

Sunday, September 9, 2018

2:00 PM REGISTRATION BEGINS

SESSION I: Hierarchical Assembly of Biomaterials and Delivery systems

Discussion Leader: Buddy Ratner, University of Washington

4:00 PM **Organizing Team**

Welcome and Introductory Remarks

4:10 PM 1. **KEYNOTE**

Sam Stupp, Northwestern University

Encoding Regenerative Bioactivity in Supramolecular Polymers

4:45 PM 2. **Eric Appel**, Stanford University

Supramolecular Biomaterials Enabling Innovations in Drug Formulation and Delivery

5:10 PM 3. **ORGANIZER**

Theresa Reineke, University of Minnesota

Self Assembly of Amphiphilic Block Polymers Promote Encapsulation of CRISPR Cas9 Payloads and Intracellular Delivery

5:45 PM 4. **KEYNOTE**

Tosh Chilkoti, Duke University

Hierarchical Self-Assembly of Genetically Encoded Biomaterials

6:20 PM BREAK

6:30 PM **ORGANIZER**

Buddy Ratner, University of Washington

Napa Wine Tutorial

7:00 PM WELCOME RECEPTION

Monday, September 10, 2018

7:00 AM CONTINENTAL BREAKFAST AT HOTEL

SESSION II: New Approaches to Biomaterials, Scaffolds, and Surfaces

Discussion Leader: **Eric Appel, Stanford University**

8:00 AM 5. **Melissa Grunlan**, Texas A&M University
Self-Fitting Shape Memory Polymer Scaffolds to Treat
Craniofacial (CMF) Bone Defects

8:25 AM 6. **Allie Obermeyer**, Columbia University
Engineering Protein Complex Coacervation for Cellular
Compartmentalization

8:50 AM 7. **Duncan Maitland**, Texas A & M University
In Vivo Experience with Porous Biodegradable Polyurethane
Vascular Occlusion Devices

9:15 AM 8. **KEYNOTE**
Bob Ward, ExThera Medical Corporation
Clinical Testing of a Therapeutic Blood Filter that Removes
Pathogens

9:50 AM BREAK

SESSION III: New Polymers for therapeutics

Discussion Leader: **Allie Obermeyer, Columbia University**

10:10 AM 9. **KEYNOTE**
Dan Anderson, MIT
Combinatorial Development of Biomaterials for Cellular Delivery

10:45 AM 10. **Chris Alabi**, Cornell University
Molecular Design and Activity of Sequence-Defined Macromolecules

11:10 AM	11.	ORGANIZER Paul Burke , Burke Bioadventures, LLC The Era of Polymer Therapeutics: A Venusian Dawn
11:45 AM	12.	KEYNOTE Suzie Pun , University of Washington Bioactive Polymers for Biomedical Applications
12:20 PM		LUNCH BREAK (ON YOUR OWN)
SESSION IV: Innovations in Devices, Biomaterials, and interfaces Discussion Leader: Chris Alabi, Cornell University		
4:00 PM	13.	KEYNOTE Kristi Kiick , University of Delaware Phase-Separated Microstructured Materials for Applications in Medicine
4:35 PM	14.	Jadranka Travas-Sejdic , University of Auckland, New Zealand Molecularly Engineered Conducting Polymers with Biomimetic Properties
5:00 PM		BREAK
5:20 PM	15.	ORGANIZER Buddy Ratner , University of Washington Update on Precision Porous Polymers for Healing and Regeneration
5:55 PM	16.	Julio Palmaz , Palmaz Winery and University of Texas Health Science Center San Antonio Stagnation in Medical Device Technology
6:20 PM		END DAILY SESSIONS
6:30 PM		POSTER SESSION AND RECEPTION
		DINNER ON YOUR OWN

Tuesday, September 11, 2018

7:00 AM CONTINENTAL BREAKFAST AT HOTEL

SESSION V: Innovations in Bioimaging and Tissue regeneration**Discussion Leader: Heather Maynard, University of California, Los Angeles**

8:00 AM 17. **KEYNOTE**

Phil Messersmith, University of California, Berkeley

Shear-Thinning and Self-Assembling Polymer Prodrugs for Drug-Induced Tissue Regeneration

8:35 AM 18. **Mark Grinstaff**, Boston University

Polymers for Cartilage Tissue Supplementation and Lubrication

9:00 AM 19. **Cassandra Fraser**, University of Virginia

Luminescent Boron Biomaterials for Wound Oxygen Imaging

9:25 AM 20. **Ellen Sletten**, University of California, Los Angeles

Perfluorocarbon Nanoemulsion Theranostics Stabilized by Poly(oxazoline) Amphiphiles

9:50 AM BREAK

SESSION VI: Polymers for Encapsulation, Stabilization, and Delivery**Discussion Leader: Theresa Reineke, University of Minnesota**

10:10 AM 21. **ORGANIZER**

Heather Maynard, University of California, Los Angeles

Biometric Stabilizing Polymers for Protein Therapeutics

10:45 AM 22. **Shaoyi Jiang**, University of Washington

Anti-PEG Antibodies: Current Issues and Beyond PEGylation

11:10 AM 23. **Steve Roffler**, Institute of Biomedical Sciences, Academia Sinica, Taiwan

Anti-PEG Antibodies: Their Uses and Potential Clinical Impact

11:35 AM 24. **Carrie Schindler**, Malvern Instruments Inc.
Applying Multi-Detector GPC/SEC to Complex Characterization of Drug Delivery Polymers

12:00 PM LUNCH BREAK ON YOUR OWN

SESSION VII: Advances in Drug Delivery – Polymers and Nanoparticles

Discussion Leader: Paul Burke, Burke Bioadventures, LLC

4:00 PM 25. **KEYNOTE**
Bob Prud'homme, Princeton University
Nanomedicine: From High Tech to Global Health

4:35 PM 26. **Peter Senter**, Seattle Genetics
Potent Antibodies and Antibody-Drug Conjugates for Cancer Therapy

5:00 PM 27. **Mark Dreibelbis**, The Dow Chemical Company
Influence of Excipient Properties and Interactions on Solid Dispersions

5:25 PM BREAK

5:45 PM 28. **KEYNOTE**
Niren Murthy, University of California, Berkeley
In vivo Delivery of Cas9 Ribonucleoprotein and Donor DNA with Gold Nanoparticles

6:20 PM 29. **Todd Emrick**, University of Massachusetts, Amherst
Novel Polymer Zwitterions for Conjugation and Complexation of Therapeutics

6:45 PM 30. **Marian Gindy**, Merck
Polymer Based Drug Delivery Approaches to Improve Medication Adherence

7:10 PM END DAILY SESSIONS

7:30 PM WINE TASTING

Wednesday, September 12, 2018

7:00 AM CONTINENTAL BREAKFAST AT HOTEL

SESSION VIII: New Synthesis and Assembly methods for Biomaterials**Discussion Leader: Alshakim Nelson, University of Washington**

8:00 AM 31. **KEYNOTE**

Paula Hammond, MIT

Designer Polypeptides for the Electrostatic Assembly and Release of RNA Complex Systems

8:35 AM 32. **Stefan Zauscher**, Duke University

TdT Catalyzed Enzymatic Polymerization of ssDNA: A Novel Approach for Multifunctional DNA Materials

9:00 AM 33. **Kenneth Shea**, University of California, Irvine

Abiotic Synthetic Polymers: Functional Alternatives to Antibodies? Applications for Protein Stabilization, Inhibition of Signal Transduction and as Broad-Spectrum Antivenom

9:25 AM BREAK

SESSION IX: 3D Printed Biomaterials and Applications in the Medical Industry**Discussion Leader: Ellen Sletten, University of California, Los Angeles**

10:00 AM 34. **Alshakim Nelson**, University of Washington

Synthetic Hydrogel Inks for Direct-Write 3D Printing

10:25 AM 35. **Stephanie Willerth**, University of Victoria, Canada

3D Bioprinting Personalized Neural Tissue

POLYMERS IN MEDICINE AND BIOLOGY 2018

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10:50 AM 36. **Steve Pollack**, Carbon 3D
Reinventing Possibilities in Manufacturing of Medical Devices

11:15 AM **Organizing Team**
Concluding Remarks and Closing

11:30 AM MEETING ENDS

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1. **Orthogonal Supramolecular Polymers for Strong Surgical Adhesives**
Diederik W. R. Balkenende, Phillip B. Messersmith

 2. **Fatigue Life of Polymeric Prosthetic Heart Valves**
Eugenia Biral

 3. **Effect of Pre-Existing Anti-PEG Antibodies on PEGylated Medicines**
Bing-Mae Chen, Tien-Ching Chang, Even Chen, Tian-Lu Cheng, Daw-Yang Hwang, Steve R. Roffler

 4. **Directing Brain Tissue Integration for Long-Term Electrophysiology with Conductive Microporous Hydrogel Electrodes**
Lars Crawford

 5. **Injectable Dynamic Covalent Hydrogels of Boronic Acid Polymers Cross-Linked by Bioactive Plant-Derived Polyphenols**
Zhuojun Huang, **Peyman Delparastan**, Patrick Burch, Jing Cheng, Yi Cao, Phillip B. Messersmith

 6. **Bioactive, Templated Inorganic-Organic Hydrogel Scaffolds for Bone Regeneration**
Michael T. Frassica, Sarah K. Jones, Mariah S. Hahn, Melissa A. Grunlan

 7. **Injectable Hydrogel for Improved Recovery Following Spinal Cord Injury**
Daniel C. Lee

 8. **PEO-Silane Amphiphiles and their Capacity to Resist Protein Adsorption and Thrombosis**
Bryan Khai D. Ngo, Mikayla E. Barry, Kendrick K. Lim, Shane J. Staffien, Melissa A. Grunlan

 9. **Polymers and Formulations for Advanced Nano Drug Delivery Systems**
Gangadhar Panambur, Donghun Koo, Rajiv Kumar, Nicolynn Davis, Peng Gao

 10. **Glomerular Disease Augments Kidney Accumulation of Synthetic Anionic Polymers**
Alexander N. Prossnitz, Gary W. Liu, Diana G. Eng, Yilong Cheng, Jeffrey W. Pippin, Robert J. Lamm, Chayanon Ngambenjwong, Stuart J. Shankland, Suzie H. Pun

 11. **Slow-Release Formulation of Cowpea Mosaic Virus for In Situ Vaccine Delivery to Treat Ovarian Cancer**
Anna E. Czapar, **Brylee David B. Tiu**, Frank A. Veliz, Jonathan K. Pokorski, Nicole F. Steinmetz

 12. **Polymerization of Quinine for Applications in Gene Therapy**
Craig Van Bruggen, David Punihaole, Andrew J. Schmitz, Samantha Linn, Jeffrey M. Ting, Yogesh K. Dhande, Zhe Tan, Mitra Ganewatta, Renee R. Frontiera, Theresa M. Reineke

 13. **Stabilizing Therapeutic Antibodies and Antibody Fragments with Trehalose Polymers**
Neil Forsythe and Heather Maynard
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