabolic disorders. In addition, current limitations and challenges that exist in studying these events *in vitro* and *in vivo* will be discussed..

BIOGRAPHY:

Dr. James W. Perfield II began a joint appointment in the Departments of Nutrition & Exercise Physiology and Food Science at the University of Missouri in November 2008. Dr. Perfield received his B.S. in biology from the University of North Carolina at Wilmington and then went on to receive his M.S. and PhD in Animal Science at Cornell University under Dr. Dale Bauman. The focus of his graduate studies was identification of novel bioactive fatty acids that regulate lipid metabolism and this work was performed using the lactating dairy cow mammary gland as a model. After graduation, Dr. Perfield began a 3 year postdoctoral fellowship at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University in Boston. During his post-doc he studied adipose tissue metabolism and the role of perilipin phosphorylation sites in regulating adipocyte lipolysis. In addition, he investigated the relationship between obesity-induced inflammation and associated metabolic complications, with a specific focus on the tumor progression locus 2 (TPL2) inflammatory pathway. The focus of his current research program is nutrition and the physiology of metabolic disease with an emphasis on obesity and diabetes. He is interested in identifying nutritional and pharmaceutical therapies for inflammatory events that occur in obese adipose tissue and contribute to the perpetuation of chronic diseases.

DATE • TIME • LOCATION:

Tuesday, March 31, 2009, 4:00 pm • Ag Eng Bldg 105