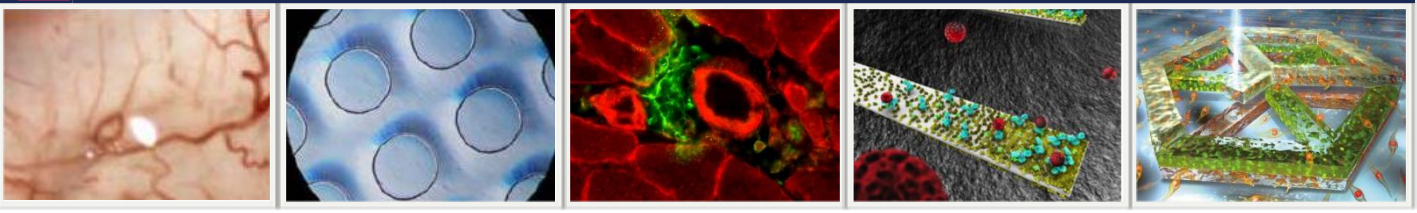
BioNanotechnology Seminar Series

Fall 2011



Precisely Size Controlled Drug-silica Nanoconjugate for Cancer Therapy

Li Tang, M-CNTC Trainee

Department of Materials Science and Engineering

University of Illinois at Urbana-Champaign

Date, Time, and Location:

Tuesday, September 6, 2011 **12:30 – 1:00 p.m. CDT** **1000 MNTL**

10:30 – 11:00 a.m. PDT **KL 232** (UC Merced)

Abstract:

Authors: Li Tang and Jianjun Cheng

Drug delivery nanomedicine, exemplified by micelles and nanoparticles roughly in the size range of 1-200 nm, have attracted much interest in the past 2-3 decades as alternative modalities for cancer treatment. The size of these drug delivery vehicles has been strongly correlated with their in vivo biodistribution, penetration in tumor tissue, and intracellular trafficking. It potentially has significant impact on their antitumor efficacy. However, it is challenging to make nanomedicine in large quantities with controlled particle size and narrow particle size ranges, in particular for nanomedicine smaller than 50 nm. Here we report a novel drug delivery platform based on drug-silica nanoconjugates (drug-NCs) that can be controlled fabricated at nearly any desired size between 20 and 200 nm, with extremely narrow particle size distribution, in multi-gram scale within a few hours. Several in vitro and in vivo studies demonstrated that the sizes of the drug-NCs have huge impact on cell uptake and tumor penetration; the drug-NCs with size of 20 nm outperform their counterparts with larger sizes, showing great promise in cancer therapy and diagnosis.

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