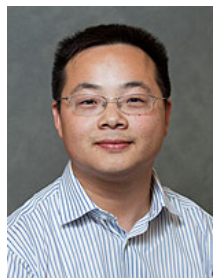




Department of Chemical Engineering Special Guest Speaker



Dr. Qiaobing Xu
Assistant Professor,
Biomedical Engineering
Tufts University

Host: **Dr. Hicham Fenniri**
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**“Nanotechnology for
Drug Delivery and
Tissue Engineering”**

**Wednesday,
January 14**
312 EII Hall
11:45 a.m. – 1:00 p.m.

*Refreshments will be
served.*

ABSTRACT Biomaterials at nanoscale have been widely studied as novel vectors for controlled drug delivery and artificial matrices for tissue engineering. In my group, we are interested in developing micro/nanotechnology for biomedical applications, including nanomedicine and tissue engineering. In the first part of my presentation, we are developing synthetic lipid-based nanoparticles for intracellular delivery of various therapeutic biomacromolecules. I will present the development of an effective strategy to deliver therapeutic proteins into cytoplasm for cancer treatment, using a combination of the reversible modification of proteins and cationic lipid-based nanoparticles. The application of such novel delivery system for the inhibition of tumor cell proliferation both in vitro and in vivo will be demonstrated. In the second part of my talk, I will present a novel fabrication technique, called “Bioskiving” that we recently developed to fabricate tissue constructs from decellularized biological tissues. For example, we fabricated various 2D and 3D constructs from a piece of decellularized tendon which comprises of bundles of well aligned collagen nanofibers using a combination of tissue sectioning, stacking and rolling. We have further extended this strategy to other decellularized tissues. Some potential biomedical applications, such as nerve conduits and blood vessels, of this novel fabrication strategy will

be discussed.

BIOGRAPHY Dr. Qiaobing Xu is currently an assistant professor in the Department of Biomedical Engineering at Tufts University. He also holds an adjunction assistant professor position in the Department of Chemical and Biological Engineering and School of Medicine at Tufts University. He obtained his B.S. in 1999, and M.Sc. in 2002 (Advisor: Prof. Xi Zhang) both from the Department of Chemistry, Jilin University, Changchun, China. He obtained his PhD in chemistry under the guidance of Prof. George Whitesides from Harvard University where he invented “Nanoskiving,” a novel technology to fabricate functional nanomaterials. From 2007-2010, he was a Cancer Center for Nanotechnology Excellence postdoctoral fellow with Prof. Robert Langer at MIT, where he worked on developing novel nanomaterials for drug delivery applications. He joined Tufts in September, 2010. His current research interests lie at the intersection of material science engineering, specifically micro/nanoscience, and biomedical application. His work involves using a combinatorial method to develop novel materials for the delivery of therapeutic biomacromolecules and using nanotechnology to develop novel biomaterials for tissue engineering. He received Charlton Award from Tufts University School of Medicine in 2012 and named the Pew Scholar for Biomedical Sciences from Pew Charitable Trusts in 2013.

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