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ABSTRACT DEADLINE: NOVEMBER 1, 2005

REMINDER: *In fairness to all potential authors, late abstracts will not be accepted.*

MRS Symposium BB: Mechanotransduction and Engineered Cell-Surface Interactions

There has been a dramatic increase in the interest in nano- and microfabricated materials for biological systems. The customized extracellular environments may aid in the propagation of stem cells, the differentiation of cells, and for other manipulations of cell function. Further, nanometer-level devices are being prepared for sensing cell-generated forces and for applying forces to cells. Since many of the cellular components are 2-10 nm in size, the new capabilities of e-beam fabrication at the nanometer level now make it possible to mimic protein structures, which may open new capabilities for sensors and treatments. Speakers will discuss the problems in the preparation of custom materials for solving biological problems.

Mechanical features of biological materials are critical for cell function, and nanofabricated features are used to elucidate the critical aspects of cellular mechanics and motility. Other novel materials are now revealing important aspects of cell functions, including cell-rigidity sensing, curvature sensing, and pattern recognition.

This is an interdisciplinary topic; and speakers from biology, engineering and materials science backgrounds will give different perspectives of the problems and strategies that were successful.

Topics to be addressed:

- Spatial and mechanical signal presentation by ECM
- Regulating patterning: tissue, cell, and molecular levels
- Damage, regeneration and wound healing
- Engineering function
- Engineering matrix assembly and signaling
- Materials insights into biology from the NSF-MRSECs

Invited speakers include: **Arup Chakraborty** (Univ. of California-Berkeley), **Juan DePablo** (Univ. of Wisconsin-Madison), **Jennifer Elisseeff** (Johns Hopkins Univ.), **Gerry Fuller** (Stanford Univ.), **Kevin Healy** (Univ. of California-Berkeley), **Darrell Irvine** (Massachusetts Inst. of Technology), **Paul Janmey** (Univ. of Pennsylvania), **Laura Keissling** (Univ. of Wisconsin-Madison), **Phil Messersmith** (Northwestern Univ.), **Paul F. Nealey** (Univ. of Wisconsin-Madison), **Laura Niklasson** (Duke Univ.), **Helene Sage** (Univ. of Washington), **Viola Vogel** (ETH Zurich, Switzerland), **Dave Weitz** (Harvard Univ.), and **Zena Werb** (Univ. of South Florida).

Symposium Organizers

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