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- 319 Towards Online Monitoring of Engineered Tissue Using Confocal Microscopy and Image Processing**
R. A. Lasher, F. B. Sachse, R. W. Hitchcock; Univ. of Utah, Salt Lake City, UT.
- 320 Examination and Comparisons of Eypome/ Alloderm® Compositions with Human Mucosal Tissues Using Scanning Acoustic Microscopy**
F. Winterroth, K. W. Hollman, K. Izumi, S. E. Feinberg, J. B. Fowlkes, S. J. Hollister; Univ. of Michigan, Ann Arbor, MI.
- 321 Quantum Dots Capped with Dengue Virus As Imaging Probes for Drug Screening**
C-A. Peng; Michigan Technological Univ., Houghton, MI.
- 322 Vascular growth is promoted by an ECM mimic and monitored by ultrasound and photoacoustic imaging technique**
G. Zhang; Univ. of Texas at Austin, Austin, TX.
- 323 Microcarrier-Based Assay for in vitro 3d Quantification of Angiogenesis in Fibrin Gels**
R. J. Nagao¹, S. Solanki², S. Pujari¹, C. T. Drinnan¹, S. Collins¹, L. J. Suggs¹; ¹The Univ. of Texas at Austin, Austin, TX, ²The Univ. of North Carolina, Chapel Hill, Chape^l Hill, NC.
- 324 Toward a Model of Intervertebral Disc Herniation using Normal and Degenerative Failure Criteria based on Annulus Fibrosus Laminar Micromechanics**
J. L. Isaacs¹, S. Gidvani², D. Bonfiglio³, E. Vresilovic², T. Doehring³, M. Marcolongo⁴, ¹Drexel Univ., Dept. of Mechanical Engineering & Mechanics, Philadelphia, PA, ²Pennsylvania State Univ., Dept. of Orthopedic Surgery, Harrisburg, PA, ³Drexel Univ., Dept. of BioMed. Engineering, Sci., & Hlth. Systems, Philadelphia, PA, ⁴Drexel Univ., Dept. of Materials Sci. & Engineering, Philadelphia, PA.
- 325 Multiplexed and High-resolution Microscopy through the Transient Exchange of Fluorophores**
M. R. Diehl, D. Douse, R. M. Schweller; Rice Univ., Houston, TX.
- 326 Reproducible Noninvasive Characterization of In Situ Forming Implants Using Ultrasound**
L. Solorio, Jr.¹, B. M. Babin², R. B. Patel¹, A. A. Exner¹; ¹Case Western Reserve Univ., Cleveland, OH, ²Univ. of Massachusetts Amherst, Amherst, MA.
- 327 Amyloid Fibrils: Electromechanical Imaging Using Bandwidth Excitation - Piezoresponse Force Microscopy**
G. L. Thompson, III¹, M. Nikiforov², V. V. Reukov¹, S. Jesse², S. V. Kalinin², A. A. Vertegel¹; ¹Clemson Univ., Clemson, SC, ²Oak Ridge Natl. Lab., Oak Ridge, TN.
- 328 The Use of In-Life Microcomputed Tomography for Evaluating a Segmental Defect in the Rabbit Radius.**
S. A. Woods¹, V. Brighenti², D. M. Devine², D. Arens², R. Harten¹, L. P. Boure²; ¹Synthes, West Chester, PA, ²AO Res. Inst., Davos Platz, SWITZERLAND.
- 329 Novel Matlab® based image analysis algorithm for automated structural characterization of nanofibers**
S. G. Pandya, A. Pal, D. S. Katti; Indian Inst. of Technology Kanpur, INDIA.

Advances in Stent Materials, Design and Biology


- 330 Micromantled Drug-Eluting Stent and A Study of A Model Therefor**
M. S. Taylor, E. F. Powell, S. D. Nagatomi, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.
- 331 Measuring of Electromechanical Properties of Bacteria Using Band-Excitation Piezoresponse Force Microscopy.**
V. Reukov¹, G. Thompson¹, M. Nikiforov², S. Jesse², S. Kalinin², A. Vertegel¹; ¹Clemson Univ., Clemson, SC, ²Oak Ridge Natl. Lab., Ctr. for Nanophase Materials Sci., Oak Ridge, TN.
- 332 In Vitro and In Vivo Performance of an Absorbable/Disintegratable Radio-Opaque, Gamma-Sterilized Uripene Endoureteral Stent**
K. W. Clinkscales¹, B. A. Hadaschik², R. F. Paterson², L. Fazli², B. H. Chew², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²Univ. of British Columbia, Vancouver, BC, CANADA.
- 333 Development of a Fiber-Reinforced, Composite, Absorbable, Ureteral Stent**
K. W. Clinkscales¹, K. A. Carpenter¹, M. S. Taylor¹, W. S. W. Shalaby², K. D. Gray¹, S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²St. Francis Hosp., Wilmington, DE.
- 334 Control of Drug Release in Thin Bioabsorbable Drug Eluting Stent Coatings by Tuning the Molecular Structures of Polyester Amides (PEA)**
M. H. Ngo, B. Maslanka, H. Syed, N. Ramesh, M. Trollsas; Abbott Vascular, Santa Clara, CA.
- 335 Effects of OxLDL on the Viscoelastic Properties of Vascular Smooth Muscle Cells**
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- 336 Controlled Release of Antiproliferative Drugs from Novel Bioresorbable Stent Coatings**
A. Kraitzer, Y. Kloog, M. Zilberman; Tel Aviv Univ., Tel Aviv, ISRAEL.

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- 337 Effect of rG3 Protein/PGA Ionic Conjugate on Breast Cancer Tumors**
T. R. Scott¹, S. D. Nagatomi², K. A. Nichter², M. Owens¹, B. Turner¹, C. Jones-McCall¹, S. W. Shalaby²; ¹Clemson Univ., Clemson, SC, ²Poly-Med, Inc., Anderson, SC.
- 338 A Keratin Based Hydrogel is Hemostatic in the Porcine Lethal Extremity Injury Model with Platelet Aggregation as the Presumed Mechanism of Action.**
L. R. Burnett¹, J. G. Rouse¹, C. Orebaugh¹, J. A. Steen¹, J. L. Berry², R. R. Hantgan¹, M. E. Van Dyke¹; ¹Wake Forest Univ. Sch. of Med., Winston-Salem, NC, ²Wake Forest Univ., Winston-Salem, NC.
- 339 Sustained Delivery of Growth Factors for Degenerative Disc Disease.**
H. A. Benghuzzi, M. A. Tucci, A. A. Ragab; Univ. of Mississippi Med. Ctr., Jackson, MS.
- 340 Effects of Polyketal Delivered Superoxide Dismutase on Bleomycin-Induced Lung Fibrosis**
V. F. Fiore, M. C. Lofton, N. Murthy, T. H. Barker; Georgia Inst. of Technology, Atlanta, GA.
- 341 Polyethylenimine (PEI)-Polyethylene glycol (PEG)-Mannose Tri-Component Vehicles for siRNA Delivery**
N. Kim; The Univ. of Iowa, Iowa City, IA.
- 342 A Three-drug, Bilayer Controlled Release Solid, Oral Formulation Containing Acetaminophen for Combination Therapy, Theraprene-I**
J. T. Corbett¹, M. Shalaby², K. D. Gray¹, S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²LeHigh Valley Hosp., Allentown, PA.

- 343 A Two-drug Controlled Release Solid, Oral Formulation for Combination Pain Relief and Anti-platelet Therapy**
J. T. Corbett¹, M. Shalaby², K. D. Gray¹, S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²LeHigh Valley Hosp., Allentown, PA.
- 344 Nanofibers of core-shell structure with dual-release patterns of proteins**
J. Choi, H. Kim, H. Jung, H. Yoo; Kangwon Natl. Univ., Chuncheon, REPUBLIC OF KOREA.
- 345 Anti-tumor Drug Delivery Using oligo(polyethylene glycol) Hydrogel**
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- 346 Temperature-Sensitive Polymer-Gold Nanocomposites for Externally Controlled Therapeutic Systems**
M. Gran, N. A. Peppas; Univ. of Texas at Austin, Austin, TX.
- 347 Non-Higuchi Drug Release Mechanism and the Controlling Variables**
P. E. McDonald, A. Belu, C. Hobot, M. Cox, D. Judd, J. Zhang, S. Lyu; Medtronic, Inc., Fridley, MN.
- 348 Mucoadhesive Patches Delivering Imiquimod for Treatment of Oral Dysplasia**
S. K. Ramineni, A. V. Boland, L. L. Cunningham, Jr., D. A. Puleo; Univ. of Kentucky, Lexington, KY.
- 349 Pharmacokinetic and Pharmacodynamic Response to a 6-Month Hydron® Octreotide Implant in Patients with Acromegaly**
P. Kuzma¹, H. Quandt¹, C. Childs², M. Harnett², M. Ryan²; ¹Indevus Pharmaceuticals, Cranbury, NJ, ²Indevus Pharmaceuticals, Lexington, MA.
- 350 Evaluation of Chitosan Sponges as a Localized Drug Delivery System**
S. P. Noel¹, J. A. Jennings¹, H. S. Courtney², J. D. Bumgardner¹, W. O. Haggard¹; ¹Univ. of Memphis, Memphis, TN, ²Univ. of Tennessee, Memphis, TN.
- 351 Characterization of Formulation Parameters Affecting Low Molecular Weight Drug Release from in Situ Forming Drug Delivery Systems**
R. B. Patel, A. Carlson, L. Solorio, A. A. Exner; Case Western Reserve Univ., Cleveland, OH.
- 352 Transdermal Iron Patch**
S. Narasimha Murthy, S. Vaka; The Univ. of Mississippi, University, MS.
- 353 New Drug-Eluting Microbeads for Transarterial Embolization of Solid Tumors**
L. H. Koole, Sr.; Maastricht Univ., Maastricht, NETHERLANDS.
- 354 Biodegradable Polymer-Sol Gel Composite Controlled Release Wound Dressings For Chronic Pain Treatment**
M. Costache¹, H. Qu², D. Devore¹, P. Ducheyne²; ¹Rutgers, The State Univ. of New Jersey, New Brunswick, NJ, ²Univ. of Pennsylvania, Philadelphia, PA.
- 355 Novel Antioxidant Drug Delivery Vehicles based on Click Chemistry**
D. S. Wilson, N. Murthy; Georgia Inst. of Technology, Atlanta, GA.
- 356 Polymethylmethacrylate Particles Inhibit Runx2, Osterix, Dlx5, and β -Catenin Expression in Osteoprogenitor Cells**
R. Chiu, K. E. Smith, G. K. Ma, R. L. Smith, S. B. Goodman; Stanford Univ. Sch. of Med., Stanford, CA.
- 357 Polymethylmethacrylate Particles Induce Necrosis Not Apoptosis in Murine MC3T3-E1 Osteoprogenitor Cultures**
R. Chiu, G. K. Ma, K. E. Smith, R. L. Smith, S. B. Goodman; Stanford Univ. Sch. of Med., Stanford, CA.
- 358 Changes in BMP and TGF- β 1 Signaling in MC3T3-E1 Cells Challenged with Polymethylmethacrylate Particles**
G. K. Ma, R. Chiu, Z. Huang, R. Smith, S. B. Goodman; Stanford Univ. Sch. of Med., San Francisco, CA.
- 359 Multi-Solution Bone Cements Containing Nanospherical Poly (Methyl Methacrylate) Brushes**
D. C. Rodrigues, J. M. Hasenwinkel; Syracuse Univ., Syracuse, NY.
- 360 Extenuatory Effects of OP-1 on PMMA challenged MC3T3-E1 Cells In Vitro**
S. Kann, R. Chiu, T. Ma, S. Goodman; Stanford Univ. Sch. of Med., Stanford, CA.
- 361 Asperity Induced Strain Softening in UHMWPE**
J. D. Wernle¹, J. L. Gilbert²; ¹Upstate Med. Univ., Syracuse, NY, ²Syracuse Univ., Syracuse, NY.
- 362 Synthesis of UHMWPE: Catalysts, Polymers and Co-polymers**
R. L. Jones, Jr., M. Armoush; DSM PTG, Berkeley, CA.
- 363 Effect of Sliding Velocity on the Wear of Metal-On-Metal Bearings in a Hip Joint Simulation Test**
Y-S. Liao, D. Whitaker, A. Alberts; DePuy Products, Inc., Warsaw, IN.
- 364 The Effect of Microstructure on the Wear of MoM Devices**
A. Kamali; Smith & Nephew Orthopaedics Ltd, Leamington Spa, UNITED KINGDOM.
- 365 Surface Modification Optimization of Poly(Methyl Methacrylate) Microspheres for Use in Two-Solution Bone Cements**
R. Subramanian, D. Rodrigues, J. M. Hasenwinkel; Syracuse Univ., Syracuse, NY.
- 366 Free Radical Activity during Vitamin E Diffusion of Ultra-high Molecular Weight Polyethylene**
S. Johnson, A. Boyer, B. Walters, M. S. Jahan; Univ. of Memphis, Memphis, TN.
- 367 The Rheological Properties of Lubricants Containing Bovine Calf Serum (BCS) for Testing the Wear Behavior of the Micro-Textured Carbide-CoCrMo Alloy Surface**
G. A. Ettienne-Modeste; Univ. of Maryland, Baltimore County, Catonsville, MD.
- 368 Withdrawn**
- 369 Lymphocyte Reactivity to Metals in Subjects with Metal-On-Metal Hip Arthroplasty**
N. J. Hallab¹, K. McAllister¹, A. Skipor¹, P. Campbell², H. Amstutz³, J. J. Jacobs¹; ¹Rush Univ. Med. Ctr., Chicago, IL, ²Rush Univ. Med. Ctr., Orthopaedic Hospital, CA, ³St Vincent Med Cntr, Los Angeles, CA.

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- 370 Voltage Dependent Electrochemical Impedance Spectroscopy of Co-Cr-Mo Using New Empirical Functions**
M. Haeri, J. L. Gilbert; Syracuse Univ., Syracuse, NY.
- 371 Differential Biomaterial Adjuvant Effect Correlates with Induced In Vitro Dendritic Cell Phenotype**
L. W. Norton, J. E. Babensee; Georgia Inst. of Technology, Atlanta, GA.
- 372 Antibody-functionalized Polymer Surfaces for Local T Cell Immunosuppression**
P. Hume, C. Cheung, K. Anseth; Univ. of Colorado, Boulder, CO.
- 373 Phenotype and Polarization of Autologous T Cells by Biomaterial-Treated Dendritic Cells**
J. Park, J. E. Babensee; Georgia Inst. of Technology, Atlanta, GA.
- 374  Role of Integrin Mac-1 in Macrophage-Mediated Inflammatory Response to Biomaterials**
T. Zaveri, N. Dolgova, M. Clare-Salzler, B. Keselowsky; Univ. of Florida, Gainesville, FL.
- 375 Chemotactic Response of Macrophages and Mesenchymal Stem Cells to PMMA and UHMWPE Particles**
Z. Huang, T. Ma, P. Ren, R. L. Smith, S. B. Goodman; Stanford Univ., Palo Alto, CA.
- 376 Self-Assembling Peptides and Peptide-Polymer Conjugates: Evaluation of Immunogenicity**
J. S. Rudra, J. M. Devgun, J. H. Collier; Univ. of Chicago, Chicago, IL.

- 377 Amphiphilic polyanhydrides for stabilization of therapeutic proteins**
B. R. Carrillo-Conde, M. Torres, E. Schiltz, M. Wannemuehler, B. Narashiman; Iowa State Univ., Ames, IA.
- 378 Biomimetic Substrates for Modulation of Adaptive Immune Response**
J. S. Lewis; Univ. of Florida, Gainesville, FL.
- 379 Intracellular Trafficking of Polyanhydride Nanospheres by Antigen Presenting Cells**
B. D. Ulery, Y. Phanse, S. A. Sarkar, M. Torres, B. Bellaire, M. J. Wannemuehler, B. Narasimhan; Iowa State Univ., Ames, IA.
- 380 The Study of Different Carbon Nanofiber Surface Energy on Macrophage Functions**
Y. Chun, T. J. Webster; Brown Univ., Providence, RI.
- 381 Polymer Chemistry Influences Uptake and Intracellular Integrity of Polyanhydride Microspheres in Dendritic Cells**
Y. Phanse, B. Carrillo-Conde, M. Wannemuehler, B. Narasimhan, B. Bellaire; Iowa State Univ., Ames, IA.
- 382 Novel Vaccine Strategies Against Y. Pestis**
B. D. Ulery¹, J. Wilson-Welder¹, M. J. Wannemuehler¹, D. Kumar², D. W. Metzger², B. Narasimhan¹; ¹Iowa State Univ., Ames, IA, ²Albany Med. Coll., Albany, NY.

Biomaterials and Neural Regeneration

- 383 Bioactive Hydrogel Microspheres as an Injectable Surrogate Niche for Neural Stem Cell-Based Therapies**
C. L. Franco¹, Z. Hassani², N. A. Gorenkova², J. L. West¹, M. Modo²; ¹Rice University, Houston, TX, ²King's Coll. London, London, UNITED KINGDOM.
- 384 Combination of Electrospun Nanofibers and Embryonic Stem Cells for Nerve Injury Repair**
J. Xie, M. R. Macewan, X. Li, Y. Xia; Washington Univ. in St. Louis, Saint Louis, MO.
- 385 Compression Resistant Collagen-Based Nerve Guide for Peripheral Nerve Repair**
J. R. Janssen¹, D. Yuen¹, S-T. Li¹, A. Maniker², A. T. Crawford², N. Souayah², C. J. Prestigiacomo²; ¹Collagen Matrix, Inc., Franklin Lakes, NJ, ²Univ. of Med. and Dentistry of New Jersey, Newark, NJ.
- 386 Neuronal Differentiation of Mesenchymal Stem Cells On Aligned Nanofibers Immobilized with Nerve Growth Factor**
Y. Cho¹, S. Park², H. Kim², S. Jeong², H. Yoo²; ¹Kyung Hee Univ., Seoul, REPUBLIC OF KOREA, ²Kangwon Natl. Univ., Chuncheon, REPUBLIC OF KOREA.
- 387 Engineered Extracellular Matrix-Mimicking Hydrogels with Embedded Schwann Cells for Neural Tissue Engineering**
S. Suri, C. E. Schmidt; The Univ. of Texas at Austin, Austin, TX.
- 388 Neuronal Response to Matrix Dimensionality: Study of β 1-Integrin Signaling and Neurite Outgrowth**
A. S. Ribeiro¹, E. Voss¹, E. M. Powell², J. B. Leach¹; ¹Univ. of Maryland Baltimore County, Baltimore, MD, ²Univ. of Maryland Sch. of Med., Baltimore, MD.
- 389 Effect of Ultrasound on Peripheral Nerve Regeneration Using Asymmetrically Porous PLGA/Pluronic F127 Nerve Guide Conduit**
S. Park¹, S. Oh¹, J. Kim², T. Seo¹, J. Yoon¹, J. Lee¹; ¹Hannam Univ., Daejeon, REPUBLIC OF KOREA, ²Chungnam Natl. Univ., Daejeon, REPUBLIC OF KOREA.
- 390 Neural Cell and Protein Interactions with Zinc Oxide Nanoparticle Polyurethane Composites**
J. T. Seil, T. J. Webster; Brown Univ., Providence, RI.

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- 391 Teaching the Role of Natural Selection in Biocompatibility**
H. Winet, Univ. of California at Los Angeles, Los Angeles, CA.

Biomaterials for Interface Engineering and Soft Tissue Repair

- 392 Regeneration of Achilles Tendon: The Role of Dynamic Stimulation for Enhanced Cell Proliferation and Mechanical Properties**
J. Lee¹, V. Guarino², A. Gloria², L. Ambrosio², G. Tae¹, Y. Kim¹, Y. Jung³, S-H. Kim³, S. Kim³; ¹Gwangju Inst. of Sci. and Technology, Gwangju, REPUBLIC OF KOREA, ²Inst. of Composite and BioMed. Materials-Natl. Res. Council, Naples, ITALY, ³Korea Inst. of Sci. and Technology, Seoul, REPUBLIC OF KOREA.
- 393 Improved Marrow Stromal Cell Adhesion and Proliferation on Micro/Nano Electrospun Poly(ϵ -caprolactone) Scaffolds**
T. Ruckh, M. Kipper, K. C. Popat; Colorado State Univ., Fort Collins, CO.
- 394 Enhanced Mesenchymal Stem Cell Response on Ion Etched Surfaces**
N. Riedel, J. Williams, K. C. Popat; Colorado State Univ., Fort Collins, CO.
- 395 Effect of Growth Factors in Combination with Injectable Silicone Elastomer Particles on The Biological Activity of Dermal Fibroblasts: An In Vitro Study**
R. M. Crews; Univ. of Memphis, Memphis, TN.
- 396 Hybrid Coating of Silica Xerogel/Chitosan for Controlled Release of Biomolecules**
S-H. Jun¹, E-J. Lee¹, J-H. Jang², H-W. Kim³, H-E. Kim¹; ¹Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA, ²Inha Univ., Incheon, REPUBLIC OF KOREA, ³Dankook Univ., Cheonan, REPUBLIC OF KOREA.
- 397 Enhanced Bone Ingrowth into Porous Titanium using a Calcium Sulfate, Calcium Phosphate Composite**
N. D. Webb¹, O. H. Schulz¹, S. Bible¹, J. P. Moseley¹, D. K. DeBoer²; ¹Wright Med. Technology, Arlington, TN, ²Saint Thomas Hosp., Nashville, TN.
- 398 Functionally Graded Beta-Tricalcium Phosphate Scaffold for Bone Regeneration**
J-H. Kim, D. Young, Y. Yang; Univ. of Tennessee Hlth.Sci. Ctr., Memphis, TN.
- 399 Thermo-Responsive Hydrogels as Novel Viscosupplements for Orthopedic Tissue Engineering**
J. Mendenhall; Georgia Inst. of Technology, Atlanta, GA.
- 400 Unique Bioreactor Conditions Generate Novel Surface Coating for Medical Devices**
A. D. Schenone, M. Zimmer, E. Pinney, G. Naughton, R. Kellar; Histogen, San Diego, CA.
- 401 Nanocrystalline Hydroxyapatite Coating with Improved Mechanical and Biological Properties for Dental/Orthopedic Implants**
H. Liu¹, W. Jiang¹, C. M. Stanford², J. Cheng², D. Agrawal³, A. Malshe¹; ¹NanoMech, Fayetteville, AR, ²Univ. of Iowa, Iowa City, IA, ³Penn State Univ., University Park, PA.
- 402 Chitosan-Based Polyelectrolyte Multilayer Films for Controlled Gene Delivery**
C. Holmes, M. Tabrizian; McGill University, Montreal, QC, CANADA.
- 403 Plasma Enabled Surface Modification to Promote Neuronal Cell Growth**
D. Bhattacharyya, S. Banda, R. B. Timmons, Y-T. Kim; Univ. of Texas at Arlington, Arlington, TX.
- 404 Multiscale Formation of Layered Tissues Enabled by Nanofibers**
X. Yang, X. Fu, R. Baldyga, H. Wang; Stevens Inst. of Technology, Hoboken, NJ.

Biomaterials for Musculoskeletal Tissue Regeneration

- 405 Synthesis, Characterization and Comparative Evaluation of Nanostructured Hydroxyapatite Prepared Via Sol - Gel and Bacterial Synthesis Routs**
M. Fathi, A. Hanifi, B. Mostaghaci; Isfahan Univ. of Technology, Isfahn, IRAN, ISLAMIC REPUBLIC OF.
- 406 Molding Parameters Affect Bending Strength of Spinal Bone Cement**
O. Vesnovsky¹, H. W. Demian¹, T. O. Woods¹, L. D. T. Topoleski²;
¹US Food and Drug Admin., Ctr. for Devices and Radiological Hlth., Silver Spring, MD, ²Univ. of Maryland Baltimore County (UMBC), Baltimore, MD.
- 407 Multiwall Carbon Nanotubes Alter the Thermal Profile of Antibiotic Laden Bone Cement**
A. C. Tickle, B. H. Marrs, M. Giordani, R. Andrews, D. Pienkowski; Univ. of Kentucky, Lexington, KY.
- 408 The Effects of Freezing on the Circumferential Tensile Properties of Meniscus**
C. P. Skurla¹, D. S. Morgan¹, C. T. Towe²; ¹Baylor Univ., Waco, TX, ²St Louis Children's Hosp., St Louis, MO.
- 409 Pseudopolysaccharides for the treatment of Osteoarthritis: in-vitro degradation and in-vivo residence time**
M. C. Wathier¹, S. S. Stoddart¹, P. Bansal², N. Madani², B. Snyder², M. W. Grinstaff¹; ¹Boston Univ., Boston, MA, ²Harvard Med. Sch., Boston, MA.
- 410 Hyaluronic Acid-Binding Joint Coating for the Treatment of Osteoarthritis**
S. A. Unterman, L. A. Capriotti, E. Yang, J. H. Elisseeff; Johns Hopkins Univ., Baltimore, MD.
- 411 Optimizing Trabecular Calcium Phosphate Scaffolds for Mechanical Strength**
A. Tan, T. Guda, J. Son, S. Oh, M. Appleford, J. L. Ong; Univ. of Texas at San Antonio, San Antonio, TX.
- 412 Novel Reentrant Composite Structure: A Potential Material for Orthopaedic Applications**
N. V. Jaumard¹, L. A. Friis¹, J. Smay², J. Xu²; ¹Univ. of Kansas, Lawrence, KS, ²Oklahoma State Univ., Stillwater, OK.

Biomaterials for Wound Healing

- 413 Property-Modulation of Absorbable Polyaxial Polymers and Monofilament Sutures Therefrom**
K. A. Carpenter¹, M. S. Taylor¹, J. T. Corbett¹, W. S. W. Shalaby², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²St. Francis Hosp., Wilmington, DE.
- 414 A New Composite Mesh of Silk and Absorbable Multifilament Yarns**
S. J. Peniston, M. P. Jaeggli, K. A. Carpenter, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.
- 415 Effect of Coating on the Performance of a New Absorbable Composite Mesh for Hernia Repair**
S. J. Peniston¹, M. S. Taylor¹, W. S. W. Shalaby², J. T. Corbett¹, S. W. Shalaby¹;
¹Poly-Med, Inc., Anderson, SC, ²St. Francis Hosp., Wilmington, DE.
- 416 Epidermal Growth Factor Encapsulating Pluronic/Chitosan Hydrogels with Wound-Adhesive Properties**
J. Choi, H. Kim, H. Jung, H. Yoo; Kangwon Natl. Univ., Chuncheon, REPUBLIC OF KOREA.
- 417 Gelatin/Chitosan Blended Sponge with Cross-linked by Genipin for Wound Healing**
I. Kwon, M. Bae, S. Joung, S. Kim; Sch. of Dentistry, Kyung Hee Univ., Seoul, REPUBLIC OF KOREA.
- 418 The Effect of Gelatin/PU Blended Nanofibers for Wound Dressings**
I. Kwon, D. Heo, S. Joung, S. Kim; Sch. of Dentistry, Kyung Hee Univ., Seoul, REPUBLIC OF KOREA.

- 419 Bandages Coated With Organo-Selenium Inhibit Bacterial Attachment**
T. W. Reid¹, P. Tran¹, T. Mosley², J. Cortez¹, M. Shashtri³, J. Spallholz⁴, A. Hamood¹; ¹Texas Tech Univ. Hlth.Sci. Ctr., Lubbock, TX, ²Selenium Ltd., Lubbock, TX, ³Eburon Organics, Lubbock, TX, ⁴TTU, Lubbock, TX.
- 420 Platelet-Rich Plasma Application Does Not Influence Heterotopic Bone Formation Following Total Hip Arthroplasty**
W. S. Pietrzak; Biomet, Inc., Warsaw, IN.
- 421 Self-Rollable Type I Collagen Membrane for Reducing Adhesion in Tendon Surgery**
D. Yuen¹, J. Jenssen¹, P. Hansen¹, S-T. Li¹, F. Zhang², S. Jacob², W. Lineaweaver²; ¹Collagen Matrix, Inc., Franklin Lakes, NJ, ²Univ. of Mississippi Med. Ctr., Jackson, MS.
- 422 Oxygen Generating Gel for Tissue Salvage**
C. L. Ward, H-J. Wang, A. Atala, J. J. Yoo, B. S. Harrison; Wake Forest Univ., Winston Salem, NC.
- 423 Surface Chemistry and Topography of Lotus Leaf-Like Pluronic®-Polyurethane: Effect on Protein Adsorption**
H. Chen, W. Song; Wuhan University of Technology, Wuhan, CHINA.

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- 424 Reinforcing Effect of an Adhesive Agent on Surgical Suture's Knots**
G. Samson, M. W. King, B. S. Gupta; North Carolina State Univ., Raleigh, NC.
- 425 Synthesis and Folding Characteristics of Polydepsipeptides**
M. M. Nguyen, M. Abdelmelek, P. Ren, L. Suggs; Univ. of Texas, Austin, TX.
- 426 A Novel Silicon-Based Biomimetic Treatment to Enhance the Osteointegration of Titanium**
C. Della Valle, R. Chiesa, M. Moscatelli, M. Tunesi, A. Cigada; Politecnico di Milano, Milan, ITALY.
- 427 Biomimetic Incorporation of Fibronectin with Thin Calcium Phosphate Film on CP Titanium**
C. Chen¹, I-S. Lee¹, S-M. Zhang², H-C. Yang³, S-H. Choi¹, S-M. Chung²;
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- 428 Biological Characterization of a Novel Silicon-Based Biomimetic Treatment to Improve the Osteointegration of Titanium**
C. Della Valle, R. Chiesa, G. Candiani, D. Pezzoli, C. Giordano, A. Cigada; Politecnico di Milano, Milan, ITALY.
- 429 Protein Recognitive Hydrogel Systems for Biosensor/Biodiagnostic Applications**
D. R. Kryscio, N. A. Peppas; Univ. of Texas at Austin, Austin, TX.
- 430 Endothelial Cell Attachment and Growth on Fluorosurfactant Polymers with Varying Densities of EC Selective Peptide**
L. Dudash¹, F. Kligman², K. Kottke-Marchant², R. Marchant¹; ¹Case Western Reserve Univ., Cleveland, OH, ²Cleveland Clinic, Cleveland, OH.
- 431 Preparation of Polycaprolactone Film Reinforced With CaP Whisker**
W. Choi¹, H. Kim¹, Y. Koh²; ¹Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA, ²Korea Univ., Seoul, REPUBLIC OF KOREA.
- 432 Withdrawn**
- 433 Armored Microbes - Controllable Assembly Ofnanoparticles/Polyelectrolyte Shells**
G. Johnson¹, S. Balkundi², M. Eby¹, Y. Lvov²; ¹Air Force Res. Lab. / RXQL, Tyndall, FL, ²Louisiana Tech Univ., Ruston, LA.

Biosensors

- 434 Fabrication, AFM Imaging and Applications of Si-Nanowire FET Aptamer Biosensors**
K. Kim, H-S. Lee, J-A. Yang, M-H. Jo, S. Hahn; Pohang Univ. of Sci. and Technology (POSTECH), Pohang, REPUBLIC OF KOREA.
- 435 Vaginally Implantable Pressure Sensor for Monitoring Loadings on the Female Pelvic Floor**
P. Johnson¹, E. Rosenbluth², I. Nygaard³, R. Hitchcock²; ¹Univ. of Utah, Bountiful, UT, ²Univ. of Utah, Salt Lake City, UT.
- 436 Development of a Single Cell Neurotoxicity Assay**
A. J. Sweeney, K. J. L. Burg, Z. Gao; Clemson Univ., Clemson, SC.

Blood/Material Interactions

- 437 Studies of the Self-Assembled Monolayer Prepared with Lipid-Like Zwitterionic Phosphorylethanolamine Functionality**
Y-T. Sun, C-Y. Yu, J-C. Lin; Natl. Cheng Kung Univ., Tainan, TAIWAN.
- 438 Improvement of Antithrombogenicity of Biomaterials by Physical Adsorption of Human Thrombomodulin.**
M. Omichi¹, M. Matsusaki¹, T. Funaki², S. Kato², I. Maruyama³, M. Akashi¹; ¹Osaka Univ., Suita, JAPAN, ²BMT hybrid, Sakuragaoka, JAPAN, ³Kagoshima Univ., Sakuragaoka, JAPAN.
- 439 Surface Modification of Model Gold Substrates with an Antithrombin-Heparin Anticoagulant Complex**
K. N. Sask, J. L. Brash, A. K. C. Chan, L. R. Berry, I. Zhitomirsky; McMaster Univ., Hamilton, ON, CANADA.
- 440 Interactions of Proteins with Chemically Modified Alginate-Based Capsules for Cellular Gene Therapy**
R. M. Cornelius, F. Shen, M. Potter, M. A. Mazumder, N. Burke, H. Stover, J. L. Brash; McMaster Univ., Hamilton, ON, CANADA.
- 441 Assessment of Hemocompatibility of Biomedical Materials via In Vitro Human Blood-Loop**
Z. Zhou, S. Eam, S. Board; St. Jude Med. Inc., St. Paul, MN.
- 442 Immobilization of PEGylated Proteins on Gold Surface for Blood Compatibility**
S. Alibeik, J. L. Brash, S. Zhu; McMaster Univ., Hamilton, ON, CANADA.
- 443 Protein-Resistant Polyurethane by Sequentially-Grafted Poly(HEMA) and Poly(Oligo(Ethylene Glycol) Methacrylate (OEGMA)) via Surface-Initiated ATRP**
Z. Jin, W. Feng, S. Zhu, J. L. Brash; McMaster Univ., Hamilton, ON, CANADA.
- 444 Hemocompatible Polymeric Coatings with Sulfonated Polyurethanes as Matrix for Sustained Nitric Oxide Release**
B. Wu¹, D. Studzinski², C. J. Shanley², M. E. Meyerhoff¹; ¹Univ. of Michigan, Ann Arbor, MI, ²William Beaumont Hosp., Royal Oak, MI.
- 445 Effect of Competitive Protein Adsorption on Functional Activity of Adsorbed Fibrinogen Measured by AFM**
P. Soman, C. Siedlecki; Penn State Univ., Hershey, PA.
- 446 Regulation of Material Endothelialization and Hemocompatibility via Hyaluronic Acid Grafting**
A. Ruiz, T-W. Chuang, K. Masters; Univ. of Wisconsin Madison, Madison, WI.
- 447 Utilization of Thiol-Modified Surfaces to Investigate Contact Activation of Plasma Coagulation**
J. W. Bauer¹, E. A. Vogler², C. A. Siedlecki³; ¹Pennsylvania State Univ. Coll. of Med., Hershey, PA, ²Pennsylvania State Univ., University Park, PA, ³Pennsylvania State Univ. Coll. of Med., Hershey, PA.
- 448 PEGylated Terpolymers with Non-Fouling Properties**
D. E. Heath¹, A. N. Veleva², S. L. Cooper⁴; ¹The Ohio State Univ., Columbus, OH, ²North Carolina State Univ., Raleigh, NC.

- 449 Synthesis and Characterization of Albumin Binding Surfaces for Implantable Surfaces**
A. Subramanian, S. Guha Thakurta; Univ. of Nebraska, Lincoln, NE.

- 450 Interaction of Lipid-Conjugated Poly(ethylene glycol) Micelles with Bovine Serum Albumin**
M. Kastantin, D. Missirlis, M. Black, M. Tirrell; Univ. of California, Santa Barbara, CA.


Cell/Organ Therapies

- 451 Stress Preconditioning on Preosteoblastic Cells for Bone Tissue Engineering**
E. Chung, M. N. Rylander; Virginia Tech, Blacksburg, VA.

Cellular Responses to Their Microenvironments

- 452 Frictional Property Measurement of Individual Vascular Smooth Muscle Cells**
J.D. Hemmer, D. Dean, A. Vertegel, M. LaBerge; Clemson Univ., Clemson, SC.

Student Award for Outstanding Research

-  **453 Fibroblasts Regulate Monocyte Response to ECM-derived Matrix: The Effects on Monocyte Adhesion and the Production of Inflammatory, Matrix Remodeling and Growth Factor Proteins**
A. S. Chung, W. J. Kao; Univ. of Wisconsin-Madison, Madison, WI.

- 454 Endothelial Cell/Osteoblast Coculture Ratios for Angiogenesis and Bone Formation**
A. R. Shah¹, J. C. Wenke², C. M. Agrawal¹; ¹Univ. of Texas at San Antonio, San Antonio, TX, ²United States Army Inst. of Surgical Res., San Antonio, TX.

- 455 Neurite Outgrowth on Nanofiber Scaffolds with Different Structures, Orders, and Surface Coatings**
J. Xie, M. R. Macewan, X. Li, Y. Xia; Washington Univ. in St. Louis, Saint Louis, MO.

- 456 Evaluation of the Biomechanical Environment on Rheumatoid Arthritis Pathogenesis Using Multiplex Cytokine Analysis**
K. L. Wagoner, R. A. Bader; Syracuse Univ., Syracuse, NY.

- 457 Treatment of MG63 Cells With UHMWPE Particles After Fractionation by Vacuum Filtration Into Three Different Size Ranges, Including a Nanometer Size Fraction**
M. K. Musib¹, A. D. Marshall¹, J. Oxley², V. L. Sylvia¹, C. M. Agrawal³, D. D. Dean¹; ¹Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX, ²Southwest Res. Inst., San Antonio, TX, ³Univ. of Texas at San Antonio, San Antonio, TX.

- 458 A Titanium Surface Enhances Mineralization From Bone Marrow Stromal Cells Earlier Than Cobalt Chrome**
E. Hippensteel, V. Grammer; DePuy Orthopaedics, Warsaw, IN.

- 459 Withdrawn**

- 460 Attachment of Osteoblasts on Absorbable Adhesive Composite Bone Cements/ Fillers**
S. D. Nagatomi, S. W. Shalaby, K. A. Nichter, M. A. Vaughn; Poly-Med, Inc., Anderson, SC.

- 461 Impact of Reaction Conditions on PEGylated Fibrin Gelation and Cell Behavior**
L. Geuss, G. Zhang, C. Drinnan, L. Suggs; Univ. of Texas at Austin, Austin, TX.

- 462 Micropatterned Agarose and Polyacrylamide Scaffolds for Canine Hepatocyte Culture**
A. Y. Au¹, J. M. Hasenwinkel², C. G. Frondoza¹; ¹Nutramax Lab., Inc., Edgewood, MD, ²Syracuse Univ., Syracuse, NY.

- 463 Effect of Surface Modulus and Extracellular Matrix (ECM) Adhesion Proteins on PC12 Cell Proliferation and Neurite Outgrowth**
S. H. Jariwala¹, E. Bevilacqua², J. Hasenwinkel¹; ¹Syracuse Univ., Syracuse, NY, ²State Univ. of New York, Coll. of Environmental Sci. and Forestry, Syracuse, NY.
- 464 Engineering Notch Signaling in Stem Cells: Towards Directed Generation of T Cells**
E. R. Dawson, K. Roy; Univ. of Texas at Austin, Austin, TX.
- 465 Hyaluronic Acid Hydrogels with Tunable Material Properties for the Culture of Ventral Midbrain Progenitors**
S. K. Seidlits, Z. Z. Khaing, R. R. Rosenberger, J. E. Vanscoy, C. E. Schmidt; Univ. of Texas at Austin, Austin, TX.
- 466 Effects of Surface Conditioning and Ionic Products of a Novel Bioactive Glass-Ceramic on *In Vitro* Osteogenic Events**
L. M. Spinola de Castro, Sr.¹, L. Novaes Teixeira, Sr.¹, R. R. Fernandes, Sr.¹, O. Peitl, Sr.², E. D. Zanotto, Sr.², M. M. Beloti, Sr.¹, A. L. Rosa, Sr.¹, P. Tambasco de Oliveira, Sr.¹; ¹Univ. of São Paulo, Ribeirão Preto, BRAZIL, ²Federal Univ. of São Carlos, São Carlos, BRAZIL.
- 467 Endothelial Progenitor Cell Attachment to Biomaterials is Mechanistically due to CD47-Cholesterol-Integrin Complex Formation**
M. Ueda, S. J. Stachek, I. Alferiev, R. J. Levy; The Children's Hosp. of Philadelphia, Philadelphia, PA.
- 468 Endothelial Cell Migration Response to Angiogenic and Osteogenic Growth Factors**
J. Carter, C. M. Agrawal; Univ. of Texas San Antonio, San Antonio, TX.
- 469 Cellular Response to the Structure of Semi-degradable Hydrogels Based on Poly(vinyl alcohol)**
K. L. Spiller, A. M. Lowman; Drexel Univ., Philadelphia, PA.
- 470 Programmed Sub-cellular Release for Studying the Dynamics of Cell Detachment**
B. E. Wildt; Johns Hopkins Univ., Baltimore, MD.
- 471 The use of Skeletal Muscle Extracellular Matrix Extract to Study the Influence of an Aging Environment on the Regenerative Capacity of Skeletal Muscle Progenitor Cells**
M. M. Stern, R. L. Myers, S. Soker, S. B. Kritchevsky, M. Van Dyke; Wake Forest Univ. Baptist Med. Ctr., Winston-Salem, NC.
- 472 Extracellular Matrix Properties regulate Osteolytic Potential of Human Breast Cancer Cells**
N. S. Ruppender, J. A. Sterling, G. R. Mundy, S. A. Guelcher; Vanderbilt Univ., Nashville, TN.
- 473 Translating Extracellular Matrix to Intracellular Signaling to Proliferation**
B. G. Kelso, M. M. Shah, M. R. Caplan; Arizona State Univ., Tempe, AZ.
- 474 Do Lanthanides Induce A Similar Response To Periprosthetic Cells In Vitro?**
P. H. Pennekamp¹, M. S. Caicedo¹, I. Catelas², J. Kunze³, M. P. Laurent¹, N. J. Hallab¹, M. A. Wimmer¹; ¹Rush Univ. Med. Ctr., Chicago, IL, ²Univ. of Ottawa, Ottawa, ON, CANADA, ³Hamburg Univ. of Technology, Hamburg, GERMANY.
- 475 Influence of ECM Surface-Modified Substrates on Pancreatic Islet Functionality and Preservation In Vitro**
J. Daoud, L. Rosenberg, M. Tabrizian; McGill Univ., Montreal, QC, CANADA.
- 476 High Resolution Spatio-Temporal Dosing of Subcellular Targets**
S. Moorjani, X. A. Chang, R. Nielson, J. Rice, E. Ritschdorff, J. B. Shear; Univ. of Texas, Austin, TX.
- 477 Effects of Macrophage Cells Stimulated to Release Reactive Oxygen Species on Corrosion of Titanium**
D. Mueller; Univ. of Memphis, Memphis, TN.

- 478 Polymeric Composite Tissue Test System Development for Breast Cancer Research**
C-C. Yang, K. J. L. Burg; Clemson Univ., Clemson, SC.

Clinical Performance and Long Term Success of Implants

- 479 CoCr and Ti-6Al-4V Modular Neck Fatigue Testing**
P. K. Aldinger; Smith & Nephew, Memphis, TN.
- 480 Enhancing Corrosion Resistance of Mg Implant via Surface Anodization for Biomedical Applications**
J. Hong, J. Jo, H-E. Kim; Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA.
- 481 Analysis of the Healing Process in Sinus Bone Grafting Using the Various Grafting Materials**
S. Kim, Sr.¹, Y-K. Kim, Sr.², S-C. Lim¹; ¹Chosun Univ., Gwangju City, REPUBLIC OF KOREA, ²Seoul Natl. Univ. Bundang Hosp., Seoul, REPUBLIC OF KOREA.

Computational Modeling

- 482 Factors Influencing the Success of Patient Matched Cutting Blocks**
A. B. Salehi, D. Mehl, A. Snider, M. Nadzadi, A. Agnihotri, C. Manchester; Smith and Nephew Orthopaedics, Inc., Memphis, TN.
- 483 Modeling Simultaneous Crystallization and Degradation of Bioabsorbable Polymers**
X. Han, J. Pan; Univ. of Leicester, Leicester, UNITED KINGDOM.
- 484 Strain Energy and Molecular Potential Energy in Self-Assembled Collagen in Response to Water Solvation**
A. L. Kwansa, J. W. Freeman; Virginia Polytechnic Inst. and State Univ., Blacksburg, VA.
- 485 Finite Element Analysis Study of Cell Mechanics on Different Substrates**
K. Katkuri, P. Sit; Louisiana Tech Univ., Ruston, LA.
- 486 3D Porous Scaffold Structure Design for Optimum Fluid Shear Stimulation of Osteoblastic Cells Cultured In a Perfusion Bioreactor**
R. Voronov, S. van Gordon, V. Sikavitsas, D. Papavassiliou; Univ. of Oklahoma, Norman, OK.

Dental/Craniofacial Materials

- 487 Pore Diameter Size Affects Osteoblastic Cell Responses to Porous Titanium Surfaces**
M. M. Beloti¹, L. N. Teixeira¹, G. E. Crippa¹, M. U. Shirozaki¹, A. C. Trabuco¹, L-P. Lefebvre², P. T. de Oliveira¹, A. L. Rosa¹; ¹Univ. of Sao Paulo, Ribeirao Preto, BRAZIL, ²Natl. Reserach Council Canada, Boucherville, QC, CANADA.
- 488 The Mechanical Advantages of a Bilayer Ceramic Scaffold for Bone Tissue Engineering**
T. Guda, M. Appleford, S. Oh, J. L. Ong; Univ. of Texas at San Antonio, San Antonio, TX.
- 489 Dentin Surface Treatment by Atmospheric Plasma Brush for Enhanced Adhesive/Dentin Interfacial Bonding**
Q. Yu; Univ. of Missouri, Columbia, MO.
- 490 Effects of Titanium Nanotubes and HA Sol-Gel Coatings on Osteoblast Response**
J. Kim¹, K. Lee², M. R. Appleford³, J. L. Ong³, S. Oh³; ¹Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX, ²Chonnam Natl. Univ., Kwangju, REPUBLIC OF KOREA, ³Univ. of Texas at San Antonio, San Antonio, TX.
- 491 *In Vitro* Osteoblast Responses to Silver-doped Hydroxyapatite Sol-gel Coatings**
A. Ong, J. Hernandez, S. Oh, M. Appleford; Univ. of Texas at San Antonio, San Antonio, TX.

- 492 Effect of Silica Nanofiber Reinforcement on Viscosity and Modulus of Dental Composite.**
A. Swarn, J. O. Burgess, D. R. Dean; The Univ. of Alabama at Birmingham, Birmingham, AL.
- 493 Mechanical Properties of Human Teeth Subjected to Common Clinical Whitening Agents and Etchants**
L. Datko¹, B. Zimmerman¹, S. Alapati², M. Kennedy¹, D. Dean¹; ¹Clemson Univ., Clemson, SC, ²Med. Univ. of South Carolina, Charleston, SC.
- 494 Ca⁺⁺ release behavior and biological responses to sol-gel coated calcium polyphosphate surfaces**
S. Oh¹, M. Han², J. L. Ong¹, M. Appleford¹; ¹Univ. of Texas at San Antonio, San Antonio, TX, ²Kyungil Univ., Gyeongbuk, REPUBLIC OF KOREA.

Drug Delivery

- 495 Novel Absorbable Polymers from Functionalized Diglycolic Acid**
R. S. Bezwada; Bezwada BioMed., LLC, Hillsborough, NJ.
- 496 In Vivo Evaluation of Dentin-Pulp Pimplex Response After Direct Capping-Pulp with Bioceramic/Poly(Glycolic)-Poly(Lactic Acid) Composite.**
A. Gala-Garcia, Jr.; UFMG, Belo Horizonte, BRAZIL.
- 497 Simultaneous Release of Two Antibiotics from a Complexation Polymer System**
Y. Zou; Univ. of Kentucky, Lexington, KY.
- 498 Hydrogel Nanocomposites for Remote Controlled Drug Delivery Applications**
N. S. Satarkar, W. Zhang, R. Eitel, J. Hilt; Univ. of Kentucky, Lexington, KY.

Drug Delivery in Tissue Engineering and Regenerative Medicine

- 499 Elution of Antibiotics from Chitosan/Carbon Nanotube Composite Scaffolds: A Preliminary Study**
J. A. Jennings, S. P. Noel, J. D. Bumgardner, W. O. Haggard; Univ. of Memphis, Memphis, TN.
- 500 Comparison of Chitosan-Coated Titanium via Two Coating Methods: Evaluation of Protein Release Profiles**
M. R. Leedy; Univ. of Memphis, Memphis, TN.
- 501 Chitosan-Silica Xerogel Hybrid Membrane with BMP for Guided Bone Regeneration**
E-J. Lee¹, S-H. Jun¹, D-S. Shin¹, H-E. Kim¹, H-W. Kim², J-H. Jang³; ¹Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA, ²Dankook Univ., Cheonan, REPUBLIC OF KOREA, ³Inha Univ., Incheon, REPUBLIC OF KOREA.
- 502 Efficacy of Pluronic/Hyaluronan Composite Hydrogel in Chondrogenesis of Human Adipose-Derived Mesenchymal Stromal Cells**
K. Park, H. Jung, J-J. Kim, D. Han; Korea Inst. of Sci. and Technology, Seoul, REPUBLIC OF KOREA.
- 503 Self-Assembled Immuno-Polymeric Nanoparticles for Targeted Drug Delivery**
J. Lu, M. Shi, K. Ho, M. S. Shoichet; Univ. of Toronto, Toronto, ON, CANADA.
- 504 Highly Porous Bioresorbable Scaffolds with Protein Controlled Release for Tissue Regeneration Applications**
O. Grinberg, I. Binderman, J. J. Elsner, M. Zilberman; Tel-Aviv Univ., Tel-Aviv, ISRAEL.
- 505 IGF-I Releasing Scaffolds for Growth Plate Regeneration**
S. C. Sundararaj, T. A. Milbrandt, D. A. Puleo; Univ. of Kentucky, Lexington, KY.
- 506 Mechanical and Physical Properties Effects through Material Selection for a Surgically Adaptable Chitosan Implant**
K. Smith; Univ. of Memphis, Memphis, TN.

- 507 Apatone Treatment Enhances Cell Proliferation and Reduces Inflammation Following Cobalt-Chrome Exposure**
M. W. Kovacic¹, R. A. Mostardi¹, D. R. Neal¹, P. N. Shah², J. M. Jamison¹, T. F. Bear¹; ¹Summa Hlth.System, Akron, OH, ²The Univ. of Akron, Akron, OH.
- 508 Controlled Mineral Coatings on PCL Films**
D. Suarez-Gonzalez, A. Bagadia, R. Vanderby, Jr., W. L. Murphy; University of Wisconsin- Madison, Madison, WI.
- 509 Preparation of PEI-PEG-BP Coated Albumin Nanoparticles as Delivery System for BMP-2**
S. Zhang, G. Wang, X. Lin, C. Kucharski, H. Uludag; Univ. of Alberta, Edmonton, AB, CANADA.
- 510 Influence of a Growth Factor-Protein Mixture on the Development of the Osteogenic Phenotype on Titanium**
M. A. de Oliva, Sr.¹, L. M. S. de Castro, Sr.¹, W. M. A. Maximiano, Sr.¹, R. R. Fernandes, Sr.¹, P. Ciancaglini, Sr.¹, M. M. Beloti, Sr.¹, A. Nanci, Sr.², A. L. Rosa, Sr.¹, P. Tambasco de Oliveira, Sr.¹; ¹Univ. of São Paulo, Ribeirão Preto, BRAZIL, ²Université de Montréal, Montréal, QC, CANADA.
- 511 Tamoxifen Loaded Beads for Concurrent Breast Cancer Therapy and Tissue Engineering**
C. T. Gomillion, F. Xu, K. J. L. Burg; Clemson Univ., Clemson, SC.
- 512 Calcium Sulfate Coating on Chitosan-Calcium Phosphate Beads for Controlled Drug Delivery**
H. Doty, B. Reves, S. Noel, W. Haggard, J. D. Bumgardner; Univ. of Memphis, Memphis, TN.

Engineering Bone

- 513 Physical Properties and in Vitro Bioactivity of Biphasic Calcium Silicate Bone Cements**
S-J. Ding; Chung-Shan Med. Univ., Taichung city, TAIWAN.
- 514 Effect of Incorporating Calcium Silicate on the Properties of Absorbable, Adhesive Composite Adhesive Bone Cement/Filler**
S. D. Nagatomi¹, M. A. Vaughn¹, M. Shalaby², T. L. Moore¹, S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²LeHigh Valley Hosp., Allentown, PA.
- 515 Hydroxyapatite/Poly(L-Lactide) Co-Electrospun Scaffold with Dual-Scale Alignments for Bone Regeneration**
F. Peng¹, M. Shaw¹, J. R. Olson², M. Wei¹; ¹Univ. of Connecticut, Storrs, CT, ²Teleflex Med., Coventry, CT.

Student Award for Outstanding Research

- 516 Composite Chitosan-Calcium Phosphate Scaffolds for Local BMP-2 Delivery and Enhanced Bone Regeneration**
B. T. Reves¹, J. D. Bumgardner¹, J. A. Cole¹, Y. Yang², W. O. Haggard¹; ¹Univ. of Memphis, Memphis, TN, ²Univ. of Tennessee Hlth.Sci. Ctr., Memphis, TN.

- 517 Protein and Gene Profiles of Osteoprogenitor Cells on Allograft Bone**
K. E. Smith, Z. Huang, T. Ma, R. L. Smith, S. B. Goodman; Stanford Univ., Stanford, CA.
- 518 Characterization of a Novel Hyaluronan-Polyethylene Graft Copolymer for the Delivery of Bioactive Materials**
M. L. Godek, C. N. Cranson, D. Prawel, R. A. Oldinski, S. P. James; Colorado State Univ., Fort Collins, CO.
- 519 Absorbable Self-Setting Composite Adhesive Bone Cement/Filler**
S. W. Shalaby¹, M. A. Vaughn¹, S. D. Nagatomi¹, M. Shalaby²; ¹Poly-Med, Inc., Anderson, SC, ²LeHigh Valley Hosp., Allentown, PA.
- 520 High Strength, Bioactive, Bioresorbable Medial Opening-Wedge for High Tibial Osteotomy**
Y. Shikinami, S. Sumimoto, N. Koshimizu, H. Morii; Takiron Co., Ltd., Kobe, JAPAN.

- 521 The Elution Profile of a Cancellous Bone Allograft (OsteoSponge) Impregnated with Vancomycin and Tobramycin**
B. P. Luchsinger¹, G. A. Juda¹, S. Scott²; ¹Bacterin Intl., Belgrade, MT, ²Salt Lake Orthopaedic Clinic, Salt Lake City, UT.
- 522 Fiber-reinforced Absorbable, Self-setting, Composite Bone Filler: A Preliminary Report**
M. A. Vaughn, S. J. Peniston, K. A. Carpenter, M. S. Taylor, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.
- 523 Animal Study of Various Types of Porous Calcium Phosphate Substitutes**
K-S. Lee, D-H. Lee, J-H. Kim, J-I. Yu; ASAN Med. center, Seoul, REPUBLIC OF KOREA.
- 524 Rapid Conversion to Hydroxyapatite in Brushite Cements Prepared with Hydroxyapatite-based Formulations**
D. L. Alge¹, T-M. G. Chu²; ¹Purdue Univ., West Lafayette, IN, ²Indiana Univ. Sch. of Dentistry, Indianapolis, IN.
- 525 In Vitro Activity of Gentamicin Released from Macroporous Injectable Calcium Phosphate Cement**
A. J. McNally, K. Sly, S. Lin; Exactech Inc., Gainesville, FL.
- 526 Rapid Mineralization of Poly (D, L -lactide) Electrospun Scaffolds**
T. Andric, L. D. Wright, J. W. Freeman; Virginia Polytechnic Inst. and State Univ., Blacksburg, VA.
- 527 Effects of Hydrogel Nanoparticles and Protein-Adsorbed Calcium Sulfate Particles on Mechanical Properties of Calcium Sulfate**
B. R. Orellana, V. Ramakrishnan, D. A. Puleo, J. Z. Hilt, M. V. Thomas; Univ. of Kentucky, Lexington, KY.
- 528 Porous Titanium with Chemical Treatment and Apatite Deposition**
H. Fan, C. Zhao, X. Zhu, X. Zhang; Natl. Engineering Res. Ctr. for Biomaterials, Sichuan Univ., Chengdu, CHINA.
- 529 In Vitro Surface Reactions Underlying Bone Bioactivity of Calcium-Alkali-Orthophosphate Bone Grafting Materials**
J. Kim¹, C. Knabe², W. Chen¹, V. Meausoone¹, S. Radin¹, P. Ducheyne¹; ¹Univ. of Pennsylvania, Philadelphia, PA, ²Charite Univ. Med. Ctr., Berlin, GERMANY.
- 530 An Injectable CaSO₄/CaPO₄-DeminerIALIZED Bone Matrix Composite Graft for Bone Defect Regeneration Compared to Autogenous Bone Graft**
R. M. Urban, T. M. Turner, D. J. Hall, E. L. Dahlmeier, N. Inoue; Rush Univ. Med. Ctr., Chicago, IL.
- 531 Characterization of the Effects of Calcium Polyphosphate Addition to an Apatitic Calcium Phosphate Cement**
J. L. Krausher, G. Hall, M. Filiaggi; Dalhousie Univ., Halifax, NS, CANADA.
- 532 Mechanical Analogue Facet Joint Design in a Synthetic Lumbar Spine**
 N. V. Jaumard, A. Kelley, L. A. Friis; Univ. of Kansas, Lawrence, KS.

Environmentally Responsive Biomaterials

- 533 Hydroswellable Absorbable Braided Sutures: A Preliminary Report**
D. R. Ingram¹, M. S. Taylor¹, J. T. Corbett¹, W. S. W. Shalaby², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²St. Francis Hosp., Wilmington, DE.
- 534 Study of In Vivo Degradation Profiles of the Designed Poly (L-lactic acid) (PLLA) Porous Scaffolds**
E. Saito; Univ. of Michigan, Ann Arbor, MI.
- 535 Biomechanical Investigation of Porcine Soft Oral Tissues**
P. McFetridge¹, S. Goktas¹, J. Dmytryk²; ¹Univ. of Oklahoma, Norman, OK, ²Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma City, OK.
- 536 Can the Shape Memory Properties of Nitinol Implants be Used in Interbody Containment Spinal Applications?**
P. Nichter¹, J. L. Turner¹, M. Henson¹, C. Wu², J. Liu³; ¹Medtronic, Memphis, TN, ²Fndn. for the Advancement of Spinal Knowledge, Minneapolis, MN, ³Northwestern Univ., Chicago, IL.

- 537 Pluronic Triblock Copolymers Enhance Low Grade Hyperthermic Tumor Cell Injury**
T. M. Krupka, I. R. Bederman, D. Dremann, A-M. Broome, A. A. Exner; Case Western Reserve Univ., Cleveland, OH.
- 538 A New Approach to Radiochemical Sterilization**
S. W. Shalaby, M. A. Vaughn, S. D. Nagatomi; Poly-Med, Inc., Anderson, SC.

Nanomaterials

- 539 The functional effects of the clustered SPIO on the physical and biological properties of multifunctional polymeric micelles for MR imaging and drug delivery**
S. Yang, C. Khemtong, J. Setti Guthi, J. Gao; UTSouthwestern Med. Ctr., Dallas, TX.
- 540 Imparting Anti-Cancer Properties to Orthopedic Materials: The Role of Selenium Nanoclusters**
P. A. Tran, L. Sarin, R. H. Hurt, T. J. Webster; Brown Univ., Providence, RI.
- 541 Synthesis of Carbon Nanofibres with Tailored Surface Properties via Electrospinning**
R. Vasita, C. S. Sharma, A. Sharma, D. S. Katti; Indian Inst. of Technology Kanpur, INDIA.
- 542 Quantitative Control of Reactive Sites on Quantum Dots for Targeting Pancreatic Cancer Cells**
J. Park, K. Lee, J. F. Galloway, P. C. Seanson; Johns Hopkins Univ., Baltimore, MD.
- 543 Template assisted synthesis of layered chitosan microcapsules**
Q. Zhao, B. Li; West Virginia Univ., Morgantown, WV.
- 544 Photo-Chemical Treatment of Electrospun Nano/Micro-Fibrous Scaffolds for Generation of Functionalized Surfaces**
R. M. Mahida, R. Vasita, D. S. Katti; Indian Inst. of Technology Kanpur, INDIA.
- 545 Electrical Stimulation Enhances Osteoblast Functions on Anodized Nanotubular Titanium**
B. Ercan, T. Webster; Brown Univ., Providence, RI.
- 546 Topography and the Immune System: The Design of Better Vascular Stents Through Nanotechnology**
J. Lu, T. J. Webster; Brown Univ., Providence, RI.
- 547 Mesoporous Silica Nanoparticles Controlled Release for the Delivery of Analgesics**
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- 548 Nano-Structured Bioresorbable Films Loaded with Bioactive Agents for Biomedical Applications**
 A. Rachelson, A. Kraitzer, **M. Zilberman**; Tel-Aviv Univ., Tel-Aviv, ISRAEL.
- 549 Preparation and Properties of Biomimetic Gelatin/Halloysite Nanocomposites**
Q. Xing, Y. M. Lvov; Inst. for Micromanufacturing, Ruston, LA.
- 550 Medicinal Surface Modification of Silicon Nanowires: Impact on Calcification and Stromal Cell Proliferation**
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- 551 Formation of Nanotube on New Ti-10Ta-10Nb Alloy by Anodizing Process**
K. Lee¹, S. Park¹, G. Oh¹, H. Han¹, J. Choi²; ¹Chonnam Natl. Univ., Gwangju, REPUBLIC OF KOREA, ²Hanlyo Univ., Kwangyang, REPUBLIC OF KOREA.
- 552 Interactions Between Osteogenic Cells and Nano-Featured Poly (Methylmethacrylate) Substrates and the Potential Role of Surface Wettability**
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- 553 Electrospun Polymeric Scaffolds with Bionanofunctionalized Fibers: 3-D Substrates for Enhanced Matrix Deposition by Human Mesenchymal Stem Cells**
J. Xu; Rutgers Univ., Piscataway, NJ.
- 554 Fabrication of Highly Cellularized Tissue Constructs Mimicking Anisotropy and Mechanical Properties of the Cardiac Muscle**
F. Wang, Z. Li, J. Guan; Ohio State Univ., Columbus, OH.
- 555 Efficacy of Urease and Cellulase Immobilized Using Layer-by-Layer Assembly on Glass Substrates**
L. Norris, J. Palmer, D. Snow, Y. Lvov; Louisiana Tech Univ., Ruston, LA.
- 556 Design and Synthesis of Multifunctional Iron Oxide Nanoparticles for Cancer Imaging**
G. Huang; UT Southwestern Med. Ctr., Dallas, TX.
- 557 Biocompatible Halloysite Clay Nanotubes, a Potential Self-Responsive Container for the Delivery of Bioactive Agents**
E. Abdullayev¹, Y. J. Suh², Y. M. Lvov¹; ¹Inst. for Micromanufacturing, Louisiana Tech Univ., Ruston, LA, ²Nano-Materials Group, Korea Inst. for GeoSci. and Mineral Resources, Daejeon, REPUBLIC OF KOREA.
- 558 Modulating Cell Adhesion and Viability with Nanorod Coated Surfaces**
J. Lee, B. Chu, F. Ren, T. Lele; Univ. of Florida, Gainesville, FL.
- 559 Radiochemical Sterilization of Absorbable Tissue Adhesive**
M. A. Vaughn, S. D. Nagatomi, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.

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- 560 Novel Clay Intercalation for Design of Clay-Polymer Nanocomposites for Bone Tissue Engineering**
K. S. Katti, A. H. Ambre, D. R. Katti, N. Peterka; North Dakota State Univ., Fargo, ND.
- 561 Characterization of HA Coated Magnesium as a Bioabsorbable Metal Implant**
J. Jo, D. Shin, H. Kim; Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA.
- 562 Surface Bioactivation of Cobalt Base Alloy Surgical Implants with Hydroxyapatite-Bioglass via Heat Treatment**
H. Minouei, M. Fathi, M. Meratian; Isfahan Univ. of Technology, Isfahan, IRAN, ISLAMIC REPUBLIC OF.
- 563 The efficiency of Hyperthermia with PEVA coated Duplex Stainless Steel Thermo-rods**
Y. Kim, H. Choo, E. Hwang; INJE Univ., Kimhae City, REPUBLIC OF KOREA.
- 564 Formation of Anodized Titania Nanotubes on Microarc Oxidation Treated Ti Surface for Drug Delivery**
C-M. Han, H-E. Kim; Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA.
- 565 Influence of PLGA-containing Temporary Cement on Physico-chemical Properties**
J. Lee, B. Suh; Bisco, Inc., Schaumburg, IL.
- 566 Effect of Mold Temperature on Microstructure and Hardness of an As-cast Biocompatible Cobalt Base Alloy**
H. Ghazvinizadeh, M. Meratian, A. Kermanpur, M. Fathi; Isfahan Univ. of Technology, Isfahan, IRAN, ISLAMIC REPUBLIC OF.
- 569 Novel Heat Treatment of Irradiated UHMWPE**
D. Sun¹, L. Terrill², S. Lin², W. Petty², R. Tsay³, J. JHOU³; ¹Taiwan Scientific Corp., Taipei, TAIWAN, ²Exactech, Inc., Gainesville, FL, ³Inst. of BioMed. Engineering, Natl. Yang-Ming Univ., Taipei, TAIWAN.
- 570 The Use of Combustion Synthesis to Produce Porous Intermetallic Biomaterials**
M. Karsh, R. Ayers; Colorado Sch. of Mines, Golden, CO.
- 571 Recovery of Oxidative Damage in Irradiated UHMWPE**
D. Sun¹, S. Lin², W. Petty², R. Tsay³, G. Chou²; ¹Taiwan Scientific Corp., Taipei, TAIWAN, ²Exactech, Inc., Gainesville, FL, ³Inst. of BioMed. Engineering, Natl. Yang-Ming Univ., Taipei, TAIWAN.
- 572 UHMWPE Particles Stimulates Increased Release of MCP-1 in Traditional Cell Cultures without Coating Materials**
T. Ma¹, Z. Huang¹, P. Ren¹, Y. A. Chien², R. L. Smith¹, S. B. Goodman¹; ¹Stanford Univ., Stanford, CA, ²Univ. of Pennsylvania, Philadelphia, CA.
- 573 Improved Adhesion of Nanostructured Diamond Films on CoCrMo Alloy**
S. A. Catledge, V. Rishi, P. Diggins, IV, Y. Vohra; Univ. of Alabama at Birmingham, Birmingham, AL.
- 574 Wear Pattern of Hybrid Ceramic-on-Metal Bearings in Hip Simulator**
T. Ishida¹, H. Shirasu¹, M. Manaka¹, T. Shishido¹, K. Yamamoto¹, I. C. Clarke²; ¹Tokyo Med. Univ., Shinjuku, JAPAN, ²Loma Linda Univ., Loma Linda, CA.
- 575 Vertical Forces of an Ambulating Ovine Amputation Model of Percutaneous, Osseointegrated Implants**
T. J. Shelton¹, K. N. Bachus¹, R. D. Bloebaum²; ¹Univ. of Utah, Salt Lake City, UT, DVA SLC Hlth. Care System, Salt Lake City, UT.
- 576 Polyethylene Wear In Total Hip Replacements: Effects of Crosslinking & Head Size**
S. Nambu, J. Moseley, M. Carroll; Wright Med. Technology, Arlington, TN.
- 577 Material and Mechanical Characterization of the Micro-textured Carbide-CoCrMo Alloy Surface**
G. A. Etienne-Modeste; Univ. of Maryland, Baltimore County, Catonsville, MD.
- 578 Changing the Mechanical Properties of PMMA Bone Cement with Nano and Micro Particles**
R. F. Pinto, B. J. Johnson, L. D. T. Topoleski; Univ. of Maryland Baltimore County, Baltimore, MD.

PEEK Biomaterials: From Isoelastic Hip Stems to Bone Scaffolds

- 579 Tribology of a Pitch Carbon Fiber PEEK against CoCrMo Unicondylar Knee Bearing**
J. N. Devine¹, S. C. Scholes², A. Unsworth³; ¹Invisio Ltd, Thornton Cleveleys, UNITED KINGDOM, ²Univ. of Durham, Thornton Cleveleys, UNITED KINGDOM, ³Univ. of Durham, Durham, UNITED KINGDOM.
- 580 High Adhesion Plasma-Sprayed HA Coating on PEEK and Other Polymers**
M. N. Bureau, A. Spring, J-G. Legoux; Industrial Materials Inst., Boucherville, QC, CANADA.
- 581 Hydroxyapatite Whisker Reinforced Polyaryletherketone for Orthopaedic and Spinal Implants**
G. L. Converse¹, T. Conrad¹, N. Yanchack¹, S. M. Smith², R. K. Roeder¹; ¹Univ. of Notre Dame, Notre Dame, IN, ²Northwest Neurosurgery, South Bend, IN.
- 582 Enhanced biocompatibility of PEEK by Ti Coating**
C-M. Han, H-E. Kim; Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA.

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- 567 An Investigation on Crosslinking Uniformity in Irradiated UHMWPE**
D. Sun¹, S. Lin², W. Petty², C. Chen³; ¹Taiwan Scientific Corp., Taipei, TAIWAN, ²Exactech, Inc., Gainesville, FL, ³Inst. of Nuclear Energy Res., Atomic Energy Council, Taoyuan, TAIWAN.
- 568 Relationship between the Initial Cell Morphology and the Surface Texture of Ti discs**
S. Kim; Yeungnam Univ., Gyeongsan, REPUBLIC OF KOREA.

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- 583** **Coatings Generated by Surface Initiated Polymerisation for the Control of Cell-Surface Interactions**
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- 584** **Fatigue Life of Hydroxyapatite Whisker Reinforced Polyetherketoneketone**
G. L. Converse, **T. L. Conrad**, R. K. Roeder; Univ. of Notre Dame, Notre Dame, IN.
- 585** **Dose Dependent Effect of Surface-Associated Arg-Gly-Asp on the Osteogenic Differentiation of Mesenchymal Stem Cells under Flow Perfusion**
J. Alvarez-Barreto¹, P. deAngelis², V. Sikavitsas¹; ¹Univ. of Oklahoma, Norman, OK, ²Univ. of Oklahoma Hlth. Sci. Ctr., Oklahoma City, OK.
- 586** **RGD-Containing Hydrogels Support Re-expression of Markers of Contractile Vascular Smooth Cell Phenotype**
J. A. Beamish¹, A. Choi¹, R. E. Marchant¹, K. Kottke-Marchant²; ¹Case Western Reserve Univ., Cleveland, OH, ²Cleveland Clinic, Cleveland, OH.
- 587** **Antibacterial, Non-hormonal Contraceptive Intravaginal Ring**
G. T. Hilas¹, J. T. Corbett¹, S. D. Nagatomi¹, E. F. Powell¹, M. Shalaby², S. J. Peniston¹, S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²LeHigh Valley Hosp., Allentown, PA.
- 588** **Surface Display using Self-assembly for Screening Cell-adhesive Peptides**
B. Ananthanarayanan, D. Missirlis, M. Black, M. Kastantin, M. Tirrell; Univ. of California, Santa Barbara, Santa Barbara, CA.

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- 589** **Antimicrobial Absorbable Urethra Stent**
W. S. W. Shalaby¹, S. D. Nagatomi², K. W. Clinkscales², S. W. Shalaby²; ¹St. Francis Hosp., Wilmington, DE, ²Poly-Med, Inc., Anderson, SC.
- 590** **An Antifungal Intravaginal Ring**
G. T. Hilas¹, S. D. Nagatomi¹, E. F. Powell¹, M. Shalaby², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²LeHigh Valley Hosp., Allentown, PA.
- 591** **Exogenous IL-12 Activates Macrophages and Prevents Infection in an Open Fracture**
B. Li, B. Jiang, Q. Zhao, B. Lindsey, B. Boyce, M. Dietz, D. Hubbard; West Virginia Univ. Sch. of Med., Morgantown, WV.
- 592** **A Comparative Study of Compressive Properties of Bone Cement with Added Antibiotic**
Y. A. Korshunov, S. Saha; SUNY Downstate Med. Ctr., Brooklyn, NY.

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- 593** **Experimental Benchmark Data Set of Adsorption Free Energy for Synthetic Peptide-Surface Interactions by SPR**
Y. Wei, R. A. Latour; Clemson Univ., Clemson, SC.
- 594** **Complexation Polymer System for Bacteriostatic and Antibacterial Effects**
J. R. McClanahan¹, R. Peeyala¹, K. F. Novak¹, D. A. Puleo¹, T. A. Mietzner²; ¹Univ. of Kentucky, Lexington, KY, ²Univ. of Pittsburgh Sch. of Med., Pittsburgh, PA.
- 595** **Fibrinogen Adsorption on Ti-6Al-4V Studied With Atomic Force Microscopy**
N. T. Jawrani, J. L. Gilbert; Syracuse Univ., Syracuse, NY.
- 596** **Preparation and Testing of a Chest Drain Containing an Antimicrobial Agent**
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- 597** **Effects of Thermal Treatments on Protein Adsorption of CoCrMo Alloys**
L. A. Duncan; The Univ. of Surrey, Surrey, UNITED KINGDOM.

- 598** **Conformation of Adsorbed Plasma Proteins is a Critical Determinant of the Thrombogenicity of Biomaterial Surfaces**
B. Sivaraman, R. Latour; Clemson Univ., Clemson, SC.
- 599** **Molecular Dynamics Simulation of Peptide Secondary Structure Adsorption to Functionalized Surfaces**
G. Collier¹, S. J. Stuart¹, B. R. Brooks², R. A. Latour¹; ¹Clemson Univ., Clemson, SC, ²NIH, Bethesda, MD.
- 600** **Effects of Polymer Surface Chemistry on Endothelial Cell Attachment**
S. R. Shah¹, A. R. Shah¹, G. Mani¹, J. C. Wenke², C. M. Agrawal¹; ¹Univ. of Texas at San Antonio, San Antonio, TX, ²United States Army Inst. of Surgical Res., San Antonio, TX.

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- 601** **Enhanced MSC Activation and Regulation on Poly(ϵ -Caprolactone) Nanowire Surfaces**
J. R. Porter, **K. C. Papat**; Colorado State Univ., Fort Collins, CO.
- 602** **Layer-by-Layer Nanoshell Build-Up Onto Non-Fixed Human Red Blood Cells for their Immunocamouflage**
S. Mansouri¹, Y. Merhi², F. M. Winnik³, M. Tabrizian¹; ¹McGill Univ., Montreal, QC, CANADA, ²Montreal heart Inst., Montreal, QC, CANADA, ³Univ. de Montreal, Montreal, QC, CANADA.
- 603** **Chondrogenic Differentiation of Human Adipose Tissue Derived Stromal Cells using TGF- β 1 Loaded Functional Nanoparticle-Hydrogel-PLCL Complex**
S. Kim¹, Y. Jung¹, S. Kim¹, Y.-I. Chung², G. Tae², Y. Kim², J. Lee³, S.-H. Kim¹; ¹Korea Inst. of Sci. and Technology, Seoul, REPUBLIC OF KOREA, ²Gwangju Inst. of Sci. and Technology, Gwangju, REPUBLIC OF KOREA, ³Catholic Univ. of Korea, Seoul, REPUBLIC OF KOREA.
- 604** **Protein Adsorption Simulation - Calculation of Free Energy Using Biased Sampling**
N. A. Vellore, S. J. Stuart, R. A. Latour, Jr.; Clemson Univ., Clemson, SC.
- 605** **Effect of Electrospinning Process Parameters on Mechanical Properties of Scaffolds made of Polycaprolactone**
J. J. Massey¹, S. R. Bailey², C. M. Agrawal¹; ¹Univ. of Texas at San Antonio, San Antonio, TX, ²Univ. of Texas Hlth. Sci. Ctr. at San Antonio, San Antonio, TX.
- 606** **Design for a Cell Conditioning Platform with Nondamaging Cell Detachment Capability**
E. L. Lee, H. A. von Recum; Case Western Reserve Univ., Cleveland, OH.
- 607** **Building Up Layered Tissues by Layer-by-Layer Cell Assembly**
M. Matsusaki, K. Kadowaki, M. Akashi; Osaka Univ., Osaka, JAPAN.
- 608** **In Vitro Culture of Chondrocyte in a Heparin-Based Hydrogel**
M. Kim, Y. Shin, J.-S. Chun, Y. Kim, G. Tae; Gwangju Inst. of Sci. and Technology, Gwangju, REPUBLIC OF KOREA.
- 609** **Effect of lubricant and the functional group on the coefficient of friction of PVA-Based Hydrogels**
H. Bodugoz Senturk, M. Kosztowski, C. E. Macias, O. K. Muratoglu; Massachusetts Gen. Hosp./Harvard Med. Sch., Boston, MA.
- 610** **In vitro Biocompatibility of a Novel Composite Vascular Scaffold based on Protein/Poliglecaprone/Polycaprolactone Using Primary Human Aortic Endothelial Cells**
X. Zhang, V. Thomas, Y. Ma, S. Bellis, Y. Vohra; Univ. of Alabamat at Birmingham, Birmingham, AL.
- 611** **Biomimetic Hydroxyapatite/Collagen Scaffold for Bone Repair**
F. Peng¹, L. Wang², X. Yu¹, J. Huang², X. Jiang², D. Rowe², M. Wei¹; Univ. of Connecticut Storrs, CT, Univ. of Connecticut Hlth. Ctr., Farmington, CT.

- 612 An Instrumented Bioreactor for Cartilage Tissue Engineering**
T. P. Quinn¹, C. M. Flannery¹, D. Lauria¹, D. V. Gallagher¹, K. S. Anseth²;
¹Natl. Inst. of Standards and Technology, Boulder, CO, ²Univ. of Colorado,
Boulder, CO.
- 613 Heat Shock Protein Expression and Cell Membrane Damage Induced by Thermal Inkjet Printing of Chinese Hamster Ovary Cells**
★ X. Cui; Clemson Univ., Clemson, SC.
- 614 Growth and Function of MLO-A5 Cells on 13-93 Glass Trabecular Scaffolds**
V. C. Modglin, R. F. Brown, Q. Fu, M. N. Rahaman; Missouri Univ. of Sci. and Technology, Rolla, MO.
- 615 Effect of Material Surface on Monocyte and Smooth Muscle Cell Co-cultures**
J. E. McBane¹, S. Sharifpoor¹, R. S. Labow², J. P. Santerre¹; ¹Univ. of Toronto, Toronto, ON, CANADA, ²Univ. of Ottawa Heart Inst., Ottawa, ON, CANADA.
- 616 Bioresorbable Polyurethanes with Degradable Hard Segments**
J. P. Parakka¹, A. Iyer¹, W. Chau¹, Y. Tian¹, K. A. White¹, R. S. Ward¹, and R. Bezwada²; ¹DSM PTG, Berkeley, CA; ²Bezwada Biomedical LLC, Hillsborough, NJ.
- 617 Bacterial Cellulose as a Potential Scaffold for an in vitro Cancer Tumor Model**
C. Szot, C. Buchanan, P. Gatenholm, J. W. Freeman, M. N. Rylander; Virginia Polytechnic Inst. and State Univ., Blacksburg, VA.
- 618 Synthesis and Characterization of Novel Thermosensitive and Biocompatible RGD-grafted Pluronic F127 Derivative Hydrogels for Cartilage Tissue Engineering**
D. Han¹, B. Choi¹, K. Park¹, B. Jeong²; ¹Korea Inst. of Sci. and Technology, Seoul, REPUBLIC OF KOREA, ²Ewha Womans Univ., Seoul, REPUBLIC OF KOREA.
- 619 Viscoelastic and Mechanical Properties of Gas-Foamed Poly (ϵ -caprolactone) Bioscaffolds**
L. Leung, E. Turner, H. Naguib; Dept. of Mechanical and Industrial Engineering, Toronto, ON, CANADA.
- 620 Electrowetting-based Multi-microfluidics Array Printing of High Resolution Tissue Construct with Embedded Cells and Growth Factors**
C. G. Geisler¹, J. Zhou¹, D. M. Wootton², P. I. Lelkes¹, R. Fair³; ¹Drexel Univ., Philadelphia, PA, ²Cooper Union, New York, NY, ³Duke Univ., Durham, NC.
- 621 A Soft Biodegradable Elastomer Featuring a Dual Crosslinking Mechanism**
R. T. Tran, D. Gyawali, J.-C. Chiao, J. Yang; The Univ. of Texas at Arlington, Arlington, TX.
- 622 Porous Titanium (Ti) Scaffolds with Various Pore Size Controlled by Camphene-Based Freeze Casting for Bone Tissue Engineering**
S.-W. Yook¹, H.-E. Kim¹, Y.-H. Koh²; ¹Seoul Natl. Univ., Seoul, REPUBLIC OF KOREA, ²Korea Univ., Seoul, REPUBLIC OF KOREA.
- 623 Fibrinogen and Thrombin Concentrations Modulate the Diffusion and Flow Rates of Fibrin Matrices**
C. Chiu; UCLA, Los Angeles, CA.
- 624 Increasing Porosity of Electrospun Scaffolds with NaCl**
L. D. Wright, T. Andric, J. W. Freeman; Virginia Polytechnic Inst. and State Univ., Blacksburg, VA.
- 625 Reinforced 3D Calcium Phosphate Cement Scaffolds via In Situ Polymerization**
D. L. Alge¹, T.-M. G. Chu²; ¹Purdue Univ., West Lafayette, IN, ²Indiana Univ. Sch. of Dentistry, Indianapolis, IN.
- 626 Characterization of Poly-D-Lactic Acid - Polyaniline Electrospun Scaffolds**
K. D. McKeon, A. Lewis, J. W. Freeman; Virginia Polytechnic Inst. and State Univ., Blacksburg, VA.
- 627 Matrix Modulus and Ligand Density Alter Cellular Morphogenesis in 2-D and 3-D Cultures**
A. Yosef, D. Seliktar, J. Mizrahi; Technion, Haifa, ISRAEL.
- 628 Multiphoton Crosslinked Biopolymer Matrices as Scaffold Material for Neuronal Cell Networks**
E. Spivey, S. Seidlits, C. E. Schmidt, J. B. Shear; The Univ. of Texas at Austin, Austin, TX.
- 629 Effect of Pore Size on In Vitro Biocompatibility of Porous Poly(Lactide-co-Glycolide)/Calcium Phosphate Scaffolds for Bone Tissue Engineering**
A. L. Rosa, L. G. Sicchieri, G. E. Crippa, P. T. De Oliveira, M. M. Beloti; Univ. of Sao Paulo, Ribeirao Preto, BRAZIL.
- 630 Performance of 13-93 Glass Fiber Scaffolds with Osteogenic Cells**
V. C. Modglin, R. F. Brown, S. B. Jung, D. E. Day; Missouri Univ. of Sci. and Technology, Rolla, MO.
- 631 Biodegradation and Biocompatibility of Photocrosslinkable Oligo(polyethylene glycol) fumarate Hydrogels: In vitro and In vivo Studies**
M. Dadsetan, C. Vallejo, S. Ameenudin, A. J. Windebank, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 632 Micro CT Based Prediction of Bilayer Hydroxyapatite Scaffold Permeability**
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- 633 Mechanically Enhanced Precipitation Increases Stiffness of Phase-Inversion Sprayed Polyurethane Scaffold**
J. P. Kennedy, R. W. Hitchcock; Univ. of Utah, Salt Lake City, UT.
- 634 Synthesis and Characterization of Injectable Hydrogel for Soft Tissue Repair**
H. Tan, Sr., J. Rubin, Sr., K. Marra; Univ. of Pittsburgh, Pittsburgh, PA.
- 635 Characteristics of Porous Hydroxyapatite/Bone-Like Apatite-Coated PLA Composite Scaffold for Bone Regeneration**
J. Son, T. Guda, M. R. Appleford, J. L. Ong, S. Oh; Univ. of Texas at San Antonio, San Antonio, TX.
- 636 Synthesis and Characterization of in Situ Crosslinkable Polyester Elastomer**
D. Gyawali, R. Tran, J. Yang; Univ. of Texas at Arlington, Arlington, TX.
- 637 Polyelectrolyte Coatings on Hydroxyapatite for Protein Delivery**
S. M. Crumlett, S. Oh, M. Appleford, J. L. Ong; Univ. of Texas at San Antonio, San Antonio, TX.
- 638 Probing Hydrogel Transport Properties and Micro-structure**
S. P. Zustiak¹, J. Leach¹, H. Boukari²; ¹Univ. of Maryland Baltimore County, Baltimore, MD, ²NIH, Bethesda, MD.
- 639 A Novel, Composite Scaffold for Stem Cell Induced Bone Regeneration**
A. Patlolla; New Jersey Inst. of Technology, Newark, NJ.
- 640 Mechanical Studies of 3D-printed Long-Bone Replacement Scaffolds**
L. Witek¹, E. Clark¹, C. Cretiu-Vasiliu², J. Smay², M. Pines¹, J. Ricci¹; ¹NYU Coll. of Dentistry, New York, NY, ²Oklahoma State Univ., Stillwater, OK.
- 641 Interaction of Vascular Smooth Muscle Cells with High-Porosity Vinyl Polycarbonate-Urethane Scaffolds Under Cyclic Mechanical Strain**
S. Sharifpoor¹, C. A. Simmon¹, I. Pereirai¹, R. S. Labow², J. P. Santerre¹; ¹Univ. of Toronto, Toronto, ON, CANADA, ²Univ. of Ottawa Heart Inst., Ottawa, ON, CANADA.
- 642 Development of Degradable Hydrogels for Growth Plate Regeneration**
A. M. Hawkins, J. Cordova, C. Rabek, S. Kumar, T. A. Milbrandt, D. A. Puleo, J. Z. Hilt; Univ. of Kentucky, Lexington, KY.
- 643 Evaluation of Osteoblasts on Chitosan-Calcium Phosphate Composite Scaffolds in Static and Dynamic Rotary Bioreactor Culture Conditions**
D. T. Nguyen, P. Norowski, W. O. Haggard, J. D. Bumgardner; Univ. of Memphis, Memphis, TN.
- 644 Biophysical Effects of Matrices on Cell Colonization**
S. V. Madihally, P. Iyer; Oklahoma State Univ., Stillwater, OK.
- 645 Physical Characterization of Macroporous Cyclic Acetal Hydrogels for Orbital Floor Regeneration**
M. Betz, W. Richbourg, A. Paek, Y. Chen, J. Fisher; Univ. of Maryland, College Park, MD.

- 646** **Changes in Trabecular-Like Hydroxyapatite Scaffold Permeability After In Vitro Cell Culture**
B. Bates, T. Guda, J. Hernandez, B. Singleton, M. R. Appleford, S. Oh, J. L. Ong; Univ. of Texas at San Antonio, San Antonio, TX.
- 647** **Diffusion of Nutrients and Biomolecules through the Human Umbilical Vein**
R. A. Bousleiman, L. Rustom, V. Sikavitsas; Univ. of Oklahoma, Norman, OK.
- 648** **Hierarchical Scaffolds for Vascular Tissue Engineering**
S. Chung¹, S-H. Kim², M. W. King¹; ¹North Carolina State Univ., Raleigh, NC, ²Korea Inst. of Sci. and Technology, Seoul, REPUBLIC OF KOREA.
- 649** **Nucleation of Hydroxyapatite on Alginate Sponges: Mineral Identification, Biological Characterization and Spatial Regulation**
D. Suarez-Gonzalez, K. Barnhart, R. Vanderby, Jr., W. L. Murphy; University of Wisconsin- Madison, Madison, WI.
- 650** **A Novel Method of Diffusivity Constant Measurement in Collagen Hydrogels**
T. L. Estus; California Lutheran Univ., Thousand Oaks, CA.
- 651** **Initial Evaluation of Ingrowth into Superporous Hydrogel Scaffolds**
R. A. Gemeinhart, V. Keskar, M. Gandhi; Univ. of Illinois, Chicago, IL.
- 652** **SWNT Composites for Tissue Engineering Applications: Characterization and Cell Interactions**
Z. Tosun, P. McFetridge; Univ. of Oklahoma, Norman, OK.
- 653** **New Injectable Alginate Formulation Gels in Contact with Physiologic Fluids**
J. Melvik¹, J. Bjørnstad²; ¹NovaMatrix/FMC Biopolymer, Billingstad, NORWAY, ²NovaMatrix/FMC Biopolymer, Sandvika, NORWAY.
- 654** **A Comparison Study among Characterization Methods for the Pore Geometry of Chitosan Scaffolds**
S. Tully-Dartez, H. E. Cardenas, P. Sit; Louisiana Tech Univ., Ruston, LA.
- 655** **Novel Porous Nanostructured Calcium Phosphate Cement Based Scaffolds for Bone Tissue Engineering**
A. Roy, H. Wu, H-F. Ko, F. Syed-Picard, C. Sfeir, P. N. Kumta; Univ. of Pittsburgh, Pittsburgh, PA.
- 656** **Effects of Particulate Integration and Mandrel Size on the Structure and Mechanical Anisotropy of Electrospun Constructs**
N. J. Amoroso, W. R. Wagner, M. S. Sacks; Univ. of Pittsburgh, Pittsburgh, PA.
- 657** **Effects of Pore Size on Degradation Rate and Modulus of Poly (Lactic-Co-Glycolic Acid) Scaffolds Before and During Degradation**
A. Clark; Univ. of Kentucky, Lexington, KY.
- 658** **Thermal Treatment Enhances Mechanical Properties of Electrospun Poly(ϵ -caprolactone) Scaffolds**
S. Lee, S. Oh, J. Liu, S. Soker, A. Atala, J. Yoo; Wake Forest Inst. for Regenerative Med., Winston-Salem, NC.
- 659** **Seeding and Culturing Human Myofibroblasts on 3D-HUV Scaffolds Under Dynamic Perfusion Flow**
Z. Tosun, P. McFetridge, C. Villegas; Univ. of Oklahoma, Norman, OK.
- 660** **Poly(N-vinylcaprolactam) Based Cryogel Scaffold for Tissue Engineering Applications: Synthesis & Biophysical Characterization**
A. Srivastava; Indian Inst. of Technology Kanpur, Kanpur, INDIA.
- 661** **Controlling the Microstructure of Hybrid Scaffolds by Governing Transient Phase Separation in a Polysaccharide-Protein-Organic Solvent System**
Y. Qiu, N. Zhang, X. Wen; Clemson Univ., Charleston, SC.
- 662** **Programmed In Vivo Resorption of Purified Intact Collagen-Based Tissue Membrane Implant**
N. Shishido Lee¹, D. Yuen¹, S-T. Li¹, J. B. Ulreich², D. P. Speer², Y. Ma², A. V. Valles²; ¹Collagen Matrix, Inc., Franklin Lakes, NJ, ²The Univ. of Arizona, Tucson, AZ.
- 663** **Characterization and Optimzation of Bioactive Glass Nanofibers**
R. E. Scarber; The Univ. of Alabama at Birmingham, Birmingham, AL.

- 664** **An Injectable Bone/Polymer Composite Void Filler for Healing of Craniofacial Bone Defects**
S. Tanner, S. A. Guelcher; Vanderbilt Univ., Nashville, TN.
- 665** **Electrospun nanofibers of PLGA-EPE Blends: Influence of EPE on surface properties and degradation**
R. Vasita, D. S. Katti; Indian Inst. of Technology Kanpur, Kanpur, INDIA.
- 666** **Channeled Fiber Bundles for Tissue Engineering Application**
H-J. Lee, K. J. L. Burg; Clemson Univ., Clemson, SC.
- 667** **In-Vivo Bone Formation in RGD-Conjugated Crosslinked Poly(Lactide)Scaffolds with Well-Defined Pore Geometry**
J. Ma, W. Xu, K. A. Carnevale, D. N. Rocheleau, E. Jabbari; Univ. of South Carolina, Columbia, SC.

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- 668** **Capillary Microfluidics for Viscoelastic Characterization of Biopolymers**
P. Das, R. Fournier; The Univ. of Toledo, Toledo, OH.
- 669** **Analysis of the In Vivo Bone Forming Capacity of a Copolymer Consisting of Poly(propylene fumarate) and Poly(Δ -caprolactone)**
T. E. Hefferan, S. Wang, D. Jewison, J. Burgess, L. Lu, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 670** **New Gemini Surfactant - SS14 - Containing Liposomes for Gene Delivery**
G. Candiani¹, S. Ristori², D. Pezzoli¹, L. Ciani², R. Chiesa¹; ¹Politecnico di Milano, Milan, ITALY, ²Univ. of Florence, Florence, ITALY.
- 671** **Observations on Inkjet Cartridge Parameters for Biomaterials Deposition**
C. Parzel, T. Burg, R. Groff, M. Pepper, T. Boland, K. J. L. Burg, Clemson Univ., Clemson, SC.
- 672** **Multi-Drug Releasing Heparin Nanoparticles Efficient in the Intracellular Delivery**
Y. Joung, J. Choi, J. Jang, M. Kwon, Y. Kim, K. Park; Ajou Univ., Suwon, REPUBLIC OF KOREA.
- 673** **Hyaluronic Acid - Polyethyleneimine Conjugate for Targeted Intracellular Anti-VEGF siRNA Delivery**
S. Hahn, K. Park, G. Jiang, J. Kim, K. Kim; Pohang Univ. of Sci. and Technology (POSTECH), Pohang, REPUBLIC OF KOREA.
- 674** **Pluronic Activity in Hyperthermia-induced Tumor Cell Death**
D. Dremann, T. M. Krupka, A-M. Broome, A. A. Exner; Case Western Reserve Univ., Cleveland, OH.
- 675** **PEG-Grafted-Chitosan Hydrogel Suitable for Non-Viral Gene Delivery**
G. Candiani¹, M. Sani², D. Pezzoli¹, B. Bertolotti², C. Giordano¹, R. Chiesa¹, M. Zanda²; ¹Politecnico di Milano, Milan, ITALY, ²CNR, Milan, ITALY.

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- 676** **Spatial Control of Cellular Adhesion Using Photo-Crosslinked Micropatterned Polyelectrolyte Multilayer Films**
H-W. Chien, T-Y. Chang, W-B. Tsai; Natl. Taiwan Univ., Taipei, TAIWAN.
- 677** **pH- and Temperature-Responsive Hydrogel for Delivery of Angiogenic Growth Factors**
J. C. Garbern, A. S. Hoffman, P. S. Stayton; Univ. of Washington, Seattle, WA.
- 678** **Biodegradable, pH-responsive Hydrogels as Sensing Microstructures**
D. K. Snelling, B. L. Ekerdt, N. A. Peppas; The Univ. of Texas at Austin, Austin, TX.
- 679** **Novel Antibiotic Eluting Polymer Sleeve Outcome in an Infected Ovine Fracture Model**
C. L. Radtke¹, D. A. Armbruster², R. Harten², C. A. DePaula², T. P. Schaefer¹; ¹Univ. of Pennsylvania, Kennett Square, PA, ²Synthes, West Chester, PA.

680 Characterization of Micro-Pattern Templates for Promoting Spatially Defined Attachment and Growth of Neuronal Cells
D. Green, M. Agarwal, M. A. DeCoster; Louisiana Tech Univ., Ruston, LA.

681 Bioactive Poly(ethylene glycol) Hydrogels for the Development of an *in vivo* Hematopoietic Stem Cell Niche
M. L. Rowland, J. S. Altus, J. L. West; Rice Univ., Houston, TX.

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682 Gradient Plasma Polymers: A High-Throughput Approach to Screening the Properties of PEG-like Films
D. Menzies¹, J. Forsythe², T. R. Gengenbach¹, C. Fong¹, K. M. McLean¹, G. Johnson³, B. Muir¹; ¹CSIRO, Clayton, AUSTRALIA, ²Monash Univ., Clayton, AUSTRALIA, ³CSIRO, North Ryde, AUSTRALIA.

683 Regulation of Protein Adsorption and Cellular Response on Phase Separated Biofouling and Anti-fouling Surfaces
J-H. Seo, R. Matsuno, T. Konno, M. Takai, K. Ishihara; The Univ. of Tokyo, Tokyo, JAPAN.

684 Gene Delivery to Mouse Embryonic Stem Cells using Membrane Sandwich Electroporation
Z. Fei¹, S. Sharma¹, H. Choi², D. Farson¹, J. Lannutt¹, L. J. Lee¹; ¹Ohio State Univ., Columbus, OH, ²Keimyung Univeristy, Daegu, REPUBLIC OF KOREA.

685 Fabrication of Artificial Surface-bound Morphogen Gradient for Controlling Progenitor Cell Fate
B. Li; Univ. of Pittsburgh, Pittsburgh, PA.

686 Effect of Acid and Sulfate Functional Groups on Chondrogenic Differentiation of Mesenchymal Stem Cells
N. R. Gandavarapu, M. P. Schwartz, K. S. Anseth; Univ. of Colorado, Boulder, CO.

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687 Fibrin-based tissue engineered scaffolds containing neural progenitors cells for subacute spinal cord injury
P. J. Johnson, S. E. Sakiyama-Elbert; Washington Univ., St. Louis, MO.

688 Culture of Human Embryonic Stem Cells on Nanostructured Surfaces
Y. P. Kong¹, C. Tu², P. Donovan², A. F. Yee¹; ¹Univ. of California Irvine, Irvine, CA, ²Sue and Bill Gross Stem Cell Res. Ctr., Irvine, CA.

689 Conditioned Media Enhance the Osteogenic and Chondrogenic Differentiation of Mesenchymal Stem Cells
S. A. Maxson, K. J. L. Burg; Clemson Univ., Clemson, SC.

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690 Site-Specific Dense Immobilization of F(ab')₂ on Polymer Brushes Supported by Organosilane Nanofilaments
Y. Iwasaki¹, Y. Omichi¹, R. Iwata²; ¹Kansai Univ., Osaka, JAPAN, ²Tokyo Med. and Dental Univ., Tokyo, JAPAN.

691 Bioreactor-Based Hematopoiesis of Mouse Embryonic Stem Cells
K. M. Fridley, M-T. Li, I. Fernandez, K. Roy; The Univ. of Texas at Austin, Austin, TX.

692 Mesindentation of Polyacrylamide: Effects of Sample Thickness, Tip Size, Tip Geometry, and Load on Young's Modulus
T. Saxena, P. S. Varde, J. L. Gilbert, J. M. Hasenwinkel; Syracuse Univ., Syracuse, NY.

693 Regulation of Human Mesenchymal Stem Cell Chondrogenesis by Scaffold Geometry and Mechanical Properties
S. Shanmugasundaram; New Jersey Inst. of Technology, Lincoln Park, NJ.

694 Surface Fluorination with Argon Plasma Treatment
S. X. Yang, R. King, L. Salvati, R. Konkle; DePuy Orthopaedics, Inc, Warsaw, IN.

695 Vascular Differentiation of Adipose Derived Stem Cells is Directed by a PEGylated Fibrin Biomatrix
S. Natesan¹, L. Suggs², G. Zhang², T. Walters¹, D. Baer¹, R. Christy¹; ¹US Army Inst. of Surgical Res., Ft Sam Houston, TX, ²Univ. of Texas at Austin, Austin, TX.

696 Astrocyte Response to Various Biomaterials
E. S. Ereifej, S. Khan, G. Newaz, P. VandeVord; Wayne State Univ., Warren, MI.

697 Electrospun Nanofiber Substrates Enhance Oligodendroglial-Directed Differentiation of Neural Stem Cells
G. T. Christopherson, H. Song, H-Q. Mao; Johns Hopkins Univ., Baltimore, MD.

698 Technical Note: Comparison of Optical and Linear Profilometry Data on Translucent Oxidized Zirconium Surfaces
M. E. Roy¹, L. A. Whiteside¹, A. Salehi²; ¹Missouri Bone & Joint Res. Fndn., St. Louis, MO, ²Smith & Nephew Orthopaedics, Inc., Memphis, TN.

699 Calcification of Human Aortic Smooth Muscle Cell Cultures on Gas Plasma Treated Poly(lactic Acid) Films
B. Zhu¹, S. R. Bailey², C. M. Agrawal¹; ¹The Univ. of Texas at San Antonio, San Antonio, TX, ²The Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX.

700 The influences of nano-groove/ridge surfaces on the alignment and differentiation of skeletal myoblasts
P-Y. Wang, H-T. Yu, W-B. Tsai; Natl. Taiwan Univ., Taipei, TAIWAN.

701 Formation and Stability of Self-Assembled Monolayers on Cobalt-Chromium Alloy
G. Mani¹, M. D. Feldman², S. Oh¹, C. M. Agrawal¹; ¹The Univ. of Texas at San Antonio, San Antonio, TX, ²The Univ. of Texas Hlth. Sci. Ctr. at San Antonio, San Antonio, TX.

702 Response of Vascular Smooth Muscle Cells Under Mechanical Deformation Using Silane-Linked Laminin
J. P. Dunkers¹, J. Taboas²; ¹NIST, Gaithersburg, MD, ²NIAMS, NIH, Bethesda, MD.

703 Preparation of Contact Lens Materials for Real-Time Protein Adsorption Studies
M. Dixon, M. Poggi, S. Hussey; Q-Sense, Glen Burnie, MD.

704 Development of Microscope Stage Incubator for Long-term Monitoring of Neuronal cell Culture
K. Karthikeyan, S. Kanakia, S. Banda, D. Davè, Y-T. Kim; Univ. of Texas, Arlington, Arlington, TX.

705 Electrochemical Coating of Hyaluronic Acid on Conducting Substrates for a Potential Neural Electrode Application
J. Y. Lee, C. E. Schmidt; The Univ. of Texas at Austin, Austin, TX.

706 Evaluation of Factors that Influence Adipogenic Cell Differentiation
C. T. Gomillion, K. J. L. Burg; Clemson Univ., Clemson, SC.

707 Three-Dimensional Tissue Constructs to Facilitate the Study of Liver Diseases
A. V. Janorkar, B. L. Sowell, J. A. Woolfolk; Univ. of Mississippi Med. Ctr., Jackson, MS.

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708 High Throughput Fabrication and Optimization of Alginate Based 3-D Non-viral Gene Delivery System Containing Nanostructured Calcium Phosphates (NanoCaPs)
H-F. Ko, C. Sfeir, S. R. Little, P. N. Kumta; Univ. of Pittsburgh, Pittsburgh, PA.

709 Tuning Temporal Network Structures to Enhance Neocartilage Formation in Hyaluronic Acid Hydrogels
C. Chung, M. Beecham, J. A. Burdick; Univ. of Pennsylvania, Philadelphia, PA.

710 High Throughput Assembly of Spatially Controlled Microscale Tissue



Subunits

D. Gallego, N. Higuaita, S. Sharma, R. Reen, K. J. Gooch, L. Lee, J. J. Lannutti, D. J. Hansford; The Ohio State Univ., Columbus, OH.

711 Fabrication of Porous Spherical Calcium Phosphate Granules by Freeze Dry Method for Bone Filler

L. P. Gaviria¹, K. Kim², V. Castillo³, M. Appleford¹, J. L. Ong³, S. Oh³; ¹Escuela de Ingenieria de Antioquia, Medellin, COLOMBIA, ²Kyungpook Natl. Univ., Daegu, REPUBLIC OF KOREA, ³Univ. of Texas at San Antonio, San Antonio, TX.

712 Effect of Molecular Weight of Chitosan Degraded by Microwave Irradiation on Growth of Osteoblasts in Vitro

M. M. Mecwan, G. E. Rapalo, H. A. Doty, P. A. Norowski, S. R. Mishra, W. O. Haggard, J. D. Bumgardner; Univ. of Memphis, Memphis, TN.

713 Smooth Muscle Cell Phenotypic Modulation and Higher Endothelial Cell Adhesion in a Direct Co-Culture Model

S. Chaterji, A. Panitch, K. Park; Purdue Univ., West Lafayette, IN.

714 A Three-Dimensional (3-D) Neural Co-culturing System for Drug Evaluation

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715 The Novel Production and Characterisation of Bioactive Glass Derived Coatings

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