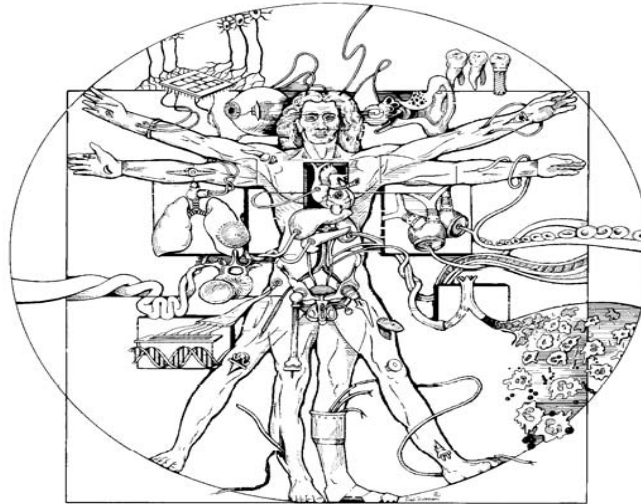


Biomedical Engineering Seminar



Doctoral Defense of
Dominique Jennings, Ph.D. Candidate
University of Arizona

“Dynamic Contrast-Enhanced Magnetic Resonance Imaging and Fluorescence Microscopy of Tumor Microvascular Permeability”

Abstract: Microvascular permeability is a pharmacologic indicator of tumor response to therapy, and it is expected that this biomarker will evolve into a clinical surrogate endpoint and be integrated into protocols for determining patient response to antiangiogenic or antivascular therapies. The goal of this research is to develop a method by which microvascular permeability (K^{trans}) and vascular volume (v_p) as measured by DCE-MRI were directly compared to the same parameters measured by intravital fluorescence microscopy in an MRI-compatible window chamber model. Dynamic contrast enhanced-MRI (DCE-MRI) is a non-invasive, clinically useful imaging approach that has been used extensively to measure active changes in tumor microvascular hemodynamics. However, uncertainties exist in DCE-MRI as it does not interrogate the contrast reagent (CR) itself, but the effect of the CR on tissue water relaxivity. Thus, direct comparison of DCE-MRI with a more quantitative measure would help better define the derived parameters. The combined imaging system was able to obtain both dynamic contrast-enhanced MRI data high spatio-temporal resolution fluorescence data following injection of fluorescent and gadolinium co-labeled albumin. This approach allowed for the cross-validation of vascular permeability data, in relation tumor growth, angiogenesis and response to therapy in both imaging systems.

Wednesday, January 16th, 2008

9:00 a.m.

MRB 102

Host: Robert Gillies, Ph.D. (626-5050)

Persons with a disability may request a reasonable accommodation by contacting the Disability Resource Center at 621-3268 (V/TTY). Requests should be made as early as possible to allow time to arrange the accommodation.