

Concurrent Oral Abstract Presentations Session I • Thursday, April 27, 2006 10:45 pm - 12:15 pm

Biomimesis in Drug Delivery I: Scaffolds & Implants (General Session)
Ballroom B/C
Moderators - Mark E. Byrne, Esmail Jabbari

Cell Response to Micro/Nanopatterned Biomaterials I (General Session)
Room 303-304
Moderators - Chris Siedlecki, Ben Keselowsky

Stem Cells: Source, Culture and Application Symposium I
Room 301-302
Moderators - Karen L. Burg, Krishnendu Roy

Urological Tissue Engineering and Biomaterials (General Session)
Room 315-316
Moderators - Jiro Nagatomi, Michael S. Sacks

10:45 am **1 Biomimetic Nano-fibrous Scaffold for Multiple Factor Delivery**
P. X. Ma, G. Wei; University of Michigan, Ann Arbor, MI.

7 Nanoscale Poly(L-Lactic Acid) Surface Texture Influences Fibroblast Response
K. R. Milner, C. A. Siedlecki; Pennsylvania State University, Milton S Hershey Medical Center, Hershey, PA.

13 Developing Human Embryonic Stem Cell for Use in Cell and Tissue Therapies
S. Stice; University of Georgia, Athens, GA.

19 Head-To-Head Comparison of Histologic and Functional Properties of Rat Bladders Augmented With Blood Vessel Matrix Versus Small Intestine Submucosa
G. E. Amiel, R. N. Yu, T. Shu, T. Shu, H. Lai, A. Gilbert, D. Kakiashvili, N. A. Salas, W. Jian, G. T. Somogyi, S. P. Lerner; Baylor College of Medicine, Houston, TX.

11:00 am **2 The Effect of Soluble Peptide Sequences on Neurite Extension in Three-dimensional Collagen Gels**
M. J. Blewitt, R. K. Willits; Saint Louis University, St. Louis, MO. *Student Award for Outstanding Research - Undergraduate*

8 Endothelial Tubulogenesis on Surface-patterned PEG Hydrogels
J. J. Moon¹, B. A. Nsiah², M. S. Hahn³, J. L. West⁴; ¹Rice University, Houston, TX, ²Iowa State, Ames, IA, ³Texas A&M, College Station, TX.

20 Fascial Tissue Reconstruction Using Acellular Collagen Matrix
D. Eberli, J. Yoo, A. Atala; Wake Forest University School of Medicine, Winston Salem, NC.

11:15 am **3 Rationally Identified Affinity Peptides for Local Delivery of Nerve Growth Factor**
P. J. Johnson, S. M. Willerth, D. J. Maxwell, S. Parsons, S. E. Sakiyama-Elbert; Washington University in St. Louis, St. Louis, MO.

9 Extracellular Matrix Proteins Regulate Heart Valve Calcification
K. M. Reed, K. J. Rodriguez, K. S. Masters; University of Wisconsin, Madison, WI.

15 Hepatodifferentiation Of Cadherin Expressing Embryonic Stem Cells Within A Microengineered Organotypic Model
R. Hughey¹, A. Dasgupta², N. Rajael¹, M. Toner³, L. Larue⁴, P. V. Moghe⁵; ¹Rutgers University, Piscataway, NJ, ²Harvard Medical School, Massachusetts General Hospital, Boston, MA, ³Institut Curie, Orsay Cedex, FRANCE.

21 The Effects Of DNA Extracts From Urological Tissue Matrices
P. Vandevord, A. Singla, B. Krishnamurthy; Wayne State University, Detroit, MI.

11:30 am **4 Creating a glial scar-free implant-CNS interface by blocking chondroitin sulfate proteoglycan biosynthesis**
N. Zhang, X. Wen; Clemson University, Charleston, SC.

10 Fibronectin Behaviour and Cellular Response to Nanostructured Surfaces
M. S. Lord¹, B. G. Cousins², P. J. Doherty², J. M. Whitelock¹, A. Simmons¹, R. L. Williams², B. K. Milthorpe¹; ¹The University of New South Wales, Sydney, AUSTRALIA, ²The University of Liverpool, Liverpool, UNITED KINGDOM.

16 Synergistic Acceleration of Stem Cell Mediated Heart Valve Tissue Formation by Cyclic Flexure and Laminar Flow
G. C. Engelmayr, Jr.¹, V. L. Sales², J. E. Mayer, Jr.², M. S. Sacks¹; ¹University of Pittsburgh, Pittsburgh, PA, ²Children's Hospital Boston, Harvard Medical School, Boston, MA.

22 Development of a Decellularised Bladder Matrix for Functional Tissue Engineering
F. Bolland¹, S. Korossis², E. Ingham², J. Fisher², J. Kearney³, J. Southgate⁴; ¹University of York, York, UNITED KINGDOM, ²Leeds University, Leeds, UNITED KINGDOM, ³National Blood Service, Liverpool, UNITED KINGDOM.

11:45 am 5 **A Multifaceted Approach to Post Operative Adhesion Prevention**
J. T. Corbett¹, W. S. W. Shalaby², J. M. Lindsey, III¹, M. Shalaby², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC; ²Lehigh Valley Hospital, Allentown, PA.

11 **A Comparative Analysis of Neurite Development in PC12 Cells Cultured on Nanopillars and Nanopores**
G. Zhang, F. Haq; University of Georgia, Athens, GA.

17 **Surface-aminated Electrospun Poly(ethersulfone) Fibers Enhances Ex Vivo Expansion of Human Umbilical Cord Blood Hematopoietic Progenitor (CD34+) Cells**
K. N. Chua¹, C. Chai², X. S. Jiang², K. W. Leong³, S. Ramakrishna¹, H. Q. Mao²; ¹National University of Singapore, Singapore, SINGAPORE, ²Division of Johns Hopkins in Singapore Limited, Singapore, SINGAPORE, ³Johns Hopkins University, Baltimore, MD.

23 **Macrophage and Encapsulation Effects to Glucose Recovery through Implanted Microdialysis Probes**
X. Mou¹, M. Lennartz², D. Loegering², J. A. Stenken¹; ¹Rensselaer Polytechnic Institute, Troy, NY, ²Albany Medical College, Albany, NY.

12:00 pm 6 **Fibronectin Conjugated TGF-Beta 1 via a PEG Linker: Bioactivity of the Surface-Bound Conjugate**
C. T. Drinnan¹, J. M. Hart², L. J. Suggs¹; ¹University of Texas at Austin, Austin, TX, ²Boston Scientific, Plymouth, MN.

12 **Platelet Adhesion and Activation on Nanotextured Polyurethane**
K. R. Milner, H. Yamanaka, K. A. V. Zubris, S. Z. Jones, A. J. Snyder, C. A. Siedlecki; Pennsylvania State University, Milton S Hershey Medical Center, Hershey, PA.

18 **Engineering the Homogeneity of Embryonic Stem Cell Microenvironments to Direct Cellular Differentiation**
R. L. Carpenedo, C. Y. Sargent, J. Kent, **T. C. McDevitt**; Georgia Institute of Technology/ Emory University, Atlanta, GA.

24 **Development of a Collagenase-sensitive, Flexible Scaffold for Engineering of Urological and Other Soft Tissues**
J. Guan, J. Huard, W. Wagner; Univeristy of Pittsburgh, Pittsburgh, PA.



Concurrent Oral Abstract Presentations Session II • Thursday, April 27, 2006 1:15 pm - 3:15 pm

	Biodegradable Hydrogels for Tissue Engineering I (General Session) Ballroom B/C Moderators - Jennifer Elisseff, Kacey Marra	Bionanotechnology: The Future of Biomaterials Symposium I Room 301-302 Moderators: J. Zach Hilt, Jennifer West	New Concepts and Challenges for the Delivery of Therapeutic Nucleic Acids Symposium Room 303-304 Moderators: Hai-Quan Mao, Krishnendu Roy	Organic/Inorganic Hybrid Biomaterials Symposium I Room 315-316 Moderators: David H. Kohn, Tithi Dutta Roy	Surface Modification and Characterization of Biomaterials I (General Session) Room 317-318 Moderator: Lara Gamble
1:15 pm	25 Interpenetrating Networks Containing Gelatin Modified with PEGylated RGD and Soluble KGF: Synthesis, Characterization, Application in vivo Critical Dermal Wound H. Waldeck, A. S. Gustafson, M. Toth, K. Williams, W. J. Kao; University of Wisconsin - Madison, Madison, WI.	33 Towards Multifunctional Nanoparticle-Based Therapeutics S. N. Bhatia; MIT, Cambridge, MA.	41 Response of Human Embryonic and Adult Mesenchymal Stem Cells to Nanotopography K. Leong, Duke University, Durham, NC	49 Characterization of Chitosan/Nanocrystalline Hydroxyapatite Composite Scaffolds for Bone Tissue Engineering B. M. Chesnutt ¹ ; Y. Yuan ¹ , S. Oh ² , Y. Yang ² , A. M. Viano ³ , J. L. Ong ² , W. O. Haggard ¹ , J. D. Bumgardner ¹ ; ¹ University of Memphis, Memphis, TN, ² University of TN-Memphis, Memphis, TN, ³ Rhodes College, Memphis, TN.	57 Surface Modification of Porous Scaffolds with Cell Adhesive Peptides for Tissue Engineering Applications P. Blit, Y.-H. A. Shen, M. J. Ernsting, J. P. Santerre; University of Toronto, Toronto, ON, CANADA.
1:30 pm	26 Novel Macromers for the Fabrication of Injectable, Calcium-Binding Hydrogels M. C. Hacker; B. B. Ma, J. D. Kretlow, A. G. Mikos; Rice University, Houston, TX.			50 PLAGA/Nanocrystal Hydroxyapatite Composite Scaffolds for Bioreactor Based Bone Tissue Engineering Q. Lv, C. T. Laurencin; University of Virginia, Charlottesville, VA.	58 Surface Engineering of Chronic Neural Implants for Enhanced Neuro-Integration W. He, R. V. Bellamkonda; Georgia Institute of Technology, Atlanta, GA.
1:45 pm	27 In-situ Crosslinked Scaffolds of Elastin-like Polypeptide Block Copolymer for Tissue Repair D. Lim, D. L. Nettles, L. A. Setton, A. Chilkoti; Duke University, Durham, NC.	35 Photothermal Cancer Therapy Using Immunotargeted Nanoshells A. R. Lowery, A. M. Gobin, E. S. Day, K. Y. Shah, N. J. Halas, J. L. West; Rice University, Houston, TX.	43 Surface-functionalized Polymer Microparticles for Combinatorial Delivery of Nucleic Acid Vaccines Against Cancer S. Pai Kasturi ¹ , K. Thomson ¹ , H. Qin ² , L. V. Kwak ³ , K. Roy ³ ; ¹ University of Texas at Austin, Austin, TX, ² University of Texas M. D. Anderson Cancer Center, Houston, TX.	51 Uniform Three-Dimensional Biomimetalization of Protein Incorporated Mineral Layer on Porous Polymer Scaffolds S. Segvich; University of Michigan, Ann Arbor, MI.	59 Protein resistant silicones by graft polymerization of 2-methacryloyloxyethyl phosphorylcholine (MPC) via surface-initiated atom transfer radical polymerization (ATRP) J. Guo, W. Feng, J. L. Brash, S. Zhu, H. D. Sheardown; McMaster University, Hamilton, ON, CANADA.
2:00 pm	28 Characterization of DNA Release from Composites of Oligo(poly(ethylene glycol) fumarate) and Cationized Gelatin Microspheres In Vitro F. K. Kasper ¹ , E. Jerkins ¹ , K. Tanahashi ¹ , M. A. Barry ² , Y. Tabata ³ , A. G. Mikos ¹ ; ¹ Rice University, Houston, TX, ² Baylor College of Medicine, Houston, TX, ³ Kyoto University, Kyoto, JAPAN.	36 Nano-imprint Lithography for the Fabrication of Injectable Stimuli-Responsive Drug Delivery Devices L. C. Glangchai, L. Shi, K. Roy; University of Texas at Austin, Austin, TX.	44 The Use of pH-sensitive Poly(propylacrylic acid) Polymers to Enhance the Delivery of Antigens for Therapeutic Vaccination S. Flanary, J. R. Kirkham, P. S. Stayton, A. S. Hoffman; University of Washington, Seattle, WA.	52 Biocompatibility of PCL-HA Hybrid with Bone Marrow Derived Osteogenic and Vasculogenic Cells H. Yu, P. H. Wooley, S.-Y. Yang; Wayne State University, Detroit, MI.	60 Controlling and Probing Protein Orientation / Conformation for Biomaterial Applications M. Bernards; University of Washington, Seattle, WA.

- 2:15 pm
- 29 **Photopolymerizable Elastomers for Tissue Engineering Application Based on Poly(ethylene glycol) and Diacid Monomers**
J. Kim, L. Lu, B. L. Currier, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 37 **Tuning the Bioactive and Mechanical Properties of Self-assembled Nanofiber Networks for Synthetic ECM Mimics**
H-W. Jun, V. Yuwono, S. Paramonov, H. Dong, J. Hartgerink; Rice University, Houston, TX.
- 45 **High Throughput Fabrication of Double Emulsion-Based Microparticles**
S. R. Little, University of Pittsburgh, Pittsburgh, PA.
- 53 **Angiogenic and Osteoinductive Hydrogels for Bone Regeneration**
J. Patterson, R. Siew, S. W. Herring, P. S. Stayton; University of Washington, Seattle, WA.
- 61 **Bioactive Surface Gradients to Control Cell Adhesion**
N. D. Gallant, M. L. Becker, E. J. Amis; NIST, Gaithersburg, MD.
-
- 2:30 pm
- 30 **Biodegradable Hydrogels based on PEGylated Proteins for Tissue Engineering Applications**
D. Seliktar, M. Gonen-Wadmany, D. Dikovskiy, K. Shapira, O. Sarig-Nadir; Technion, Haifa, ISRAEL.
- 38 **Nanophase Hydroxyapatite Coated Metals for Orthopedic Applications: An in vitro and in vivo Study**
T. J. Webster; Purdue University, West Lafayette, IN.
- 46 **PEG-b-PPA/DNA Micelles for Liver-Targeted Gene Delivery**
X. Jiang, H. Dai, K. Leong, H-Q. Mao; Johns Hopkins University, Baltimore, MD.
- 54 **Polycaprolactone Tissue Scaffolds Based on Computed Tomography for Temporo-Mandibular Joint Reconstruction**
S. Das, S. J. Hollister, H. Chung, C. M. Flanagan, M. H. Smith, S. E. Feinberg; University of Michigan, Ann Arbor, MI.
- 62 **Sweet Surfaces: Carbohydrate Microarrays and Tools for Glycomics**
D. M. Ratner; Boston Medical Center, Boston, MA.
-
- 2:45 pm
- 31 **Tunable Hydrogel System for the Development of Tissue Engineered Vascular Grafts**
M. K. McHale, M. S. Hahn, J. Whittier, J. L. West; Rice University, Houston, TX.
- 39 **Nanoscale Dendritic Clusters of RGD Peptides**
H. Yang¹, W. Kao²; ¹Virginia Commonwealth University, Richmond, VA, ²University of Wisconsin-Madison, Madison, WI.
- 47 **Development and Evaluation of "Smart" Polymer-Nucleic Acid Complexes**
M. E. H. El-Sayed, E. M. Bulger, A. S. Hoffman, P. S. Stayton; University of Washington, Seattle, WA.
- 55 **Bio-hybrid Composite Scaffolds for Bone Tissue Regeneration**
S. Lee, J-W. Lee, G. Lim, A. Atala, J. Yoo; Wake Forest University School of Medicine, Winston Salem, NC.
- 63 **Superlow Fouling Poly(Sulfobetaine) Surfaces**
Y. Chang, Z. Zhang, S. Chen, S. Jiang; University of Washington, Seattle, WA.
-
- 3:00 pm
- 32 **A Novel Whole Organ Bioscaffold with an Intact Vascular Network for Tissue Engineering and Regenerative Medicine Applications**
P. Baptista, M. Saddiqui, A. Atala, S. Soker; Wake Forest University School of Medicine, Winston Salem, NC.
- 40 **Fabrication of Polymeric Replicas of Cell Surfaces with Nanoscale Resolution**
J. M. Bruder, N. C. Monu, D. Hoffman-Kim; Brown University, Providence, RI.
- 48 **Delivery of Cyclodextrin-based Polyplexes from Solid Surfaces**
I-K. Park, H.A. von Recum, S. Jiang, S. H. Pun; University of Washington, Seattle, WA.
- 56 **Synthesis and Characterization of a Biomimetic Calcium-Deficient Hydroxyapatite - Hydrogel Composite**
S. A. Hutchens¹, R. S. Benson¹, B. R. Evans², H. M. O'Neill³, C. J. Rawns⁴; ¹University of Tennessee, Knoxville, TN, ²Oak Ridge National Laboratory, Oak Ridge, TN.
- 64 **Characterization of Surface Microphase Structure of Poly(urethane urea) Biomaterials by Nanoscale Indentation with AFM**
L-C. XU¹, P. Soman¹, A. Agnihotri¹, J. Runt², C. A. Siedlecki³; ¹Pennsylvania State University College of Medicine, Hershey, PA, ²Pennsylvania State University Dept of Materials Science and Engineering, State College, PA.

Concurrent Oral Abstract Presentations Session III • Friday, April 28, 2006 8:00 am - 10:00 am

	Bionanotechnology: The Future of Biomaterials Symposium II Room 301-302 Moderators: J. Zach Hilt, Shelly Sakiyama-Elbert	Fibrin Sealant and its Application in Tissue Engineering (General Session) Room 303-304 Moderators: Bill Tawil, Mike Shaw	Ophthalmic Drug Delivery (General Session) Room 315-316 Moderators: Shelly Sakiyama-Elbert, Karen Burg	Surface Modification and Characterization of Biomaterials II (General Session) Ballroom B/C Moderators: Erika Johnson, Lakshmi Nair	Synthetic Orthopaedic Materials Room 317-318 Moderators: Jeremy Gilbert, Michele Marcolongo
8:00 am	65 Integration of OCT Imaging and Photothermal Cancer Therapy Using Near Infrared Absorbing Gold Nanoshells A. M. Gobin, M-H. Lee, R. Drezek, N. Halas, J. West; Rice University, Houston, TX.	73 Bone Tissue Engineering Using Collagen Gel, Fibrin Sealant, and Stem Cells Derived From Postnatal Skeletal Muscle A. Usas, A. Ho, G. M. Cooper, A. Olshanski, H. Peng, J. Huard; University of Pittsburgh, Pittsburgh, PA.	81 OPEN SLOT	89 Poly(ethylene glycol)-crosslinked Microgel Coatings Reduce Macrophage Adhesion to Biomaterials A. A. Walls; N. Singh, B. Blackburn, L. A. Lyon, A. J. Garcia; Georgia Institute of Technology, Atlanta, GA.	97 Titanium Electrochemistry in the Presence of the Inflammatory Species H2O2 N. Chandrasekaran; Z. Bai, J. L. Gilbert; Syracuse University, Syracuse, NY.
8:15 am	66 Modulation of Intracellular Ceramide using Polymeric Nanoparticles to Overcome Multidrug Resistance in Tumor Cells L. E. van Vlerken ¹ , D. Shenoy ¹ , Z. Duan ² , M. V. Seiden ³ , S. Mehta ³ , M. M. Amiji ⁴ ; ¹ Northeastern University, Boston, MA, ² Massachusetts General Hospital, Boston, MA, ³ Roger Williams Medical Center, Providence, RI.	74 Incorporation of Fibronectin Domains into Fibrin Matrices for Stem Cell Delivery M. Martino; EPFL, Lausanne, SWITZERLAND.	82 OPEN SLOT	90 Strong Resistance of Phosphorylcholine and Oligo(phosphorylcholine) Self-Assembled Monolayers to Protein Adsorption: Insights into Nonfouling Properties of Zwitterionic Materials S. Chen; University of Washington, Seattle, WA.	98 Studies on the Formation of Biomimetic Apatite Layers on 3D-Printed Biodegradable Polymeric Scaffolds: Effect of Different Dynamic Coating Routes A. L. Oliveira; S. A. Costa, R. A. Sousa, R. L. Reis; University of Minho, Braga, PORTUGAL.
8:30 am	67 Design and Characterization of a Polyethylene Glycol - Peptide Conjugate for In vitro Gene Delivery N. M. Moore, T. R. Barbour, S. E. Sakiyama-Elbert; Washington University St. Louis, St. Louis, MO.	75 Fabrication and Characterization of Sphere-templated Fibrin Scaffolding M. P. Linnes, B. D. Ratner, C. M. Giachelli; University of Washington, Seattle, WA.	83 Effect of Zwitterion Concentration on the Biocompatibility of Perfluoropolyether Implants T. C. Hughes ¹ , G. Y. N. Chan ¹ , M. D. M. Evans ² , G. Johnson ² , W. S. Knower ³ , B. McFarland ² , K. M. McLean ¹ , X. Nguyen ¹ , D. F. Sweeney ³ , J. Wilkie ¹ , R. Xie ³ ; ¹ CSIRO, Clayton, AUSTRALIA, ² CSIRO, North Ryde, AUSTRALIA, ³ Vision CRC, Kensington, AUSTRALIA.	91 Protein Resistance of Polyurethane Film Grafted with Poly(oligo(ethylene glycol) methacrylate) via Atom Transfer Radical Polymerization W. Feng, S. Zhu, H. Sheardown, J. L. Brash; McMaster University, Hamilton, ON, CANADA.	99 Significant Reduction of the Mechanical Strength of the Plasma Sprayed HA Coatings Soaked in Bovine Serum W. Tong, P. Li; DePuy Orthopaedics, Warsaw, IN.
8:45 am	68 Nitric Oxide-Releasing Dendrimers for Targeted NO Therapy L. J. Talte, J. L. West; Rice University, Houston, TX.	76 Scaffold Composition, Rather Than Delivered Growth Factor, Dramatically Altered The Chick Chorioallantoic Membrane Blood Vessel Response to Fibrin-based Constructs J. D. Smith, M. E. Melhem, G. W. Fisher, A. S. Waggoner, P. G. Campbell; Carnegie Mellon University, Pittsburgh, PA.	84 In situ curable accommodating implant T. C. Hughes ¹ , D. Denham ² , L. Donovan ¹ , V. Fernandez ² , J. L. Jeffery ¹ , F. Manns ² , B. Mannor ² , X. T. T. Nguyen ¹ , J.-M. Paref ² , J. Watling ¹ , J. S. Wilkie ¹ , A. Ho ¹ ; ¹ CSIRO, Victoria, AUSTRALIA, ² University of Miami, Miami, FL, ³ Vision CRC, Sydney, AUSTRALIA.	92 Biomimetic Silicone Elastomer Surfaces via Dextran Immobilization J. Guo, M. Marshall, M. A. Brook, H. D. Sheardown; McMaster University, Hamilton, ON, CANADA.	100 Comparisons Between Regenerated Synovial Fluid and Bovine Calf Serum Under 1H Nuclear Magnetic Resonance (NMR) Spectroscopy J. Webb ¹ , J.G. Bowsher ² , M.M. Grootveld ³ , J.C. Shelton ⁴ ; ¹ University of London, London, United Kingdom, ² Lom Linda University, Loma Linda, CA, ³ South Bank University, London, United Kingdom

9:00 am	<p>69 Polyketal Nanoparticles: A pH-Sensitive Biodegradable Drug Delivery Vehicle M. J. Heffernan¹, R. H. Pierce², N. Murthy³; ¹Georgia Institute of Technology, Atlanta, GA, ²University of Rochester, Rochester, NY.</p>	<p>77 Extracellular Matrix Engineering: Presentation of Therapeutic Motifs on Fibrin Matrices Through Molecular Modification of Fibrinogen T. H. Barker¹, M. Martino¹, L. Yang¹, S. T. Lord², P. Frey³, J. A. Hubbell³; ¹Swiss Federal Institute of Technology - Lausanne, Lausanne, SWITZERLAND, ²University of North Carolina at Chapel Hill, Chapel Hill, NC.</p>	<p>85 Hydrogel Nanoparticles for Targeting Retinal Tissue L. Tang, L. Zou; University of Texas at Arlington, Arlington, TX.</p>	<p>93 3-D Visualization of Paclitaxel in Polymer Films by Coherent Anti-stokes Raman Scattering Microscopy E. Kang, H. Kwon, H. Wang, J.-X. Cheng, K. Park; Purdue University, West Lafayette, IN.</p>	<p>101 Sequentially Enhanced Polyethylene In 10 Million Cycle And Knee Simulation Study R. Tsukamoto¹, I. C. Clarke¹, H. Shoji¹, M. Ogino², K. Yamada², G. Pezzotti³; ¹Loma Linda University, Loma Linda, CA, ²Tsukamoto Orthopaedic Hospital, Tokyo, JAPAN, ³Kyoto Institute of Technology, Kyoto, JAPAN.</p>
9:15 am	<p>70 Nanostructural Control of the Release of Opioids Prevents Their Abuse M. Ni; University of Pennsylvania, Philadelphia, PA.</p>	<p>78 The Use of Platelet Rich Plasma in Total Knee Arthroplasty: A Controlled Clinical Evaluation W. S. Pietrzak¹, W. J. Berghoff², R. D. Rhodes³; ¹Biomet, Warsaw, IN, ²Orthopaedics Northeast, Fort Wayne, IN, ³Fort Wayne Medical Education Program, Fort Wayne, IN.</p>	<p>86 A Biomimetic Approach of Recognitive Contact Lenses for Tailored Loading and Release of Antihistamines to Treat Allergic Rhinoconjunctivitis S. Venkatesh¹, S. P. Sizemore², J. Zhang³, M. E. Byrne⁴; Auburn University, Auburn, AL.</p>	<p>94 Oxidative and In-Vitro Stability of Alkanethiol Self Assembled Monolayers (SAMs) on 316L Stainless Steel A. Mahapatro¹, D. M. Johnson¹, D. N. Patel², M. D. Feldman³, A. A. Ayon³, C. M. Agrawal⁴; ¹University of Texas at San Antonio, San Antonio, TX, ²University of Texas Health Science Center at San Antonio, San Antonio, TX.</p>	<p>102 Static Fracture J-R Resistance of Ultra High Molecular Weight Polyethylene Using a Single specimen normalization method R. Varadarajan, E. K. Dapp, C. M. Rimnac; Case Western Reserve University, Cleveland, OH.</p>
9:30 am	<p>71 Temperature-sensitive Hydrogels with SiO₂-Au Nanoshells for Controlled Protein Delivery M. Bikram; A. M. Gobin, R. E. Whitmire, S. R. Sershen, J. L. West; Rice University, Houston, TX.</p>	<p>79 Rate-Dependent Mechanical Properties of Fibrin Biomaterial Scaffolds E. G. Freeman¹, B. Tawil², M. C. Shaw³; ¹California Lutheran University, Thousand Oaks, CA, ²Baxter Healthcare, Thousand Oaks, CA.</p>	<p>87 A Programmable Device for Long-Term Transscleral Drug Delivery M. J. Mescher¹, C. E. Dube¹, J. O. Fiering¹, D. L. Fyler¹, E. S. Kim¹, M. Hansberry¹, J. T. Borenstein¹, J. J. Bernstein¹, E. Gragoudas², J. Miller³; ¹Draper Laboratory, Cambridge, MA, ²Massachusetts Eye and Ear Infirmary, Boston, MA.</p>	<p>95 Surface Modification of a Perfluorinated Ionomer Using a Glow Discharge Deposition Method to Control Protein Adsorption and Fibroblast Inflammatory Response T. I. Valdes¹, W. Ciridon², B. D. Ratner³, J. D. Bryers⁴; ¹University of Connecticut Health Center, Farmington, CT, ²University of Washington, Seattle, WA.</p>	<p>103 Triggering the Phase Transformation of Zirconia Balls In Vivo and In Vitro S. S. Brown¹, D. D. Green¹, G. Pezzotti², I. C. Clarke³; ¹Orthopaedic Research Center, Loma Linda, CA, ²Kyoto Institute of Technology, Kyoto, JAPAN.</p>
9:45 am	<p>72 Cd@(Carbon Nanostructures) as Nanoprobes for Cellular Magnetic Resonance Imaging B. Sitharaman¹, L. A. Tran¹, R. D. Bolskar², S. D. Fiamm³, R. Muthupillai⁴, A. G. Mikos⁵, L. J. Wilson⁶; ¹Rice University, Houston, TX, ²TDA Research Inc, Wheatridge, CO, ³Baylor College of Medicine, Houston, TX, ⁴Philips Medical System, Cleveland, OH.</p>	<p>80 Hemostatic Potential of Platelet-Rich and Platelet-Poor Plasma Utilizing a Partial Thickness Skin Wound Model W. S. Pietrzak¹, Y. H. An², Q. K. Kang³, K. L. Ehrens⁴, H. A. Demos⁵; ¹Biomet, Warsaw, IN, ²Medical University of South Carolina, Charleston, SC.</p>	<p>88 Nanomechanical and Nanotribological Properties of Contact Lenses - Effect of Hydration and Temperature M. E. Dickinson; Hysitron Inc., Minneapolis, MN.</p>	<p>96 Covalent Grafting of Fibronectin on Plasma-Treated PTFE: Influence of the Conjugation Strategy on Fibronectin Biological Activity K. Vallières¹, É. Petitclerc, G. Laroche; Laval University, CHUQ, Québec, PQ, CANADA.</p>	<p>104 There is a Linear Relationship Among Disc Height, Intradiscal Pressure and Implant Volume for Fibronectin Augmentation M. Cannella¹, A. Orana¹, A. Arthur², M. Marcolongo³; ¹Drexel university, Philadelphia, PA, ²Synthes Spine, West Chester, PA.</p>

Concurrent Oral Abstract Presentations Session IV • Friday, April 28, 2006 4:30 pm - 6:00 pm

Innovative Techniques in Biomaterials Education (General Session)
Room 301-302
Moderators: Lisa Friis, Jeffrey Karp

Stem Cells: Source, Culture and Application Symposium II
Room 303-304
Moderators: Krishnendu Roy, Laura J. Suggs

Cell Response to Micro/nanopatterned Biomaterials II (General Session)
Room 315-316
Moderators: Ben Keselowsky, Chris Siedlecki

Biodegradable Hydrogels for Tissue Engineering II (General Session)
Ballroom B/C
Moderators: Jennifer Elisseff, Kacey Marra

Advances in Biomaterials Science: What's in the Future of Biomaterials...Addressing Biological Problems Again!
Room 317-318
Moderators: Nicholas Peppas, Anne Meyer

4:30 pm 105 **Out on a Limb: Teaching Biomaterials to Non-bioengineers, Biomaterials as a Design Course in a Traditional Mechanical Engineering Department**
T. Topoleski; UMBC, Baltimore, MD.

111 **A Digital Micro-Mirror Device (DMD)-based Stereolithography System for the Microfabrication of Complex, Spatially-Patterned Tissue Engineering Scaffolds**
G. Mapili, Y. Lu, G. Suhali, S. Chen, K. Roy; The University of Texas at Austin, Austin, TX.
Student Award for Outstanding Research - PhD Candidate

117 **Directing Cell Migration with Engineered Two-Dimensional Concentration Gradients of Fibroblast Growth Factor-2**
E. D. Miller, G. W. Fisher, K. Li, L. E. Weiss, L. M. Walker, T. Kanade, P. G. Campbell; Carnegie Mellon University, Pittsburgh, PA.

123 **Rapid Peripheral Nerve Regeneration Using Self-Assembled Human Hair Keratin Scaffolds in a Mouse Model**
P. Sierpinski, J. Garrett, J. Ma, J. Burnell, S. Lee, T. Smith, A. Atala, M. Van Dyke; Wake Forest University School of Medicine, Winston Salem, NC.

129 **The Marriage of Biomaterials and Biological Science: A Required Alliance**
J. W. Burns; Genzyme Corporation, Waltham, MA.

4:45 pm 112 **Heparinized Collagen Loaded with Stromal-Derived Factor 1alpha Increases Hematopoietic Stem Cell Adherence**
B. Siebum; University of Twente, Enschede, THE NETHERLANDS.

118 **Cell Function Inducible Micropattern Surface for Maintenance of Undifferentiated Embryonic Stem Cells**
T. Konno, K. Ishihara; School of Engineering, The University of Tokyo, Tokyo, JAPAN.

124 **In vitro and In vivo Characterization of Human Articular and Rat Growth Plate Chondrocytes Microencapsulated in Alginate using High Electrostatic Potential Technology**
R. C. Kinney, A. G. Bailey, Z. Schwartz, B. D. Boyan; Georgia Institute of Technology, Atlanta, GA.

5:00 pm 106 **Academic Job Search: Perspectives From a Recent Applicant**
A. Khademhosseini; Harvard-MIT, Cambridge, MA

113 **Matrix Elasticity is sensed with Non-Muscle Myosin II and Directs Stem Cell Lineage Specification**
A. J. Engler, S. Sen, H. L. Sweeney, D. E. Discher; University of Pennsylvania, Philadelphia, PA.

119 **Cell Survival Responses Regulated through Controlled Nanoscale Presentation of EGFR and Integrin Ligands**
E. T. Dimalanta, M. L. Ufret, L. B. Richardson, III, N. A. Marcantonio, B. D. Cosgrove, I. Taniguchi, W. Kuhlman, A. M. Mayes, L. G. Griffith; Massachusetts Institute of Technology, Cambridge, MA.

125 **Application of Colloidal Gas Aphron Foaming Techniques to Alginate: Creation of a Novel Tissue Scaffold**
E. E. Johnson, N. Meznarich, B. Ratner; University of Washington, Seattle, WA.

130 **Design and Application of "Smart" Polymers for Separations, Diagnostics and Drug Delivery**
A. S. Hoffman, P. S. Stayton; University of Washington, Seattle, WA.

5:15 pm 114 **Amplification of Osteogenic Cells from Human Embryonic Stem Cells**
J. M. Karp; L. S. Ferreira, A. Khademhosseini, A. H. Kwon, J. Yeh, O. C. Farokhzad, R. Langer; MIT, Cambridge, MA.

120 **Aligned Biodegradable Polymer Nano/Micro Filaments for Guided Neurite Extension**
H. Shen, Y.-t. Kim, S. Kumar, R. Bellamkonda; Georgia Institute of Technology, Atlanta, GA.

126 **Controlled Release of Bioactive Doxorubicin from Microspheres Embedded within Gelatin Scaffolds**
A. J. DeFall, H. Edington, W.-C. C. Lee, F. J. Cartieri, K. G. Marra; University of Pittsburgh, Pittsburgh, PA.

5:30 pm

107 A Multidisciplinary Biomedical Product Development Course Incorporating Entrepreneurial Thinkinh
L. Fritis; University of Kansas, Mechanical Engineering, Lawrence, KS.

115 Mimicking Cell-cell Interactions at the Biomaterial-cell Interface for Control of Stem Cell Differentiation
B. L. Beckstead, D. M. Santosa, C. M. Giachelli; University of Washington, Seattle, WA.

121 Biological Characterization of Molecularly Imprinted Polysiloxane Scaffolds
K. Lee, R. Itharaju, D. A. Puleo; Center for Biomedical Engineering, University of Kentucky, Lexington, KY.

127 Controlling the Degradation Rate of PEGylated Fibrin Gels for Cell Delivery
S. F. Collins¹, G. Zhang², J. Zhang³, L. J. Suggs¹; ¹University of Texas at Austin, Austin, TX, ²University of Minnesota, Minneapolis, MN.

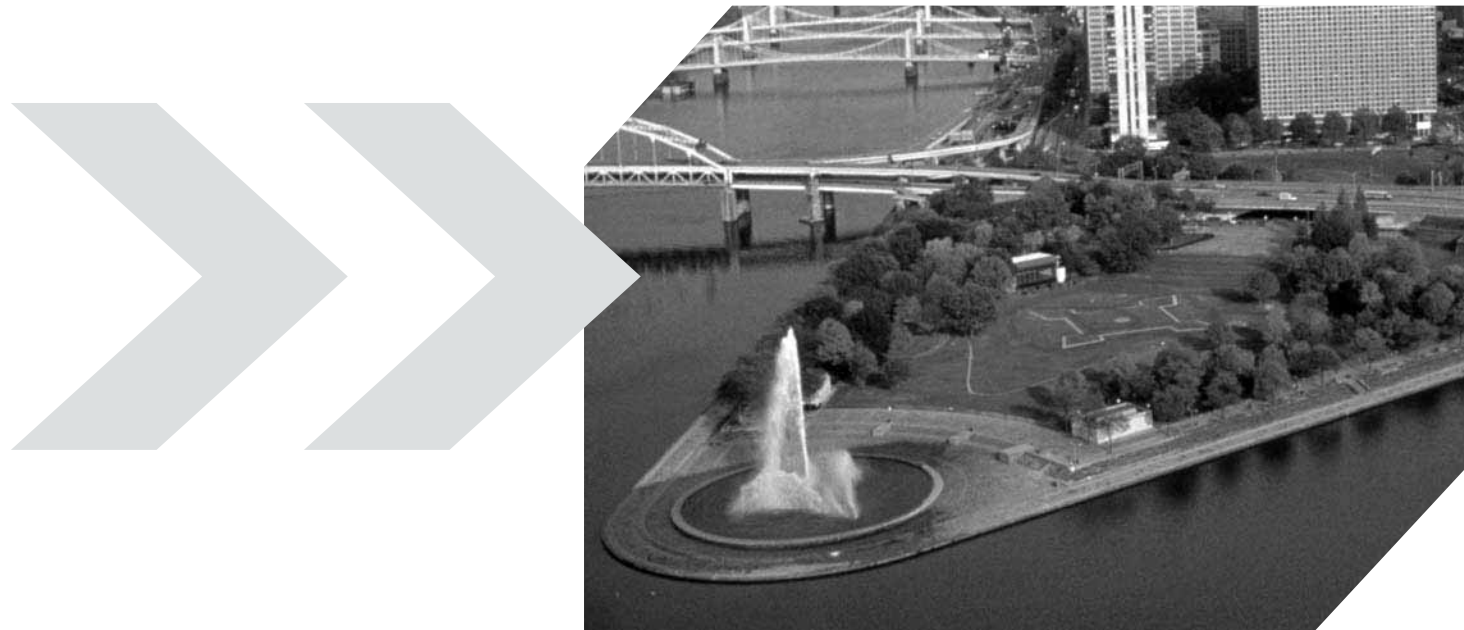
131 Tissue Engineering in Orthopaedic Surgery: Understanding the Clinical Parameters
S. Goodman; Stanford University, Stanford, CA.

5:45 pm

116 Thermally Responsive Chitosan as an Injectable Matrix for Therapeutic Delivery of Mesenchymal Stem Cells
J. M. Dang, S. Chew, K. W. Leong; Johns Hopkins University, Baltimore, MD.

122 The Dimension of Nano-grooves Modulates the Adhesion of Osteoblast-like Cells, MG-63, on Silicon Surfaces
W-B. Tsai¹, J-Y. Yang², Y-C. Ting³; ¹National Taiwan University, Taipei, TAIWAN REPUBLIC OF CHINA, ²National Nano Device laboratories, Hsinchu, TAIWAN REPUBLIC OF CHINA.

128 Effect of Hydrogel Porosity on Marrow Stromal Cell Phenotypic Expression
M. Dadsetan, S. Rajagopalan, T. E. Hefferan, L. Lu, M. J. Yaszemski; Mayo Clinic, Rochester, MN.



<p>Biomimesis in Drug Delivery II: Targeted & Micro/Nano-Scale Carriers (General Session) Ballroom B/C Moderators: Mark E. Byrne, Kaushal Rege</p>	<p>Bionanotechnology: the Future of Biomaterials Symposium III Room 301-302 Moderators: Mark E. Byrne, Thomas Webster</p>	<p>Dental and Orthopaedic Implant Coatings and Materials: Characterization, In vitro, In vivo and Clinical Assessments Room 303-304 Moderators: Jack Ricci, Kai Zhang</p>	<p>Mechanobiology of Skin and Bone (General Session) Room 315-316 Moderators: Tai Lan Tuan, Ben Wu, Bill Tawil</p>	<p>Advances in Biomaterials Science: What have we learned from our mistakes? Room 317-318 Moderators: Anne Meyer, Nicholas Peppas</p>	<p>Modeling Bioresponse to Biomaterials Symposium I Room 319-320 Moderators: Doyle Knight, Sidney Sit</p>
---	--	--	---	--	--

8:00 am	<p>135 Antisenseoligo Nucleotide Delivery Using Polymer Vesicles Y. Kim; M. Tewari, S. Sen, D. E. Discher; University of Pennsylvania, Philadelphia, PA.</p>	<p>143 Fabrication of Dual-Functional Electrospun Nanofiber Scaffolds for Liver Tissue Engineering K. N. Chua¹, Y. N. Tang², P. C. Lee², K. W. Leong³, S. Ramakrishna⁴, H. Q. Mao⁵; ¹National University of Singapore, Singapore, SINGAPORE, ²Division of Johns Hopkins in Singapore Limited, Singapore, SINGAPORE, ³Johns Hopkins University, Baltimore, MD.</p>	<p>151 Effect of Surfactants on Physicochemical Properties of Amorphous Calcium Phosphate Filled Composites J. M. Antonucci¹, D. Skrtic²; ¹National Institute of Standards and Technology, Gaithersburg, MD, ²Paffenbarger Research Center; American Dental Association Foundation, Gaithersburg, MD.</p>	<p>159 A Novel Mitral Valvuloplasty Model for Heterograft Biomaterial In-vivo Assessment M. S. Sacks¹, R. Gorman², J. H. Gorman, III³, R. J. Levy⁴; ¹University of Pittsburgh, Pittsburgh, PA, ²University of Pennsylvania, Philadelphia, PA.</p>	<p>167 Protein and Cellular Interactions with Biomaterials: Perspectives for Nanotechnology and Tissue Engineering J. M. Anderson; Case Western Reserve University, Cleveland, OH.</p>	<p>171 Rational Computer-Aided Design of Biomaterials W. J. Welsh¹, V. Kholodovych¹, D. Knight², J. Kohn³; ¹UMDNJ, Piscataway, NJ, ²Rutgers University, Piscataway, NJ</p>
8:15 am	<p>136 Cross-Linked Micelles for Vaccine Delivery M. J. Heffernan¹; J. Hao¹, M. Kwissa², B. Pulendran², N. Murthy³; ¹Georgia Institute of Technology, Atlanta, GA, ²Emory University, Atlanta, GA.</p>	<p>144 A Visual and Quantitative Analysis of Collagen Self-Assembly Under Microfluidic Hydrodynamic Flow J. B. Leach¹; S. Koester², T. Pfohl¹, J. Y. Wong³; ¹University of Maryland, Baltimore County, Baltimore, MD, ²Max Planck Institute for Dynamics and Self-Organization, Goettingen, GERMANY, ³Boston University, Boston, MA.</p>	<p>152 WITHDRAWN</p>	<p>160 IEctopic Bone Formation from Hydrogel Carriers Loaded with BMP-transduced Cells M. Bikram¹, C. Fouletier-Dilling², J. A. Shafer³, J. A. Hipp⁴, A. R. Davis⁵, E. A. Olmsted-Davis⁶, J. L. West⁷; ¹Rice University, Houston, TX, ²Baylor College of Medicine, Houston, TX.</p>		
8:30 am	<p>137 Targeting Efficiency Optimization of RGD-Modified Liposomes to Activated Platelets G. G. Huang, Sr.¹; A. Sen Gupta, Sr.¹, K. Kottke-Marchant², R. E. Marchant, Sr.³; ¹Case Western Reserve University, Cleveland, OH, ²Cleveland Clinic Foundation, Cleveland, OH.</p>	<p>145 Protein Adsorption and Crystal Structure of Poly(L-lactic acid) Nano Fibers P. Wang, P. X. Ma; University of Michigan, ann arbor, MI.</p>	<p>153 Biodegradable, Antibiotic Coatings for Orthopaedic and Dental/Craniofacial Implants P. A. Norowski, Jr.¹, S. P. Noel¹, H. S. Courtney², Y. L. Yuan¹, K. Richelsoff¹, W. O. Haggard¹, J. L. Ong², J.D. Bumgardner³; ¹University of Memphis, Memphis, TN, ²University of Tennessee-Health Sciences Center, Memphis, TN.</p>	<p>161 TIMP-3 is Differentially Regulated in Response to Mechanical Microenvironment in Cells Growing in Tissue Engineering Scaffolds C. Klapperich, R. Wu; Boston University, Boston, MA.</p>		<p>168 Nanostructured Surface Modification and Coatings for Orthopaedic and Dental Implants J. E. Lemons; University of Alabama at Birmingham, Birmingham, AL.</p>
8:45 am	<p>138 Development and Characterization of Novel Targeted Lipid-Polymer Microcapsules W. J. Duncanson¹; AK. Oum², M. A. Wheatley², J. Y. Wong³; ¹Boston University, Boston, MA, ²Drexel University, Philadelphia, PA.</p>	<p>146 Bone Regeneration on Nano-fibrous Reverse Solid Freeform Fabricated Poly(L-lactic acid) Scaffolds L. A. Smith; V. J. Chen, P. X. Ma; University of Michigan, Ann Arbor, MI.</p>	<p>154 Microencapsulated TGF-β1 Released from Hollow Titanium Implants Enhances In Vivo Bone Ingrowth P. A. Clark, E. K. Moiola, A. Lopez, J. J. Mao; University of Illinois at Chicago, Chicago, IL.</p>	<p>162 Mechano-Active Cartilage Tissue Engineering: Effects of Biomechanical Conditioning Y. Jung¹, S. Kim¹, S-H. Kim¹, Y. Kim², J. Xie³, T. Matsuda⁴, B. Min⁵; ¹Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, ²Gwangju Institute of Science and Technology, Gwangju, REPUBLIC OF KOREA, ³Kyushu University, Fukuoka, JAPAN, ⁴Seoul National University, Seoul, REPUBLIC OF KOREA.</p>		
				<p>173 Thermodynamic Perspectives on the Design of Protein Adsorption Resistant Surfaces R. A. Latour; Clemson University, Clemson, SC</p>		

9:00 am	<p>139 Development of a Multi-functional Red Blood Cell Analog T. T. Thula, R. Tran-Son-Tay, C. Batch; University of Florida, Gainesville, FL.</p>	<p>147 Identifying the SPARC binding sites on collagen I and procollagen I by atomic force microscopy H. Wang¹, B. Ratner¹, H. Sage², S. Jiang¹; ¹University of Washington, Seattle, WA, ²Hope Heart Program, Benaroya Research Institute at Virginia Mason, Seattle, WA.</p>	<p>155 Rate and Strength of Osseointegration of Oxidized and Machined, Turned Implants in Rabbit Bone for 3 and 6 Weeks Y-T. Sul¹, Y. Jeong², C. Johansson³, T. Albrektsson¹; ¹Dept. of Biomaterials, Gothenburg University, Gothenburg, SWEDEN, ²Korea Institute of Machinery and Materials, Changwon, REPUBLIC OF KOREA, ³Department of Medical Technology, Orebro University, Orebro, SWEDEN.</p>	<p>163 Micromechanics of Electrospun Poly Ester Urethane Urea Scaffolds T. Courtney, J. Liao, M. Sacks, J. Stankus, J. Guan, W. Wagner; University of Pittsburgh, Pittsburgh, PA.</p>	<p>169 The "Theta Surface" for Biocompatibility: Minimizing Protein Denaturation R. E. Baier; University at Buffalo, Buffalo, NY.</p>	<p>174 Molecular Dynamics Simulations of Protein Interactions with Hydrophobic Surface Y. Sun, F. Wang, R. A. Latour; Clemson University, Clemson, SC</p>
9:15 am	<p>140 Synthetic Filamentous Phages for Anti-Cancer Drug Delivery Y. Geng; University of Pennsylvania, Philadelphia, PA.</p>	<p>148 In Vitro Evaluation of Osteoblast and Fibroblast Response to Nano-phase Fillers M. E. Clark¹, D. F. Farrar², C. Engel¹, P. J. C. Felstead¹, D. M. Walter¹, G. S. Walker¹, C. A. Scotchford¹, D. M. Grant¹; ¹University of Nottingham, Nottingham, UNITED KINGDOM, ²Smith and Nephew GRC, York, UNITED KINGDOM.</p>	<p>156 Clinical Evaluation of a Laser Microtextured Surface on a Dental Implant G. E. Pecora¹, J. L. Ricci², R. Guarnieri¹, R. Ceccarelli¹, H. Alexander¹; ¹Group for Implant Research, Rome, ITALY, ²New York University, New York, NY, ³Orthogen Corporation, Springfield, NJ.</p>	<p>164 Structure-Function Micromechanics of Fibrin Biomaterial Scaffolds A. A. Corrin¹, B. Tawil¹, M. C. Shaw¹; ¹California Lutheran University, Thousand Oaks, CA, ²Baxter Healthcare, Thousand Oaks, CA.</p>		<p>175 Molecular Simulations of Non-fouling SAM Surfaces J. C. Hower; University of Washington, Seattle, WA.</p>
9:30 am	<p>141 Modulation of Tumor Cytotoxicity and Targeting Selectivity of Nanocarriers via a Dual Ligand Targeting Approach J. M. Saul¹; A. V. Annappagada², R. V. Bellamkonda¹; ¹Georgia Institute of Technology/Emory University, Atlanta, GA, ²University of Texas Medical Center, Houston, TX.</p>	<p>149 Hybrid Fibrous Scaffolds from a Synthetic Elastomer and Urinary Bladder Matrix J. J. Stankus, D. O. Freytes, J. Guan, S. F. Badyak, W. R. Wagner; University of Pittsburgh, Pittsburgh, PA.</p>	<p>157 Evaluation of the Tissue Response to a Knee Hemiarthroplasty L. C. Jones¹, M. Tucci², M. W. Hungerford¹; ¹Johns Hopkins University, Baltimore, MD, ²University of Mississippi, Jackson, MS.</p>	<p>165 Evaluation of "AFT" Bone Void Filler in a Sheep Vertebral Bone Defect T. Fujishiro; The Cleveland Clinic Foundation, Cleveland, OH.</p>	<p>170 Engineered Biomaterials via Molecular (Nanoscale) Surface Modifications B. D. Ratner; University of Washington, Seattle, WA.</p>	<p>176 Prediction of Fibrinogen Adsorption for the Library of Novel Biodegradable Polymers: Combined Molecular Dynamics and Surrogate Modeling Approach A. V. Gubskaya; Rutgers University, The State University of New Jersey, Piscataway, NJ.</p>
9:45 am	<p>142 Absorbable Gel-forming Controlled Release Paclitaxel Formulation for Retarding Tumor Cell Growth W. S. W. Shalaby¹, P. L. Tate², J. M. Lindsey, III³, S. W. Shalaby⁴; ¹Lehigh Valley Hospital, Allentown, PA, ²Poly-Med, Inc., Anderson, SC.</p>	<p>150 Stem Cell Impregnated Carbon Nanofibers/Nanotubes for Treating Neurological Disorders: An in vivo Study J. Lee¹, J. Kim¹, D. Khang², T. J. Webster³; ¹Yonsei University, Seoul, REPUBLIC OF KOREA, ²Purdue University, West Lafayette, IN.</p>	<p>158 Cure Monitoring of Hydrosilation-curable Silicones by Fluorescence Spectroscopy F. W. Wang; National Institute of Standards and Technology, Gaithersburg, MD.</p>	<p>166 Effect of Tricalcium Phosphate Incorporation in Polycaprolactone Scaffolds for Bone Tissue Engineering J. W. Wright¹, C. Boehm², K. Kumagai², L. G. Griffith¹, G. F. Muschler¹; ¹Massachusetts Institute of Technology, Cambridge, MA, ²The Cleveland Clinic Foundation, Cleveland, OH.</p>		<p>177 Molecular Modeling the Water Uptake of Biomaterials V. Kholodovych¹, W. J. Welsh¹, R. Thakur², B. Michniak³, J. Kohn⁴; ¹University of Medicine & Dentistry of New Jersey (UMDNJ)-Robert Wood Johnson Medical School, Piscataway, NJ, ²Rutgers, The State University of NJ, New Brunswick, NJ</p>

<p>Biodegradable Hydrogels for Tissue Engineering III (General Session) Ballroom B/C Moderators: Jennifer Elisseeff, Kacey Marra</p>	<p>Biomimesis in Drug Delivery III: Intelligent and Responsive Gels (General Session) Room 301-302 Moderators: Mark E. Byrne, J. Zach Hillt</p>	<p>Cellular Signal Transduction Symposium Room 303-304 Moderator: Angela Au</p>	<p>Modeling Bioresponse to Biomaterials Symposium II Room 319-320 Moderators: Doyle Knight, Sidney Sit</p>	<p>Organic/Inorganic Hybrid Biomaterials Symposium II Room 315-316 Moderators: John Ricci, Kai Zhang</p>	<p>Orthopedic Bearing Surfaces Room 317-318 Moderators: Steven M Kurtz, Harry McKellop</p>
---	--	--	---	---	---

<p>2:30 pm 178 Laser Scanning Lithography and Soft Lithography of Micropatterned Cell-adhesive Self-assembled Monolayers J. S. Miller¹, M. I. BÄ©thencourt¹, M. Hahn¹, T. Lee², J. L. West³; ¹Rice University, Houston, TX, ²University of Houston, Houston, TX.</p>	<p>186 Environmentally Sensitive Polymer Matrices A. Panitch, B. L. Seal; Arizona State University, Tempe, AZ.</p>	<p>194 Signaling downstream of S1P, VEGF, shear stress and platelet poor plasma D. L. Elbert, S. K. Hughes, B. K. Wacker, M. M. Kaneda; Washington University, St. Louis, MO.</p>	<p>202 Design and Fabrication of Biomorphic Tissue Engineering Scaffolds using Trigonometric Templates S. Rajagopalan, L. Lu, R. Robb, M. Yaszemski; Mayo Clinic College of Medicine, Rochester, MN.</p>	<p>210 Chitosan-Glycerophosphate Hydrogel Imparts Injectability and Thermosensitivity to Calcium Phosphate Composite for Bone Repair A. Chenite; Biosyntech Canada Inc., Laval, PQ, CANADA.</p>	<p>218 Protein Degradation and Chemical Modification of Bovine Serum in Small and Large Diameter Metal-on-Metal Hip Wear Episodes J. Webb¹, J.G. Bowsher², M.M. Grootveld³, J.C. Shelton⁴; ¹University of London, London, United Kingdom, ²Loma Linda University, Loma Linda, CA, ³South Bank University, London, United Kingdom</p>
--	---	--	---	--	--

<p>2:45 pm 179 Stimulus-Responsive Degradation of Biocompatible Polypeptide Hydrogel for Tissue Engineering M. Matsusaki, H. Yoshida, M. Akashi; Osaka University, Suita, JAPAN.</p>	<p>187 Hydrogels for Protease-Responsive Chemotherapy J. R. Tauro, R. A. Gemeinhart; University of Illinois, Chicago, IL.</p>	<p>195 Macrophage expression of phospholipase A2 is altered by polycarbonate-urethane surfaces D. M. Dinnes¹, J. P. Santerre², R. S. Labow³; ¹University of Ottawa Heart Institute, Ottawa, ON, CANADA, ²Faculty of Dentistry, Institute for Biomaterials and Biomedical Engineering, University of Toronto, Ottawa, ON, CANADA.</p>	<p>203 Design and Fabrication of Durotoxic Tissue Engineering Scaffolds S. Rajagopalan, L. Lichun, R. Robb, M. Yaszemski; Mayo Clinic College of Medicine, Rochester, MN.</p>	<p>211 Development of a new CaHP04 (Monetite) self-setting cement T. R. Desai, S. B. Bhaduri, C. A. Tas; Clemson University, Clemson, SC</p>	<p>219 The Relationship of Metal-On-Metal Wear and Metal Ion Release in the Serum Lubricant Y-S. Liao, M. Hanes; DePuy Orthopaedics, Inc., Warsaw, IN.</p>
---	--	--	--	---	---

<p>3:00 pm 180 Dextran Hydrogel Used as a Phospholipid Delivery System for Viscosupplementation D. Weinbrenner, J-A. Burdick, G. Lickfield, C. L. Simpson, M. LaBerge; Clemson University, Clemson, SC.</p>	<p>188 The Release of VEGF from Heparinized Collagen Matrices is controlled by Proteinase Induced Matrix Degradation G. C. M. Steffens¹, C. Yao¹, M. Roderfeld², T. Rath³, E. Roeb⁴, J. Bernhagen⁵; ¹RWTH University Aachen, Aachen, GERMANY, ²Justus-Liebig University, Giessen, GERMANY.</p>	<p>196 Enhancement of Osteoblast Proliferation by Bioactive Glass is Accompanied by Selective Modulation of c-Jun, MAPK, and Integrin Gene Expression A. Y. Au, R. Y. Au, T. K. Al-Talib, B. Eves, C. G. Frondoza; Nutramax Laboratories, Inc., Edgewood, MD.</p>	<p>204 WITHDRAWN</p>	<p>212 Performance of Degradable Long-Fibre Composites for Craniofacial Bone Repair in a Calvarial Defect Model. C. A. Scotchford¹, S. M. Shahtaheri¹, C. D. Rudd², S. E. Fisher³, C. Efeoglu⁴, A. S. High⁵; ¹University of Nottingham, Nottingham, UNITED KINGDOM, ²University of Leeds, Leeds, UNITED KINGDOM.</p>	<p>220 Multi-Lab Evaluation of Hip Simulator Test Conditions on Relative Wear Rates of Crosslinked Polyethylenes D. E. McNulty¹, S. Swope¹, Y-S. Liao², H. McKellop³, F-W. Shen⁴, A. Galvin⁵, J. Fisher⁶; ¹DePuy Orthopaedics, Warsaw, IN, ²Orthopaedic Hospital, Los Angeles, CA, ³Los Angeles Orthopaedic Hospital, Los Angeles, CA, ⁴University of Leeds, Leeds, United Kingdom.</p>
--	---	--	----------------------	---	---

<p>3:15 pm 181 Tannic Acid Crosslinked Collagens and Potential for Breast Tissue Engineering C. A. Parzel, K. J. L. Burg; Clemson University, Clemson, SC.</p>	<p>189 Integration of Thermally Responsive Nanosphere Hydrogels with Gold Nanoparticles for Intelligent Therapeutic Applications D. E. Owens, III, N. A. Peppas; University of Texas at Austin, Austin, TX.</p>	<p>197 Mixed Integrin-Specific Surfaces Synergistically Modulate Signal Transduction and Cell Proliferation C. D. Reyes, T. A. Petrie, A. J. Garcia; Georgia Institute of Technology, Atlanta, GA.</p>	<p>205 Effect of Scaffold Architecture on Diffusion of Oxygen in Tissue Engineered Constructs T. S. Karande¹, J. Mahadevan², N. A. Peppas³, W. Sun⁴, D. D. Dean⁵, C. Agrawal⁶; ¹The University of Texas Health Science Center at San Antonio, San Antonio, TX, ²The University of Texas at Austin, Austin, TX, ³Drexel University, Philadelphia, PA.</p>	<p>213 The Micromechanical Effects of Bone Cement Polymerization on Sheep Femur Cortical Bone J. H. Kang, J. L. Gilbert; Syracuse University, Syracuse, NY.</p>	<p>221 Effect of Trabecular Metal Third Body Particles on Wear of UHMWPE L. L. Borgstede, O. O. Popoola, C. R. Blanchard, T. S. Johnson; Zimmer Inc., Warsaw, IN.</p>
---	--	---	--	--	--

3:30 pm

- 182 Development of Injectable Thermogelling Chitosan-Inorganic Phosphate Solution for Biomedical Applications**
L. S. Nair¹, T. Starnes¹, C. Bijoux², C. T. Laurencin³; ¹University of Virginia, Charlottesville, VA, ²City College of New York, New York, NY.
- 190 WITHDRAWN**
- 198 Triethylene Glycol Derived From Composite Resins Modulates the Expression of Genes Associated with Biofilm Formation and Other Virulence Factors in *Streptococcus Mutans***
P. Khalilchi, J. Singh, D. G. Cvitkovitch, J. P. Santerre; University of Toronto, Toronto, ON, CANADA.
- 206 Mean Pore Size and Compressive Strain Effects on the Permeability of Collagen-GAG Scaffolds: Cellular Solids Modeling and Experimental Results**
B. A. Harley¹, F. J. O'Brien², M. A. Waller³, P. J. Prendergast⁴, I. V. Yannas¹, L. J. Gibson⁵; ¹Massachusetts Institute of Technology, Cambridge, MA, ²Royal College of Surgeons in Ireland, Dublin, IRELAND, ³Trinity College, Dublin, IRELAND.
- 214 Evaluation of Novel Injectable Hydrogels**
J. Vernengo¹, G. Fussell², A. Lowman³; ¹Drexel University, Philadelphia, PA, ²Synthes Spine, West Chester, PA.
- 222 UHMWPE Fluid Absorption And Off-Gassing Following Supercritical CO2 Sterilization**
J. D. DesJardins, J. Hemmer, M. Drews, M. LaBerge; Clemson University, Clemson, SC.

3:45 pm

- 183 SDNA Delivery in Hyaluronic Acid Hydrogels**
J. A. Wieland; Northwestern University, Evanston, IL.
- 191 A Biomimetic Approach Towards The Formation Of Therapeutic Contact Lenses**
S. Venkatesh, S. P. Sizemore, J. Zhang, M. E. Byrne; Auburn University, Auburn, AL.
- 199 Differential Macrophage Activation Due to Biomaterial Topography Requires the B2-Integrin Signaling Pathway**
A. M. B. Collie, P. C. S. Bota, P. S. Stayton; University of Washington, Seattle, WA.
- 207 Polymerization Fronts, Mechanical Constraint and Shrinkage-Induced Residual Stresses in Bone Cement: A one-dimensional thermal-kinetics-viscoelastic model of in-situ polymerization**
J. L. Gilbert; Syracuse University, Syracuse, NY.
- 215 A Tunable Hydroxyapatite Formation in Agarose Hydrogel as Biomimetic Functions**
J. Watanabe, M. Kashii, M. Hirao, K. Oka, K. Sugamoto, H. Yoshikawa, M. Akashi; Osaka University, Suita, JAPAN.
- 223 Effect of Multiple Activities on Wear of UHMWPE in Cruciate-Retaining (CR) Knees**
T. S. Johnson, O. O. Popoola, A. Y. Patil; Zimmer Inc., Warsaw, IN.

4:00 pm

- 184 Protein Interactions with Biological Matrices: A Fluorescence Correlation Spectroscopy Investigation**
N. Washburn, J. A. J. Fitzpatrick; Carnegie Mellon University, Pittsburgh, PA.
- 192 Photopolymerizable Hydrogels made from Poly(ethylene glycol) and Albumin for Drug Delivery: Drug Binding and Release Properties**
L. Oss-Ronen, D. Seliktar; Technion, Haifa, ISRAEL.
- 200 LC/MS Identification of Adherent U937 Intracellular Signaling Proteins Mediated by Various Surface Adsorbed Peptides and Phosphorylation Inhibitor AG18**
S. T. Zuckerman, W. J. Kao; University of Wisconsin-Madison, Madison, WI.
- 208 Prediction of Biodegradation and Drug Release from a Biodegradable Stent**
S. Prabhu, S. Hossainy, D. Gale; Guidant Corporation, Santa Clara, CA.
- 216 Effects of Salicylic Acid-Derived Poly(Anhydride-Esters) Bone Graft Barrier on Inflammation**
M. Reynolds¹, M. Aichelmann-Riedy², A. Prudencio³, K. Woodward⁴, K. E. Uhrich⁵; ¹University of Maryland Dental School, Baltimore, MD, ²Rutgers University, Piscataway, NJ.
- 224 Effect of Femoral Head Size, Material, Surface Roughness And Serum Concentration On The Wear Of 5 Mrad Crosslinked- Remelted UHMWPE Acetabular Cups**
H. McKellop¹, Y-S. Liao², F-W. Shen³, W. McGarry⁴; ¹Orthopaedic Hospital, Los Angeles, CA, ²DePuy Orthopaedics, Warsaw, IN.

4:15 pm

- 185 The Development of Collagen Hydrogel Infused-Polymeric Scaffolds for Creating Vascularised Tissues In Vitro**
H. C. H. Ko¹, S. Lim², J. Cooper-White³, B. K. Milthorpe⁴, L. Poole-Warren⁵, C. D. McFarland⁶; ¹University of New South Wales, Sydney, AUSTRALIA, ²University of Queensland, Brisbane, AUSTRALIA.
- 193 Topically applied S-nitrosoglutathione-containing hydrogel for transdermal nitric oxide release**
A. B. Seabra¹, A. Fitzpatrick², R. Weller³, Z. Lacza⁴, M. G. de Oliveira⁵; ¹Instituto de Química - Universidade Estadual de Campinas, Campinas, BRAZIL, ²Dermatology Department, University of Edinburgh, Edinburgh, UNITED KINGDOM, ³Department of Human Physiology and Clinical Experimental Research, Faculty of Medicine, Semmelweis University, Budapest, HUNGARY.
- 201 Colocalization of Cell Adhesion Proteins in 3D Rapid Prototyped Tissue Engineering Scaffolds**
T. Dutta Roy¹, J. J. Stone², W. Sun³, E. H. Cho⁴, S. J. Lockett⁵, F. W. Wang⁶, L. A. Henderson⁷; ¹National Institute of Standards and Technology, Gaithersburg, MD, ²North Dakota State University, Fargo, ND, ³Drexel University, Philadelphia, PA, ⁴National Cancer Institute, Frederick, MD.
- 209 Analysis of Microvascular Endothelial Cell Morphology During Migration on Haptotactic Fibronectin Gradients**
J. T. Smith, J. T. Elkin, T. B. Kepler, W. M. Reichert; Duke University, Durham, NC.
- 217 Fabrication of Novel Calcium Phosphate-Reinforced Poly(lactic Acid) Continuous-Yarn Composites**
M. Wei¹, C. Kothapalli², J. R. Olson³, M. T. Shaw⁴; ¹University of Connecticut, Storrs, CT, ²Teleflex Medical, Coventry, CT.
- 225 Tribological Characteristics of a New High Flexion Guided Motion TKA Design**
A. Parikh¹, V. Good¹, M. Ries², T. Smith³ & Nephew, Inc., Memphis, TN, 2UCSF Medical Center, Dept. of Orthopaedics, San Francisco, CA.