T7: Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering

To Use this Index: Scroll down or use the bookmarks in the left-hand frame to move to a new location in this index. Click on a blue paper title to view that paper. To return to this index after viewing a paper, click the PREVIOUS MENU bookmark in the left frame.

Session 59 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: Plenary Session I *

Chair: Nicholas A Peppas Vice Chair: Angela K Dillow

Session 60 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: PlenarySession II *

Chair: Christine E Schmidt Vice Chair: Angela K Dillow

Session 61 - Biomimetic Systems and Materials

Chair: Mark E Byrne Vice Chair: Ebru Oral

61g Biomimetic, Molecularly Imprinted Hydrogels for Recognition and Capture of High Molecular Weight

Proteins

Nicole M Bergmann and Nicholas A Peppas

Session 62 - Intracellular Trafficking of Biomaterials/Bionanotech Devices

Chair: Justin Hanes

Vice Chair: Julia Babensee

62d Real-time Correlation of Intracellular Gene Vector Transport Rates with Biological Location in Live

Mesenchymal Stem Cells

J. Suh, Y. An, B. Tang, J.S. Suk and J. Hanes

62e Cellular Uptake and Intracellular Transport of Viral and Non-viral Gene Vectors in Differentiated Neurons

Affected in Parkinson's Disease J.S. Suk, J. Suh and J. Hanes

Session 63 - Advances in Biomaterials Science and Engineering

Chair: Madeline Torres-Lugo Vice Chair: Lonnie D Shea

63a Synthesis of Polyurethane Foam Scaffolds for Bone Tissue Engineering

SA Guelcher, V Patel, K Gallagher, S Connolly, JE Didier, J Doctor and JO Hollinger

Modeling of Poly(Ethylene Glycol) Hydrogel Multilayers by Surface Initiated Photopolymerization

Seda Kizilel, Fouad Teymour and Victor H. Pérez-Luna

Session 64 - Nanotechnology for Drug Delivery and Imaging

Chair: Lisa Brannon-Peppas Vice Chair: Samir Mitragotri

Tracking the Intracellular Path of Fluorescently Labeled DNA Delivered by PEI Nanocomplexes in Live

Cells

Y. An, J. Suh and J. Hanes

64g Paclitaxel-loaded biodegradable nanoparticles developed by direct dialysis and electrodydrodynamic

atomization methods

Jingwei Xie and Chi-Hwa Wang

Session 65 - Nanostructured Biomaterials

Chair: Jeffrey D Carbeck Vice Chair: Krishnendu Roy

65e Carbohydrate-Centered PAMAM Dendrimers for Growing Liver Cells

Jeremy D. Lease and Tong Yen Wah

More Efficient Capture of Bacteria on Nanophase Materials

Z. Zhong, and Margaret K. Banks and Thomas J. Webster

Session 66 - Nanofabrication of Biosensing Devices

Chair: Mark E Byrne Vice Chair: J. Zach Hilt

A Rapid Antigen Detection Assay Using Photografted Whole Antibodies

Sebra, R.P., Masters, K.S., Bowman, C.N., Anseth, K.S.

66d Biomimetic Polymers in Drug Delivery and Sensing Applications: Effect of Network Molecular Structure on

Recognition Properties

J. Zach Hilt, Nicholas A. Peppas and Mark E. Byrne

Session 67 - Bionanotechnology in Cancer and Cardiovascular Disease

Chair: Justin Hanes

Vice Chair: Douglas J Goetz

67g A new mutation affecting the ATP pocket of kit receptor in patients with GIST showing acquired

resistance to Imatinib: a coupled experimental and modeling investigation

S. Pricl, A. Coslanich, M. Fermeglia, M. Ferrone, M.S. Paneni, E. Tamborini, S. Pilotti, M.A. Pierotti

Session 68 - Injectable Biomaterials

Chair: Anthony M Lowman Vice Chair: Jennifer H Elisseeff

68a Single Dose Tetanus Vaccine Based on Polyanhydride Microspheres

Matt J. Kipper, Jennifer Wilson, Michael Wannemuehler and Balaji Narasimhan

68b In Vitro Migration and Proliferation of Human Osteoblasts in Injectable In Situ Crosslinkable

Poly(caprolactone fumarate) Scaffolds

Esmaiel Jabbari, Theresa E. Hefferan, Lichun Lu, Larry G. Pedersen, Bradford L. Currier and Michael J.

Yaszemski

68d PLGA Microspheres Embedded in Porous Biodegradable Scaffold as a Delivery Vehicle for Sustained

Release of Recombinant Human Bone Morphogenetic Protein-2 (rhBMP-2)

Esmaiel Jabbari, Anthony V. Florschutz, Lichun Lu, Nathan Liu, Larry G. Pedersen, Diederik H.R.

Kempen, Bradford L. Currier and Michael J. Yaszemski

Session 69 - High Throughput Biomaterials Development and Characterization

Chair: Arul Jayaraman Vice Chair: Mark E Byrne

69b Automated Dissection of Human Umbilical Vein for Use in Cardiovascular Tissue Engineering

J Daniel, Koki Abe and Peter McFetridge

69c Scaffold Modification for Animal Cell Expansion in a Fibrous Bed Bioreactor

Robin Ng, Anli Ouyang and Shang Tian Yang

69e Porous Inorganic Supported Lipid Membranes

Sarah Gladding, Jerry Y.S. Lin, Zheng Wang, Deepak Singh, John Cuppoletti

Session 70 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: Tutorial Session I

Chair: Surya K Mallapragada Vice Chair: Christopher S Brazel

70a Manipulating Cellular Response Through Polymer Chemistry and Morphology

Molly S. Shoichet, Paul Dalton, Jeffrey M. Karp, Ying Luo and Tina Yu

70d Theory and Applications of Intelligent Biomaterials

Nicholas A Peppas

Session 71 - Tissue Engineering I

Chair: Guillermo A Ameer Vice Chair: John P Fisher

71e Bone Tissue Engineering with Multiple-Factor Delivery Platform

Yen-Chen Huang, Darnell Kaigler, Kevin G. Rice and David J. Mooney

Session 72 - Stem Cell Engineering I

Chair: David V Schaffer Vice Chair: Ram Mandalam

72b Selectable marker lines elucidate design rules for oligonucleotide gene targeting in mouse stem cells

B. Murphy, E. Pierce and S. Diamond

72g In vitro expansion of embryonic stem cells in a fibrous bed bioreactor

Anli Ouyang and Shang-Tian Yang

Session 73 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: Tutorial Session II

Chair: Antonios G Mikos Vice Chair: Thomas J Webster

73a The future of intelligent therapeutics

Nicholas A Peppas, Nicole M Bergmann and E. Hunter Lauten

Session 74 - Tissue Engineering II

Chair: Guillermo A Ameer Vice Chair: John P Fisher

74a Effects of Small Molecules on Cardiomyocyte DNA Synthesis and Proliferation

Serek J. Mortisen, Kip D. Hauch, Buddy D. Ratner

74b Significant fraction of cells (~2/3) in native myocardium are non-myocytes, majority of which are

fibroblasts

Gordana Vunjak-Novakovic

74c A biphasic elastomeric scaffold for tissue engineering a small-diameter blood vessel

Jian Yang, Delara Motlagh, Antonio R. Webb and Guillermo A. Ameer

74f Deterministic Simulation of Growth Factor-Induced Angiogenesis

Shuyu Sun, Mary F. Wheeler, Mandri Obeyesekere and Charles Patrick Jr.

Session 75 - Stem Cell Engineering II

Chair: David V Schaffer Vice Chair: Ram Mandalam

75a Lineage plasticity and determinism in ex vivo differentiation of hematopoietic stem cells examined by

large-scale transcriptional analysis

Huang, L.T., Chen, C., Papoutsakis, E.T., Miller, W.M.

Session 76 - Nanotechnology in Bioengineering

Chair: Christina Chan Vice Chair: Krishnendu Roy

76c Functionalized ZnSe Quantum Dots as Luminescent Tags in High-Throughput Biological Assays

Jun Wang, Stelios Andreadis and T.J. Mountziaris

76e Self-assembly of Pure Nanotubes from a Single-Chain Diacetylene Amine Salt

Sang Beom Lee, Richard Koepsel, Donna B. Stolz, Heidi E. Warriner and Alan J. Russell

76f Selective Primary Hepatocyte Adhesion on Polyelectrolyte Multilayer: Template for Patterned Cell Co-

Culture

Srivatsan Kidambi, Ilsoon Lee, Christina Chan

76g Towards Single-Walled Carbon Nanotubes as an Integrated Component of Conductive Biomaterials: The

Effect of Production Contaminants on in vitro Cell Viability and Metabolic Activity

Aditya Nimmagadda and Peter S. McFetridge

Session 77 - Biofunctional Scaffolds to Control Cell Function *

Chair: Christine E Schmidt Vice Chair: Laura Suggs

Session 78 - Tissue Engineering III

Chair: Guillermo A Ameer Vice Chair: John P Fisher

78b Hydrogels for vocal fold tissue engineering and repair

Mariah Hahn, Benjamin Teply, Alisha Sieminski, Molly Stevens, Roger Kamm, Steven Zeitels and Robert

Langer

78d Effect of Cell Environment on ECM Production and Gene Expression in Poly(ethylene glycol) /

Chondroitin Sulfate Hydrogels

J.A. Arthur, S.J. Bryant, K.S. Anseth

78e Characterization of a Novel Decellularized Peripheral Nerve Graft

Scott Lundy, Curt Deister, Stephen Chen and Christine E. Schmidt

Session 79 - Self-Assembled Biomaterials I

Chair: Nilv Dan

Vice Chair: Laura Suggs

79f Effect of Hydrodynamic Shear Stress on Biofilm Adhesion to Organosilane Self-Assembled Monolayers

on Titanium

Rebecca M. Lennen and Robert A. Brizzolara

Session 80 - Biological Materials for Patterning and Assembly of Nanomaterials

Chair: J. Zach Hilt Vice Chair: Mark E Byrne

80b Topography of self-assembled zein structures on hydrophilic and hydrophobic surfaces

Qin Wang and Graciela W. Padua

80c E. coli Biosynthesis of Cadmium Sulfide Nanocrystals

Rozamond Y. Sweeney, Chuanbin Mao, Angela M. Belcher, Brent L. Iverson and George Georgiou

Session 81 - Nanotechnology for the Development of Biomaterials, SAMs, Wires and Nanotubes

Chair: Thomas J Webster Vice Chair: Balaji Narasimhan

81a Osteoblasts Alignment on Nanophse Materials

Dongwoo Khang and Thomas J. Webster

81b Inverted Colloidal Crystals as Tissue Engineering Scaffolds

Jungwoo Lee and Nicholas Kotov

81f Self-assembly of phage semiconductor nanowires

Rozamond Y. Sweeney, Angela M. Belcher, Brent L. Iverson and George Georgiou

81g CdTe and Au quantum-dot bioconjugated super-molecules: light emission and energy transport

Jaebeom Lee, Alexander O. Govorov, John Dulka and Nicholas A. Kotov

Session 82 - Biomaterials for Gene Therapy and Drug Delivery

Chair: Rebecca L Carrier Vice Chair: Balaji Narasimhan

82a Complexation Hydrogels as Oral Delivery Vehicles for Insulin-Transferrin Conjugates

Nikhil J. Kavimamdan, Nicholas A. Peppas

82b Nitric Oxide-Generating Poly(ethylene glycol) Copolymers for Prevention of Restenosis

Elizabeth A. Lipke, Kristyn S. Masters and Jennifer L. West

82f Gene Carriers Modified with PEG Demonstrate Increased Transport and Stability in Mucus as Explored

with High-Resolution Nanoparticle Tracking Michelle Dawson, Denis Wirtz, Justin Hanes

Session 83 - Biomimetic Materials for Cellular Interactions

Chair: Vassilios I Sikavitsas Vice Chair: Christine E Schmidt

83a Assessing cell-material interactions on a novel biodegradable elastomer

Josephine Allen, Yang Liu, Vladimir Turzhitsky, Vadim Backman and Guillermo Ameer

83c Endothelial Cell Response to Artificial Extracellular Matrix Proteins

Julie C. Liu, Sarah C. Heilshorn and David A. Tirrell

83e Osteoblast Functions on Nanophase Titania in Poly-Lactic-Co-Glycolic Acid (Plga) Composites

Huinan Liu, Elliott B. Slamovich and Thomas J. Webster

Session 84 - Self-Assembled Biomaterials II

Chair: Nily Dan

Vice Chair: Laura Suggs

84d Effect of Reverse Micelles on the Secondary Structure of a-chymotrypsin and Subtilisin Carlsberg by

FTIR Spectroscopy

Liu Junguo, Xing Jianmin, Shen Rui, Yang Chengli and Liu Huizhou

84f Adsorption of Polylysine, Poly(glutamic) acid and their Block Copolymers on Polystyrene and on Carbon

Nanotubes

Ritesh Jain and Daniel Forciniti

Session 85 - Smart/Conducting Biomaterials

Chair: Christine E Schmidt Vice Chair: Christopher S Brazel

85b Thermally gelling, thermally responsive elastin-mimetic triblock hydrogels

D. S. Hart, A. J. M. D'Souza, C. R. Middaugh, S. H. Gehrke

Session 86 - Biomimetics for Self-assembly

Chair: Laura Suggs

Vice Chair: Shelly E Sakiyama-Elbert

86d Studies Toward the Development of Orthopaedic Tissue Engineering Material Based on Self-Assembled

Rosette Nanotubes

Ai Lin Chun, Thomas J. Webster and Hicham Fenniric

Session 87 - Tissue Engineering on Microfabricated Devices/Scaffolds

Chair: Vassilios I Sikavitsas Vice Chair: Esmaiel Jabbari

87c Permeability of polymeric scaffolds with defined pore micro-architecture and interconnectivity fabricated

by solid freeform microprinting

Kee-Won Lee, Esmaiel Jabbari, Lichun Lu, Bradford L. Currier, Joy Dunkers, Martin Y. Chiang, John A.

Tesk, Marcus Cicerone and Michael J. Yaszemski

87f Fabrication and Functionalization of Three-Dimensional Well-defined Scaffolds Using Novel Carbon

Dioxide Assisted Microfabrication

Yong Yang, Shubhayu Basu, L. James Lee and Shang-Tian Yang

87g Fabrication, Characterization and Degradation of PHB and PHBV Microspheres For Liver Cell Growth

Yen Wah Tong and Chaw Su Thwin

Session 88 - Transport of Biomaterial/Bionanotech Devices Through Biological Barriers

Chair: Justin Hanes

Vice Chair: Nicholas A Peppas

88c Modeling and Control of the Behavior of Glucose Sensing Devices

Terry G Farmer, Thomas F Edgar and Nicholas A Peppas

88e PEG Improves Intracellular Transport of Drug/gene Carriers as Revealed by Real-Time Particle Tracking

K. Choy, J.Suh, J. Hanes

88f Microscopic Viscoelasticity of CF Sputum Determined by High-Resolution Nanoparticle Tracking

Michelle Dawson, Denis Wirtz and Justin Hanes

88g Nanostructured Polyanhydrides for Drug Delivery

Matt J. Kipper, Sheng-Shu Hou, Soenke Seifert, P. Thiyagarajan, Klaus Schmidt-Rohr and Balaji

Narasimhan

Session 89 - Advances in Biomaterials Design and Properties

Chair: Tom Dziubla

Vice Chair: Sundararajan V Madihally

89b Fundamental Studies of Degradable Thiol-Acrylate Photopolymeric Biomaterials as Tissue Engineering

and Drug Delivery Scaffolds

Amber E. Rydholm, Sirish K. Reddy, Christopher N. Bowman and Kristi S. Anseth

89e Material Properties and Biocompatibility of Self-Crosslinkable Poly(caprolactone fumarate) copolymer as

a Scaffold for Guided Tissue Regeneration

Esmaiel Jabbari, Lichun Lu, James A. Gruetzmacher, Syed Ameenuddin, Godard C. de Ruiter, Michael J.

Moore, Bradford L. Currier, Robert J. Spinner, Anthony J. Windeban, Michael J. Yaszemski

89f Characterization of Natural and Synthetic Polymer Blend Scaffolds for Tissue Engineering

Sundararajan V Madihally, Aliakbar Moshfeghian

Session 90 - Biomimetic Interfaces

Chair: Efrosini Kokkoli

Vice Chair: James W Schneider

90d Oligosachharide modified biomimetic surfactant polymer for non-thrombogenic interface applications:

Platelet Adhesion Studies

Anirban Sen Gupta, Emily Link, Shuwu Wang, Kandice Kottke-Marchant and Roger E. Marchant

90f Studies on Competitive Responses in Neurons to Extracellular Cues Using Microfabricated Systems

Natalia Gomez and Christine E. Schmidt

90g Fibronectin/polyelectrolyte multilayered assemblies: film formation and cell attachment studies

Corinne Wittmer and Paul R. Van Tassel

* These papers were unavailable at the time of publication.	