



Each year the Advanced Imaging Research Center and The National Center for Research Resources (recently dissolved and reorganized under the National Institute of Biomedical Imaging and Bioengineering) host a symposium on a topic relevant to work being carried out at the Center. The purpose of the symposium is to provide information on research activities and training opportunities.

Faculty, research staff, undergraduate, graduate, and postdoctoral students are all encouraged to attend. Past participants have included those from academia and industry around the country. Each symposium is devoted to training in which the latest developments at the Center are discussed.

There will be no poster presentations. Instead, all attendees are encouraged to submit a one-page abstract on a primary research interest (instructions are available on the registration page). These abstracts, along with speaker abstracts, will be distributed in a booklet at the meeting registration desk. The intent of the booklet is to outline attendee research interests and expertise to augment Investigator interaction.

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Target Audience

This Symposium is intended for students, scientists and physicians with an interest in understanding and advancing methods for clinical imaging of brain injury, with emphasis on MR and PET methods.

Purpose and Content

Traumatic brain injury (TBI) is a major socio-economic problem with devastating long-term consequences. TBI also predisposes to Alzheimer's disease (AD). However, the link between neurodegeneration triggered by TBI and eventual development of AD is unclear. TBI causes axonal injury, hypoxia, inflammation, abnormal glucose metabolism and oxidative stress, all

factors that influence outcome from TBI and may influence the risk of AD. The ability to image these features of the brain in human patients would have a major impact on our ability to understand outcomes from TBI as well as the links among genetic predisposition, TBI and AD.

The clinical focus of the Symposium is on TBI and AD since there are many pathological and perhaps imaging features common to both diseases. One goal is to review current methods for imaging brain injury and our current understanding of brain plasticity. With this background, advanced methods for imaging specific features of brain function will be reviewed by the authorities in the field. Techniques to image axonal connections, brain oxygen consumption, brain glucose metabolism and protein deposition will be presented. These are just a few examples of recent advances in this exciting field. This Symposium is supported by the National Institute of Health - National Institute of Biomedical Imaging and Bioengineering (NIH-NIBIB: EB015908) and by the University of Texas Southwestern Medical Center.

Educational Objectives

Upon completion of the course, the participant should be able to:

- Describe the clinical significance of TBI
- Explain two MR methods for imaging connections between different regions of the brain
- Describe one current method for brain imaging oxygen consumption
- Describe one current method for measuring glucose metabolism in the brain.
- Identify future needs for imaging in support of relevant clinical trials.

Agenda

Wednesday, April 30, 2014

Updates on Cancer Imaging from Collaborations of the Advanced Imaging Research Center at UT Southwestern Medical Center, Texas A & M and MD Anderson

07:30 AM	Breakfast and Registration	
8:30 - 8:45 AM	CPRIT and Multi-Institutional Collaborations	Dean Sherry, Ph.D.
8:45 - 9:10 AM	In vivo CEST Imaging for Early Detection of a Therapeutic Response in Glioblastoma	Masaya Takahashi, Ph.D.
9:10 - 9:35 AM	An Update on Metabolic Imaging of Cancer Biomarkers	Changho Choi, Ph.D.
9:35 - 10:00 AM	Opportunities in Imaging Prostate Cancer: Probing Prostate Cancer Metabolism to Improve Detection	Kevin Courtney, M.D., Ph.D.
10:00 - 10:15	Discussion	
10:15 - 10:30	Break	
10:30 - 10:55	Imaging and Spectroscopy of Cancer: Challenges at 7T	Mary Preston McDougall, Ph.D.
10:55 - 11:20	Advances in Imaging of Hyperpolarized Substrates at MDACC	James Bankson, Ph.D.
11:20 - 11:45	Hyperpolarized ¹³ C MR Imaging at UTSW Medical Center	Jian-xiong Wang, Ph.D.
11:45 - 12:00	Discussion	
12:30 PM	Lunch	

Wednesday, April 30

Moderator: Hunt Batjer, M.D.

1:00 PM *Registration*

2:00 PM Imaging Brain Injury

Roland Lee M.D.

2:45 PM Response of Brain to Injury

David Brody, M.D., Ph.D.

3:30 PM *Break*

3:45 PM TBI, the Big Clinical Picture

Geoff Manley, M.D., Ph.D.

4:30 PM Imaging Opportunities in Neuroperformance
Therapies

Sandra Bond Chapman, Ph.D.

4:45 PM *Reception*

Thursday Morning, May 1

Moderator: Hanzhang Lu, Ph.D.

7:30 AM *Registration and Breakfast*

8:30 AM Perfusion Imaging by MR

Eric Wong, Ph.D., M.D.

9:15 AM Resting State Networks

Catie Chang, Ph.D.

10:00
AM *Break*

10:30
AM The Connectome

Kamil Ugurbil, Ph.D.

11:15
AM PET Ligands for Brain Metabolism and Injury

Robert Innis, M.D., Ph.D.

12:00 *Lunch*

Thursday Afternoon, May 1

Moderator: Mark Goldberg, M.D.

1:00 PM Tau: New Horizons in Neurodegenerative
Imaging

Mark Mintun, M.D.

1:45 PM Regional Glucose Metabolism by PET

Andrei Vlassenko, M.D., Ph.D.

2:30 PM *Break*

3:00 PM Metabolic Management of Brain Injury

David Hovda, Ph.D.

3:45 PM Imaging Endophenotypes of TBI for Clinical
Trials

Ramon Diaz-Arrastia, M.D., Ph.D.

4:30 PM *Discussion and Adjourn*

Discussion of Off-Label Use

Because this course is meant to educate the physicians with what is currently in use and what may be available in the future, there may be "off-label" use discussed in the presentations. Speakers have been requested to inform the audience when off-label use is being discussed.