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## Merging Microscale Technologies & Advanced Biomaterials for Cardiovascular Tissue Engineering

**Wednesday**
**March 12**
320 Shillman Hall
11:45 a.m. – 1:00 p.m.

**ABSTRACT** Micro- and nanoscale technologies are increasingly used in multidisciplinary research areas such as tissue engineering and biomedical sciences. These technologies have benefited the fields of experimental biology and medicine immensely through the design of complex biomaterials that can be used for cell-based studies. These biomaterials are required to mimic the physical, biological, and chemical environment of the native tissues. My research has been focused on fabrication, characterization, and application of novel biomaterials in regenerative medicine. In this seminar, I will outline my past and current research as well as my future perspectives on 1) the development of three dimensional advanced biomaterials and cell-laden hydrogels with tunable mechanical, chemical, and biological properties 2) integration of microfabrication techniques with these innovative biomaterials to precisely control cellular microenvironments and create complex functional biomimetic tissue constructs. In particular, I will present my recent findings on the development of a new class of microfabricated elastomeric biomaterials as a novel and promising candidate for cardiovascular tissue engineering. Microengineered platforms presented herein have broad applications in the fields of tissue engineering, drug discovery and pharmaceutical research, and *in vitro* modeling of human diseases and fundamental biological studies.

**BIOGRAPHY** Dr. Nasim Annabi's research involves tissue engineering of cardiac and vascular tissues, focusing on the cell and tissue responses to their microenvironment. She has developed advanced biomaterials with controlled physical and biological properties combined with microscale techniques to control tissue microarchitecture. She have synthesized and characterized various 3D cell-laden hydrogels for different tissue engineering applications. In particular, she has recently developed technologies to engineer novel highly elastic cell-laden hydrogels with excellent properties for cardiovascular tissue engineering. She has published 33 peer-reviewed papers in the tissue engineering field. In addition, she is the author of 5 book chapters and 2 patents. She has also given over 50 seminars at various conferences and academic institutions.

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