



Biomedical Image Computing and Informatics Seminar

“Imaging Cancer Metabolism in Patients: FDG PET and Beyond ”

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Smilow Rubenstein Auditorium & Commons

3400 Civic Center Blvd.

Thursday, April 4, 2019 at 1pm

****Pizza lunch at 12:45pm****

Abstract

The identification of altered energy metabolism as a hallmark of cancer leads to opportunities to exploit cancer metabolism as a target for diagnosis. This has been most widely exploited using the elevated rate of glycolysis observed in most tumors as a target for imaging - in specific, positron emission tomography (PET) imaging of the glucose analog 18F-fluorodeoxyglucose (FDG). At the same time, the variability of tumor FDG uptake seen in clinical imaging has highlighted some of the limitations of imaging tumor glycolysis and has spurred the development of new imaging probes and novel imaging modalities designed to image other facets of cancer energy metabolism. The talk will briefly highlight current uses of FDG PET/CT for cancer staging and response evaluation, and also review data from human and animal FDG studies indicating the need to study alternative cancer fuels. The talk will then highlight other PET probes used to look at TCA cycle flux and the metabolism of alternative energy substrates such as glutamine. The talk will close by showing how advances in PET and other metabolic imaging modalities, combined with novel approaches to image analysis, can be used to provide a more comprehensive picture of the in vivo biology of cancer metabolism and guide metabolically-targeted therapy.

Bio

Dr. David Mankoff is Gerd Muehlechner Professor of Radiology, Vice-Chair for Research in Radiology, and Director of the PET Center at the Perelman School of Medicine at the University of Pennsylvania. He also serves as the Director of the Penn Radiology Department's PET Center and as the Associate Director for Education and Training for Penn's Abramson Cancer Center. Dr. Mankoff is board-certified in Nuclear Medicine and holds a PhD in Bioengineering focusing on PET instrumentation. He practices Nuclear Medicine at the University of Pennsylvania, with a special interest in oncologic applications of molecular imaging and radionuclide treatment of endocrine tumors and other cancers. Dr. Mankoff's research focuses on molecular imaging of cancer, primarily on breast cancer, and emphasizes therapeutic monitoring, identifying factors mediating therapeutic resistance, and the translation of new methods to clinical trials. He also focuses on imaging methodology and quantitative imaging methods related to molecular cancer imaging. Dr. Mankoff is a Komen Scholar for the Susan G. Komen Foundation. He also Chairs the Experimental Imaging Sciences Committee and serves as Co-Chair of the Scientific Program Committee of ECOG-ACRIN. Dr. Mankoff is a past member and President of the American Board of Nuclear Medicine and is on the editorial boards of Nuclear Medicine and Biology, Breast Cancer Research, Journal of Nuclear Medicine, The Breast Journal, and Clinical Cancer Research and serves as an Associate Editor for Breast Cancer Research and the Journal of Nuclear Medicine