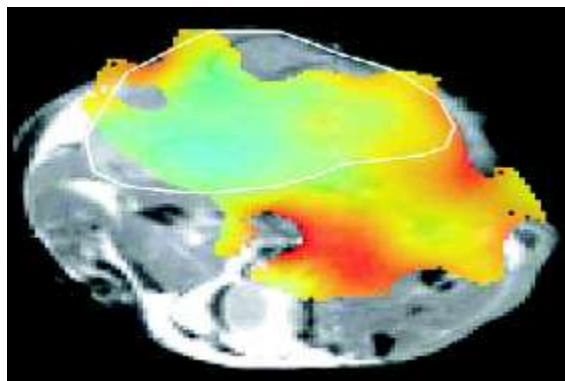


**Symposium and Training XVII:
HYPERPLORIZATION IN BIOLOGY**



Wednesday, MAY 20, 2009 & Thursday, MAY 21, 2009

Presented by
The Advanced Imaging Research Center
and
The National Center for Research Resources
in association with



Program Objective

The goal of the NIH-funded Research Resource at UT Southwestern is to develop novel Nuclear Magnetic Resonance (NMR) technologies for measuring and understanding intermediary metabolism *in vivo*. One major emphasis is to use ^2H and ^{13}C as metabolic tracers and modern NMR methodologies to unravel the complexities of multi-organ metabolism in animals and humans. A second component of the Research Resource is to develop novel imaging agents that respond to metabolism *in vivo*. There is widespread interest in brain activation as well as excitement about the potential for both spectroscopy and molecular imaging tools for *in vivo* detection of activation. We decided that a symposium emphasizing the current methods for detecting brain activation by MR would be timely and educational. Therefore, outstanding speakers in brain metabolism and physiology will discuss their work and the core research interests of this group will be discussed in the context of application to brain studies.

Guest Speakers

Kevin Brindle, PhD, University of Cambridge
Arnaud Comment, PhD, Ecole Polytechnique Federale de Lausanne
Charles Cunningham, PhD, University of Toronto
Klaes Golman, PhD, Imagnia AB
Aaron Grant, PhD, Harvard University
John Kurhanewicz, PhD, University OF California
Robert Shulman, PhD, Yale University

UT Southwestern Speakers

Shawn Burgess, PhD, Advanced Imaging Research Center, UTSW

F. Mark Jeffrey, PhD, Advanced Imaging Research Center, UTSW

Craig Malloy, MD, Advanced Imaging Research Center, UTSW, VA Medical Center at Dallas

Matthew Merritt, PhD, Advanced Imaging Research Center, UTSW

Juan Pascual, MD, Ph.D Neurology & Pediatric Neurology, UTSW

A. Dean Sherry PhD, Advanced Imaging Research Center, UTSW, University of Texas at Dallas

Program Schedule

TEACHING SESSION Wednesday, May 20, 2009

12:00 a.m. **On-Site Registration - North Campus**

1:00 p.m. **How NMR Illuminates Physiology and Medicine**
Robert Shulman, PhD

2:00 p.m. **Carbon Tracers and Enzyme Kinetics**
A. Dean Sherry, PhD

2:30 p.m. **Substrate Oxidation in Heart and Skeletal Muscle**
Craig Malloy, MD

3:00 p.m. **Discussion and Break**

3:30 p.m. **Glucose Production and Complex Networks in Pancreas and Liver**
Shawn Burgess, PhD

4:00 p.m. **Neurotransmitter Synthesis in the Mouse Brain**
Juan Pascual, PhD

4:15 p.m. **Data Analysis and Computer Models: Examples**
F. Mark Jeffrey, D. Phil.

4:30 p.m. **Sample Spectra and Discussion. Problem Sets**

HYPERPOLARIZATION IN BIOLOGY Thursday, May 21, 2009

8:00 p.m. < **On-Site Registration - North Campus Continental Breakfast**

9:00 p.m. **Introduction to Dynamic Nuclear Polarization**
Matthew Merritt, PhD

9:45 p.m. **The Journey of DNP-Enhanced Nuclear Spins: From the Polarizer to the Rat Brain**
Arnaud Comment, PhD

10:30 p.m. **Discussion and Break**

11:00 p.m. **Hyperpolarization and Long-Lived States: Circumventing T₁ Barriers**
Aaron Grant, PhD

11:45 p.m. **Discussion**

12:00 p.m. **Catered Lunch**

1:00 p.m. **¹³C Hyperpolarization: History, Results and Applications!**
Klaes Golman, PhD

2:00 p.m. **How to Image Hyperpolarized ¹³C**
Charles Cunningham, PhD

2:45 p.m. **Discussion and Break**

3:00 p.m. **Imaging Tumour Responses to Treatment with Hyperpolarized ¹³C Magnetic Resonance Spectroscopic Imaging**
Kevin Brindle, PhD

3:45 p.m. **Early Clinical Perspectives on Hyperpolarized ¹³C**
John Kurhanewicz, PhD

4:30 p.m. **Discussion**

4:45 p.m. **Reception**