


	Advances in Imaging: Techniques and Probes Lone Star A Moderators – Joy Dunkers, PhD Dave Castner, PhD	Advances in Therapeutic Delivery Lone Star B Moderators – J. Zach Hilt, PhD, Rick Gemeinhart, PhD	Blood/Material Interactions Lone Star C Moderator – Martin King, PhD	Engineering Bone Lone Star D Moderators – Barbara D. Boyan, PhD, Zvi Schwartz, DMD, PhD	Preventing Implant-Associated Infections Lone Star E Moderators – Lakshmi Nair, PhD Howard Winet, PhD	Stem Cells: Engineering the Niche Lone Star F Moderators – Eben Alsberg, PhD, Jennie Leach, PhD
8:00 am	1 Multiphoton Image Parameters Predict Mechanical Stiffness of Cellularized Collagen Gels C. B. Raub , A. J. Putnam, B. J. Tromberg, S. C. George; Univ. of California, Irvine, Irvine, CA.	9 Optimizing Delivery of Molecular Targeting Agents to Glioblastoma M. R. Caplan , J. M. Stukel; Arizona State Univ., Tempe, AZ.	17 Immobilization of Corn Trypsin Inhibitor on a Catheter Surface Reduces its In Vitro Procoagulant Properties J. W. Yau ; Henderson Res. Ctr., Hamilton, ON, CANADA.	25 Controlled Delivery of BMP-2 from Polyurethane Scaffolds Promotes New Bone Formation in Rat Femoral Defect B. Li , S. A. Guelcher; Vanderbilt Univ., Nashville, TN.	33 Controlling S. epidermidis Colonization by Surface Micropatterning M. Libera , Y. Wang, Q. Wang; Stevens Inst. of technology, Hoboken, NJ.	41 Combinatorial Biomaterials as an Engineered Niche for Control of Stem Cell Transformation/Regeneration E. Liu ¹ , H. Sung ¹ , H. Rizvi ¹ , H. Patel ¹ , M. Becker ² , J. Kohn ¹ , P. Moghe ¹ ; ¹ Rutgers Univ., Piscataway, NJ, ² Natl. Institute of Sci. and Technology, Gaithersburg, MD.
						
8:15 am	2 Measuring Cell Adhesion and Proliferation in Polymer Scaffolds by X-Ray Microcomputed Tomography S. M. Dorsey ¹ , S. Lin-Gibson ² , C. G. Simon, Jr. ² ; ¹ Univ. of Maryland, College Park, MD, ² Natl. Inst. of Standards and Technology, Gaithersburg, MD.	10 Enhanced Tumor Targeting Using Clustered Integrin Binding in Non-Viral Vectors Q. Ng , H. Su, A. Armijo, J. Czernin, C. Radu, T. Segura; UCLA, Los Angeles, CA.	18 Lysine-PEG Modified Polyurethane: Effect of PEG Spacer Length on Plasminogen Capture and Platelet Adhesion. H. Chen ¹ , D. Li ¹ , G. W. McClung ² , B. L. John ³ ; ¹ Wuhan Univ. of Technology, Wuhan, CHINA, ² McMaster University, Hamilton, ON, CANADA, ³ McMaster Univ., Hamilton, ON, CANADA.	26 Bioactive Portland Cement Porous Scaffolds N. Higuaita , D. Gallego, S. Sharma, L. Lee, J. Lannutti, A. Litsky, D. Hansford; The Ohio State Univ., Columbus, OH.	34 Development of Multifunctional Nanocoatings for Improving Bone Healing and Preventing Infection B. Jiang ; Dept. of Orthopaedics, Sch. of Med., West Virginia Univ., Morgantown, WV.	42 Creating a Stem Cell Niche Using Extracellular Matrix Proteins to Drive Osteogenic Differentiation A. W. Lund ¹ , G. E. Plopper ¹ , J. Stegemann ² ; ¹ Rensselaer Polytechnic Inst., Troy, NY, ² Univ. of Michigan, Ann Arbor, MI.
8:30 am	3 ToF-SIMS dual beam depth profiling and imaging of human HeLa cells J. Brison , D. S. W. Benoit, P. S. Stayton, L. J. Gamble, D. G. Castner; Univ. of Washington, Seattle, WA.	11 Nanoscale Assembled Polymers for Nuclear Targeted Biomolecular Delivery in Macrophages: Multifunctional Biomaterial Candidates for Management of Atherosclerosis N. M. Iverson , N. Plourde, S. Sparks, J. Wang, K. E. Uhrich, P. V. Moghe; Rutgers Univ., Piscataway, NJ.	19 Modification of Polymeric Surfaces with High Density Lipoprotein Strongly Improves Blood- and Cell-Compatibility M. L. W. Knetsch L. H. Koole; Maastricht Univ., Maastricht, NETHERLANDS.	27 In Vivo Evaluation of the Biomimetic/Agarose Composite Gels as Scaffolding Materials Y. Suzawa ¹ , T. Funaki ² , S. Iwai ¹ , Y. Yura ¹ , J. Watanabe ² , T. Nakano ² , M. Akashi ² ; ¹ Graduate Sch. of Dentistry, Osaka Univ., Osaka, JAPAN, ² Graduate Sch. of Engineering, Osaka Univ., Osaka, JAPAN.	35 The Application of High-Throughput Methods to the Research and Development of Polysiloxane-Based Antimicrobial Surface Coatings B. Chisholm , P. Majumdar, S. Stafshien, E. Lee, J. Daniels; North Dakota State Univ., Fargo, ND.	43 Encapsulated Mesenchymal Stem Cells Alter the Expression of TNF- and IL-6 by Macrophages M. R. Quetant , R. W. Hitchcock; Univ. of Utah, Salt Lake City, UT.
8:45 am	4 Three-Dimensional Structural Characterization of Tissue Engineered and Native Ovine Pulmonary Valves C. E. Eckert ¹ , Gerneke ² , B. Small ² , D. Gottlieb ³ , J. E. Mayer, Jr. ³ , M. S. Sacks ¹ ; ¹ Univ. of Pittsburgh, Pittsburgh, PA, ² Univ. of Auckland, Auckland, NEW ZEALAND, ³ Children's Hosp. Boston, Boston, MA.	12 Photothermal Ablation of Glioblastoma Using Anti-CD133 Modified Carbon Nanotubes C-A. Peng ; Michigan Technological Univ., Houghton, MI.	20 Characteristics of Microphase Segmented Polyurethane Biomaterials During Hydration: Phase Restructuring, Protein Adsorption and Platelet Adhesion L-C. XU ¹ , J. Runt ² , C. A. Siedlecki ¹ ; ¹ Penn State Univ., Hershey, PA, ² Penn State Univ., State College, PA.	28 Ex Vivo Generation of Three Dimensional Human Mesenchymal Stem Cells/Nano-hydroxyapatite Composite Scaffold Constructs in HARV Bioreactors as Potential Bone Graft Q. Lv ¹ , L. Nair ² , C. T. Laurencin ² ; ¹ Univ. of Virginia, Charlottesville, VA, ² Univ. of Connecticut, Farmington, CT.	36 Inhibitory Role of a Polymer Brush-Coating in Bacterial Adhesion to Silicone Rubber M. Nejadnik , H. C. van der Mei, H. J. Busscher, W. Norde; Univ. Med. Ctr. Groningen, Groningen, NETHERLANDS.	44 Control of Mesenchymal Stem Cell Motility in 3-D Synthetic Biomaterials S. R. Peyton , H.-I. Lee, Z. Kalcioğlu, P. Hammond, K. J. Van Vliet, D. A. Luffenburger, L. G. Griffith; Massachusetts Inst. of Technology, Cambridge, MA.

9:00 am	5	Hydrocyanines: A New Class of Fluorescent Sensors That Can Image Reactive Oxygen Species in Cell Culture, Tissue and In Vivo N. Murthy; Georgia Tech, Atlanta, GA..	13	Controlled Release of Hyaluronic Acid from Molecularly Imprinted Hydrogel Contact Lenses M. Ali, M. Byrne; Auburn Univ., Auburn, AL.	21	Co-alloy Implant Debris (Soluble and Particulate) Activate the Macrophage Inflammation “Danger” Signaling Pathway: A Novel Intracellular wear Debris Sensing Mechanism M. S. Caicedo, R. Desai, A. Reddy, K. McAllister, J. Jacobs, N. Hallab; Rush Univ. Med. Ctr., Chicago, IL.	29	Effect of Rapidly Resorbable Calcium-Alkali-Orthophosphate Bone Grafting Materials on Osteogenesis After Sinus Floor Augmentation in Sheep C. Knabe ¹ , G. Berger ² , R. Gildenhaar ² , C. Koch ¹ , I. Axmann ¹ , S. Jonscher ¹ , A. Rack ³ , P. Ducheyne ⁴ , M. Stiller ¹ ; ¹ Charite Univ. Med. Ctr., Berlin, GERMANY, ² Federal Inst. for Material Res. and Testing, Berlin, GERMANY, ³ European Synchrotron Radiation Facility, Grenoble, FRANCE, ⁴ Univ. of Pennsylvania, Philadelphia, PA.	37	A Novel Plasma Surface Treatment to Suppress Bacterial Adhesion on Titanium Alloy K. Yeung ¹ , K. Leung ² , R. Kao ² , P. Chu ¹ , K. Luk ² , K. Cheung ² ; ¹ City Univ. of Hong Kong, HONG KONG, ² The Univ. of Hong Kong, HONG KONG	45	Localized Recruitment of Multipotent Mesenchymal Stem Cells by Biomaterial Implants R. Hansen, III, J. Shen, L. Tang; Univ. of Texas at Arlington, Arlington, TX.
9:15 am	6	In Vivo Off Resonance Saturation Magnetic Resonance Imaging of alpha(v)beta(3)-Targeted Superparamagnetic Nanoparticles C. Khemtong C. W. Kessinger, J. Ren, E. A. Bey, S-G. Yang, J. Setti Guthi, D. A. Boothman, A. D. Sherry, J. Gao; Univ. of Texas Southwestern Med. Ctr. at Dallas, Dallas, TX.	14	Exploring the design and function of poly(lactic-co-glycolic) acid microspheres in silico and in vitro S. N. Rothstein, S. R. Little; Univ. of Pittsburgh, Pittsburgh, PA.	22	Apolipoprotein AI, a Major Player in Blood Material Interactions R. M. Cornelius, J. Macri, J. L. Brash; McMaster Univ., Hamilton, ON, CANADA.	30	Fibrin Gel-Based Delivery of Growth Factors for Bone Healing in the Critical Size Rat Calvarial Defect I. Catelas ¹ , K. Sena ² , S. Helgerson ¹ , J. F. Dwyer ¹ , Z. Yang ¹ , D. R. Sumner ² , A. S. Viridi ² ; ¹ Baxter Hlth.care Corp., Round Lake, IL, ² Anatomy and Cell Biology, Rush Univ. Med. Ctr., Chicago, IL.	38	Antibiotic-Eluting Bioresorbable Composite Fibers for Wound Healing Applications: Microstructure, Drug Delivery and Mechanical Properties J. J. Elsner ¹ , I. Berdicevsky ² , M. Shohat ¹ , M. Zilberman ¹ ; ¹ Tel Aviv Univ., Ramat Aviv, ISRAEL, ² Technion- Israel Inst. of Technology, Haifa, ISRAEL.	46	Harnessing Cell-Traction Mediated Nanopatterning of Microenvironments by Controlling Matrix Compliance N. Huebsch, P. Arany, A. Mao, J. Rivera-Feliciano, D. J. Mooney; Harvard Univ., Cambridge, MA.
9:30 am	7	Novel Stable Fluorescence Nanoparticles Covered with Biocompatible Phospholipid Polymers K. Ishihara, Y. Goto, R. Matsuno, T. Konno, M. Takai; The Univ. of Tokyo, Tokyo, JAPAN.	15	Self-assembling Peptide Amphiphile-based Nanofiber Gel for Bioresponsive Cisplatin Delivery S. Jo; The Univ. of Mississippi, University, MS.	23	Isolation of Cord Blood-Derived Hematopoietic Stem Cells Using Macroporous Affinity Cryogel Matrix A. Srivastava; Indian Inst. of Technology Kanpur, INDIA.	31	Osteogenic Potential of Cells Isolated from Lipid-Rich Layer of Reamer Aspirate S. S. Kay-Sinclair ¹ , K. J. Jeray ² , S. L. Tanner ² , K. J. L. Burg ¹ ; ¹ Clemson Univ., Clemson, SC, ² Greenville Hosp. System Univ. Med. Ctr., Greenville, SC.	39	Sphere Templated Angiogenic Regeneration (STARTM) Biomaterial for Reducing Infection Associated with Percutaneous Devices A. J. Marshall, M. G. Maginness; Healionics, Redmond, WA.	47	A Novel Engineered Niche to Explore the Perivascular Association of Adult Stem Cells and the Vasculogenic Potential of Embryonic Stem Cells B. Carrion, C. Huang, C. M. Gajjar, N. Jeon, A. J. Putnam; Univ. of California, Irvine, Irvine, CA.
9:45 am	8	Functionalized Gold Nanoparticle X-ray Contrast Agents for Bone Tissue R. D. Ross, R. K. Roeder; Univ. of Notre Dame, Notre Dame, IN.	16	Signal Transduction of Hyaluronic Acid - Peptide Conjugate for Formyl Peptide Receptor Like 1 Receptor E. Oh, J-W. Kim, J-H. Kong, S. Ryu, S. Hahn; POSTECH, POHANG, REPUBLIC OF KOREA.	24	Platelet Inhibition and Endothelial Cell Adhesion on Stable Elastin-Like Polypeptide Enriched Biomaterials P. H. Blitt ¹ , W. G. McClung ² , J. L. Brash ² , K. A. Woodhouse ³ , J. P. Santerre ¹ ; ¹ Univ. of Toronto, Toronto, ON, CANADA, ² McMaster Univ., Hamilton, ON, CANADA, ³ Queen's Univ., Kingston, ON, CANADA.	32	Osteoclast Cell Proliferation, Differentiation and Resorption on Polyurethane/Bone Composite Implants for Reconstruction of Craniofacial Defects P. Alvarez ² , A. Srinivasan ¹ , J. Dumas ² , A. Karunanidhi ¹ , J. Kim ¹ , S. Guelcher ² , J. Hollinger ¹ ; ¹ Carnegie Mellon Univ., Pittsburgh, PA, ² Vanderbilt Univ., Nashville, TN.	40	Infection Rate of Percutaneous Implants with Porous Metal Dermal Barriers D. Isackson, B. Bailey, N. A. T. Brown, C. Petty, K. N. Bachus; Univ. of Utah, Salt Lake City, UT.	48	Dynamic Force Generation by Neural Stem Cells P. Shi, L. Kam; Columbia Univ., New York, NY.

<p>Biomaterial Immuno-Engineering (Symposia) Lone Star A Moderators – Joel Collier, PhD, Benjamin G. Keselowsky, PhD</p>	<p>Drug Delivery in Tissue Engineering and Regenerative Medicine Lone Star B Moderators – Mark Byrne, PhD, Esmail Jabbari, PhD</p>	<p>Orthopedic Bearing Surfaces Lone Star C Moderators – Martine LaBerge PhD, John B. Medley, PhD</p>	<p>PEEK Biomaterials: From Isoelastic Hip Stems to Bone Scaffolds (Symposia) Lone Star D Moderators – Steven M. Kurtz, PhD, Ryan Roeder, Ph.D</p>	<p>Peptide Functionalized Materials for Directed Cell Response Lone Star E Moderators – Matthew L. Becker, PhD, Nathan D. Gallant, PhD</p>	<p>Scaffolds for Tissue Engineering: Basic Principles, Processing Methods and Novel Developments Lone Star F Moderators – C. Mauli Agrawal, PhD, Rui L. Reis, PhD</p>
---	---	---	--	---	--

1:00 pm	<p>49 Materials Designs Toward Macrophage- and Dendritic Cell-Targeted Immunotherapeutics J. A. Hubbell, M. A. Swartz, E. Simeoni, A. Stano, C. Nembrini, S. N. Thomas, S. Hirose, A. J. van der Vlies, C. P. O'Neil, D. Velluto; EPFL, Lausanne, SWITZERLAND</p>	<p>56 Sequential Delivery of Angiogenic Cytokines From Fibrin-Based Hydrogels in a Murine Critical Limb Ischemic Model H. Layman, X. Li, S. M. Pham, F. M. Andreopoulos; Univ. of Miami, Miami, FL.</p>	<p>64 Post-implantation Evaluation and Damage Characterization of Retrieved Dynamic Antibiotic Cement Spacers D. Jaekel¹, G. Klein², J. Day³, H. Levine², P. Shah¹, H. Patel¹, A. Cohen¹, S. Kurtz¹; 1Drexel Univ., Philadelphia, PA, 2Hackensack Univ. Med. Ctr., Hackensack, NJ, 3Exponent, Inc, Philadelphia, PA.</p>	<p>72 Incorporating Hydroxyapatite and Porosity in PEEK for Orthopaedic and Spine Applications R. K. Roeder; Univ. of Notre Dame, Notre Dame, IN.</p>	<p>79 S1P-Mediated Endothelial Cell Migration into Porous Poly(ethylene glycol) Modular Scaffolds Formed in the Presence of HepG2 Cells E. A. Scott, M. D. Nichols, D. L. Elbert; Washington Univ. in St. Louis, St. Louis, MO.</p>	<p>87 Epicardial placement of an elastic, biodegradable patch induces muscle tissue similar to embryonic myocardium in the post-infarcted wall and preserves cardiac functional reserve K. L. Fujimoto¹, K. Tobita¹, J. Guan¹, Y. Hong¹, K. E. Yutzey², B. B. Keller¹, W. R. Wagner¹; ¹Univ. of Pittsburgh, Pittsburgh, PA, ²Cincinnati Children's Med. Ctr., Cincinnati, OH..</p>
---------	---	---	--	---	---	---

1:15 pm		<p>57 Local Erythromycin Delivery in a Rat Osteolysis Model D. C. Marke¹, R. Zhang², M. Hawkins², P. Wooley³, W. Ren⁴; ¹Providence Hosp., Southfield, MI, ²Stryker Orthopedics, Mahwah, NJ, ³Orthopedic Res. Inst., Wichita, KS, ⁴Wayne State Univ., Detroit, MI.</p>	<p>65 Wear Performance of Large Diameter Differential Hardness Metal-on-Metal and Ceramic-on-Metal Hip Bearings S. Nambu¹, J. Moseley¹, M. Carroll¹, F. Billi²; ¹Wright Med. Technology, Arlington, TN, ²Los Angeles Orthopedic Hosp., Los Angeles, CA.</p>		<p>80 Bio-Artificial Matrix for Therapeutic Vascularization E. A. Phelps, A. M. Wojtowicz, P. M. Thulé, W. R. Taylor, A. J. Garcia; Georgia Inst. of Technology, Atlanta, GA.</p>	<p>88 Integrated Dual Scaffolding System for Engineering of Muscle-Tendon Junctions M. R. Ladd, S. Lee, A. Atala, J. J. Yoo; Wake Forest Inst. for Regenerative Med., Winston-Salem, NC.</p>
---------	--	--	---	--	---	--

1:30 pm	<p>50 A Materials-Based Approach for Immunotherapeutics Design: Mechanisms of Thiol-Associated Complement Activation of Dendritic Cells S. N. Thomas, S. T. Reddy, A. J. van der Vlies, S. Hirose, J. A. Hubbell, M. A. Swartz; Ecole Polytechnique Federale de Lausanne, Lausanne, SWITZERLAND.</p>	<p>58 Novel Porous Scaffold for Releasing Bioactive Molecules A. M. Nair, J. Yang, L. Tang; The Univ. of Texas at Arlington, Arlington, TX.</p>	<p>66 Crosslinking of UHMWPE Without Radiation D. Sun¹, L. Terrill², S. Lin², W. Petty², R. Tsay², G. Chou²; ¹Taiwan Scientific Corp., Taipei, TAIWAN, ²Exactech, Inc., Gainesville, FL, ³Inst. of BioMed. Engineering, Natl. Yang-Ming Univ., Taipei, TAIWAN.</p>	<p>73 Plasma Surface modification of PEEK to improve primary human osteoblast cell adhesion and function A. H. C. Poulsson, R. G. Richards; AO Res. Inst., Davos Platz, SWITZERLAND.</p>	<p>81 Engineered Synthetic Platelets and Their Augmentation of Hemostasis J. P. Bertram, E. B. Lavik; Yale Univ., New Haven, CT.</p>	<p>89 Bilayered Scaffold for Engineering Fully Cellularized Small Diameter Blood Vessels Y. Ju, S. Lee, J. Choi, A. Atala, J. J. Yoo; Wake Forest Inst. for Regenerative Med., Winston-Salem, NC.</p>
---------	--	---	---	--	--	---

1:45 pm	<p>51 Injectable Hydrogels as 'Vaccination Nodes' for Anti-Tumor Immunotherapy D. J. Irvine, Y. Hori, A. M. Winans, C. C. Huang, E. M. Horigan; MIT, Cambridge, MA.</p>	<p>59 Polymer-coated Albumin Nanoparticles for Bone Morphogenetic Protein-2 Delivery: Pharmacokinetics and Osteoinduction Study S. Zhang, C. Kucharski, H. Uludag; Univ. of Alberta, Edmonton, AB, CANADA.</p>	<p>67 Vitamin E Diffusion Process Elevates Remelting of Irradiation Crosslinked UHMWPE S-S. Yau¹, K-P. Le¹, J. W. Blitz¹, J. H. Dumbleton²; ¹Stryker Orthopaedics, Mahwah, NJ, ²Consultancy in Med. Devices, Ridgewood, NJ.</p>	<p>74 New Technique for Crystallinity Measurements of Medical Grade PEEK Utilizing FTIR-microscopy D. Jaekel, F. Medel, S. Kurtz; Drexel Univ., Philadelphia, PA.</p>	<p>82 Sequential Click Reactions for Synthesizing and Patterning 3D Cell Microenvironments C. A. DeForest¹, E. A. Sims¹, B. D. Polizzotti², K. S. Anseth²; ¹Univeristy of Colorado, Boulder, CO, ²Univeristy of Colorado / HHMI, Boulder, CO.</p>	<p>90 Evaluation of ECM components in Biodegradable Hydrogels for Chondrogenic Differentiation of Mesenchymal Stem Cells L. H. Nguyen, N. Guckert, A. Kapuria, K. Roy; Univ. of Texas at Austin, Austin, TX.</p>
---------	---	--	---	---	---	--

2:00 pm	<p>52 Foreign Body Reactions-Induced Cancer Metastasis L. Wu, C-Y. Ko, L. Tang; Univ. of Texas at Arlington, Arlington, TX.</p>	<p>60 Local Delivery of PDGF-BB from Polyurethane Scaffold Enhances Tissue Regeneration in Rat Excisional Wounds B. Li, J. M. Davidson, S. A. Guelcher; Vanderbilt Univ., Nashville, TN.</p>	<p>68 Biostability, Biocompatibility and Mechanical Properties of a Hyaluronan-Polyethylene Copolymer R. Oldinski¹, M. Gobek¹, S. James¹, M. Staiger²; ¹Colorado State Univ., Fort Collins, CO, ²Univ. of Canterbury, Christ Church, NEW ZEALAND.</p>	<p>75 In Vitro Analysis of Novel Porous PEEK Orthopedic Biomaterial B. Landy¹, S. VanGordon¹, M. Jarman-Smith², P. McFetridge¹, V. Sikavitsas¹; ¹Univ. of Oklahoma, Norman, OK, ²Invio Ltd., Lancashire, UNITED KINGDOM.</p>	<p>83 Molecularly Engineered PEG Hydrogels with Enhanced Proteolysis J. Patterson, J. A. Hubbell; Ecole Polytechnique Fédérale de Lausanne, Lausanne, SWITZERLAND.</p>	<p>91 Preparation of Artificial Fibrous Nano Extracellular Matrices on Cell Surface for Layered Tissues K. Kadowaki, M. Matsusaki, M. Akashi; Graduate Sch. of Engineering, Osaka Univ., Osaka, JAPAN.</p> <p style="text-align: right;">★</p>
2:15 pm	<p>53 Local Regulation of Cytokines with Antibody-Functionalized Materials N. R. Washburn, L. Sun; Carnegie Mellon Univ., Pittsburgh, PA.</p>	<p>61 Incorporation of Double-Walled Microspheres into Polymer Nerve Guides for the Sustained Delivery of Neurotrophic Factors L. E. Kokai; Univ. of Pittsburgh, Pittsburgh, PA.</p>	<p>69 Hip Simulator Wear Testing Of Polycarbonate Urethane Acetabular Cups as Compared to Ultra High Molecular Weight Polyethylene Cups K. R. St. John¹, N. J. Hallab², S. M. Kurtz²; ¹Univ. of Mississippi Med. Ctr., Jackson, MS, ²Bioengineering Solutions Inc., Oak Park, IL, ³Exponent, Philadelphia, PA.</p>	<p>76 Plasma Spray Deposition of Titanium and Hydroxyapatite on PEEK and Carbon Fiber-Reinforced PEEK P. Robotti¹, S. Vedova¹, A. Fabbri¹, C. Migliaresi², V. Fontanari²; ¹Eurocoating Spa, Cirè-Pergine, Trento, ITALY, ²Univ. of Trento, Trento, ITALY.</p>	<p>84 A Dynamic Ligand Presentation System to Examine Adhesive Ligand "Temporal Threshold" T. A. Petrie¹, E. A. Phelps¹, M. Wirkner², A. Del Campo², A. J. Garcia¹; ¹Georgia Inst. of Technology, atlanta, GA, ²Max-Planck-Inst. für Metallforschung, Stuttgart, GERMANY.</p>	<p>92 Crystallization mechanism of the PVA-Theta hydrogel as load bearing synthetic articular cartilage H. Bodugoz Senturk¹, C. E. Macias², O. K. Muratoglu¹; ¹Massachusetts Gen. Hosp./Harvard Med. Sch., Boston, MA, ²Massachusetts Gen. Hosp., Boston, MA.</p>
2:30 pm	<p>54 Enhanced Cell Migration and Efficient In-vivo Immune-modulation by Combinatorial, Single Formulation Delivery of siRNA, DNA vaccine and Chemokines A. Singh, S. Suri, K. Roy; The Univ. of Texas at Austin, Austin, TX.</p>	<p>62 Localized Hydrogel Delivery to the Spinal Cord M. S. Shoichet¹, C. E. Kang¹, M. D. Baumann¹, Y. Wang¹, K. Vulic¹, J. Stanwick¹, C. H. Tator²; ¹Univ. of Toronto, Toronto, ON, CANADA, ²Toronto Western Res. Inst., Toronto, ON, CANADA.</p>	<p>70 Wear and Friction of a Multi-Bearing Acetabular System A. Kamali; Smith & Nephew Orthopaedics Ltd, Leamington Spa, UNITED KINGDOM.</p>	<p>77 Exploring the Wear of a PEEK All-Polymer Articulation for Spinal Applications H. Austin¹, M. Powell², J. Medley¹, D. Langohr¹; ¹Univ. of Waterloo, Waterloo, ON, CANADA, ²Medtronic, Spine & Biologics, Memphis, TN.</p>	<p>85 Osteoinductive Polymer Scaffolds for Bone Tissue Engineering: A Surface-Modification Approach D. A. Lee¹, C. T. Laurencin²; ¹Drexel Univ., Philadelphia, PA, ²Univ. of Connecticut, Farmington, CT.</p>	<p>93 An Elastic, Biodegradable Cardiac Patch Induces Muscle Regeneration with Preserved Cardiac Function in a Porcine Myocardial Infarction Model K. L. Fujimoto, K. Tobita, J. Guan, R. Hashizume, Y. Hong, T. Ota, B. B. Keller, W. R. Wagner; Univ. of Pittsburgh, Pittsburgh, PA.</p> <p style="text-align: right;">★</p>
2:45 pm	<p>55 Microparticle-Based Cellular Arrays For Vaccine Development And Optimization A. P. Acharya, B. G. Keselowsky; Univ. of Florida, Gainesville, FL.</p> <p style="text-align: center;">★</p>	<p>63 Matrix Metalloproteinase Degradable PEG Hydrogel with High DNA/PEI Loading for Tissue Engineering Y. Lei, T. Segura; Univ. of California, Los Angeles, Los Angeles, CA.</p>	<p>71 Novel Nanostructured Coatings Induce Osteogenic Differentiation of Human Mesenchymal Stem Cells S. Dimitrievska¹, R. Lima¹, M. Basil¹, J. Antoniou², A. Petit³, M. N. Bureau¹; ¹Natl. Res. Council Canada, Boucherville, QC, CANADA, ²Orthopaedic Res. Lab., Royal Victoria Hosp., Montreal, QC, CANADA, ³Dept. of Orthopaedic, Jewish Gen. Hosp.- SBMD, Montreal, QC, CANADA.</p>	<p>78 Fatigue Crack Initiation and Propagation Behavior of Neat PEEK under Notched Conditions M. Sobieraj¹, J. Murphy¹, J. Brinkman¹, S. Kurtz², C. Rimnac¹; ¹Case Western Reserve Univ., Cleveland, OH, ²Exponent, Inc. and Drexel Univ., Philadelphia, PA.</p>	<p>86 Osteogenic Differentiation of Human Mesenchymal Stem Cells Directed by Extracellular Matrix-Mimicking Ligands in a Biomimetic Self-Assembled Peptide Amphiphile Nanomatrix J. Anderson, M. Kushwaha, A. Tambralli, S. L. Bellis, R. P. Camata, H-W. Jun; Univ. of Alabama at Birmingham, Birmingham, AL.</p>	<p>94 Novel Poly(ethylene glycol) Cloud Point Microspheres Used To Form Macroporous Scaffolds M. D. Nichols, E. A. Scott, D. L. Elbert; Washington Univ. in Saint Louis, Saint Louis, MO.</p>

Drug Delivery in Tissue Engineering and Regenerative Medicine Lone Star C Moderators – Liisa Kuhn, PhD, Esmail Jabbari, PhD		Biomaterials for Interface Engineering and Soft Tissue Repair Lone Star F Moderators – Helen H. Lu, PhD, Johnna S. Temenoff, PhD		Biomimetic Materials Lone Star C Moderators – Elizabeth Cosgriff-Hernandez, PhD, Mariah Hahn, PhD		Cellular Responses to Their Microenvironments Lone Star F Moderators – Eben Alsberg, Ph.D, Thomas H. Barker, Ph.D	
3:15 pm	95 Localization of TGF-β1 within PEGylated Fibrin Gels Affects Phenotype of Embedded MSCs C. T. Drinnan, G. Zhang, L. J. Suggs; Univ. of Texas at Austin, Ausitn, TX.	105 Methacrylic Terpolymer Formulations with Robust Anti-Fouling Interfacial Properties A. N. Veleva ¹ , D. E. Heath ² , C. Patterson ³ , S. L. Cooper ² ; ¹ North Carolina State Univ., Raleigh, NC, ² Ohio State Univ., Columbus, OH, ³ Univ. of North Carolina, Chapel Hill, NC	4:15 pm	115 Using Nucleic Acid Aptamers to Develop Artificial Antibodies for Drug Delivery Y. Wang, J. Zhou; Univ. of Connecticut, Storrs, CT.	125 Tendon Tissue Engineering Using the Human Umbilical Vein and Mesenchymal Stem Cells R. Aboulsleiman, P. McFetridge, V. Sikavitsas; Univ. of Oklahoma, Norman, OK.		
3:20 pm	96 Electrospun Biodegradable, Elastomeric Poly(ester Urethane) Urea Fibrous Scaffolds with Paclitaxel Release for Vascular Bypass Applications Y. Hong, L. Soletti, D. A. Vorp, W. R. Wagner; Univ. of Pittsburgh, Pittsburgh, PA.	106 Translation Model for Developing a Single Stage Percutaneous Osseointegrated Implant for Amputees R. D. Bloebaum ¹ , J. P. Beck ¹ , R. E. Olsen ² , L. L. Norlund ² , K. N. Bachus ³ ; ¹ Bone & Joint Res. Lab, DVASLC Hlth.Care System, Salt Lake City, UT, ² Frontier BioMed., Logan, UT, ³ Dept. of Orthopaedics, Univ. of Utah Sch. of Med., Salt Lake City, UT.	4:20 pm	116 Fluorescent Quantification of Osteogenesis of GFP-Transgenic Mouse Calvarial Osteoblasts on Biomimetic Coatings L. T. Kuhn, Y. Liu, M. Advincula, Y-H. Wang, P. Maye, A. J. Goldberg; Univ. of Connecticut Hlth.Ctr., Farmington, CT.	126 Evaluation of a Monocyte/Vascular Endothelial Cell Co-Culture on a Vinyl-Based Polyurethane Designed for Vascular Graft Generation S. M. McDonald ¹ , L. A. Matheson ¹ , J. E. McBane ² , S. Sharifpoor ² , P. Santerre ² , R. S. Labow ¹ ; ¹ Univ. of Ottawa Heart Inst., Ottawa, ON, CANADA, ² Univ. of Toronto, Toronto, ON, CANADA.		
3:25 pm	97 Heparin Releasing Hydrogels Promote the Contractile Phenotype of Cultured Vascular Smooth Muscle Cells J. A. Beamish ¹ , R. E. Marchant ¹ , K. Kottke-Marchant ² ; ¹ Case Western Reserve Univ., Cleveland, OH, ² Cleveland Clinic, Cleveland, OH.	107 Mechanism of Rejection in Orthopaedic Xenografts T. J. Turek ¹ , K. R. Stone ² , U. Gallii ³ ; ¹ CrossCart, Inc., San Francisco, CA, ² Stone Res. Fndn., San Francisco, CA, ³ UMass Sch. of Med., Worcester, MA.	4:25 pm	117 Fibrous Biomimetic Hydrogels for Tissue Engineering J. S. Ailtus ¹ , P. Sundelacruz ² , M. L. Rowland ¹ , J. L. West ¹ ; ¹ Rice Univ., Houston, TX, ² Rice Univeristy, Houston, TX.	127 Integrin Alpha2 and Beta1 Subunits Mediate Osteoblast Response to Surface Roughness and Chemistry R. Olivares-Navarrete ¹ , A. Almaguer-Flores ² , S. E. Rodil ² , M. Wieland ³ , Z. Schwartz ¹ , B. D. Boyan ¹ ; ¹ Georgia Inst. of Technology, Atlanta, GA, ² Univ. Natl. Autonoma de Mexico, Mexico City, MEXICO, ³ Inst. Straumann, Basel, SWITZERLAND.		
3:30 pm	98 Controlled Release of Stromal Cell Derived Factor-1 to Enhance Progenitor Cell Recruitment D. Kuraitis; Univ. of Ottawa Heart Inst., Ottawa, ON, CANADA.	108 Effects of 45S5 Bioactive Glass Particles on Chondrocyte Biosynthesis and Mineralization N. T. Khanarian, S. A. McArdle, H. H. Lu; Columbia Univ., New York, NY.	4:30 pm	118 Peptide-Induced Self-Assembly of Synthetic Poly(lactide fumarate) Macromer A. E. Mercado, E. Jabbari; Univ. of South Carolina, Columbia, SC.	128 Rigidity-dependent Costimulation of Naive CD4+ T cells K. Shen, L. C. Kam; Columbia Univ., New York, NY.		
3:35 pm	99 Growth Plate Regeneration Using IGF-I Plasmid Releasing PLGA Scaffolds N. Ravi, T. A. Milbrandt, D. A. Puleo; Univ. of Kentucky, Lexington, KY.	109 Material Property Characterization of a Novel Hydrogel for Corneal Applications P. Pattekari ¹ , H. Zhu ² , J. T. Jacob ³ , P. Sit ¹ ; ¹ Louisiana Tech Univ., Ruston, LA, ² Rice Univ., Houston, TX, ³ Louisiana State Univ. Hlth.Sci. Ctr., New Orleans, LA.	4:35 pm	119 Cell-Responsive Polyurethanes: Synthesis of Peptide-Based Polyol Soft Segments H. Benhardt, T. Wilems, N. Sears, E. Cosgriff-Hernandez; Texas A&M Univ., College Station, TX.	129 Regulation of Mesenchymal Stem Cell Differentiation by Controlling Moduli of Core-Shell Electrospun Fibers J. Nam, J. Johnson, J. Lannutti, S. Agarwal; The Ohio State Univ., Columbus, OH.		
3:40 pm	Q & A	Q & A	4:40 pm	Q & A	Q & A		

3:45 pm	100 Release Characteristics and Osteogenic Activity of rhBMP-2 Conjugated to Self-Assembled Nanoparticles J. Ma, A. E. Mercado, X. He, E. Jabbari; Univ. of South Carolina, Columbia, SC.	110 Combinatorial Method for Screening the Effect of Nanofiber Scaffold Composition on Cell Response M. Ramalingam ¹ , M. F. Young ² , V. Thomas ³ , C. G. Simon, Jr. ¹ ; ¹ NIST, Gaithersburg, MD, ² NIDCR/NIH, Bethesda, MD, ³ Univ. of Alabama at Birmingham, Birmingham, LA.	4:45 pm	120 Fibrin-knob Peptide Variants for Targeting Delivery to Fibrin Matrices S. E. Stabenfeldt, W. Brown, A. Soon, T. H. Barker; Georgia Inst. of Technology, Atlanta, GA.	130 A Study in the Stimulation of Chondrocytes seeded in 3D Matrices by Continuous Ultrasound A. Subramanian; Univ. of Nebraska, Lincoln, NE.
3:50 pm	101 Controlled Release of Ciliary Neurotrophic Factor from Polymer Systems for Neural Tissue Engineering S. Y. Tzeng ¹ , M. K. Nkansah ¹ , A. M. Holdt ² , E. B. Lavik ¹ ; ¹ Yale Univ., New Haven, CT, ² Univ. of Colorado Hlth.Sci. Ctr., Denver, CO.	111 Zimmer® Collagen Repair Patch for Patella Tendon Donor Site Repair in a Dog Model H. Wang ¹ , M-S. Shih ² , S. A. Martinez ³ , K. Hughes ³ , J. Q. Yao ¹ ; ¹ Zimmer, Inc., Austin, TX, ² MDS Pharma Services, Bothall, WA, ³ Washington State Univ., Pullman, WA.	4:50 pm	121 Effect of Hydroxyapatite Content in Biomimetic Composite Scaffolds on Bone Marrow Stromal Cell Differentiation I. O. Smith, H. Sun, P. X. Ma; Univeristy of Michigan, Ann Arbor, MI.	131 Spontaneous Formation of Stable Wrinkling Patterns in Hydrogels to Control Cellular Morphology M. Guvendiren S. Yang, J. A. Burdick; Univ. of Pennsylvania, Philadelphia, PA.
3:55 pm	102 Vascular Endothelial Growth Factor Release from Amino Acid Ester Polyphosphazene Scaffolds O. Oredein-McCoy ¹ , N. R. Krogman ² , A. L. Weikel ² , M. D. Hindenlang ² , H. R. Allcock ² , C. T. Laurencin ³ ; ¹ Univ. of Virginia, Charlottesville, VA, ² Pennsylvania State Univ., University Park, PA, ³ Univ. of Connecticut, Farmington, CT.	112 Layered, Multicompartment Scaffolds with Continuous Interfaces for Osteochondral Tissue Engineering B. A. Harley ¹ , A. K. Lynn ² , Z. Wissner-Gross ³ , W. Bonfield ⁴ , I. Yannas ³ , L. J. Gibson ² ; ¹ Univ. of Illinois at Urbana-Champaign, Urbana, IL, ² Orthomimetics, Ltd., Cambridge, UNITED KINGDOM, ³ MIT, Cambridge, MA, ⁴ Cambridge Univ., Cambridge, UNITED KINGDOM.	4:55 pm	122 Development of Biomimetic Alendronate Sodium loaded CDHA coating H. Zhou, A. Touny, J. Lawrence, D. Wagner, S. Bhaduri; The Univeristy of Toledo, Toledo, OH.	132 Realignment of Cells and Matrix Following Release from Constrained Compaction for Neural Engineering D. G. DeWitt ¹ , J. P. Stegemann ² , D. M. Thompson ¹ ; ¹ Rensselaer Polytechnic Inst., Troy, NY, ² Univ. of Michigan, Ann Arbor, MI.
4:00 pm	103 Controlling Affinity Binding in Poly (ethylene glycol) Hydrogels for Sustained Growth Factor Delivery C-C. Lin, K. S. Anseth; Howard Hughes Med. Inst. & Univ. of Colorado, Boulder, CO.	113 Influence of Genipin Cross-linking on Layer by Layer Polyelectrolyte Developed Biocompatible Surfaces and its Impact on Cell Adhesion A. L. Hillberg, C. Holmes, M. Tabrizian; MCGILL Univ., MONTREAL, QC, CANADA.	5:00 pm	123 Solid Phase Organic Synthesis of a Morpholine-2,5-Dione Library for Polydepsipeptide Synthesis M. Abdelmelek, V. Bradford, M. Nguyen, P. Ren, B. Iverson, L. Suggs; Univ. of Texas at Austin, Austin, TX.	133 Hyaluronic Acid Interferes with Insulin-like Growth Factor-1 Signaling Among Alginate Embedded Chondrocytes D. M. Yoon ¹ , A. H. Reddi ² , J. P. Fisher ³ ; ¹ Univ. of Maryland - Coll. Park, College Park, MD, ² Ctr. for Tissue Regeneration and Repair, Univ. of California Davis Med. Ctr., Sacramento, CA, ³ Univ. of Maryland - Fischell Dept. of Bioengineering, College Park, MD.
4:05 pm	104 Antibiotic Release Using Nanostructured Polypyrrole-coated Titanium to Decrease Staphylococcus Epidermis Colonization S. Sirivisoot, T. J. Webster; Brown Univ., Providence, RI.	114 Decreasing Biofilm Formation through the use of Magnetic Nanoparticles E. Taylor, T. J. Webster; Brown Univ., Providence, RI.	5:05 pm	124 Nano Architecture Formation from Novel Poly(L-lactic acid)-based Biomaterials X. Liu, P. X. Ma; Univ. of Michigan, Ann Arbor, MI.	134 Effects of Mechanical Stimulation on the Matrix Synthesis of Bone Marrow Derived Stem Cells in Fibrous Elastomeric Scaffolds J. A. Stella, W. D. Merryman, N. J. Amoroso, W. R. Wagner, M. S. Sacks; Univ. of Pittsburgh, Pittsburgh, PA.
4:10 pm	Q & A	Q & A	5:10 pm	Q & A	Q & A

Advances in Stent Materials, Design and Biology Lone Star A Moderators – Joachim Kohn, PhD, Hak-Joon Sung, PhD	Biomaterials for Interface Engineering and Soft Tissue Repair Lone Star B Moderators – Helen H. Lu, PhD, Johnna S. Temenoff, Ph.D	Biomaterials for Musculoskeletal Tissue Regeneration Lone Star C Moderators – Edward Botchwey PhD, Lakshmi S. Nair, PhD	Biosensors Lone Star D Moderator – Timothy Burg, PhD	Cellular Responses to Their Microenvironments Lone Star E Moderators – Eben Alsberg, PhD, Thomas H. Barker, Ph.D	Urological Tissue Engineering and Biomaterials Lone Star F Moderators – Jiro Nagatomi, Ph.D, Scott Taylor, PhD
---	--	--	---	---	---

8:00 am	135 Natural Endothelium Mimicking Self-Assembled Nanomatrix for Drug Eluting Stent Applications H-W. JUN , M. Kushwaha, J. Anderson, W. Minor, A. Andukuri, C. Bosworth, J. Lancaster, B. Brott, P. Anderson; Univ. of Alabama at Birmingham, Birmingham, AL.	141 Bioactive Poly(ethylene glycol) Hydrogels Stimulate Angiogenesis in a Mouse Cornea Micropocket Assay J. E. Saik¹ , R. A. Poche ² , J. E. Leslie-Barbick ¹ , M. L. Scott ² , M. E. Dickinson ² , J. L. West ¹ ; ¹ Rice Univ., Houston, TX, ² Baylor Coll. of Med., Houston, TX.	147 Achilles Tendon Repair Augmented with a Decellularized Porcine Dermal Graft Compared to Two Other Collagen Xenografts T. M. Turner , R. M. Urban, D. J. Hall, E. L. Dahlmeier; Rush Univ. Med. Ctr., Chicago, IL.	153 Percutaneous Window Chamber to Quantify Microvascular Density Around Sensors with Porous Coatings H. Koschwanez , W. M. Reichert, F. Yuan, B. Klitzman; Duke Univ., Durham, NC.	159 Controlled Cellular Spreading in 3-Dimensional Hydrogel Microenvironments S. Khetan ; Univ. of Pennsylvania, Philadelphia, PA.	165 Novel Biodegradable, Elastic Polymer enabled Biomimetic Urinary Bladder S. Banda , Y. Zhang, S. Kanakia, J. Yang, Y-t. Kim; Univ. of Texas at Arlington, Arlington, TX.
---------	--	---	--	--	---	--

8:15 am	136 Formation and Stability of Alkylphosphonic Acid Self Assembled Monolayers on Electropolished 316L Stainless Steel C. R. Kaufmann , G. Mani, C. M. Agrawal; The Univ. of Texas at San Antonio, San Antonio, TX.	142 Co-assembling Peptides as Defined Hydrogel Microenvironments for Endothelial Cells J. P. Jung , J. H. Collier; Univ. of Chicago, Chicago, IL	148 Unique Biocompatible Dipeptide-Based Biodegradable Polymeric Blends for Musculoskeletal Regeneration: Poly[(glycine ethyl glycinato)(phenyl phenoxy) phosphazene] - Poly(lactide-co-glycolide) In vitro and In vivo Degradation and Biocompatibility Studies M. Deng¹ , L. Nair ² , S. Nukavarapu ² , N. Krogman ³ , H. Allcock ⁴ , C. Laurencin ² ; ¹ Univ. of Virginia, Charlottesville, VA, ² Univ. of Connecticut, Farmington, CT, ³ Pennsylvania State Univ., University Park, PA.	154 Foreign Body Response Investigated with an Implanted Biosensor F. B. Karp , E. A. Lopez, K. F. Böhringer, B. D. Ratner; Univ. of Washington, Seattle, WA.	160 Cellular Response to Immobilized vs. Soluble Growth Factors T. J. Stefonek-Puccinelli , K. S. Masters; Univ. of Wisconsin-Madison, Madison, WI.	166 Urinary Bladder Regeneration Utilizing Bone Marrow Derived Mesenchymal Stem Cell Seeded Elastomeric poly(1,8-octanediol-co-citrate) Based Thin Films P. Hota¹ , D. J. Matoka ² , N. J. Fuller ² , D. A. Harrington ¹ , E. Y. Cheng ² , A. K. Sharma ¹ ; ¹ Northwestern Univ. Feinberg Sch. of Med., Chicago, IL, ² Children's Mem. Hosp., Chicago, IL.
---------	---	---	---	--	--	---

8:30 am	137 Characterizations of PVDF-HFP Copolymer and the Model Coating¹ of Xience V™ Drug Eluting Stent by Synchrotron X. Xu¹ , E. R. Rexer ¹ , E. Tang¹ , B. S. Hsiao ² , L. Rong ² , Y. Mao ² ; ¹ Abbott Lab., Santa Clara, CA, ² Chemistry Dept., Univ. of New York, Stony Brook, NY, ³ Chemistry Dept., Univ. of New York, Stony Brook, CA.	143 Nanofiber Composite for Tendon-to-Bone Interface Tissue Engineering K. L. Moffat¹ , S. D. Subramony ¹ , Y-N. Kim ¹ , S. B. Doty ² , K. D. Costa ¹ , H. H. Lu ¹ ; ¹ Columbia Univ., New York, NY, ² Hosp. for Special Surgery, New York, NY	149 Cartilage Regeneration in a Rat Critical-Size Xyphoid Cartilage Defect Model H. Moyer¹ , Y. Wang ² , T. Farooque ² , K. Singh ² , L. Xie ² , R. Guldberg ² , J. Williams ³ , B. Boyan ² , Z. Schwartz ² ; ¹ Emory Univ. Div. of Plastic and Reconstructive Surgery, Atlanta, GA, ² Georgia Inst. of Technology, Atlanta, GA, ³ Childrens Hlth. Care of Atlanta, Atlanta, GA.	155 Development of a Single Cell Neurotoxicity Assay A. J. Sweeney , K. J. L. Burg, Z. Gao; Clemson Univ., Clemson, SC.	161 Reciprocal Mechanical Interactions between Endothelial Cells and their Microenvironment are Required for the Initiation and Maintenance of Capillaries in 3D Tissue Constructs E. Kniazeva , M. Kotlarchyk, E. Botvinick, A. J. Putnam; Univ. of California, Irvine, Irvine, CA.	167 Bioactive Bladder Tissue Adhesive E. Cho , J. Nagatomi , J. Lee, K. Webb; Clemson Univ., Clemson, SC.
---------	--	---	---	--	---	---

8:45 am	138 Endothelial Cell Recovery, Acute Thrombogenicity, and Cell Adhesion Assessments of Fluorinated Copolymer and Phosphorylcholine Polymer S. Hsu¹ , S. Chin Quee ¹ , K. Nguyen ¹ , J. Tai ¹ , G. Abraham ¹ , S. Pacetti ¹ , Y. Chan ¹ , A. Ma ¹ , F. Kolodgie ² , G. Nakazawa ² , N. Ding ¹ , L. Coleman ¹ , R. Virmani ² ; ¹ Abbott Vascular, Santa Clara, CA, ² CVPPath Inst., Inc., Gaithersburg, MD.	144 The Integrative and Mechanical Potential of Bilayered Hydroxyapatite Scaffolds: An In Vivo Study J. A. Walker¹ , T. Guda ² , M. R. Appleford ² , B. Singleton ² , J. L. Ong ² , J. Wenke ¹ ; ¹ US Army Inst. of Surgical Res., Fort Sam Houston, TX, ² Univ. of Texas at San Antonio, San Antonio, TX.	150 Role of TRIF and MyD88 in PMMA Particle Induced Pro-Inflammatory Signaling J. Pearl , T. Ma, Z. Huang, R. L. Smith, S. B. Goodman; Stanford Univ. Med. Ctr., Stanford, CA.	156 Biomimetic Nanosensor Arrays for Selective Small Molecule Detection M. C. McAlpine ; Princeton Univ., Princeton, NJ.	162 Direct and Indirect Osteogenic Differentiation of Human Mesenchymal Stem Cells by Surface Microtopography and Surface Energy Z. Schwartz¹ , R. Olivares-Navarrete ¹ , S. Hyzy ¹ , C. Erdman ¹ , M. Wieland ² , B. D. Boyan ¹ ; ¹ Georgia Inst. of Technology, Atlanta, GA, ² Inst. Straumann, Basel, SWITZERLAND.	168 3D Hydrogel and Cyclic Tensile Stress Bioreactor to Study Phenotypic Shifts in Bladder Smooth Muscle cells B. Fleishman , J. Nagatomi; Clemson Univ., Clemson, SC.
---------	---	---	---	---	--	---

9:00 am	<p>139 Synergistic Interaction Between Corrosion-Fatigue of Nitinol and the Atherosclerotic Lesion Environment D. Marton, E. A. Sprague; UTHSCSA, San Antonio, TX.</p>	<p>145 Biomaterial-Mediated Recruitment of Stem and Progenitor Cells P. Lotfi, A. Koshy, J. Shen, L. Tang; The Univ. of Texas at Arlington, Arlington, TX.</p>	<p>151 Cathepsin K Sensitive Poly(ethylene) Glycol Hydrogels for Degradation in Response to Bone Formation R. M. R. Olabisi¹, C-W. Hsu¹, A. R. Davis², E. A. Olmsted-Davis², J. L. West¹; ¹Rice Univ., Houston, TX, ²Baylor Coll. of Med., Houston, TX.</p>	<p>157 Ultrasensitive Nano-structured DNA Biosensor Q. Yu; Univ. of Missouri, Columbia, MO.</p>	<p>163 Voltage-Time Dependent Morphological Response of MC3T3 Pre-Osteoblast Cells on Ti6Al4V due to Electrochemical Stimulation S. Sivan, S. Kaul, J. L. Gilbert; Syracuse Univ., Syracuse, NY.</p>	<p>169 A Preliminary Study of a Partially Resorbable Mesh During <i>in vitro</i> Degradation L. L. Edgar, M. Deng, G. Chen; Ethicon, Inc., Somerville, NJ.</p>
9:15 am	<p>140 Nano-Scratch Adhesion Evaluation of the XIENCE V™ Drug Eluting Stent Coating F-W. Tang¹, N. Ding², S. Pacetti²; ¹Abbott Vascular, Temecula, CA, ²Abbott Vascular, Santa Clara, CA.</p>	<p>146 Aggregate-Inducing Biomaterials for Regeneration of the Ligament-Bone Insertion J. J. Lim, L. Scott, Jr., J. S. Temenoff; Georgia Inst. of Technology, Atlanta, GA.</p>	<p>152 Poly (vinyl alcohol)-Acrylamide Hydrogels as Load-Bearing Cartilage Substitute H. Bodugoz Senturk, C. E. Macias, O. K. Muratoglu; Massachusetts Gen. Hosp./Harvard Med. Sch., Boston, MA.</p>	<p>158 Monitoring Load with Segmental Bone Replacements during Repetitive Impact Loading C. P. Geffre, Z. L. Hillman, D. S. Margolis, J. A. Szivek; Univ. of Arizona, Tucson, AZ.</p>	<p>164 The Role of Substrate Stiffness on Oligodendrocyte Precursor Cell Growth in Vitro X. Li¹, C. Brunson², N. Zhang¹, G. D. Prestwich³, X. Wen¹; ¹Clemson Univ., Charleston, SC, ²Academic Magnet High Sch., Charleston, SC, ³Univ. of Utah, Salt Lake City, UT.</p>	<p>170 Stress Relaxation Properties of Synthetic Composite with Small Intestinal Submucosa S. V. Madihally, R. D. Mirani, J. P. Pratt; Oklahoma State Univ., Stillwater, OK.</p>

Cardiovascular Biomaterials 1 Lone Star A Moderators – Peter G. Edelman, PhD, Horst Von Recum, PhD	Computational Modeling Lone Star B Moderators – Donald Elbert, PhD, Guigen Zhang, PhD	Dental/Craniofacial Materials Lone Star C Moderators – Spiro Megremis, PhD, Yunzhi Yang, PhD	Medical Devices based on SIBS-type Biomaterials (Symposia) Lone Star D Moderators – Goy Teck Lim, PhD, Marcia Orozco, PhD	Novel Techniques for Processing of Ceramics, Metal and Composite Biomaterials Lone Star E Moderators – Mark Lyles, PhD Subrata Saha, PhD	Smart (Bio)Polymer Delivery Systems for Biologics Lone Star F Moderators – Niren Murthy, PhD, Yong Wang, PhD
---	--	---	--	---	---

11:30 am	171 Design of a Novel Curved Tube Flow-Stretch-Flexure Bioreactor for Mechanistic Studies in Heart Valve Tissue Engineering S. Ramaswamy , S. Boronyak, D. Schmidt, M. S. Sacks; Univ. of Pittsburgh, PA.	177 Modeling the Formation of Poly(ethylene Glycol) Microspheres Above the Lower Critical Solution Temperature D. L. Elbert , M. D. Nichols, E. A. Scott; Washington Univ., St. Louis, MO.	183 Platelet-Rich Plasma (PRP)-enriched Alginate Hydrogel Promotes Angiogenesis of Dental Pulp-Derived Cells H. H. Lu ; Columbia Univ., New York, NY.	189 SIBS: Past - Present – Future J. P. Kennedy ; The University of Akron, Akron, OH	194 Structural Characterization and Nanomechanical Evaluation of Hydroxyapatite Coatings on Ultrafine Grained Titanium via Low Temperature Thermal Processes K. L. Calvert ; Purdue Univ., West Lafayette, IN.	200 Effect of Entrapped Drug on the Micellization Behavior of a Thermosensitive Graft Copolymer L-Q. Wang, Sr.¹ , S. Tan, Sr. ² , H. Jiang, Sr. ² , K. Tu ² , H. Wang, Sr. ² , D. Liu ² ; ¹ Zhejiang Univ., Hangzhou, CHINA, ² Zhejiang Univ., Hangzhou, CHINA.
----------	--	---	--	---	---	--



11:45 am	172 In Vivo Assessment of Electrospun Vascular Scaffolds: A Feasibility Study B. W. Tillman¹ , S. K. Yazdani ¹ , S. Lee ¹ , R. L. Geary ² , A. Atala ¹ , J. J. Yoo ¹ ; ¹ Wake Forest Inst. for Regenerative Med., Winston-Salem, NC, ² Wake Forest Univ. Sch. of Med., Winston-Salem, NC.	178 Nutrient Consumption Characteristics in Large Flow-through Bioreactors for Tissue Engineering S. V. Madihally , M. Devarapalli, D. V. Dhane; Oklahoma State Univ., Stillwater, OK.	184 Conversion-Dependent Stress Relaxation in Dental Resins and Composites P. Shah¹ , J. Garcia ² , Z. Lakeman ¹ , A. Plaseied ³ , S. Newman ² , J. W. Stansbury ² ; ¹ Univ. of Colorado, Boulder, CO, ² Sch. of Dental Med., Univ. of Colorado, Aurora, CO, ³ Univ. of Colorado, Denver, CO.	195 Mechanical Properties of a Hydroxyapatite-Collagen Composite R. F. Banglmaier, P. J. Vandevord ; Wayne State Univ., Detroit, MI.	201 Resensitizing Multidrug Resistant Cells to Doxorubicin Through PIK¹ Knockdown Using a Novel pH-Responsive Micelle siRNA Delivery System D. S. W. Benoit , S. M. Henry, A. S. Hoffman, P. S. Stayton; Univ. of Washington, Seattle, WA.
----------	--	---	---	---	--




12:00 pm	173 Layer-by-Layer Assembly with Combined Nitric Oxide Generation and Surface Immobilized Heparin -- A Universal Anti-Thrombotic Coating for Biomedical Implants J. Yang , S. Mirkazemi, M. E. Meyerhoff; Univ. of Michigan, Ann Arbor, MI.	179 Modeling Degradation of Bioabsorbable Polymers and Devices J. Pan ; Univ. of Leicester, Leicester, UNITED KINGDOM.	185 Evaluation of a Microparticle-based Intra-articular Controlled Release System in the Rat Temporomandibular Joint P. M. Mountziaris¹ , P. R. Kramer ² , A. G. Mikos ¹ ; ¹ Rice Univ., Houston, TX, ² Texas A&M Hlth.Sci. Ctr., Baylor Coll. of Dentistry, Dallas, TX.	190 Effect of Drug Loading and Polymer Chemistry on the Structure Formation of Drug-Polymer Coatings: Experiments and Simulations M. K. McDermott , C-S. Kim, D. M. Saylor, D. V. Patwardhan, S. K. Pollack; FDA, Silver Spring, MD.	196 Effects of Fuel Ratio on the Biomimetic Properties of Multiphasic Calcium Phosphate Created via Auto-Ignition Combustion Synthesis (AICS) N. L. Vollmer¹ , M. Godek ² , K. King ³ , R. Ayers ¹ ; ¹ Colorado Sch. of Mines, Golden, CO, ² Covidien, North Haven, CT, ³ Univ. of Colorado Hlth.Sci. Ctr. Dept. of Orthopedics, Denver, CO.	202 The Development of Oral Drug Delivery Systems Using PEGylated Insulin M. A. Kanzelberger , N. A. Peppas; Univ. of Texas at Austin, Austin, TX.
----------	--	---	--	---	--	---



12:15 pm	174 Polyhedral Oligomeric Silsesquioxane (POSS) Suppresses Enzymatic Degradation of Multiblock Polyurethanes Based on Poly(ε-caprolactone): From Biodegradable to Biostable J. Wu , X. Gu, P. T. Mather; Syracuse Univ., Syracuse, NY.	180 Strain Transduction in Cells Seeded on a Scaffold Exposed to Uni-Axial Stretching: A Three-Dimensional Finite Element Study A. R. Bonivtch¹ , J. T. Mathis ² , M. E. Van Dyke ¹ ; ¹ Wake Forest Inst. for Regenerative Med., Winston-Salem, NC, ² Southwest Res. Inst., San Antonio, TX.	186 Gingival Osteoblast Co-culture Response to Surface Modified Titanium Implants A. Satsangi¹ , J. Hernandez ¹ , J. L. Ong ¹ , S. Oh ¹ , J. Stmad ² , M. Appleford ¹ ; ¹ Univ. of Texas at San Antonio, San Antonio, TX, ² LASAK Ltd, Prague, CZECH REPUBLIC.	191 Alternative to Silicone Rubber: Realizing Promises G. Lim¹ , E. Foreman-Orlowski ¹ , J. E. Puskas ¹ , M. Evancho-Chapman ² , S. Valente ² , C. Hart-Spicer ² , S. P. Schmidt ² ; ¹ Dept. of Polymer Sci., Univ. of Akron, Akron, OH, ² Div. of Surgical Res., Akron City Hosp., Akron, OH.	197 Low Magnetic Susceptibility Zr-Nb Alloys to Prevent Artifacts in MRI T. Hanawa , N. Nomura, Y. Tanaka, R. Kondo, Y. Tsutsumi, H. Doi; Tokyo Med. and Dental Univ., Tokyo, JAPAN.	203 Formulation Of A Hierarchically Designed Peptide Nucleic Acid Based DNA Delivery Construct P. G. Millili , U. P. Naik, M. O. Sullivan; Univ. of Delaware, Newark, DE.
----------	---	--	---	--	---	--

12:30 pm	<p>175 Microphase Separation and Biostability of Polydimethylsiloxane-Based Polyurethanes with Varying Hard Segment Content T. Choi¹, J. Weksler², A. Padsalgikar², J. Runt¹; ¹The Pennsylvania State Univ., University Park, PA, ²AorTech Biomaterials, Scoresby, AUSTRALIA.</p>	<p>181 Development of a Molecular Mechanics Model for Chloride-Doped Polypyrrole J. M. Fonner, C. E. Schmidt, P. Ren; Univ. of Texas, Austin, TX.</p>	<p>187 Water Absorption and Wetting Properties of Dentin Adhesives with a Urethane-Based Branched Methacrylate P. Spencer¹, Q. Ye¹, J. Park¹, E. M. Topp¹, X. Yao², E. L. Nalvarte², Y. Wang², B. S. Bohaty², A. Misra¹; ¹Univ. of Kansas, Lawrence, KS, ²Univ. of Missouri-Kansas City, Kansas City, MO.</p>	<p>192 SIBS-based Devices for Islet Transplantation M. Orozco¹, A. Brady², N. Kenyon², L. Pinchuk¹, C. Ricordi², A. Pileggi², C. Stabler²; ¹Innovia LLC, Miami, FL, ²Univ. of Miami, Miami, FL.</p>	<p>198 Characterization of High Temperature Treated UHMWPE S. T. Lin¹, D. C. Sun², I. Liu³, C-W. Liao³, J. Steffens¹, T. Lance¹; ¹Exactech, Gainesville, FL, ²Taiwan Scientific Corp., Taipei, TAIWAN, ³Univ. of Florida, Gainesville, FL.</p>	<p>204 Development of Polymeric Carrier Systems with Multiple Burst Release Potential for Treatment of Osteoarthritis T. Jiang, R. Rosenberger, G. Call, J. Gao, J. Yao; Zimmer Orthobiologics, Inc., Austin, TX.</p>
12:45 pm	<p>176 Novel Urethane bond doped polyesters for cardiovascular tissue engineering Y. Zhang; Univ. of Texas at Arlington, Arlington, TX.</p>	<p>182 Simulation of Tissue Compression Indicates Safeguard™ Device Does Not Occlude Femoral Artery W. J. Kelly¹, B. Leschinsky²; ¹Mechanical Solutions, Inc., Whippany, NJ, ²Datascope Corp., Montvale, NJ.</p>	<p>188 Structural and Polymerization Characteristics of Hydroxyapatite-Impregnated Organophosphate Dental Resin Q. Ye, J. Park, A. Misra, E. M. Topp, P. Spencer; Univ. of Kansas, Lawrence, KS.</p>	<p>193 Proliferation of Aortic Adventitial Fibroblasts on Three Novel Polyisobutylene (PIB)-based Thermoplastic Elastomers (TPES) J. E. Puskas¹, L. G. Munoz-Robledo¹, S. E. Porosky¹, M. Evancho-Chapman², S. P. Schmidt²; ¹Dept. of Polymer Sci., Univ. of Akron, Akron, OH, ²Div. of Surgical Res., Akron City Hosp., Akron, OH.</p>	<p>199 In vitro Characteristics of Self Assembled Polycaprolactone Matrices in Aqueous Media S. V. Madihally, S. Pok, P. Iyer; Oklahoma State Univ., Stillwater, OK.</p>	<p>205 Effective Intracellular Delivery of an Anti-Cancer Peptide via a RAFT-Synthesized Polymer Conjugate C. L. Duvall, A. J. Convertine, D. S. W. Benoit, A. S. Hoffman, P. S. Stayton; Univ. of Washington, Seattle, WA.</p>

	Biomaterials and Neural Regeneration Lone Star A Moderators – Xuejun Wen, MD, PhD, Joseph M. Corey, MD, PhD	Biomaterials for Wound Healing Lone Star B Moderator – Ning Zhang, PhD	Cardiovascular Biomaterials 2 Lone Star C Moderator – Martin W. King, PhD	Clinical Applications in Nanomedicine (Symposia) Lone Star D Moderators – Mathew Becker, PhD, Nathan Gallant, PhD, Kaushik Chatterjee, PhD	Environmentally Responsive Biomaterials Lone Star E Moderators – Eben Alsberg, PhD, Hyunjoon Kong, PhD	Surface Characterization and Modification Lone Star F Moderators – Khalid Kader, PhD, Amol Janorkar, PhD
2:00 pm	206 Keratin Biomaterials Activate Schwann Cells via Integrin-Mediated Signaling and Promote Regeneration of Large Peripheral Nerve Defects in a Rabbit Model P. Sierpinski , P. J. Apel, B. Tawfik, T. Smith, L. Koman, A. Atala, M. Van Dyke; Wake Forest Univ., Winston-Salem, NC.	212 In Vivo Evaluation of Enzymatically Degradable Thiol-ene Hydrogels Formed in situ Designed to Promote and Accelerate Healthy Wound Healing N. R. Brown¹ , A. L. Jackson ¹ , K. S. Anseth ² ; ¹ Dept. of Chemical and Biological Engineering, Univ. of Colorado at Boulder, Boulder, CO, ² Dept. of Chemical and Biological Engineering, Univ. of Colorado at Boulder // HHMI, Boulder, CO.	218 On the Ability of Imatinib Mesylate to Inhibit Smooth Muscle Cell Proliferation Without Delaying Endothelialization K. Vallières ; Université Laval, Québec, QC, CANADA.	224 Multiplexed Bioimaging of Cancer Biomarkers in Human Thyroid Lesions M. L. Becker ; NIST, Gaithersburg, MD.	229 Thermosensitive Polymer Interactions with Ions to Mediate Micelle and Gel Formation J. D. Kretlow¹ , M. C. Hacker ² , L. Klouda ¹ , B. B. Ma ¹ , A. G. Mikos ² ; ¹ Rice Univ., Houston, TX, ² Univ. of Leipzig, Leipzig, GERMANY.	235 The Effects of Sidedness and Crosslinking Upon the Surface Characteristics of Extracellular Matrix Scaffolds B. N. Brown¹ , C. A. Barnes ² , A. J. Beattie ¹ , T. W. Gilbert ¹ , D. G. Castner ² , B. D. Ratner ² , S. F. Badylak ¹ ; ¹ Univ. of Pittsburgh, Pittsburgh, PA, ² Univ. of Washington, Seattle, WA. 
2:15 pm	207 Protein Conjugated Patterned Polymer Surfaces for Neural Regeneration N. M. Shah , A. T. Metters, K. Webb; Clemson Univ., Clemson, SC.	213 Injectable, Biodegradable, Porous Polyurethane Scaffolds for Tissue Regeneration A. E. Hafeman , K. J. Zienkiewicz, T. Yoshii, J. M. Davidson, S. A. Guelcher; Vanderbilt Univ., Nashville, TN.	219 Hydroxyapatite Electret suppresses proliferation of vascular smooth muscle cells in vitro by modulation of their phenotypic conversion A. Nagai ; Inst. of Biomaterials & Bioengineering, Tokyo Med. & Dental Univ., Tokyo, JAPAN.		230 Physical Analysis of Cellular Chain Formation via Label-Free Negative Magnetophoresis R. M. Erb¹ , M. D. Krebs ² , B. Samanta ³ , V. M. Rotello ³ , E. Alsberg ² , B. B. Yellen ¹ ; ¹ Duke Univ., Durham, NC, ² Case Western Reserve Univ., Cleveland, OH, ³ Univ. of Massachusetts - Amherst, Amherst, MA.	236 Monitoring Surface-Bound Protein Conformational Changes Using Cold-Stage Time-of-Flight Secondary Ion Mass Spectrometry D. G. Castner , F. Cheng, J. Brisson, L. J. Gamble; Univ. of Washington, Seattle, WA.
2:30 pm	208 Glial-Derived Neurotrophic Factor Released from a Fibrin-based Delivery System Enhances Nerve Regeneration M. D. Wood , S. E. Sakiyama-Elbert, D. Hunter, A. Moore, G. Borschel, S. Tuffaha, S. Mackinnon; Washington Univ., St. Louis, MO.	214 Preclinical Evaluation of Sprayable In-Situ Crosslinking Hydrogel Coatings S. Foster , J. Colt, R. Corazzini, K. Skinner, X. Dai, S. Dougherty, A. Vasudevan, J. Kablik, A. Coury, T. Jozefiak; Genzyme Corp., Framingham, MA.	220 Calcification Kinetics of Bioprosthetic Tissue G. A. Wright , J. Davidson, J. Dove; Edwards LifeSci.s, Irvine, CA.	225 Use of Nanoshells for Combined Two-Photon Imaging and Therapy of Breast Cancer E. S. Day , L. R. Bickford, J. H. Hafner, R. A. Drezek, J. L. West; Rice Univ., Houston, TX.	231 New Methods for Preparing Robust Functional Nanobiomaterials G. Lopez , G. Gupta, K. Staggs; Univ. of New Mexico, Albuquerque, NM.	237 Surface Characterization of Novel Biodegradable Poly(peptide-Urethaneurea) Block Copolymers G. Zorn , F. I. Simonovsky, B. D. Ratner, D. G. Castner; Univ. of Washington, Seattle, WA.
2:45 pm	209 Controlled Delivery of Nerve Growth Factor Enhances Sieve Electrode Interface with Peripheral Nerve Tissue M. R. MacEwan¹ J. J. Wheeler ¹ , J. Kim ² , J. C. Williams ² , S. Sakiyama-Elbert ¹ , D. W. Moran ¹ ; ¹ Washington Univ., St. Louis, MO, ² Univ. of Wisconsin, Madison, WI.	215 Fabrication of Nanofiber Reinforced Protein Structures for Tissue Engineering V. Z. Beachley ; Clemson Univ., Charleston, SC.	221 Calcification of Human Osteoblast Culture with TGF-β and Dexamethasone Treatments on Polycaprolactone Films B. Zhu¹ , S. R. Bailey ² , C. M. Agrawal ¹ ; ¹ The Univ. of Texas at San Antonio, San Antonio, TX, ² The Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX.	226 β-Lapachone Micelles as Novel Nanotherapeutics for Lung Cancer E. Blanco , E. A. Bey, D. A. Boothman, J. Gao; Univ. of Texas Southwestern Med. Ctr. at Dallas, Dallas, TX.	232 Three-Dimensional Protein Microstructures to Study Bacterial Group Activities J. L. Connell ; The Univ. of Texas at Austin, Austin, TX.	238 Characterization of Biomaterial Interfaces via Phage-derived Peptides M. L. Becker , A. W. Morgan, M. D. Roy, C. G. Simon, Jr., M. C. Weiger; NIST, Gaithersburg, MD.

3:00 pm	<p>210 Length-Scale Mediated Differential Adhesion of Neurites and Astrocytes M. Libera¹, P. Krsko², H. Geller³; ¹Stevens Inst. of technology, Hoboken, NJ, ²NICHHD, NIH, Bethesda, MD, ³NHLBI, NIH, Bethesda, MD.</p>	<p>216 Effect of Protein Coating and Material Surface on Early Monocyte Differentiation to Inflammatory or Wound Healing Phenotype Macrophage J. E. McBane¹, S. Sharifpoor¹, D. Ebadi², J. P. Santerre¹, R. S. Labow²; ¹Univ. of Toronto, Toronto, ON, CANADA, ²Univ. of Ottawa, Ottawa, ON, CANADA.</p>	<p>222 Formulation and Characterization of Radio-opaque Conjugated In Situ Gelling Materials B. L. Blakely, B. Lee, C. Riley, R. McLemore, B. Vernon; Arizona State Univ., Tempe, AZ.</p>	<p>227 Enhanced Osteoblast Functions on Nano Rough Micron Patterened Titanium S. Puckett; Brown Univ., Providence, RI.</p>	<p>233 Synthesis of Biodegradable Poly(urea urethane) with Controllable Mechanical Properties Z. Ma, W. R. Wagner; Univ. of Pittsburgh, Pittsburgh, PA.</p>	<p>239 Characterization of SAM Adsorption on Surfaces Made of Arrays of Skyscraper Nanopillars G. Zhang; Clemson Univ., Clemson, SC.</p>
3:15 pm	<p>211 Development of Conducting Polymer Composites for Peripheral Nerve Regeneration M. B. Runge, M. Dadsetan, M. J. Yaszemski; Mayo Clinic, Rochester, MN.</p>	<p>217 Lipocalin 2 Loaded Polyanhydride Microspheres Accelerate Cell Migration L. Petersen, L. Bendickson, A. Determan, C. Westgate, M. Nilsen-Hamilton, B. Narasimhan; Iowa State Univ., Ames, IA.</p>	<p>223 Optimizing Delivery Properties of a Waterborne, In Situ Gelling Embolic Material C. Riley, R. McLemore, B. Vernon; Arizona State Univ., Tempe, AZ.</p>	<p>228 Bioresorbable Elastomeric Nanocomposites for Cleft Palate Reconstruction T. N. Rosenbalm, N. Levi-Polyachenko, L. Argenta, W. D. Wagner; Wake Forest Univ. Hlth.Sci., Winston-Salem, NC.</p>	<p>234 Enzyme-Responsive, Thiol-ene Hydrogels for Local Therapeutic Delivery at Sites of Inflammation A. A. Aimetti¹, A. J. Machen¹, K. S. Anseth²; ¹Univ. of Colorado at Boulder, Boulder, CO, ²Univ. of Colorado / HHMI, Boulder, CO.</p>	<p>240 Long-Term Stability of Alkylphosphonic Acid Self Assembled Monolayers on 316L Stainless Steel C. R. Kaufmann, G. Mani, C. M. Agrawal; The Univ. of Texas at San Antonio, San Antonio, TX</p>

Scaffolds for Tissue Engineering: Basic Principles, Processing Methods and Novel Developments 1 Lone Star C Moderators – C. Mauli Agrawal, PhD, Rui L. Reis, PhD		Advances in Therapeutic Delivery Lone Star D Moderators : J. Zach Hilt, PhD, Rick Gemeinhart, Ph.D		Scaffolds for Tissue Engineering: Basic Principles, Processing Methods and Novel Developments 2 Lone Star C Moderators – C. Mauli Agrawal, PhD, Rui Reis, PhD		Biocompatibility of Orthopedic Implants Lone Star D Moderators – Yusuf M. Khan, PhD, Joseph W. Freeman, PhD	
1:00 pm	257 Engineered Cartilage Covered Ear Implants for Auricular Reconstruction S. Lee, D. Lee, C. Broda, A. Atala, J. J. Yoo; Wake Forest Inst. for Regenerative Med., Winston-Salem, NC.	267 Hydrogels Modified with Carbohydrates for Oral Protein Delivery M. A. Phillips, N. A. Peppas; The Univ. of Texas at Austin, Austin, TX.	2:00 pm	277 Vascular Smooth Muscle Cell Interactions with Elastin-Like Polypeptide Modified Surfaces K. Battiston ¹ , P. H. Blit ¹ , K. Woodhouse ² , J. P. Santerre ¹ ; ¹ Univ. of Toronto, Toronto, ON, CANADA, ² Queen's Univ., Kingston, ON, CANADA.	287 Effect of Annealing on the Strength of Poly(vinyl Alcohol) Hydrogels for Cartilage Resurfacing H. Bodugoz Senturk, C. E. Macias, M. Kosztowski, O. K. Muratoglu; Massachusetts Gen. Hosp./Harvard Med. Sch., Boston, MA.		
1:05 pm	258 Generation of Engineered Cartilage Using Chondrocyte/Silk Fibroin Scaffolds Y. Wang ¹ , A. Motta ² , C. Lee ¹ , L. Pelcastre ¹ , E. Bella ² , C. Migliaresi ² , Z. Schwartz ¹ , B. Boyan ¹ ; ¹ Georgia Inst. of Technology, Atlanta, GA, ² Univ. of Trento, Trento, ITALY.	268 Combinatorial Evaluation of Protein Release and Stabilization from Polyanhydride Film Libraries L. Petersen, C. Sackett, B. Narasimhan; Iowa State Univ., Ames, IA.	2:05 pm	278 Biodegradable Fibrous Scaffolds with Tunable Mechanics, Porosity, and Drug Delivery J. L. Iffkovits, R. B. Metter, Jr., J. J. Devlin, D. Lau, B. M. Baker, R. L. Mauck, J. A. Burdick; Univ. of Pennsylvania, Philadelphia, PA.	288 Nanocrystalline Diamond Generating a Promising Bone-Implant Interface with Controllable Osteoblast Interactions L. Yang, B. W. Sheldon, T. J. Webster; Brown Univ., Providence, RI.		
1:10 pm	259 Bioactive Hybrid Nanomatrix Developed by Electrospun Polycaprolactone and Biomimetic Self-Assembled Peptide Amphiphiles A. Tambralli, B. A. Blakeney, J. M. Anderson, M. Kushwaha, D. R. Dean, H-W. Jun; Univ. of Alabama at Birmingham, Birmingham, AL.	269 in vitro and in vivo Studies of Silica Xerogels for the Controlled Release of Bupivacaine H. Qu ¹ , S. Radin ¹ , D. Devore ² , A. Cowan ³ , P. Ducheyne ¹ , S. Inan ³ ; ¹ Univ. of Pennsylvania, Philadelphia, PA, ² Rutgers, The State Univ. of New Jersey, New Brunswick, NJ, ³ Temple Univ., Philadelphia, PA.	2:10 pm	279 Fabrication of Tissue-engineered Cardiac Patch with Decellularized Porcine Myocardial Scaffold B. Wang ¹ , A. Borazjani ¹ , S. Elder ¹ , J. Liao ¹ , J. Guan ² , A. Curry ³ , D. T. Simionesc ² ; ¹ Mississippi State Univ., Starkville, MS, ² Ohio State Univ., Columbus, OH, ³ Univ of Memphis, Memphis, TN, ⁴ Clemson Univ., Clemson, SC.	289 Identification of Biomolecular Changes in Intervertebral Disc Tissue Using Fourier Transform Infrared Spectroscopy S. Sarkar, C. J. Massey, M. Marcolongo; Drexel Univ., Philadelphia, PA.		
1:15 pm	260 Oxygen Generating Biomaterials for Improving Engineered Tissue Survival B. S. Harrison, C. L. Ward, D. Eberli, S. Oh, J. J. Yoo; Wake Forest Univ., Winston Salem, NC.	270 Development of Food Derivative Therapeutic Ellagic Acid-Chitosan Based Delivery System. S. Kim, Y. Yang, M. Gaber, X. Zhang; Univ. of Tennessee Hlth.Sci. Ctr., Memphis, TN.	2:15 pm	280 MMP-7 Bioresponsive Hydrogel for Cartilage Engineering from Mesenchymal Stem Cells C. S. Bahney ¹ , C-W. Hsu ² , J. L. West ² , B. Johnstone ¹ ; ¹ OHSU, Portland, OR, ² Rice Univ., Houston, TX.	290 Minimal Backside Surface Changes in Retrieved Acetabular Liners A. A. Aliabadi ¹ , M. E. Roy ² , L. A. Whiteside ² , B. J. Katerberg ³ , D. J. Schnettgoecke ² ; ¹ Saint Louis Univ., St. Louis, MO, ² Missouri Bone & Joint Res. Fndn., St. Louis, MO, ³ Signal Med. Corp., St. Louis, MO.		
1:20 pm	261 Development of Axially-Aligned Scaffolds for Optimization of Neural Regeneration J. M. Saul, J. B. Scott; Wake Forest Univ. Hlth.Sci., Winston-Salem, NC.	271 Attachment of Dexamethasone to Stainless Steel for Stents using Self Assembled Monolayers W. Fan ¹ , D. M. Johnson ¹ , D. Marton ² , M. D. Feldman ² , M. Agrawal ¹ ; ¹ Univ. of Texas at San Antonio, San Antonio, TX, ² Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX.	2:20 pm	281 Thick and Dense Engineered Tissues Prepared by Hydrogel Template Approach with Basic Fibroblast Growth Factor or Ascorbic Acid Derivative H. Yoshida, M. Matsusaki, M. Akashi; Osaka Univ., Osaka, JAPAN.	291 Effect of Surface Roughness on Mechanical Stability of Highly Porous Metal Cementless Tibial Implants M. Soliman ¹ , M. Meneghini ² , R. Klein ¹ , P. J. Cornell ³ , L. Amer ¹ , T. B. Stone ⁴ , C. Warren ¹ ; ¹ Stryker Orthopaedics, Mahwah, NJ, ² New England Musculoskeletal Inst., Farmington, CT, ³ Rose-Hulman Inst. of Technology, Terre Haute, IN, ⁴ Los Alamos Natl. Lab., Los Alamos, NM.		
1:25 pm	Q & A	Q & A	2:25 pm	Q & A	Q & A		

1:30 pm	262 Rapid Fabrication of Growth Factor Releasing, Anisotropic and Elastic Scaffolds for Soft Tissue Engineering F. Wang, Z. Li, J. Guan ; Ohio State Univ., Columbus, OH.	272 Nanocarrier Therapy for Inhibition of Invasion of Glioma into the Brain J. Munson , R. Bellamkonda, J. Arbiser; Georgia Inst. of Technology, Atlanta, GA.	2:30 pm	282 High Resolution Cell Patterning and Co-Culture Using a Custom BioPrinter C. A. Parzel , M. E. Pepper, T. Burg, R. E. Groff, K. J. L. Burg; Clemson Univ., Clemson, SC.	292 Enhancing Interfacial Bonding Between Components of an Interpenetrating Network Composite Y. Guo , R. M. Pilliar, J. P. Santerre; Univ. of Toronto, Toronto, ON, CANADA.
1:35 pm	263 The Collagen Matrix of Human Dermis: Mechanical and Histological Characterization R. M. Hernandez , J. A. Faleris, A. F. Poniatowski, D. C. Greenspan; RTI Biologics, Alachua, FL.	273 Enhanced Systemic Delivery of siRNA via Chitosan-Imidazole Acetic Acid Conjugates B. Ghosn , A. Singh, K. Roy; Univ. of Texas at Austin, Austin, TX.	2:35 pm	283 Enzyme-Mediated Injectable Hydrogels Composed of Tetronic and Gelatin for Tissue Engineering K. Park ¹ , Y. Shin ² , Y. Joung ¹ , H. Shin ² , K. Park ¹ ; ¹ Ajou Univ., Suwon, REPUBLIC OF KOREA, ² Hanyang Univ., Seoul, REPUBLIC OF KOREA.	293 A Unified Isolation and Display Method For Either SEM or TEM Morphometric Analysis of Metallic Wear Debris F. Billi , P. Benya, A. Kavanaugh, E. Ebramzadeh, H. A. McKellop; Orthopaedic Hosp. UCLA, Los Angeles, CA.
1:40 pm	264 Electrical modulation of bone cell activity through biodegradable heparin-doped conductive substrate S. Meng ; Ctr. de recherche, Hôpital St-François d'Assise, CHUQ, Quebec City, QC, CANADA.	274 A Metal-Polymer Nanosystem for Combined Chemotherapeutic and Photothermal Cancer Treatment K. Homan , L. Brannon-Peppas, S. Emelianov; Univ. of Texas at Austin, Austin, TX.	2:40 pm	284 Oxygen Releasing Biomaterials for Islet Transplantation C. L. Stabler ¹ , E. Pedraza ¹ , C. Fraker ¹ , B. Harrison ² ; ¹ Univ. of Miami, Miami, FL, ² Wake Forest Univ., Winston-Salem, NC.	294 Roughness of Retrieved Cobalt-Chromium Femoral Components: Influence of Age in vivo and Bone Cement M. E. Roy ¹ , A. M. Sebastian ² , L. A. Whiteside ¹ ; ¹ Missouri Bone & Joint Res. Fndn., St. Louis, MO, ² Duke Univ., Durham, NC.
1:45 pm	265 Human Osteoblast Culture on TGF-B Coated Polycaprolactone Scaffolds in Dexamethasone Conditioned Media B. Zhu ¹ , S. R. Bailey ² , C. M. Agrawal ¹ ; ¹ The Univ. of Texas at San Antonio, San Antonio, TX, ² The Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX.	275 Palmitoylation of Pro-Apoptotic Peptide Leads to its Internalization by SJS1 Cells and its Endosomal Localization D. Missirlis , B. Ananthanarayanan, M. Kastantin, M. Tirrell; Univ. of California, Santa Barbara, Santa Barbara, CA.	2:45 pm	285 Drug Deliverable, Self-assembled Rosette Nanotubes for Cartilage Tissue Engineering Y. Chen ¹ , H. Fenniri ² , D. M. Ciombor ¹ , R. K. Aaron ¹ , T. Webster ¹ ; ¹ Brown Univ., Providence, RI, ² Natl. Res. Council and Univ. of Alberta, Edmonton, AB, CANADA.	295 Effect of Elevated Zirconium Dioxide Content on the Material Properties of Novel Two-Solution Bone Cements for Vertebral Compression Fracture Applications D. C. Rodrigues , J. M. Hasenwinkel; Syracuse Univ., Syracuse, NY.
1:50 pm	266 Bioscaffold Engineering: A Method for Growing Extracellular Matrix Materials Using Human Cells J. C. Wolchok , P. A. Tresco; Univeristy of Utah, Salt Lake City, UT.	276 Ultrasonic Drug Delivery to Tumors Via Stealth Liposomes W. G. Pitt ¹ , G. A. Hussein ² , B. L. Roeder ¹ , P. Jones ¹ ; ¹ Brigham Young Univ., Provo, UT, ² American Univ. of Sharjah, Sharjah, UNITED ARAB EMIRATES.	2:50 pm	286 The Development of Biomaterials from Porcine Skeletal Muscle Extracellular Matrix for use in Tissue Engineering and Regenerative Medicine M. M. Stern , B. V. Fearing, S. Soker, S. B. Kritchevsky, G. J. Christ, M. Van Dyke; Wake Forest Univ. Baptist Med. Ctr., Winston-Salem, NC.	296 Injectable Polyurethane for Vertebroplasty and Kyphoplasty A. I. Musey , J. Murphy, M. Marcolongo; Drexel Univ., Philadelphia, PA.
1:55 pm	Q & A	Q & A	2:55 pm	Q & A	Q & A

	Clinical Performance and Long Term Success of Implants Lone Star D Moderators – Angela Au, Harold Aberman, DVM	Spatially Patterned Biomaterials Lone Star E Moderators – Eben Alsborg, PhD, Kent Leach, PhD	Biomimetic Materials Lone Star C Moderators – Elizabeth Cosgriff-Hernandez, PhD, Mariah Hahn, PhD	Nanomaterials Lone Star D Moderators – Huinan Liu, PhD, Thomas J. Webster, PhD	
8:00 am	241 Hip Resurfacing Patient Activity Levels Measured Using Step Activity Monitors at Various follow-up stages. J. T. Daniel ¹ , A. Kamali ² , H. Ziaee ³ , D. McMinn ³ ; ¹ University of Cambridge, Cambridge, UNITED KINGDOM, ² Smith & Nephew Orthopaedics Ltd, Leamington Spa, UNITED KINGDOM, ³ McMinn Ctr., Birmingham, UNITED KINGDOM.	249 The Fabrication of Surfaces Displaying Multiple Micropatterns of Different Adhesive Ligands J. H. Slater, J. S. Miller, S. S. Yu, J. L. West; Rice Univ., Houston, TX.	3:15 pm	297 Blocking Macrophage Attachment to Biomaterials with CD47 S. J. Stachelek ¹ , M. Ueda ¹ , R. K. Tsai ² , I. Alferiev ¹ , D. E. Discher ² , R. J. Levy ¹ ; ¹ Children's Hosp. of Philadelphia, Philadelphia, PA, ² Univ. of Pennsylvania, Philadelphia, PA.	305 Increased Osteoblast Density in the Presence of Calcium Phosphate Coated Magnetic Nanoparticles N. Tran, R. Pareta, T. J. Webster; Brown Univ., Providence, RI.
8:15 am	242 Clinical Performance of Metal-On-Metal Hip Resurfacings A. Kamali; Smith & Nephew Orthopaedics Ltd, Leamington Spa, UNITED KINGDOM..	250 Synthesis of Spatially Controlled Responsive Hydrogels via ATRP based PCuCP H. D Chirra, H. Su, A. Armijo, J. Czernin, C. Radu, T. Segura; UCLA, Los Angeles, CA.	3:30 pm	298 Biomimetic Injectable Hydrogels for Novel Myopia Treatment J. Su ¹ , C. F. Wildsoet ¹ , K. E. Healy ² ; ¹ Sch. of Optometry, UC Berkeley, Berkeley, CA, ² Materials Sci. & Engineering and Bioengineering, UC Berkeley, Berkeley, CA	306 Nanostructured Mesoporous Silicon / Polymer Composites as Ophthalmological Platforms: An In Vivo Assessment J. Coffey ¹ , D. Fan ¹ , K. A. Williams ² , K. Marshall ² , N. Voelcker ² , S. Klebe ² , A. Loni ² , L. Canham ³ ; ¹ Texas Christian Univ., Fort Worth, TX, ² Flinders Univ., Adelaide, AUSTRALIA, ³ PSi Medica Ltd, Malvern, UNITED KINGDOM.
8:30 am	243 The Effect of In Vivo Damage of Oxinium Femoral Heads on the Wear of Highly Cross-linked Polyethylene C. R. Bragdon ¹ , S. W. Benoit, P. S. Stayton, L. J. Gamble, D. G. Castner; Univ. of Washington, Seattle, WA.	251 The Effect of Nanopatterning Poly(methyl methacrylate) on Glial Cell Activation and Proliferation E. S. Erefej, I. Salakhutdinov, P. VandeVord; Wayne State Univ., Warren, MI.	3:45 pm	299 Sequential Immobilization of Thrombomodulin and Endothelial Protein C Receptor on Polyurethane. K. E. Kador, T. Mammedov, M. Schneider, A. Subramanian; Univ. of Nebraska-Lincoln, Lincoln, NE.	307 Zinc-Doped Ferrites As Novel Integrated Magnetofluorescent Imaging Probes A. K. Sra, P. Dutta, X-M. Zhao, R. Tian, J. Gao; Univ. of Texas Southwestern Med. Ctr., Dallas, TX.
8:45 am	244 Failure Mechanisms of Bi-cruciate Retaining TKAs A. B. Salehi ¹ , B. Walker ¹ , M. Ries ² , G. Jerry ² ; ¹ Smith and Nephew Orthopaedics, Inc., Memphis, TN, ² UCSF Orthopaedic Dept., San Francisco, CA, ³ Bone & Joint Inst., Port Huron, MI.	252 Formation of Ordered Cellular Structures via Label-Free Negative Magnetophoresis M. D. Krebs ¹ , R. M. Erb ² , B. Samanta ³ , A. Bajaj ³ , V. M. Rotello ³ , B. B. Yellen ⁴ , E. Alsborg ¹ ; ¹ Case Western Reserve Univ., Cleveland, OH, ² Duke Univ., Durham, NC, ³ Univ. of Massachusetts, Amherst, MA, ⁴ Duke Univ., Durham, NC.	4:00 pm	300 Immobilized VEGF Promotes Tubulogenic Activity in 3D Protease-degradable PEGDA Hydrogels J. E. Leslie-Barbick, J. J. Moon, J. L. West; Rice Univ., Houston, TX.	308 Comparison of Three Non-Fouling Thin Films on Silicon Nanopore Membranes L. Li ¹ , R. E. Marchant ² , S. Roy ¹ , W. H. Fissell ¹ ; ¹ Cleveland Clinic, Cleveland, OH, ² Case Western Reserve Univ., Cleveland, OH.



9:00 am	<p>245 Wear Particles in Bone Marrow of Humerus, Spine and Sternum in Patients Hosting a Hip or Knee Replacement R. M. Urban, D. J. Hall, E. L. Dahlmeier, J. L. Wright, J. J. Jacobs; Rush Univ. Med. Ctr., Chicago, IL.</p>	<p>253 Spatial Patterning of Structural Properties in a Photodegradable PEG-Based Hydrogel for Cell Culture M. W. Tibbitt¹, A. M. Kloxin¹, K. S. Anseth²; ¹Univ. of Colorado, Boulder, CO, ²Univ. of Colorado/HHMI, Boulder, CO.</p>	4:15 pm	<p>301 Controlled Exploration of Synergistic Effects of Heterotypic Cell-Cell Interactions and Mechanical Stimulation on Blood Vessel Formation M. Kanzelberger, D. Munoz-Pinto, M. S. Hahn; Texas A&M Univ., College Station, TX.</p>	<p>309 Novel Osteogenic Peptide Modified Helical Rosette Nanotubes for Improving Orthopedic Applications L. Zhang¹, U. Hemraz², H. Fenniri², T. J. Webster¹; ¹Brown Univ., Providence, RI, ²Natl. Inst. for Nanotechnology and Dept. of Chemistry, Univ. of Alberta, Edmonton, AB, CANADA.</p> <p style="text-align: center;">★</p>
9:15 am	<p>246 Exposure of Orthopaedic Wear Debris Particles Induces Osteoclast Differentiation from Marrow Stromal Cells H-N. Hao, L. H. Morawa; Wayne State University, Detroit, MI.</p>	<p>254 Perfusable Cell Laden Microchannel Networks in Poly(ethylene glycol) Hydrogels M. P. Cuchiara J. S. Miller, J. L. West; Rice Univ., Houston, TX.</p>	4:30 pm	<p>302 Proteoglycan Mimics Influence Collagen Assembly and Smooth Muscle Cell Function A. Panitch, J. E. Paderi, S. Higbee, K. Stuart; Purdue Univ., West Lafayette, IN.</p>	<p>310 Quantitative Analysis of Pancreatic Cancer Cell Lines using Functionalized QDs K. Lee, J. Park, J. F. Galloway, A. Maitra, P. C. Searson; Johns Hopkins Univ., Baltimore, MD.</p> <p style="text-align: center;">★</p>
9:30 am	<p>247 Reduced Backside Wear, Particle Migration, and Osteolysis in Third Generation Cementless Acetabular Components Retrieved Postmortem R. M. Urban, D. J. Hall, E. L. Dahlmeier, J. L. Wright, J. J. Jacobs; Rush Univ. Med. Ctr., Chicago, IL.</p>	<p>255 Rapid Screening of Hydrogel Properties for 3D Tissue Culture: Effect of Modulus on Encapsulated Osteoblasts K. Chatterjee, S. Lin-Gibson, M. F. Young, W. E. Wallace, C. G. Simon, Jr.; NIST, Gaithersburg, MD.</p>	4:45 pm	<p>303 Modulating Endothelial Cell Response with Artificial Extracellular Matrix Proteins Designed for Application in Small Diameter Vascular Grafts J. C. Liu; Purdue Univ., West Lafayette, IN.</p>	<p>311 Nanohydroxyapatite-Titanium Coating Created by Novel Molecular Plasma Deposition for Bone Tissue Engineering, T. M. Shimpi, D. M. Storey, B. S. Kitchell, G. Balasundaram; Chameleon Scientific, Plymouth, MN.</p>
9:45 am	<p>248 Prediction of Patency in Blood Vessel Grafts by Laser Doppler Flowmetry C. CHANG, J. Xiang, A. E. Meyer, R. E. Baier; State Univ. of New York at Buffalo, Buffalo, NY.</p>	<p>256 Rigidity-dependent Crosstalk between ECM and Cadherin Signaling J. Tsai, L. C. Kam; Columbia Univ., New York, NY.</p>	5:00 pm	<p>304 HELP (Human Elastin-like Polypeptide) as a Key Component in Matrices for Regenerative Medicine M. Tanzi¹, S. Bozzini¹, S. Farè¹, P. Petrinì¹, A. Fotticchia¹, A. Bandiera²; ¹Politecnico di Milano, MILANO, ITALY, ²Università degli Studi di Trieste, TRIESTE, ITALY.</p>	<p>312 Host-Guest Interaction Mediated Core-Shell Assemblies as Novel Versatile Nanocarriers for Drug Delivery J. Zhang, P. X. Ma; Univ. of Michigan, Ann Arbor, MI.</p>