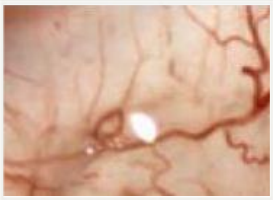
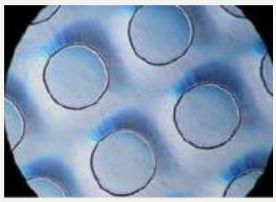
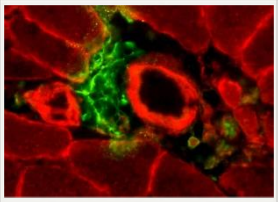
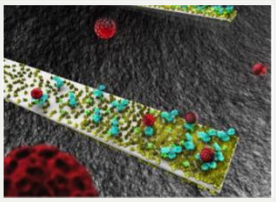
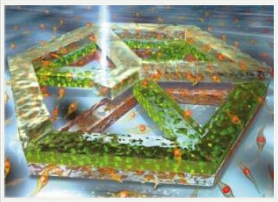
BioNanotechnology Seminar Series

Fall 2014

Multimodal Molecular Imaging with Nanoparticles

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Date: **Wednesday, November 12, 2014**
Time: **12:00 – 1:00 p.m. Central (10:00 – 11:00 a.m. Pacific)**
Location: **1000 MNTL at Illinois (SSM 150 at UC Merced)**

Abstract:

The National Academy of Engineering selected 'Imaging' as one of the greatest engineering achievements of the 20th century. The combination of different imaging modalities and technologies including nanoparticles for studying biological processes at the molecular level has an extraordinary potential for revolutionizing the diagnosis and treatment of pathophysiological disorders, and thus for mitigating the significant social and economic costs associated with the clinical management of disease. These integrated imaging approaches will eventually lead to individualized programs for disease prevention through advanced diagnosis, risk stratification and targeted cell therapies resulting in more successful and efficient health care.

Traditionally, nanoparticles were designed for targeted drug delivery as carriers for sensitive chemotherapeutics or highly toxic substances. However, more recently, nanomedicine has become an emerging field in theranostics integrating therapy with molecular imaging in which nanoparticles can provide diagnostic information by a variety of in vivo imaging modalities. Over last few decades multiple interdisciplinary groups have developed various imaging modalities and technologies for both mapping biological processes with biomarkers (antibodies, peptides, peptidomimetics and nanoparticles), and targeted delivery of therapy monitored with these techniques. Although many imaging modalities have been presented, only few are available for broad applications in both preclinical and clinical imaging research.

The goal of this talk is to provide the current update of selected state-of-the-art imaging modalities and applications using nanoparticles, which would likely lead to improved clinical outcomes if employed in an integrated approach, including preclinical molecular imaging strategies to assess naturally occurring and therapeutic angiogenesis, vascular remodeling and cancer.

Seminar Presented by:

Center for Cellular Mechanics
University of Illinois at Urbana-Champaign

IGERT Integrative Graduate Education and Research Traineeship
Cellular and Molecular Mechanics and BioNanotechnology

M-CNTC NCI Alliance for Nanotechnology in Cancer
Midwest Cancer Nanotechnology Training Center

CNST University of Illinois Center for Nanoscale Science and Technology