

Title: Multimodal High-Resolution MRI of the Retinas in Animals and Humans

Speaker:

Professor Timothy Q Duong
MRI Division Chief
Research Imaging Institute
University of Texas Health Science Center
San Antonio, Texas

Date: Monday, 11 April 2011

Time: 5:30 pm

Venue: Room 603, Chow Yei Ching Building

Abstract:

This talk reviews recent developments in high-resolution magnetic resonance imaging (MRI) and its application to image anatomy, physiology, and function in the retina of animals. It describes technical issues and solutions in performing retinal MRI, anatomical MRI, blood oxygenation level-dependent functional MRI (fMRI), and blood-flow MRI both of normal retinas and of retinal degeneration. MRI offers unique advantages over existing retinal imaging techniques, including the ability to image multiple layers without depth limitation and to provide multiple clinically relevant data in a single setting. Retinal MRI has the potential to complement existing retinal imaging techniques.

Biography of the speaker:

Dr. Duong has over 17 years of experience in developing and applying magnetic resonance imaging (MRI) and spectroscopy (MRS) to study anatomy, physiology and function of the central nervous system in normal and diseased states in both animal models and humans. His major focus was to develop very high-resolution MRI to image different layers of the retinas in animal models. Specifically, these developments include: (1) novel MRI/MRS methodologies to dynamically measure blood flow, tissue oxygen tension, blood volume of retina; (2) high-resolution functional MRI techniques for mapping layer-specific and columnar organization; and (3) imaging biomarkers for early detection, longitudinal monitoring, and prediction

of tissue fate in retinal diseases. This proposal outlines the first step to translate our successes in MRI of the retina in animal models to humans.

Dr. Duong was the winner of the ISMRM Rabi's Young Investigator Award (1998), a NSF predoctoral fellowship (1994-1998), and a recipient of a NIH NRSA postdoctoral fellowship (1999-2001) during postdoc training at the Center of Magnetic Resonance Research at the University of Minnesota. Dr. Duong is the Stanley I Glickman Professor of Ophthalmology, Radiology and Physiology, MRI Division Chief, Assistant Director of Research of the Research Imaging Institute. He is also a UTSA/UTHSCSA Biomedical Engineering joint program faculty. Dr. Duong is a recent recipient of the VA Career Development Award (2007-2009) and the Established Investigator Award from the American Heart Association (2009-2014).

Organizer: Prof. E.X. Wu