

## Pennington Biomedical Research Center T35 Mentors for Summer 2012

### **Maria Barnes, PhD**

*Assistant Professor, Nutrition & Neural Signaling, PBRC*

Dr. Barnes studies the factors that are involved in modulating not only food intake but also the high preference for fat. Of the large number of peptides, neurotransmitters, like mu opioid receptors that affect food intake, only a few have been demonstrated to make animals overeat and increase their fat preference. In obese animals, this receptor population is significantly increased in multiple areas of the central nervous system that are known to be involved in feeding behavior.

### **Hans Berthoud, PhD**

*George H. Bray Professorship Professor, PBRC*

Dr. Berthoud's research group is interested in the role of the nervous system in the processes maintaining energy homeostasis and nutrient intake. This includes the receptors and pathways that allow the peripheral nervous system and the brain to sense the internal metabolic state and availability of important nutrients as well as the external food environment.

### **Catherine Champagne, PhD, RD**

*Professor, Dietary Assessment & Food Analysis, PBRC*

Dr. Champagne directs the Nutrient Database activities for the Center. She supervises a team of dietitians, programmers and other support personnel and her areas of expertise include food composition, menu design for specialized nutrient targets, dietary assessment, counseling strategies for chronic disease conditions, obesity and cardiovascular disease. She is also coordinator of the Women's Nutrition Research Program at Pennington, a research, education, and outreach program specifically targeted to women.

### **Tim Church, MD, MPH, PhD**

*John S. McIlHenny Endowed Chair in Health Wisdom, PBRC*

*Professor, Preventive Medicine Laboratory*

*Exercise Testing Core*

*Recruiting Core, PBRC*

Dr. Church's studies address issues related to exercise and health including: exercise and the treatment of depression, exercise and cancer survivorship, and exercise and maintenance of function in the elderly, and exploring the benefits of different types of exercise in individuals with diabetes. Dr. Church has a particular interest in the role of exercise in the modulation of nontraditional CHD risk factors such as C-reactive protein, heart rate variability, and visceral fat.

### **Deep Dixit, DVM, PhD**

*Associate Professor, Neuroendocrine Immunology, PBRC*

*Adjunct Faculty, Department of Microbiology and Immunology, LSU-Health Science Center, New Orleans*

The two major areas of interest in Dr. Dixit's laboratory are to (a) understand the mechanism of immune-senescence and (b) to determine the origin of metabolically driven inflammation. The long-term goal of my research is to help develop novel approaches to forestall or even reverse the aging of immune system and to regulate the aberrant immune cell activation as means to enhance healthspan. This Laboratory utilizes basic cellular and molecular tools, genetic manipulations including reporter and Cre/Lox mouse models to understand patho-physiology of obesity and aging.

### **Tom Gettys, PhD**

*Professor, Nutrient Sensing and Adipocyte Signaling*

Dr. Gettys has a broad interest in the signaling systems which link cell surface receptors to transcriptional programs regulating the metabolic and endocrine functions of adipose tissue. An additional area of interest includes the nutrient sensing mechanisms linking modulation of specific subsets of genes by dietary constituents. A cell signaling specialist with an interest in adipocyte biology, leptin, UCPs and G proteins,

Dr. Gettys research is using strains of mice lacking the primary melanocortin receptor subtypes to assess their involvement in leptin action. The goal of these studies is to map leptin-responsive pathways and identify where leptin-resistance is occurring in obesity prone mice.

**Jeff Gimble, MD**

*Professor, Stem Cell Biology, Cell Culture Core, and Tissue Culture Core, PBRC*

Dr. Gimble's laboratory focuses on the isolation and characterization of adult stem cells from adipose tissue and bone marrow. These stromal cells have multiple differentiation potential and are capable of forming adipocytes, chondrocytes, hematopoietic supporting cells, neuronal cells, and osteoblasts in vitro. We are exploring the regulatory mechanisms governing the adult stem cell's fate and how they can be applied to regenerative medical problems.

**Frank Greenway, MD**

*Professor--Chief of Outpatient Clinic*

*Outpatient Clinic Unit*

*Out-Patient Clinic Unit - Recruiting*

*Pharmacology-based Clinical Trials, PBRC*

Dr. Greenway's areas of interest are obesity treatment including diets, herbal supplements, obesity surgery and obesity drug development.

**Marc Hamilton, PhD**

*Professor, Inactivity Physiology*

Dr. Hamilton is examining the effects of muscle disuse through human trials involving one-leg bicycle exercises, and he is investigating the effects of muscle disuse on genetic expression in rats after periods of exercise and inactivity. This research will provide knowledge of the physical effects of muscle disuse and is measuring how all of the approximately 35,000 genes in the human genome are adversely affected by physical inactivity.

**Gang Hu, MD, MPH, PhD**

*Assistant Professor, Chronic Disease and Epidemiology*

*Adjunct Assistant Professor, School of Public Health, LSU Health Sciences Center (LSUHSC)*

*Adjunct Assistant Professor, School of Human Ecology, LSU*

Dr. Hu's research interests are focused on the role of lifestyle factors, classical chronic disease risk factors and their interactions on the risk of several chronic diseases, including coronary heart disease, stroke, heart failure, diabetes, cancer and Parkinson's disease. Dr. Hu is collaborating with several large-scale epidemiological studies and clinical trials.

**Darcy Johannsen, PhD**

*Assistant Professor, Skeletal Muscle Physiology*

Dr. Johannsen's research interests are in skeletal muscle mitochondrial physiology in obesity, type 2 diabetes, and aging. She is also studying adaptive thermogenesis during energy balance perturbation.

**Claudia Kappen, Dr. rer. Nat**

*Professor, Developmental Biology*

Dr. Kappen studies the influence of maternal nutrition and metabolic disease on embryonic development, congenital defects and placental insufficiency in diabetic pregnancy, nutrition and prevention of birth defects, developmental programming of adult disease, genetics of developmental patterning. The laboratory uses a wide variety of approaches, including imaging, histological techniques, molecular biology, bioinformatics, and mouse genetics and genomics.

**Jeff Keller, PhD**

*Professor, PBRC*

*Hibernia National Bank/Edward G. Schleider Chair*

*Director, Institute for Dementia Research & Prevention*

*Associate Executive Director for Basic Research*

Dr. Keller's research is focused on aging, oxidative stress, proteasome, and Alzheimer's disease research. In addition to these projects, Dr Keller is working on understanding the ability of a high fat diet to modulate brain function; and brain pathology during aging.

**Rob Newton, PhD**

*Assistant Professor, Health Psychology  
Physical Activity and Ethnic Minority Health, PBRC*

Dr. Newton's research interests center on health promotion. Much of the work focuses on physical activity promotion as it relates to African Americans. Currently, Dr. Newton is leading a study that will assess sedentary behavior in African American adults. Other current research projects relate to physical activity measurement and promotion in children.

**Irina Obrosova, PhD**

*Professor, Mechanisms of Diabetes Complications, PBRC*

Dr. Obrosova's laboratory is involved in studies of the role for oxidative stress and oxidative stress-initiated downstream mechanisms in the pathogenesis of peripheral diabetic neuropathy and other diabetic complications.

**Eric Ravussin, PhD**

*Douglas L. Gordon Endowed Chair in Diabetes and Metabolism Professor , PBRC  
Chief of Health and Performance Enhancement, PBRC*

His research focuses on the genetic and molecular basis of obesity and its co-morbidities. His studies are aimed at understanding the molecular mechanisms that determines the inter-individual variability in energy expenditure, fat oxidation and in the activity of the sympathetic nervous system. Dr. Ravussin concentrates on the relationship between physiology and gene expression in response to diet and physical training.