

Biomaterials from 2D to 3D to Larger than Life: A Symposium on the Future of Biomaterials to Celebrate Buddy Ratner's 60th Birthday

December 14-17, 2006

**The Sheraton Maui Resort
Ka'anapali Beach, Maui**

Thursday, Dec. 14th

*12:00 PM – 5:00 PM Registration/Hospitality Desk
Foyer/Maui Ballroom*

Evening Events

Thursday, Dec. 14th

*6:00 – 8:00 PM Welcome Reception – Anuenue Lawn
No Host Bar
Maile Hot and Cold Hors d'oeuvres*

Friday, Dec. 15th

*6:00 – 8:30 PM BUDDY RATNER ROAST – Kapalua/Napili Rooms
6:00 – 7:00 Hosted Bar
7:00 – 8:30 No Host Bar
Orchid Hot and Cold Hors d'oeuvres*

Saturday, Dec. 16th

*6:00 – 9:00 PM GALA DINNER – Ocean Lawn
Featuring: Mojo Gumbo Band
6:00 – 7:00 Hosted Bar
7:00 – 9:00 No Host Bar
Taste of the Pacific Rim Buffet – Japan, China, Thailand, Polynesia*

Friday, Dec. 15th Maui Ballroom

8:30 AM WELCOME AND INTRODUCTIONS

Pat Stayton and Yongmin Kim, University of Washington

BIOMATERIALS AND BIOCOMPATIBILITY 1

Chairs: Pat Stayton and Ashutosh Chilkoti, Duke University

9:00 – 9:25 Allan Hoffman, University of Washington

“How Buddy led me from hydrogels to smart polymers”

9:25 – 9:50 Tom Horbett, University of Washington

“Is There a Future for Theories in Biomaterials Science? The Example of Blood Compatibility”

9:50 – 10:15 James Anderson, Case Western Reserve University

“Unaddressed Issues In Biomaterials Research: A Biased Perspective”

10:15 – 10:45 BREAK

10:45 – 11:10 David Williams, University of Liverpool

“Only One Link in the Chain of Destiny Can Be Handled at a Time”

11:10 – 11:35 Mike Sefton, University of Toronto

“At Canaan's Edge: Engineered Biomaterials and Therapeutic Polymers”

11:35 – 12:00 Daniel Ratner, Boston University

“Putting the 'omics' into Glycomics: Oligosaccharide Synthesis, Surface Modification and Modern Glycobiology”

12:00 – 1:00 LUNCH – On Your Own

TISSUE ENGINEERING

Chairs: Kazunori Kataoka and Art Coury

1:00 – 1:25 Robert Nerem, Georgia Institute of Technology

“Tissue Engineering: Back to the Future”

1:25 – 1:50 Kevin Healy, University of California, Berkeley

“Designer Biointerfaces: Too Much Information?”

1:50 – 2:15 Ceci Giachelli, University of Washington

“Notch one up for biomaterial surface signaling”

2:15 - 2:40 Robert Guldberg, Georgia Institute of Technology

“Biomaterial Strategies for Regenerating Bone”

2:40 – 3:05 Ravi Bellamkonda, Georgia Institute of Technology

“Creating 2D Interfaces in 3D: Engineering Nanofibers, Hydrogels and Anisotropy for PNS Regeneration”

3:05 – 3:30 BREAK

Friday, Dec. 15th Maui Ballroom

TISSUE ENGINEERING

Chairs: Kazunori Kataoka and Art Coury

- 3:30 – 3:55 John Rabolt, University of Delaware**
“Orienting Polymer Chains in Macroscopically Aligned Electrospun Polymer
Nanofibers: Applications to Tissue Engineering Constructs”
- 3:55 – 4:20 Sandy Chian, Nanyang Technological University**
“Effect of Electrospun Fibre Surface on Cell Attachment and Proliferation”
- 4:20 – 4:45 Stephanie Bryant, University of Colorado**
"Photopolymerized Hydrogels for Functional Tissue Engineering"

DRUG DELIVERY

Saturday, Dec. 16th Maui Ballroom

Chairs: Allan Hoffman and James Anderson

- 8:30 – 8:55 Julie Babensee, Georgia Institute of Technology**
“Dendritic Cells and Biomaterials”
- 8:55 – 9:20 Henry Kopecek, University of Utah**
“Swell Gels: From Polymer Implants to Nanomaterials Self-Assembled from Block and Graft Copolymers”
- 9:20 – 9:45 Nicholas Peppas, University of Texas, Austin**
“Nanostructured biomaterials and surfaces for recognition”
- 9:45 – 10:10 Kazunori Kataoka, University of Tokyo**
“Self-organized Nanodevices from Block Copolymers for Gene and Drug Delivery”

10:10 – 10:45 BREAK

- 10:45 – 11:10 Kathryn Uhrich, Rutgers University**
“PolyNSAIDs and PolyAntibiotics: Designing Biodegradable Polymers for Drug Delivery”
- 11:10 – 11:35 James Bryers, University of Washington**
“Biomedical Device Infections; Buddy, Bugs, Bryers, and Biomaterials”
- 11:35 – 12:00 Todd McDevitt, Georgia Institute of Technology**
“Engineering of regenerative matrices from embryonic stem cells”

12:00 – 1:00 LUNCH – On Your Own

BIOINTERFACES AND SURFACE ANALYSIS 1

Chairs: Kevin Healy and Gabriel Lopez, University of New Mexico

- 1:00 – 1:25 David Castner, University of Washington**
“The Relationship of Surface Structure to Biological Performance:DNA Hybridization”
- 1:25 – 1:50 Gabor Somorjai, University of California, Berkeley**
“Amphiphilic Peptide Adsorption at Hydrophobic Surfaces Studied by Sum Frequency Generation (SFG) Vibrational Spectroscopy, QCM and AFM”
- 1:50 – 2:15 Deborah Leckband, University of Illinois**
“Mechanochemical Transduction: Linking Surface Chemistry to Cell Biology”
- 2:15 – 2:40 Michael Grunze, Universitat Heidelberg**
“Towards quantifying biomolecule/surface interactions”
- 2:40- 3:00 BREAK**
- 3:00 – 3:25 Bonnie Tyler, University of Utah**
“The buried interface and Antimicrobial resistance in *Candida albicans* biofilms”
- 3:25 – 3:50 Mizuo Maeda, RIKEN**
“DNA Conjugate Polymers for Reliable Genotyping”
- 3:50 – 4:15 Sei Kwang Hahn, POSTECH**
“2D to 3D *In Vivo* Bioimaging of Hyaluronic Acid Derivatives Using Quantum Dots”
- 4:15 – 4:40 Shaoyi Jiang, University of Washington**
“Molecular Engineering of Surfaces for Biomaterials”

Sunday, Dec. 17th Maui Ballroom

BIOMATERIALS 2

Chairs: Mike Sefton and Tom Horbett

- 8:30 – 8:55 Samuel Stupp, Northwestern University**
“Supramolecular Bioactivity for Regenerative Medicine”
- 8:55 – 9:20 David Grainger, University of Utah**
“Biomaterials Design Outside the Body: an Example of Microarray Diagnostics”
- 9:20 – 9:45 Stuart Cooper, Ohio State University**
“Biomimetic Interfaces Using Cell-Specific Phage-Display-Selected Peptides”
- 9:45 – 10:10 Joachim Kohn, Rutgers University**
“A new approach to the rational discovery of polymeric biomaterials”

10:10 – 10:30 BREAK

- 10:30 – 10:55 Art Coury, Genzyme Corporation**
“Stability of Polymers for Permanent Implants: Raising the Bar”
- 10:55 – 11:20 Alan Russell, University of Pittsburgh**
“How do charged materials kill bacterial cells?”
- 11:20 – 11:45 Rena Bizios, University of Texas, San Antonio**
“Nanophase Ceramics for Biomedical Applications”
- 11:45 – 12:10 Francois Auger, Hopital de l’Enfant-Jesus**
“Twenty Years Plus! of Tissue Engineering. Caution and optimism at the LOEX”

12:10 – 1:00 LUNCH – On Your Own

BIOINTERFACES AND SURFACE ANALYSIS 2

Chairs: Dave Castner and Stuart Cooper

- 1:00 – 1:25 Katsuhiko Nakamae, JASRI**
"Polyampholytic Hydrogel for bioadhesive"
- 1:25 – 1:50 Graham Leggett, University of Sheffield**
“Low-Dimensional Biomaterials”
- 1:50 – 2:15 Heather Canavan**
“Characterization of Cells and the Buried Biological Interface using Surface Science Techniques”
- 2:15 – 2:40 Saeyoung Ahn**
"Quantification of Biomolecules via Nano-Platform using the Receptor Antibody Technique"
- 2:40 – 3:05 James Hickman, University of Central Florida**
“Fabrication of Neuronal Circuits in 2D and 3D Utilizing Embryonic and Adult Cells”
- 3:05 – 3:30 Mário Barbosa, Universidade do Porto**
“Protein adsorption in cell-surface interactions”
- 3:30 – 4:00 Buddy & Concluding Remarks**