

POSTER PRESENTATIONS

Advances in Drug Delivery

- 280** Cell Targeting via Multivalent Constructs
E. V. Rosca, M. R. Caplan;
Arizona State University, Tempe, AZ.
- 281** Targeted Poly(Propylene Sulfide) Nanoparticles for Intra-Articular Drug Delivery
D. A. Rothenfluh, H. Bermudez, J. A. Hubbell; Ecole Polytechnique Fédérale de Lausanne, Lausanne, SWITZERLAND.
- 282** Thermosensitizer for Hyperthermic Treatment of Tumors
T. M. Krupka, B. D. Weinberg, H. Wu, J. R. Haaga, A. A. Exner; Case Western Reserve University, Cleveland, OH.
- 283** Photo-crosslinkable and Temperature Sensitive Chitosan/pluronic Nanogel for Local Drug Delivery
J. Han, J. Choi, J. Lee, H. Yoo; Kangwon National University, Chuncheon, REPUBLIC OF KOREA.
- 284** Devices for Alternating Release of Multiple Biomolecules
J. Jeon¹, M. Thomas², D. Puleo³; ¹Center for Biomedical Engineering, University of Kentucky, Lexington, KY, ²College of Dentistry, University of Kentucky, Lexington, KY.
- 285** Controlled Delivery of GM-CSF from PLG Scaffolds Primes Dendritic Cells for the Generation of Anti-tumor Immune Responses
O. A. Ali¹, O. A. Ali², G. Dranoff², D. J. Mooney^{1,3}; Harvard University, Cambridge, MA, ²Dana-Farber Cancer Institute, Boston, MA.
- 286** *In Vitro* and *In Vivo* Studies of a Novel System for Cytokine Local Delivery
B. Li, B. Lindsey, B. Jiang, B. Boyce, S. Salihu, D. Hubbard; West Virginia University Medical School, Morgantown, WV
- 287** Enhanced Bone Formation via Intermittent Release of Simvastatin
J. Jeon¹, W. Piepgrass², M. Thomas³, D. Puleo¹; ¹Center for Biomedical Engineering, University of Kentucky, Lexington, KY, ²College of Dentistry, University of Kentucky, Lexington, KY.
- 288** Ectopic Bone Formation by Combinational Technology of Gene Therapy and Tissue Engineering
H. Hosseinkhani National Institute for Materials Science (NIMS), Tsukuba, JAPAN.
- 290** Modulation of Ciprofloxacin Release from Sol-Gel Derived Silica Matrices
D. C. Clupper, A. D'Souza, D. B. Jaroch; Michigan Technological University, Houghton, MI.
- 291** MPEG-PCL Diblock Copolymer as an In Situ Gel Forming Drug Carrier
M. Kim; Korea Research Institute of Chemical Technology, Daejeon, REPUBLIC OF KOREA.
- 292** A New Injectable Hydrogel Induces Angiogenesis through Controlled Release of Basic Fibroblast Growth Factor
H. Hosseinkhani; National Institute for Materials Science (NIMS), Tsukuba, JAPAN.
- 293** Estimating Local Doxorubicin Transport Properties in Experimental Liver Carcinoma
B. D. Weinberg¹, R. B. Patel¹, A. A. Exner¹, G. M. Saidel¹, J. Gao²; ¹Case Western Reserve University, Cleveland, OH, ²University of Texas Southwestern Medical Center, Dallas, TX.
- 295** Effect of Drug Structure on Release from Absorbable Electrospun Fibers
M. S. Taylor, J. M. Lindsey, III, E. F. Powell, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.
- 296** Calcium Phosphate Cement as a Carrier for the Local Delivery of Antibiotic
J. Zitelli¹, S. Coyle¹, C. Scott²; ¹Stryker, Mahwah, NJ, ²Concept Design Associates, Hackensack, NJ.
- 297** Controlled Drug Release from Bioerodible Hydrogels Based on Poly(ethylene glycol) and Sebacic acid
J. Kim, L. Lu, B. L. Currier, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 298** The Elution Behavior of Daptomycin Loaded Calcium Sulfate Pellets
N. D. Webb¹, K. Richelsoph¹, J. Bumgardner¹, P. Yang², W. Haggard¹; ¹University of Memphis, Memphis, TN, ²University of Tennessee, Memphis, TN.
- 299** Stimuli-responsive Hydrogels for Reagent Storage and Delivery From Lab-on-a-Chip Cards
L. J. Taite, P. S. Stayton; University of Washington, Seattle, WA.
- 300** Controlling Multiphasic, Multi-drug Release Kinetics from Single Delivery Matrix
K. R. Kleinbeck, A. Stajkowski, W. J. Kao; University of Wisconsin School of Pharmacy, Madison, WI.
- 301** Rapid Improvement in Myocardial Infarction Therapy by Application of an Injectable Tissue Engineered Nanoscaffold
H. Hosseinkhani; National Institute for Materials Science (NIMS), Tsukuba, JAPAN.
- 302** Development and In Vitro Biocompatibility Evaluation of a Microparticle Type Drug Delivery Device for Controlled Delivery of Therapeutic Proteins Using a Novel L-tyrosine Based Polyphosphate
P. N. Shah, S. T. Lopina, Y. H. Yun; The University of Akron, Akron, OH.
- 303** Simvastatin Incorporated Perivascular Polymeric Controlled Drug Delivery System for the Inhibition of Intimal Hyperplasia
A. Krishnan¹, S. T. Lopina¹, M. Evancho-Chapman², S. P. Schmidt², D. Donovan², J. R. Greene¹; ¹The University of Akron, Akron, OH, ²Summa Health System, Akron, OH.
- 304** A Dual-Functional Polymeric Coating Combining Rapamycin and Nitric Oxide Release
B. Wu, M. E. Meyerhoff; University of Ann Arbor, Ann Arbor, MI.
- 305** Potential Use of Cholecalciferol Polyethylene Glycol Succinate as a Novel Pharmaceutical Additive L-Y.
L. Yung; National University of Singapore, Singapore, SINGAPORE.

Biological Modification of Cardiovascular Biomaterials for Medical Devices: Translation from the Laboratory to the Clinic

- 306** Towards Improved Artificial Lungs Through Biocatalysis
W. J. Federspiel, H-I. Oh, J. L. Kaar, A. J. Russell; University of Pittsburgh, Pittsburgh, PA.
- 307** Platelet Adhesion on Peptide Fluorosurfactant Polymers
C. Tang¹, F. Kligman², R. E. Marchant¹, K. Kottke-Marchant²; ¹Case Western Reserve University, Cleveland, OH, ²Cleveland Clinic Foundation, Cleveland, OH.
- 308** Serotonin Antagonists Inhibit Reactive Oxygen Species Generation in Polyurethane Seeded Monocyte Derived Macrophages
S. J. Stachek, I. Alferiev, J. Fulmer, R. J. Levy; Children's Hospital of Philadelphia, Philadelphia, PA.
- 309** The Electrophysiological Properties of Cardiac Fibroblast in a Surface Patterned Cell Culture Model
P. Mitchell¹, T. Borg², R. Gourdie³, B. Z. Gao¹; ¹Clemson University, Clemson, SC, ²University of South Carolina, Columbia, SC, ³Medical University of South Carolina, Charleston, SC.
- 310** Apoptosis Induced by Elastin Derived Peptides and TGF- β 1 in Rat Aortic Smooth Muscle Cells In Vitro
A. Simionescu, N. Vyavahare; Clemson University, Clemson, SC.

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311 Production and Function of a Novel Percutaneous Device Realizing of Prevention of Germ Infection Made of a Nano-scaled Hydroxyapatite Crystals/polymer Composite
Y. Kogai¹, M. Okada², J. Tanaka³, T. Furuzono²; ¹Innovation Plaza Osaka, Japan Science and Technology Agency, Izumi/city, Osaka, JAPAN, ²Department of Biomedical Engineering, National Cardiovascular Center Research Institute, Suita/city, Osaka, JAPAN, ³Department of Inorganic Materials, Tokyo Institute of Technology, Tokyo, JAPAN.

313 Glycosaminoglycan Stabilization in Bovine Pericardium
L. A. Browne, N. Vyavahare; Clemson University, Clemson, SC.

314 Compliance Testing and Subcutaneous Evaluation of Electrospun Polydioxanone and Elastin Vascular Grafts
S. A. Sell¹, M. J. McClure¹, C. P. Barnes¹, J.-C. Tille², B. H. Walpoth², G. L. Bowlin¹; ¹Virginia Commonwealth University, Richmond, VA, ²University Hospital, Geneva, SWITZERLAND.

Biomaterial-based Bridges for Neural Regeneration

316 Neuritogenesis and Synaptogenesis Promoted by Acetylcholine-like Motifs in Biodegradable Polymers
C. B. Gumbera, J. Gao, Y. Wang; Georgia Institute of Technology, Atlanta, GA.

317 Stimulation of Neurite Outgrowth using a Positively Charged Hydrogel
M. Dadsetan¹, A. M. Knight², C. Vallejo¹, L. Lu¹, A. J. Windebank², M. J. Yaszemski¹; ¹Orthopedic Research Dept., Rochester, MN, ²Neurology Research, Rochester, MN.

318 The Effect of Fibronectin and Collagen IV on Neurite Extension in 3D Collagen Gels
M. J. Blewitt; Saint Louis University, St. Louis, MO.

319 Spiral Structured Nanofibrous Scaffolds for Neural Tissue Engineering
C. Valmikinathan, J. Tian, X. Yu; Stevens Institute of Technology, Hoboken, NJ.

320 Carbon Nanotubes Fibers as Neural Biomaterial: Nanoscale Surface and Biocompatibility
S. C. Polizu¹, M. Rouabhia², O. Savadogo³, P. Poulin⁴, L. Yahia³; ¹École Polytechnique de Montréal, Montreal, PQ, CANADA, ²Université Laval – Faculté de Médecine Dentaire, Québec, PQ, CANADA, ³École Polytechnique de Montréal, Montreal, PQ, CANADA, ⁴Centre de Recherche Paul Pascale – CNRS, Bordeaux, FRANCE.

321 Polypyrrole Micropatterns for Electrical and Topological Stimulation of Hippocampal Neurons
J. Y. Lee, N. Gomez, J. Nickels, C. E. Schmidt; The University of Texas at Austin, Austin, TX.

322 Synthesis and Characterization of di-Functional PEG-based Crosslinkers for L1 Immobilization J-S.
Lee, R. Cribb, E. Cho, J. K. Kutty, K. Webb; Clemson University, Clemson, SC.

323 *In Vitro* and *In Vivo* Characterization of Injectable Hydrogel Scaffolds for Spinal Cord Repair
N. Comolli, B. Neuhuber Stone, A. M. Lowman; Drexel University, Philadelphia, PA.

324 Evaluation of Fibrin-based Scaffolds Implanted in Chronic Spinal Cord Injury
P. J. Johnson, S. E. Sakiyama-Elbert; Washington University in St. Louis, St. Louis, MO.

325 Electrospinning of Fibres from Polycaprolactone and Polycaprolactone/collagen Blends for Neuronal Cell Guidance
K. Klinkhammer¹, E. Schnell², P. Dalton³, J. Mey², G. Brook⁴, D. Klee¹, M. Moeller¹; ¹Institute of Technical and Macromolecular Chemistry, RWTH Aachen and DWI e.V., Aachen, Aachen, GERMANY, ²Institute of Biology ³, RWTH Aachen, Aachen, GERMANY, ³School of Biological Sciences, University of Southampton, Southampton, UNITED KINGDOM, ⁴Department of Neurology, RWTH Aachen University, Aachen, GERMANY.

326 HA Hydrogel Modified with Nogo-66 Receptor Antibody Inducing the Neural Regeneration In Vitro
f-z. cui¹, Y-t. Wei¹, W-m. Tian¹, Q-y. Xu²; ¹Tsinghua Univ, Beijing, CHINA, ²Capital University of Medical Sciences, Beijing, CHINA.

Biomaterials and Microscale Technologies for Biomedical Applications

327 Evaluation of the Potential of Polycaprolactone (PCL) and Starch Polycaprolactone (SPCL) Nanofiber Meshes for Cartilage Tissue Engineering Approaches
M. Alves da Silva¹, A. Crawford², J. Mundy², A. Martins¹, J. Araújo¹, P. Hatton², R. L. Reis¹, N. Neves¹; ¹3B'S Research Group, Braga, PORTUGAL, ²University of Sheffield, Sheffield, UNITED KINGDOM.

328 PCL Electrospun Sheet-Embedded Microporous PLGA Membrane For Effective Guided Bone Regeneration
W. Cho¹, J. Kim¹, S. Oh¹, H. Nam², J. Kim², J. Lee¹; ¹Hannam University, Daejeon, REPUBLIC OF KOREA, ²Chungnam National University Hospital, Daejeon, REPUBLIC OF KOREA.

329 Cytotoxicity of Bioactive Polymer-Apatite Nanocomposite Fibers Sterilized by EtO and Plasma
M. N. Bureau¹, S. Dimitrievska², A. N. Ajji³, D. Yang², A. Petit⁴, L. Yahia²; ¹Industrial Materials Institute, Boucherville, PQ, CANADA, ²École Polytechnique de Montréal, Montreal, PQ, CANADA, ³National Research Council Canada, Boucherville, PQ, CANADA, ⁴Lady Davis Institute, Jewish General Hospital, Montreal, PQ, CANADA.

330 Investigation into the Effectiveness of Sterilization Procedures for Nanofibrous Scaffolds
J. M. Gluck¹, M. W. King¹, B. S. Gupta¹, L. Samuelson², D. A. Gerber²; ¹North Carolina State University, Raleigh, NC, ²University of North Carolina at Chapel Hill, Chapel Hill, NC.

331 Improving the Electrospinnability of Poly(E-caprolactone)(PCL) for Tissue Engineering Applications
A. K. Moghe¹, R. Hufenus², S. M. Hudson¹, B. S. Gupta¹; ¹North Carolina State University, Raleigh, NC, ²EMPA, St. Gallen, SWITZERLAND.

332 Effect of Polarization on the Electrical Field when Electrospinning Tissue Engineering Scaffolds
E. Blair; North Carolina State University – College of Textiles, Raleigh, NC.

333 Electrospinning of a Composite Vascular Graft
R. Rowe, P. Wu, K. Gregory; Oregon Medical Laser Center, Portland, OR.

334 Absorbable Swellable Monofilament Fibers: A Preliminary Report
J. M. Lindsey, III, D. R. Ingram, M. S. Taylor, D. E. Linden, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.

335 Monofilament Sutures of Copolyesters with Minimized Hydrolytic Instability – A Preliminary Report
S. W. Shalaby, M. S. Taylor, K. A. Carpenter, J. T. Corbett; Poly-Med, Inc., Anderson, SC.

336 Compliant, Long-lasting, Absorbable Monofilament Sutures of Polyaxial Copolyesters
J. M. Lindsey, III, K. A. Carpenter, D. R. Ingram, M. S. Taylor, B. L. Anneaux, D. E. Linden, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.

337 Effect of Radiation and Radiochemical Sterilization on the Polymer Properties of Absorbable Electrospun Constructs
S. Taylor, J. M. Lindsey, III, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.

338 Dehydration-Induced Strengthening, but Not Viscoelasticity, is Retained in Rehydrated Collagen Fibers
K. L. Harrigan, J. J. Baker, R. Miller, S. Vande Lune Meyer, G. A. Livesay, K. C. Dee; Rose-Hulman Institute of Technology, Terre Haute, IN.

339 Electrospinning of Polystyrene-Polyisobutylene-Polystyrene Triblock Copolymers
A. Krishnan, S. Bhargava, D. H. Reneker, J. E. Puskas; The University of Akron, Akron, OH.

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- 340** Controlling Polymer Fiber Diameter in Electrospinning Process
A. S. Klemm, J. C. Sy, Sr., V. P. Shastri; Vanderbilt University, Nashville, TN.
- 341** Dependence of Osteogenic Cell Proliferation on the Morphology of Starch Based Scaffolds
S. Chung, V. M. Correlo, N. M. Neves, R. Picciochi, J. F. Mano, R. A. Sousa, R. L. Reis; 3B's Research Group, Biomaterials, Biodegradables and Biomimetics, Dept of Polymer Engineering, University of Minho, Braga, PORTUGAL.
- 342** Nanofiber 3-dimensional Fabric for Scaffold via Electrospinning Method
Y. Yokoyama¹, Y. Yasuda², H. Koyama², H. Kobayashi¹; ¹National Institute for Materials Science, Ibaraki, JAPAN, ²The University of Tokyo, Tokyo, JAPAN.
- 343** Bonding of Biodegradable Polymers for Micro-fluidic Tissue Scaffolds
R. J. Fasching, W. Ryu, K. Hammerick, F. Prinz, R. Greco; Stanford University, Stanford, CA.
- 345** Development of 3D Bioactive Macroporous Scaffolds
H. Bramfeldt, P. Sarazin, P. Vermette; Université de Sherbrooke, Sherbrooke, PQ, CANADA.
- 346** Polymer Scaffold: Substrate for Three Dimensional Cell-based Assays
K. Cheng, W. S. Kisaalita; University of Georgia, Athens, GA.
- 347** Micromechanical Deformations of Electrospun Elastomeric Scaffolds for Tissue Engineering
T. Courtney, J. Stella, J. Liao, W. R. Wagner, M. S. Sacks; University of Pittsburgh, Pittsburgh, PA.
- 348** Novel Biodegradable Polyphosphazene-Nanohydroxyapatite Microsphere Scaffolds for Bone Tissue Engineering
S. Nukavarapu; University of Virginia, Charlottesville, VA.
- 349** Novel Biodegradable Polyphosphazene Lighter than Water Microsphere Scaffolds for Bioreactor Based Bone Tissue Engineering
J. L. Brown; University of Virginia, Palmyra, VA.
- 350** Biodegradable and Tunable Poly(carbonate-ester)s Based on Units of ϵ -Caprolactone and Glycerol
J. Wolinsky, M. W. Grinstaff; Boston University, Boston, MA.
- 351** Dynamic Observation of Collagen Assembly and Degradation
N. Saedi, S. A. Melotti, J. W. Ruberti; Northeastern University, Boston, MA.
- 352** Long Term In Vivo Tissue Response and Degradation Behavior of Photo-Cross-Linked Star-Poly(ϵ -Caprolactone-co-D,L-Lactide Elastomeric Networks.
R. Chapanian, M. Tse, S. C. Pang, B. Amsden; Queen's University, Kingston, ON, CANADA.
- 353** Degradation Characteristics of Novel In-Situ Crosslinkable Poly(Lactide-co-Glycolide-Ethylene Oxide-Fumarate) Copolymer Networks
E. Jabbari, W. Xu, X. He; University of South Carolina, Columbia, SC.
- 354** Chemical and X-Ray Diffraction Analyses of Calcium Phosphate Used for Discrete Crystalline Deposition
R. M. Stach, P. Gubbi; 3i/Implant Innovations Inc., Palm Beach Gardens, FL.
- 355** The Improvement of Chemistry Stability and Cytocompatibility by Incorporation of Ti in CaSiO₃
C. Wu, Y. Ramaswamy, A. Soeparto, H. Zreiqat; Biomaterials and Tissue Engineering Unit, Biomedical Engineering, AMME, The University of Sydney, Sydney, AUSTRALIA.
- 356** Endothelial Cell Adhesion on Highly Controllable Compared to Random Nanostructured Titanium Surface Features
J. Lu, T. Webster; Brown University, Providence, RI.
- 357** A control Fabrication of Hydroxyapatite Using Chemically Modified Polycation Stabilized Gold Nanoparticles
H. Kim, R. K. C., Sr., S. Bhattarai, Sr., M. Khil, Sr.; Chonbuk National University, Jeonju, REPUBLIC OF KOREA.
- 358** Preparation and Evaluation of β -Tricalcium Phosphate/Poly(lactide) Microspheres as Bone Repairing Materials
C-W. Lan, P-H. Tsai, S. Chang, S. Kuo, G-C. Niu; Department of Biomedical Engineering, I-SHOU University, Kaohsiung County, TAIWAN.
- 359** Synthesis and Characterization of Type AB Carbonated Hydroxyapatite
A. A. Mostafa, B. Boyan; Georgia Institute of Technology, Institute of Bioengineering and Bioscience, Atlanta, GA.
- 360** Calcium Phosphate Cement for Direct Writing of Tissue Engineering Scaffolds
N. K. Vail, S. Crumlett; Southwest Research Institute, San Antonio, TX.
- 361** Calcification at Micro Domains: Effect of Insulin and Ethanol
C. P. Sharma, K. Kaladhar; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 363** Fiber-Loaded Calcium Phosphate Bone Cements Provide Improved Fatigue Properties
E. D. Jacobson, M. Fulmer, D. Armbruster; Synthes Biomaterials, West Chester, PA.
- 364** Aperture and Pore Size Distribution of Titanium Foam Implants
T. Imwinkelried¹, P. D. Lee²; ¹Synthes GmbH, Oberdorf (BL), SWITZERLAND, ²Imperial College, London, UNITED KINGDOM.
- 365** Nano-hydroxyapatite/Polyhydroxybutyrate-co-valerate Composite Scaffolds for Bone Tissue Engineering
M. Wang, N. Sultana; The University of Hong Kong, Hong Kong, HONG KONG.
- 366** Rapid Fabrication Techniques for Complex-Shaped Calcium Polyphosphate Substrates of Implants to Repair Large Osteochondral Defects
C. Y. Wei¹, E. Toyserkani¹, K. Erkorkmaz¹, J. B. Medley¹, R. M. Pilliar², S. Seguin¹; ¹University of Waterloo, Waterloo, ON, CANADA, ²University of Toronto, Toronto, ON, CANADA.
- 369** Hydrothermal Conversion of Marine Skeletons to Calcium Phosphates
X. Zhang, K. S. Vecchio, J. B. Massie, M. Wang, C. W. Kim; University of California, San Diego, La Jolla, CA.
- 370** Tomography of Dental Composites Under Multiaxial Loading
M. Kotche¹, K. Sun¹, J. L. Drummond¹, F. DeCarlo², X. Xiao², A. K. B. Bedran-Russo¹, P. Koin¹, B. Super³; ¹University of Illinois at Chicago, Chicago, IL, ²Argonne National Laboratories, Argonne, IL, ³Motorola, Inc., Schaumburg, IL.
- 371** Transcutaneous Porous Tantalum Implants Promote Bone but Not Sufficient Soft Tissue Ingrowth to Reduce Periprosthetic Infection
T. G. Rosenbaum Chou, R. D. Bloebaum, E. L. Oliphant; VA SLC Health Center System, Salt Lake City, UT.
- 372** Abrasion and Frictional Properties of a Porous Titanium Foam
R. Obert, D. Scholvin, M. Carroll; Wright Medical Technology, Arlington, TN.
- 373** Increased Expression of Osteogenic Markers and Bone Mineral Formation in Response to Metal-Doped Bioactive Glass
L. M. Flick¹, J. L. Radcliffe¹, J. R. Nowalk¹, K. A. Schlee², M. M. Hall¹; ¹Alfred University, Alfred, NY, ²Corning Inc., Corning, NY.
- 374** Bone Regenerative Nanocomposites of Bioactive Nanofiber and Degradable Polymers
H-W. Kim; Dankook University, Cheonan, REPUBLIC OF KOREA.
- 375** Development of Hybrid Microparticles for Bone Regeneration
A. C. Jayasuriya, E. Michels, N. A. Ebraheim; University of Toledo, Toledo, OH.
- 377** Absorbable Tissue Adhesives
R. S. Bezwada; Bezwada Biomedical, LLC, Hillsborough, NJ.

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- 378** Inhibition of Tumor Necrosis Factor alpha (TNF α) Production by Macrophages in Response to Lipopolysaccharide Following Treatment with Zinc or Copper-Doped Bioactive Glass
L. M. Flick¹, E. A. Varmette², M. M. Hall¹; ¹Alfred University, Alfred, NY, ²SCHOTT North America, Duryea, PA.
- 379** Acidic Degradation of MCPM/TCP Cement
K. Gonnerman, T-M. G. Chu; Indiana University Purdue University Indianapolis, Indianapolis, IN.
- 380** A Novel Chitosan-based Dressing to Seal Renal Parenchymal Wound Following Laparoscopic Partial Nephrectomy: Preliminary Results in Swine
H. Xie¹, J. Teach¹, M. Anderson¹, B. McGrath², S. McCarthy²; ¹Oregon Medical Laser Center, Portland, OR, ²HemCon, Inc, Portland, OR.
- 381** Preparation of Light-Cured 3-Arm Star-shape Poly(acrylic acid)-based Glass-ionomer Cements via Aqueous Atom Transfer Radical Polymerization
J. Zhao¹, J-G. Park², D. Xie²; ¹Purdue University, West Lafayette, IN, ²Indiana University Purdue University Indianapolis, Indianapolis, IN.
- 382** Two-Solution Bone Cement with Cross-Linked PMMA Beads
I. K. Merkhani, J. M. Hasenwinkel, J. L. Gilbert; Syracuse University, Syracuse, NY.
- 383** Preparation and Properties of Novel Methacrylate-based Dentin Adhesives with Esterase Resistance
J-G. Park¹, Q. Ye¹, E. Kostoryz², K. Dharmala¹, X. Yao¹, E. M. Topp², Y. Wang¹, P. Spencer¹; ¹University of Missouri-Kansas City, Kansas City, MO, ²University of Kansas, Lawrence, KS.
- 384** Evaluation of Four Biodegradable, Injectable Bone Cements in an Experimental Study in Sheep
B. von Rechenberg¹, K. Nuss¹, L. Galluppo², M. Fulmer³, J. A. Auer¹; ¹University of Zurich, Zurich, SWITZERLAND, ²University of Davis, Davis, CA, ³Synthes, West Chester, PA.
- 385** Mid-Term Survivorship of a Press-Fit, Plasma-Sprayed, Tri-Spike Acetabular Component
M. A. Klaassen¹, M. Martinez-Villalobos¹, W. S. Pietrzak², G. Mangino-Pariente¹, D. Carranza-Guzman¹; ¹OSMC, Elkhart, IN, ²Biomet, Warsaw, IN.
- 386** Morphogenesis of Hydroxyapatite Nanoparticles and Composites under Hydrothermal Conditions
V. K. Akkunnuru, B. Baruwati, R. Rana, M. Sunkara V; Indian Institute of Chemical Technology, Hyderabad, INDIA.
- 387** Stabilization of Large Membrane-Associated Protein Complexes using Peptide Surfactants
L. D. Unsworth¹, N. Pradan², S. Zhang²; ¹National Research Council (Canada), Edmonton, AB, CANADA, ²Center for Biomedical Engineering, MIT, Cambridge, MA.
- 388** Heparinized PLGA-PEG-PLGA Copolymer as a Bioactive Injectable Matrix
E. Lih, J. Bae, J. Choi, K. Park; Dept. of Molecular and Science Technology, Ajou University, Suwon, REPUBLIC OF KOREA.
- 389** Thermal Cycling to Eliminate Water Loss upon Gelation of Injectable Hydrogels for Nucleus Pulposus Replacement
J. Vernengo¹, G. W. Fussell², N. G. Smith², A. M. Lowman¹; ¹Drexel University, Philadelphia, PA, ²Synthes Spine, West Chester, PA.
- 390** Physico-chemical and Histological Comparison of Injectable Calcium Phosphate Cements: α -BSM[®] and CaP₃
S. A. Woods, M. R. Strunk; ETEX Corporation, Cambridge Street, MA.
- 391** Novel Injectable GA/LA-Based Biodegradable Polymer Composites for Orthopedic Applications
D. Xie; Indiana University Purdue University at Indianapolis, Indianapolis, IN.
- 392** Hydrogels Formed from RGD-containing PEG Diacrylate Support Smooth Muscle Cell Viability
J. A. Beamish¹, J. Zhu¹, K. Kottke-Marchant², R. Marchant¹; ¹Case Western Reserve University, Cleveland, OH, ²Cleveland Clinic Foundation, Cleveland, OH.
- 393** Polyacrylamide Gels with Various Stiffness for the Study of the Cardiac Fibroblast Migration
J. A. McRae¹, D. Dean¹, T. Borg², B. Z. Gao¹; ¹Clemson University, Clemson, SC, ²University of South Carolina, Columbia, SC.
- 394** Modified Layered Agarose Gels for the Comet Assay to Evaluate Laser DNA Damage
T. N. Rosenbalm; Clemson University, Clemson, SC.
- 395** Bio-mimic Collagen II-co-HA Copolymer for Chondrocytes Culture
S. Chang, S. Kuo, C. Yang, C-W. Lan; Department of Biomedical Engineering, I-SHOU University, Kaohsiung County, TAIWAN.
- 396** Preparation of Hyaluronan/Collagen II Microsphere by Using a Parallel Electrostatic Field System
S. Kuo, J. Chen, I. Manousakas, S. Chang, C-W. Lan; Department of Biomedical Engineering, I-SHOU University, Kaohsiung County, TAIWAN.
- 397** Biocompatibility Study of Novel Poly(ethylene oxide) Hydrogels
R. S. King¹, J. Ward², V. Sekharipuram¹, M. Hanes¹; ¹DePuy Orthopedics, Inc., Warsaw, IN, ²Univ. of Toledo, Toledo, OH.
- 398** Morphological Evaluation of Superporous Poly(vinyl alcohol) Cryogels
S. J. Laurencin¹, S. Maher², A. Lowman¹; ¹Drexel University, Philadelphia, PA, ²The Hospital for Special Surgery, New York, NY.
- 399** The Role of Water in Elastic Recovery of Injectable PNIPAAm-based Hydrogels
J. D. Thomas¹, G. W. Fussell², A. M. Lowman¹, M. Marcolongo¹; ¹Drexel University, Philadelphia, PA, ²Synthes Spine, West Chester, PA.
- 400** Functionalization of Oligo(poly(ethylene glycol)fumarate) Hydrogels with Finely Dispersed Calcium Phosphate Nanocrystals for Bone-substituting Purposes
S. C. G. Leeuwenburgh¹, J. A. Jansen¹, A. G. Mikos²; ¹Radboud University Nijmegen Medical Center, Nijmegen, THE NETHERLANDS, ²Rice University, Houston, TX.
- 401** *In Vitro* Chondrogenic Differentiation of Rabbit Marrow Stromal Cells Encapsulated in Oligo(poly(ethylene glycol) fumarate) Injectable Hydrogel Composites
H. Park¹, J. S. Temenoff², A. G. Mikos¹; ¹Rice University, Houston, TX, ²Georgia Institute of Technology, Atlanta, GA.
- 402** Characterization of Hydrogel-Conductive Polymer Recognitive Interpenetrating Networks
C. L. Bayer, N. A. Peppas; The University of Texas at Austin, Austin, TX.
- 403** Inhibition of Protein Diffusion in 3-D Hydrogel Arrays for Tissue Engineering
W. J. King, W. L. Murphy; The University of Wisconsin, Madison, WI.
- 404** Uniform Microparticulate Hydrogels for Drug Delivery
M. Bae; R. Gemeinhart University of Illinois at Chicago, Chicago, IL.
- 405** Evaluation of Carbon Dioxide Sterilization of a Model Hydrogel
A. Jimenez, M. A. Matthews; University of South Carolina, Columbia, SC.
- 406** Hyaluronic Acid-Based Hydrogels for Scar-Free Tendon Repair
A. Skardal, Y. Lin, G. D. Prestwich; University of Utah, Salt Lake City, UT.
- 407** Reusable Microfabricated Parylene-C Stencils for Controlling the Cell Microenvironment
B. Rajalingam¹, D. Wright², Y. Ling³, S. Selvarasah⁴, M. R. Dokmeci¹, A. Khademhosseini³; ¹Harvard Medical School, Boston, MA, ²Massachusetts Institute of Technology, Cambridge, MA, ³Harvard-MIT, Cambridge, MA, ⁴Northeastern University, Boston, MA.
- 408** Long Term Viability of Alginate-Microencapsulated Schwann Cell Line RT4-D6P2T
E. S. Ereifej, R. C. de Guzman, P. VandeVord; Wayne State University, Detroit, MI.

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- 409** A Cell-Laden Microfluidic Hydrogel for Tissue Engineering and Diagnostics
Y. Ling¹, J. Rubin², A. Khademhosseini¹; ¹Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, ²MIT, Cambridge, MA.
- 410** Micromolding of Fast-gelling Hydrogels for 3D In Vitro Studies and Bottom-up Tissue Engineering
G. Talei Franzesi; Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA.
- 411** 3D Vascularized Tissue Printing by Piezoelectric Droplet Generation
G. Montesano^{1*}, G. Lee^{1*}, G. Percin², S-S. Yoo³, A. Khademhosseini¹, U. Demirci³; ¹Massachusetts Institute of Technology, Cambridge, MA, ²Los Altos, CA, ³Harvard Medical School, Cambridge, MA, *Co-first authors
- 412** Effect of Keratocyte Presence on the Mechanical Properties of Micropatterned Collagen Films
E. Vrana¹, A. El Sheikh², N. Builles³, O. Damour³, V. Hasirci¹; ¹Metu Biomat, Ankara, TURKEY, ²Dundee University, Dundee, UNITED KINGDOM, ³Eduard Herriot Hospital, Lyon, FRANCE.
- 414** A Trail to Enhance Osteogenic Differentiation of Mesenchymal Stem Cells by Combinational Technology of Gene Therapy and Microfluidic System
H. Hosseinkhani; National Institute for Materials Science (NIMS), Tsukuba, JAPAN.
- 415** Surfactant-assisted Imprinting for Fabricating Bioactive Gel Micropatterns
Y-C. Chung; National Univerfity of Kaohsiung, Kaohsiung, TAIWAN.
- 416** Biodegradable Micro-fluidic Sheet Devices for Controlled Delivery of Growth Factor
W. Ryu¹, Z. Huang², A. Palmquist³, F. Prinz¹, S. Goodman², R. Fasching¹; ¹Rapid Prototyping Laboratory, Mechanical Engineering, Stanford University, Stanford, CA, ²Orthopedic Surgery, School of Medicine, Stanford University, Stanford, CA, ³Material Science-Biomaterials, University of Göteborg, Göteborg, SWEDEN.
- 418** Ultra Smooth Nanocrystalline Diamond Coatings for Dental Implant Applications
S. A. Chowdhury, W. C. Clem, S. A. Catledge, P. S. Johnson, A. W. Eberhardt, S. A. Luque, J. E. Lemons, Y. K. Vohra; University of Alabama at Birmingham, Birmingham, AL.
- 419** Separation of Mesenchymal Stem Cells on a Novel Ligand-immobilized Material
A. Mahara, T. Yamaoka; National Cardiovascular Center Research Institute, Suita, JAPAN.
- 420** Development of a Micro-Encapsulation System for Controlled Cell Delivery
L. Draghi, D. Brunelli, S. Farè, M. C. Tanzi; Politecnico di Milano, Milano, ITALY.
- 421** Development of Novel Bioanalytical System Based on QCM for Single Cell/Materials Interactions
E. Watarai, R. Matsuno, T. Konno, M. Takai, K. Ishihara; The University of Tokyo, Tokyo, JAPAN.
- 422** Controlling Polymer Properties and Cellular Interactions through Poly(beta-amino ester) Macromer Structure
D. M. Brey, I. E. Erickson, A. Tan, J. A. Burdick; University of Pennsylvania, Philadelphia, PA.
- 423** Tailorable Recognitive Biomaterials Synthesized via Free Radical and Living/Controlled Polymerization
A. Vaughan, K. Noss, M. E. Byrne; Auburn University, Auburn, AL.
- 424** Reversible Attachment of Bioactive Molecules to Polymer Surfaces
T. J. Sill, I. Makovey, H. A. von Recum; Case Western Reserve University, Cleveland, OH.
- 425** Cellular Responses of Smooth Muscle Cells to Epigallocatechin Gallate-releasing Bioresorbable Polymer and Its Cellular Mechanism
H-H. Cho¹, D-W. Han¹, K. Matsumura¹, D-Y. Jung², N. Nakajima¹, S. Tsutsumi¹, S-H. Hyon¹; ¹Institute for Frontier Medical Sciences, Kyoto University, Kyoto, JAPAN, ²National Institute of Health Sciences, Tokyo, JAPAN.
- 426** Polymer Systems Tuned to Endothelial Progenitor Cell Adhesion
D. E. Heath¹, A. N. Veleva², C. Patterson³, J. Lannutti¹, S. Cooper¹; ¹The Ohio State University, Columbus, OH, ²North Carolina State University, Raleigh, NC, ³University of North Carolina at Chapel Hill, Chapel Hill, NC.
- 427** Effects of Substrate Composition and Structure on the Mechanical Properties of Cardiomyocytes in 2D Culture
D. Dean¹, A. Vertegel¹, T. Borg², B. Z. Gao¹; ¹Clemson University, Clemson, SC, ²University of South Carolina, Columbia, SC.
- 429** The Effects of Fibronectin on Cell Adhesion to the Substrata with Nano-grooves/ridges structure
W-B. Tsai¹, Y-C. Ting¹, J-Y. Yang²; ¹National Taiwan University, Taipei, TAIWAN, ²National Nano Device laboratories, Hsin-Chu, TAIWAN.
- 430** Physico-Chemical and Biological Characterization of Blends of L-tyrosine based Polyurethanes and Polyphosphate for Biomedical Applications
P. N. Shah, S. T. Lopina, Y. H. Yun; The University of Akron, Akron, OH.
- 431** Biocompatibility of Silicone Implants Sterilized by Gamma Radiation
T. A. Pinto¹, Á. S. Cruz², J. C. Azevedo¹; ¹College of Pharmaceutical Sciences – University of São Paulo, São Paulo, BRAZIL, ²Instituto Adolfo Lutz, São Paulo, BRAZIL.
- 432** Biocompatibility and Bioactivity of Novel Composite for Prosthesis Femoral Stems
M. N. Bureau¹, S. Dimitrievska², J-G. Legoux³; ¹Industrial Materials Institute, National research Council Canada, Boucherville, PQ, CANADA, ²École Polytechnique, Montreal, PQ, CANADA, ³Industrial Materials Institute, National Research Council Canada, Boucherville, PQ, CANADA.
- 433** The Effect of Surface-Modified Nano-Hydroxyapatite on Mechanical Properties and Biocompatibility of Hybrid Nanocomposites
H. Lee; Korea Institute of Ceramic Engineering and Technology, Seoul, REPUBLIC OF KOREA.
- 434** Biocompatibility Evaluation of Ti-15Mo-1Bi Alloy in Rabbit Femur
J-H. Chern Lin; National Cheng-Kung University, Tainan, TAIWAN.
- 435** In Vitro Cytotoxicity of Single-Walled Carbon Nanotube/Poly(Propylene Fumarate) Nanocomposites
X. Shi, B. Sitharaman, Q. P. Pham, J. L. Hudson, L. J. Wilson, J. M. Tour, A. G. Mikos; Rice University, Houston, TX.
- 436** Protein Adsorption on Carbon Nanotube-polyurethane Composites
Y. Ma¹, H. Chen¹, T. Zhang², Z. Wu¹, Y. Wang¹; ¹School of Materials Science and Engineering, Wuhan University of Technology, Wuhan, CHINA, ²Nanjing University, Nanjing, CHINA.
- 437** Plasma-enhanced Synthesis of Bactericidal Quaternary Ammonium Groups
S. N. Jampala, S. Manolache, M. A. Sarmadi, F. S. Denes; University of Wisconsin-Madison, Madison, WI.
- 438** The Relationship Between Wear and Ion Release for Large Diameter Metal-on-Metal Hip Bearings
J. G. Bowsher¹, T. K. Donaldson², A. Wang³, A. Essner³, I. C. Clarke¹; ¹Loma Linda University, Loma Linda, CA, ²Empire Specialty Orthopaedic Center, Colton, CT, ³Stryker Orthopaedics, N.J., NJ.
- 439** In Vitro Characterization of Highly Porous Poly-L-lactic Acid Coatings for Subcutaneously Implantable Glucose Sensors
H. Koschwanez, W. M. Reichert; Duke University, Durham, NC.
- 440** High-density Bioconjugated Phospholipid Polymer Brushes for Highly Sensitive Immunoassays
M. Takai; The University of Tokyo, Tokyo, JAPAN.
- 441** Nanostructured Phospholipid Polymer Surface for Making a High Sensitive Microdiagnostic Device
K. Nishizawa, M. Takai, K. Ishihara; The University of Tokyo, Tokyo, JAPAN.

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- 442** SU-8 Microstructure for Three-dimension Cell-based Biosensing
L. Wang; University of Georgia, Athens, GA.
- 443** NDGA-reinforced 3D Porous Collagen Scaffold for Implantable Glucose Sensor
Y. Ju, B. Yu, Y. Moussy, F. Moussy; University of South Florida, Tampa, FL.
- 444** Investigation of the Foreign Body Response with an Implanted Biosensor
F. B. Karp¹, N. Bernotski¹, T. Valdes², K. F. Böhringer¹, B. Ratner¹;
¹University of Washington, Seattle, WA, ²University of Connecticut Health Center, Farmington, CT.
- 445** Effect of Thermomechanical Treatment on Mechanical Properties of Ti-15Mo-1Bi alloy
C-P. Ju; National Cheng-Kung University, Tainan, TAIWAN.
- 446** Can the Decrease in Failure Strength Due to Augmentation of Functional Spine Units be Avoided Using Low Modulus Bone Cement?
A. Boger; Synthes GmbH, Oberdorf, SWITZERLAND.
- 447** Effect of Proteoglycans on the Surface Modulus of Agarose Gels: Indentation Testing
T. Saxena, J. Gilbert, J. Hasenwinkel; Syracuse University, Syracuse, NY.
- 448** Analysis of Retrieved UHMWPE Tibial Components from NexGen TKRs
R. M. Garcia¹, P. J. Messerschmitt¹, R. D. Thomas², M. J. Kraay¹, V. M. Goldberg¹, C. M. Rimnac²; ¹University Hospitals Case Medical Center, Cleveland, OH, ²Case Western Reserve University, Cleveland, OH.
- 450** The Relationship Between Nanoindentation Testing Conditions and the Mechanical Properties of Bone
J. Zhang, T. Ovaert; University of Notre Dame, Notre Dame, IN.
- 451** Photocrosslinkable Networks with Tunable Mechanics
J. L. Ifkovits, J. A. Burdick; University of Pennsylvania, Philadelphia, PA.
- 452** Comparison of Chemical and Mechanical Properties of UHMWPE and HDPE after Irradiation and Annealing
M. D. Ridley, M. Hooper, S. Bible, J. P. Moseley; Wright Medical Technology, Arlington, TN.
- 453** A Microstructural Model to Predict the Mechanical Properties of Porous Tantalum Material
Z. Fang, D. Levine, T. Johnson; Zimmer, Inc, Warsaw, IN.
- 454** The Role of the Nucleus Pulposus in Compressive Biomechanics of the Human Lumbar Disc
M. Cannella, S. Allen, M. Marcolongo; Drexel University, Philadelphia, PA.
- 455** Mouse Femoral Intramedullary Injection Model: Technique and Micro CT Scan Validation
S. Zilber, N. Epstein, S-W. Lee, T. Ma, M. Larsen, R. L. Smith, S. Biswall, S. B. Goodman; Stanford University, Paris, FRANCE.
- 456** In Vivo QCT and PET Scanning of the Murine Femur Containing PMMA Particles
S. Zilber, S-W. Lee, R. L. Smith, S. Biswall, S. B. Goodman; Stanford University, Paris, FRANCE.
- 459** Mechanical Properties of the Duplex Stainless Steel Embolization Coil for Thermal Occlusion of Blood Vessel
Y. Kim, J. Park, S. Choi; INJE University, Kimhae City, REPUBLIC OF KOREA.

Biomimetics and Nanoscience: Advances in Protein/peptide-based Biomaterials

- 460** Modeling Diffusion across Basement Membrane Hydrogels
Z. I. Cankova, S. Uriel, G. Papavasiliou, E. M. Brey; Illinois Institute of Technology, Chicago, IL.
- 461** Biomimetic Nanostructured Surfaces for Enhanced Osseointegration
K. C. Popat¹, C. A. Grimes², T. Desai¹; ¹University of California, San Francisco, San Francisco, CA, ²Pennsylvania State University, State College, PA.
- 462** Development of Particles that Simulate a Basement Membrane Surface for Use in Spinner Cell Culture
V. Glattauer, K. A. Cartledge, J. A. Werkmeister, J. A. M. Ramshaw; CSIRO Molecular and Health Technologies, Clayton South, AUSTRALIA.
- 463** Enhanced Chondrogenesis of Mesenchymal Stem Cells in Collagen Mimetic Peptide-Mediated Microenvironment
H. Lee, C. Yu, T. Chansakul, N. Hwang, S. Varghese, J. Elisseff; Johns Hopkins University, Baltimore, MD.
- 464** Collagen-Carbon Nanotube Composite Biomaterials
R. A. Macdonald, C. M. Voge, P. M. Ajayan, J. P. Stegmann; Rensselaer Polytechnic Institute, Troy, NY.
- 465** Charge-directed Targeting of Antimicrobial Protein-nanoparticle Conjugates
R. Satishkumar, A. Vertegel; Clemson University, Clemson, SC.
- 466** Thermoresponsive Protein-like Nanoparticles
C. P. Sharma, K. Kaladhar; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 468** The Relationship between the Ceramic Nanoparticle Loading and Mechanical Properties of Collagen/Hydroxyapatite Nanoparticle Composites
A. Stanishevsky¹, S. Chowdhury¹, H. Yockell-Lelievre², Y. Vohra¹;
¹University of Alabama at Birmingham, Birmingham, AL, ²University of Laval, Quebec, PQ, CANADA.
- 469** Peptide-Functionalised Gold Nanoparticle Assembly for Rapid and Sensitive Protease Detection
L. Koh¹, A. Laromaine¹, M. Murugesan¹, R. V. Ulijn², M. M. Stevens¹;
¹Imperial College, London, UNITED KINGDOM, ²Manchester Materials Science Centre, University of Manchester and UMIST, Manchester, UNITED KINGDOM.
- 470** Tunable, Bio-Inspired Materials for Membrane Protein Storage and Transport
C. A. Kors, M. A. Firestone, P. D. Laible; Argonne National Laboratory, Argonne, IL.

Cell Function on Biomaterial Gradients & Arrays

Biomaterials Education

- 457** ²H Double Quantum Filtering NMR Can Determine Degenerative Changes in the Human Nucleus Pulposus of the Intervertebral Disc
M. Cannella¹, W. Perea², J. Yang², A. J. Vega², T. Polenova², M. Marcolongo¹; ¹Drexel University, Philadelphia, PA, ²University of Delaware, Newark, DE.
- 458** The Effect of Age-related Microstructural Changes on Constitutive Behavior of Human Renal Arteries
Y. Yuan¹, T. Topoleski¹, W. Mergner², L. Li³; ¹UMBC, Baltimore, MD, ²University of Maryland Medical School, Baltimore, MD, ³Office of the Chief Medical Examiner, Baltimore, MD.

- 471** Enhanced Osteoblast Function and Infiltration into Nanostructured Titania/Poly(lactide-co-glycolide) Aerosol 3D Printed Orthopedic Tissue Engineering Scaffolds
H. Liu, T. J. Webster; Brown University, Providence, RI.
- 472** Inducing Directional Axon Growth with Laser Micropatterned Neuroattractant-repellant Eluting PLGA Microspheres in PDMS Microchannels
A. J. Sweeney, R. K. Pirlo, K. J. L. Burg, B. Z. Gao; Clemson University, Clemson, SC.
- 473** Myoblast Morphology and Differentiation on Topography with Model Chemistry and Chemical Patterns
J. L. Charest, A. J. Garcia, W. P. King; Georgia Institute of Technology, Atlanta, GA.

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- 474** Combinatorial Characterization of Osteoblast Attachment on Micropatterned Polyurethanes
G. A. Wingkono, C. Meredith; Georgia Institute of Technology, Atlanta, GA.
- 475** Directing Naïve T Cell Migration Via Patterned Nanoparticles Carrying Immobilized Chemokine
Y-C. Huang, D. Irvine; MIT, Cambridge, MA.
- 476** Controlled Generation of Chemokine Gradients in 3D Matrices for Directing T Cell Migration
Y. Wang, D. J. Irvine; MIT, Cambridge, MA.
- 477** Effects of Microstructured Topography on the Differentiation of H945RB.3 Human Neural Progenitor Cells
Z-Z. Wu¹, Y. Zhao², W. S. Kisaalita²; ¹(1) The University of Georgia, (2) Chongqing University, Athens, GA, ²The University of Georgia, Athens, GA.
- 478** Effect of Scaffold Architecture and Time on Cell Viability in the Interior of Tissue Engineering Constructs
T. S. Karande¹, W. Sun², D. D. Dean³, C. Agrawal⁴; ¹The University of Texas at Austin, Austin, TX, ²Drexel University, Philadelphia, PA, ³The University of Texas Health Science Center at San Antonio, San Antonio, TX, ⁴The University of Texas at San Antonio, San Antonio, TX.
- 479** Localized Mechanical Strain Gradients in Type-I Collagen Biomaterials Around a Sharp Notch Under Tension
J. Lee, M. Shaw; California Lutheran University, Thousand Oaks, CA.
- 480** Optimizing Tissue Scaffold Composition for X-ray-Based Imaging
C. G. Simon, Jr.¹, Y. Yang¹, S. M. Dorsey¹, G. E. Schumacher², G. M. Flaim², J. Kohn³, S. Lin-Gibson¹, M. L. Becker¹; ¹NIST, Gaithersburg, MD, ²ADA, Gaithersburg, MD, ³Rutgers University, Piscataway, NJ.
- 481** Cell Migration and Contraction Behavior in Collagen-GAG Scaffolds: Influence of Microstructure and Stiffness
B. A. Harley¹, H-D. Kim², M. H. Zaman³, I. V. Yannas², D. A. Lauffenburger², L. J. Gibson²; ¹Children's Hospital, Boston, Boston, MA, ²Massachusetts Institute of Technology, Cambridge, MA, ³University of Texas at Austin, Austin, TX.
- 482** Generating Protein Gradients on Polymeric Nanofibrous Scaffolds for Neural Tissue Engineering
C. Valmikinathan, N. G. Golwala, X. Yu; Stevens Institute of Technology, Hoboken, NJ.
- 483** Focal Adhesions of Fibroblasts on Dynamic Surfaces: An Additional Approach for Tissue Engineering
M. F. Cannas, M. Bosetti, F. Boccafroschi; Università degli Studi del Piemonte Orientale, Novara, ITALY.
- 484** Photo-immobilized Epidermal Growth Factor for Directed Keratinocyte Migration and Accelerated Wound Closure
T. J. Stefonek, K. S. Masters; University of Wisconsin-Madison, Madison, WI.
- 485** Rapid Assessment of Dental Polymers Using Gradient Samples
N. J. Lin, P. L. Drzal, S. Lin-Gibson; National Institute of Standards and Technology, Gaithersburg, MD.
- 486** Effect of Cyclic Uniaxial Strains on Neurite Development in PC12 Cells Cultured on Deformable Micro-Textured Substrates
G. Zhang, F. Haq, C. Keith; University of Georgia, Athens, GA.
- 488** Preferential Protein Binding to Peptide-Imprinted Polysiloxane Scaffolds
M. E. Brown, D. A. Puleo; University of Kentucky, Lexington, KY.
- 489** Controlling Immobilization of BMP on PLGA Scaffolds via Heparin
R. Hilliard, M. Leedy, D. Puleo; University of Kentucky, Lexington, KY.
- 491** Investigation of Protein Immobilization on Nitrilotriacetic acid (NTA)-terminated Self-assembled Monolayers by Time-of-Flight Secondary Ion Mass Spectrometry and Principal Component Analysis
F. Cheng¹, L. J. Gamble², D. G. Castner²; ¹National ESCA and Surface Analysis Center For Biomedical Problems, Departments of Chemical Engineering, University of Washington, Seattle, WA, ²National ESCA and Surface Analysis Center For Biomedical Problems, Departments of Chemical Engineering and Bioengineering, University of Washington, Seattle, WA.
- 492** Phenotype Shift of Chondrocyte Monolayer Cultures in Polystyrene Surface is Associated with Increased Adhesive Ability
D. S. Kaplan¹, V. M. Hitchins¹, B. J. Nalls¹, S. C. Wood¹, R. Y. Au², R. Grzanna³, R. A. Malinauskas³, C. G. Fronzoza²; ¹FDA, Rockville, MD, ²Nutramax Laboratories, Inc., Edgewood, MD, ³RMG Biosciences, Baltimore, MD.
- 493** The Use of Interfacial Peptide Coatings for Vascular Device Applications
S. R. Meyers¹, D. J. Kenan², M. W. Grinstaff¹; ¹Boston University, Boston, MA, ²Duke University Medical Center, Durham, NC.
- 494** Fibronectin Silanized Titanium Enhances Fibroblast Attachment.
C. A. Middleton, C. J. Pendegrass, D. Gordon, J. Jacobs, G. Blunn; Centre for Biomedical Engineering, University College London, Stanmore, Middlesex, UNITED KINGDOM.
- 495** Hormonal Regulation of a New Cell Model to Examine Mechanisms of Human Blastocyst Initial Attachment
D. M. Phelan; Drexel University, Philadelphia, PA.
- 496** Transforming Growth Factor-beta2 Interaction with Plasma Sprayed Hydroxyapatite: Binding and Release Characteristics at Different pH
A. S. Viridi, M. M. Tamarau, K. Sena, D. R. Sumner; Rush University Medical Center, Chicago, IL.
- 497** Release of Bovine Serum Albumin (BSA) from Alginate-Ca2+/PNIPAAm Hydrogels
E. C. Muniz, Sr.; Universidade Estadual de Maringá, Maringá, BRAZIL.
- 498** In Vitro Cytokine-Associated Immune Response to Biomaterials
R. J. Schutte, A. Parisi-Amon, W. Reichert; Duke University, Durham, NC.
- 499** Engineering Biomimetic Substrates for Immunotherapies
A. P. Acharya; University of Florida, Gainesville, FL.
- 502** Windowed Umbrella Sampling Algorithm for the Calculation of Peptide/Surface Adsorption Free Energy
F. Wang, S. J. Stuart, R. A. Latour, Jr.; Clemson University, Clemson, SC.

Dental/Craniofacial

- 503** Nanoindentation of Hydrated Mineralized Tissues – Effect of Fluid on Mechanical Properties.
M. E. Dickinson; Hysitron Inc., Minneapolis, MN.
- 504** Leaching of Glass Filler Particles from Aged Dental Composites
T. Lim, M. Zhou, J. Drummond; University of Illinois at Chicago, Chicago, IL.

Drug Delivery

- 505** The Effects of Continuous Sustained Release of DHEA and DHEAS on Male Rat Reproductive Tissue
H. Bnghuzzi, M. A. Tucci; University of Mississippi Medical Center, Jackson, MS.

Controlled Interactions of Proteins and Peptides with Biomaterial Surfaces

- 487** High Affinity Binding Peptides for Bone Morphogenic Protein
P. T. Hamilton¹, G. Orgambide¹, R. E. Bensen¹, M. Dey¹, A. Solan¹, R. Hyde-DeRuyscher¹, W. Beyer¹, Y. Chen¹, J. Hodges¹, S. D. Cook²; ¹Affinergy, Inc., Research Triangle Park, NC, ²Tulane Medical Center, New Orleans, LA.

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506 Delivery of Esterogen Benzoate (EB) and EB plus PROGETERONE by Means of ZNCAP Drug Delivery System Using an Osteoporotic Rat Model H. BENGHUIZZI¹, M. A. TUCCI¹, B. ENGLAND²; ¹University of Mississippi Medical Center, Jackson, MS, ²University of Michigan Medical Center, Ann Arbor, MI.

Drug/biomedical Device Combination Products

507 Potential of Biological Material Translocation with Medical Devices J. Broom¹, J. Stopek², M. Soltz¹, T. Wenchell¹, D. Racenet¹; ¹Autosuture, North Haven, CT, ²Syneture, North Haven, CT.

508 Comparing Bioactivity between Biomaterials J. Tierney, J. Hodde; Cook Biotech Inc., West Lafayette, IN.

509 In Vivo Wound Healing Treatments Using Biocompatible Nanofibers Immobilized with Epidermal Growth Factor (EGF) J. Choi, J. Lee, J. Han, H. Yoo; Kangwon National University, Chuncheon, REPUBLIC OF KOREA.

510 Ethoxyethylmethacrylate-Based Copolymers A Novel Platform for Drug-Eluting Stent Coatings P. Cheng¹, A. Driessen², E. Tijmsa³, K. Udipti¹, A. Hezi-Yamit¹, C. Sullivan¹, J. Wong¹, J. Wilcox¹; ¹Medtronic Vascular, Santa Rosa, CA, ²Medtronic Corporate Science and Technology, Endepolsdomein 5, Maastricht, NETHERLANDS ANTILLES, ³Medtronic Corporate Science and Technology, Endepolsdomein 5, NETHERLANDS ANTILLES.

511 Preparation and Mechanical Testing of an Antimicrobial Coated External Fixation Pin T. R. Meyer, G. A. Juda, W. J. Paul; Bacterin International, Inc., Belgrade, MT.

512 Development of Novel Drug Eluting Coating for a Dual Drug Eluting Stent J. McClain; Micell Technologies, Inc., Raleigh, NC.

513 Bacterial Colonization of Suture Biomaterials with Varied Substrate Architecture and Chemistry J. Stopek¹, J. Migliozi¹, C. Cai¹, A. Irfan¹, S. Tsai¹, J. Hotter¹, J. Thomas²; ¹Syneture, North Haven, CT, ²West Virginia University, Morgantown, WV.

514 Evaluation of Non-hormonal Contraceptive Rings in Rabbits G. T. Hilas, J. Corbett, S. D. Nagatomi, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.

515 Absorbable Polymers from Functionalized Paracetamol R. S. Bezwada; Bezwada Biomedical, LLC, Hillsborough, NJ.

516 Absorbable Poly Naproxen R. S. Bezwada; Bezwada Biomedical, LLC, Hillsborough, NJ.

517 Absorbable Polymers from Functionalized Natural Products R. S. Bezwada; Bezwada Biomedical, LLC, Hillsborough, NJ.

518 Absorbable Polymers from Functionalized Salicylic Acid R. S. Bezwada; Bezwada Biomedical, LLC, Hillsborough, NJ.

519 Evaluation of Setting Times for Combinations of Bone Void Fillers Mixed with Antibiotics J. L. Simon, J. Shah, J. Sharobiem; Biomet, Inc., Parsippany, NJ.

520 Evaluation of Drug Release Profiles for Combinations of Antibiotics and Calcium Sulfate Bone Cements J. L. Simon, J. Shah; Biomet, Inc., Parsippany, NJ.

521 Biomimetic Nanocoatings as Novel Drug Delivery Systems B. Jiang, B. Li; Department of Orthopaedics, School of Medicine, West Virginia University, Morgantown, WV.

522 Vancomycin Adsorption and Desorption to 3D Printed Calcium Phosphate Ceramics U. Gbureck¹, E. Vorndran¹, F. A. Mueller², J. E. Barralet³; ¹University of Wuerzburg, Wuerzburg, GERMANY, ²University of Erlangen-Nuernberg, Erlangen, GERMANY, ³McGill University, Montreal, PQ, CANADA.

523 Two-phase Controlled Release of Gentamicin from a Bioabsorbable Elastomeric Film D. Armbruster, X. Liu, P. Schaut; Synthes, West Chester, PA.

524 *In Situ* Setting Polymer/Ceramic Composite Bone Cements for Controlled Release of Simvastatin M. Fulmer¹, X. Liu¹, E. Gruskin¹, M. Lepre²; ¹Synthes Inc., West Chester, PA, ²Synthes Europe, Oberdorf, SWITZERLAND.

525 Drug Releasing from Biocompatible Phospholipid Polymer Reserver on Titanium Alloy for Cardiovascular Stent T. horie, T. Konno, M. Takai, K. Ishihara; The University of Tokyo, Tokyo, JAPAN.

526 Effectiveness and Stability of OptiChem® Poly (ethylene glycol) – Coatings Against Bacterial Adhesion I. C. Saldarriaga Fernández; University Medical Center Groningen, and University of Groningen, Groningen, THE NETHERLANDS.

High Throughput Screening Methodologies for Biomaterials

527 Heterogeneous Cell Diagnosis Using Laser Guidance J. M. Roman, K. J. L. Burg, B. Z. Gao; Clemson University, Clemson, SC.

528 Standardized Methods for Characterizing Immune Responses of THA Revision Tissues R. M. Baxter; Drexel University, Philadelphia, PA.

529 Selection and Optimization of Antibody Fragments for Biosensor Applications Using Phage Display E. Eteshola, J. Shapiro, L. J. Brillson, S. C. Lee; The Ohio State University, Columbus, OH.

530 Non Destructive, Multi-length Scale Characterization of Biomaterials with Novel Micro and Nano-CTs S. Lau; Xradia Inc, Concord, CA.

Implant Pathology

531 Targeted Binding of Material-Based Staphylococcus Epidermidis Infections C. M. Hofmann, J. M. Anderson, R. E. Marchant; Case Western Reserve University, Cleveland, OH.

532 The Effects of PMMA on MG-63 Osteoblast Cell Function and Morphology M. A. Tucci, H. Benghuzzi; University of Mississippi Medical Center, Jackson, MS.

Nano and Microparticulate Drug Delivery

533 Production of Degradable Microcarriers with Pore Channels for the Skeletal Treatment Hae-Hyoung Lee, H-W. Kim, Dankook University, Cheonan, REPUBLIC OF KOREA.

534 Incorporation of Osteogenic Protein-1 Plasmid into Chitosan Nanoparticles for Non-Viral Gene Transfer to Chondrocytes X. Xu¹, R. M. Capito², M. Spector³; ¹Jiangsu University, Zhenjiang, MA, ²Massachusetts Institute of Technology, Cambridge, MA, ³VA Boston Healthcare System, Boston, MA.

POSTER PRESENTATIONS

- 535** Biotin-conjugated Block Copolymeric Nanoparticles for Tumor-targeted Drug Delivery System
S. Kim¹, J. Kim¹, Y. Lee²; ¹Korea Institute of Ceramic Engineering and Technology, Seoul, REPUBLIC OF KOREA, ²Hanyang University, Seoul, REPUBLIC OF KOREA.
- 536** Hydrophobic Drug Delivery: Micelles of poly(ethylene glycol-b-propylene sulfide) as Vehicles of Cyclosporin A
D. Velluto; Laboratory for Regenerative Medicine and Pharmacobiology(LMRP),EPFL, Lausanne, SWITZERLAND.
- 537** Magnetic Nanoparticles as a Template for In Vivo Nanomedical Systems
M. M. Seale, L. M. Reece, C. Cooper, J. F. Leary; Purdue University, West Lafayette, IN.
- 538** Development of Bone-Targeting Nanoparticles for Bone Cancer Therapies
N. K. Vail, G. Rossini, S. Crumlett, J. Trevino; Southwest Research Institute, San Antonio, TX.
- 539** Self Assembled Nanoparticles Based on Chitosan and Anacardic Acid for Oral Insulin Delivery
R. Shelma, W. Paul, C. P. Sharma; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 540** Amphiphilic Zinc Calcium Phosphate Nanoparticles for Oral Insulin Delivery
W. Paul, C. P. Sharma; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 541** Study of Sterically Stabilized Phospholipid Simple and Mixed Micelles as Nanocarriers for Peptide Drugs
S. Lim, I. Rubinstein, H. Önyüksel; UIC, Chicago, IL.
- 543** Effects of Heavy Metals in the Development of Multi-functional Microparticles with Deformable Properties
T. Thula, G. Schultz, C. Batic; University of Florida, Gainesville, FL.
- 544** Cisplatin Incorporated PLGA Nanoparticles for Local Drug Delivery
A. J. Darr, A. Jayasuriya; University of Toledo, Toledo, OH.
- 545** Particulates of Calcium Phosphate/Cisplatin Overcome Drug Resistance of A2780cis Cells
L. Kuhn, X. Cheng; University of Connecticut Health Center, Farmington, CT.
- 546** In Vivo Evaluation of Immune Activation by Novel Biodegradable Polymer Djuvants
J. Wilson, M. P. Torres, S. Lopac, M. Modest, M. Wannemuehler, S. K. Mallapragada, B. Narasimhan; Iowa State University, Ames, IA.
- 547** A New Predictive Model for Drug Release Based on Void Growth and Coalescence: A Continuum and Ensemble Approach
W. J. Federspiel, S. N. Rothstein, S. R. Little; University of Pittsburgh, Pittsburgh, PA.
- 549** Injectable Sol Gel Controlled Release Carrier for the Delivery of Small Pharmaceuticals
M. Ni¹, S. Radin¹, A. Zeiger², P. Ducheyne¹; ¹University of Pennsylvania, Philadelphia, PA, ²Thomas Jefferson University, Philadelphia, PA.
- 550** Emulsified Sol-Gel Microspheres for Controlled Drug Delivery: In Vitro Release and Stability
S. Radin, T. L. Chen, P. Ducheyne; University of Pennsylvania, Philadelphia, PA.
- 552** In Vitro Loading and Release Study of Liposome-based Nanoparticles for their Potential Use in Protein Delivery
Z. S. Haidar¹, F. Azari², R. C. Hamdy³, M. Tabrizian²; ¹Faculty of Dentistry/McGill University, Montreal, PQ, CANADA, ²Faculty of Medicine/McGill University, Montreal, PQ, CANADA, ³Shriner's Hospital for Children, Montreal, PQ, CANADA.
- 553** Antibody-Directed and Ultrasonically-Activated Drug Carrier
D. S. Lewis, W. G. Pitt; Brigham Young University, Provo, UT.
- 554** Green Synthesis of Silver Nanoparticles
O. C. Wilson, Jr.¹, A. Pfeffer¹, J. Kambuga¹, H. Iravani¹, K. Kennedy¹, P. Mehl¹, W. Anderson², A. Gugsas²; ¹The Catholic University of America, Washington, DC, ²Howard University, Washington, DC.
- 555** Solubilization of 17-Allylamino-17-demethoxygeldanamycin in Biocompatible and Biodegradable Sterically Stabilized Phospholipid Mixed Micelles – A Novel Nanomedicine for Treatment of Breast Cancer
P. Mohanty, I. Rubinstein, H. Onyüksel; University of Illinois at Chicago, Chicago, IL.
- 556** Synthesis and Characterization of 'Smart' Microgels that Respond to pH and Temperature Changes
T. Omura, A. S. Hoffman, P. S. Stayton; University of Washington, Seattle, WA.
- 557** Novel Magnetic Resonance Imaging Contrast Agents Using Fatty Acid
J. Yang, Y-M. Huh, H-G. Yoon, S. Haam; Yonsei Univ., Seoul, REPUBLIC OF KOREA.
- 559** Nanodevices for Targeted Delivery of Tissue Plasminogen Activator to Blood Clots
E. Andreozzi¹, Y. Yurko², G. Thompson², A. Vertegel²; ¹Bucknell University, Lewisburg, PA, ²Clemson University, Clemson, SC.
- 560** Specific Targeting of Microglia with Quantum Dots
K. C. Papat, B. Sun, Y. Zhou, L. Mucke, T. Desai, L. Gan; University of California, San Francisco, San Francisco, CA.
- 561** HA-PLGA Nanoparticles As Novel Drug Carrier for Cancer Therapeutics
J. Park; Pohang University of Science and Technology, Pohang, REPUBLIC OF KOREA.
- 562** Nanoshells Targeted with Anti-PSMA for Prostate Cancer Therapy
A. M. Gobin, C. B. Williams, J. L. West; Rice University, Houston, TX.
- 563** Development of Triazine-based Cationic Lipid for Gene Delivery
G. Candiani¹, M. Frigerio², F. Viani¹, D. Pezzoli¹, C. Pellegrini¹, C. Sala¹, C. Verpelli¹, M. Zanda¹; ¹C.N.R., Milan, ITALY, ²Politecnico, Milan, ITALY.
- 564** Factors Affecting Calcium Phosphate Nanoparticle Mediated Gene Transfection
C. E. Pedraza; McGill University, Montreal, PQ, CANADA.
- 565** Effect of Acrylic Acid as a pH-sensitive Moiety on Paclitaxel Release from Hydrotropic Micelles
S. Kim, J. Kim, X. Wei, K. Park; Purdue University, West Lafayette, IN.
- 567** An Arginine-based poly(aminoglycerol ester) Facilitates the Transport of Genetic Information Across the Cell Membrane of Lung Epithelial Cells
B. J. Zern; Georgia Institute of Technology, Atlanta, GA.
- 568** Immuno-Nanoparticles by Diels-Alder Chemistry
M. Shi, M. S. Shoichet; University of Toronto, Toronto, ON, CANADA.
- 569** Nanoparticle-mediated Topical Delivery of Methylprednisolone After Contusion Injury to the Spinal Cord
Y-T. Kim, S. A. Chvatal, A. Bratt-Leal, R. V. Bellamkonda; Georgia Institute of Technology and Emory University, Atlanta, GA.

Nanoparticles for Imaging and Drug Delivery

- 551** Acid-Sensitive Polymeric Nanospheres for Drug Delivery
A. P. Griset, M. W. Grinstaff; Boston University, Boston, MA.
- 570** Polyketals: A New Family of Polymers for Drug Delivery
N. Murthy, M. Heffernan, S. Yang, S. Lee, S. Khaja; Georgia Tech, Atlanta, GA.

POSTER PRESENTATIONS

Orthopaedic Biomaterials

- 571** Backside Polyethylene Wear: The Influence of Different Surface Finish on Debris Morphology and Size Distribution
F. Billi¹, S. Aust², E. Ebrahimzadeh¹; ¹Orthopaedic Hospital UCLA, Los Angeles, CA, ²DePuy Orthopaedics, Inc., Warsaw, IN.
- 572** Crystallinity Changes of UHMWPE Acetabular Liners in a Hip Simulator Study with Roughened Heads
A. Jedenmalm¹, S. Affatato², P. Taddei³, C. Fagnano³, A. Toni²; ¹Royal Institute of Technology, Stockholm, SWEDEN, ²Istituto Ortopedici Rizzoli, Bologna, ITALY, ³Università di Bologna, Bologna, ITALY.
- 573** Modulation of Prostaglandin E-2 Production by Chondrocytes on Solid Collagen Microcarriers
P. V. Phan¹, J. L. Demko², E. A. Kramer³, R. McLaughlin², C. G. Frondoza¹; ¹Nutramax Laboratories, Inc., Edgewood, MD, ²Mississippi State University, Mississippi State, MS, ³Johns Hopkins University, Baltimore, MD.
- 574** Evaluation of the Effect of Femoral Head Size on Sequentially Cross-linked Acetabular Liners
L. Herrera, R. Lee, J. Longaray, A. Essner, A. Wang, J. Dumbleton, J. D'Antonio, W. Capello; Stryker Orthopaedics, Mahwah, NJ.
- 575** Soluble Metal Debris Induce Pro-inflammatory Cytokine Secretion in Human Monocytes Similar to Particulate Debris
M. S. Caicedo, A. Tarabishi, A. Reddy, J. J. Jacobs, N. J. Hallab; Rush University Medical Center, Chicago, IL.
- 576** In Vitro Interaction Between Brushite Calcium Phosphate Cement and Osteoclasts
D. Le Nihouannen¹, G. Uwe², S. Komarova¹, J. Barralet¹; ¹McGill University, Montréal, PQ, CANADA, ²University of Würzburg, Würzburg, GERMANY.
- 577** Validation and Quantification of an In Vitro Model of Continuous Infusion of Sub-Micron Sized Particles
S. G. Ortiz, T. Ma, R. L. Smith, S. B. Goodman; Stanford Medical School, Stanford, CA.
- 578** Wear of Pyrocarbon and Metal Against Cortical Bone in a Joint Simulator
R. B. More¹, J. Klawitter¹, S. D. Cook², S. Salkeld²; ¹Ascension Orthopedics, Austin, TX, ²Fellowship of Orthopaedic Researchers, Metairie, LA.
- 579** Nanoindentation of Microstructural Elements in Bone Cement
T. Topoleski, J. Gurganus; UMBC, Baltimore, MD.
- 580** The Effects of Serum Protein Concentration on the Wear Rates in a Hip Simulator
K. R. St. John; University of Mississippi Medical Center, Jackson, MS.
- 581** Histologic and Mechanical Evaluation of a Calcium Phosphate Bone Cement in a Sheep Vertebroplasty Model
H. Kobayashi¹, T. Fujishiro¹, N. Kobayashi¹, S. Turner², H. Seim, III², J. Zitelli³, M. Hawkins³, S. Belkoff⁴, T. W. Bauer¹; ¹The Cleveland Clinic Foundation, Cleveland, OH, ²Colorado State University, Fort Collins, CO, ³Stryker Orthopaedics Corporation, Mahwah, NJ, ⁴Johns Hopkins University, Baltimore, MD.
- 583** Biodegradable Microfibers Containing Hydroxyapatite Nanospheres for Bone Tissue Engineering
H. Tong, M. Wang; The University of Hong Kong, Hong Kong, HONG KONG.
- 584** Modeling the Crystallization Kinetics of an Injectable Calcium Phosphate Cement from FTIR and XRD Data
M. R. Strunk¹, M. Geiger², A. Hina¹; ¹ETEX Corporation, Cambridge, MA, ²Wyeth Corporation, Andover, MA.
- 585** Multiwall Carbon Nanotubes Enhance the Fatigue Performance of Methyl Methacrylate Copolymer
B. Marrs, R. Andrews, D. Pienkowski; University of Kentucky, Lexington, KY.
- 586** Thermal Reactions of Brushite Cements
M. Bohner¹, U. Gbureck²; ¹Robert Mathys Foundation, Bettlach, SWITZERLAND, ²University of Würzburg, Würzburg, GERMANY.
- 587** BMSCs Function on 3D Porous PLGA Scaffolds Coated with Bone-like Minerals through Rapid Mineralization
C. B. Shah, N. A. Ebrahim, C. A. Jayasuriya; The University of Toledo, Toledo, OH.
- 588** UHMWPE Tibiofemoral Contact Area Comparison of Different Designs in High Flexion
T. S. Johnson, K. Mimnaugh; Zimmer, Inc., Warsaw, IN.
- 589** Keratinocyte Growth and Expression of Adhesion Complex Molecules is Influenced by Titanium Alloy Surface Topography
C. Pendegrass, D. Gordon, S. Ng Man Sun, C. Middleton, G. Blunn; University College London, Stanmore, Middlesex, UNITED KINGDOM.
- 590** Stripe Wear Analyses in Large-diameter Ceramic-on-Ceramic Bearings in Microseparation Simulator Mode
D. D. Green, P. A. Williams, I. C. Clarke; Loma Linda Medical University, Loma Linda, CA.
- 591** Developing CNTs-Ti-based Biosensors for Monitoring Orthopedic Tissue Growth
S. Sirivisoot, C. Yao, X. Xiao, B. W. Sheldon, T. J. Webster; Brown University, Providence, RI.
- 592** Severe Corrosion and Hydrogen Embrittlement of Retrieved Modular Body Titanium Alloy Hip-implants
D. B. C. Rodrigues¹, R. M. Urban², J. J. Jacobs², J. L. Gilbert¹; ¹Syracuse University, Syracuse, NY, ²Department of Orthopedic Surgery, Rush University Medical Center, Chicago, IL.
- 593** Restoration of Marrow Varies with Bone Graft Materials
Z. Schwartz¹, T. Doukarsky-Marx¹, E. Nasatzky¹, J. Goultschin¹, D. C. Greenspan², J. Sela³, D. M. Ranly³, B. D. Boyan³; ¹Hebrew University Hadassah, Jerusalem, ISRAEL, ²NovaMin, Inc., Alachua, FL, ³Georgia Institute of Technology, Atlanta, GA.
- 594** In Vitro Mineralization of PEUR and PEUR/DBM Composite Foams
A. Srinivasan¹, J. Kwan¹, E. Walsh¹, S. Mc Bride¹, A. E. Hafeman², S. A. Guelcher³, J. O. Hollinger³; ¹Carnegie Mellon University, Pittsburgh, PA, ²Vanderbilt University, Nashville, TN.
- 595** Biocompatibility of a Silicone-polycarbonate-urethane Used in a Prosthetic Lumbar Spinal Disc
K. White¹, R. Ward¹, K. Zimmers², S. Coviello¹, T. Ngo¹, R. Ward¹, Y. Tian¹; ¹Polymer Technology Group, Berkeley, CA, ²AxioMed Spine Corporation, Garfield Heights, OH.
- 596** Evaluation of Bone Regeneration within a Critical-Sized Calvarial Defect in Athymic Rats Utilizing a DBM/AM Composite
Q-Q. Qiu¹, H. V. Mendenhall², D. S. Garlick², J. Connor¹; ¹LifeCell Corporation, Branchburg, NJ, ²Charles River Laboratories, Worcester, MA.
- 597** MHC-Class II Expression in Macrophages/Monocytes is Affected by Both Soluble and Particulate Metal Implant Debris
M. S. Caicedo, J. J. Jacobs, N. J. Hallab; Rush University Medical Center, Chicago, IL.
- 598** High Density Grafting of Nano-polymer Makes Ultra-longevity for Artificial Joints
M. Kyomoto¹, T. Moro², T. Konno², H. Kawaguchi², Y. Takatori², K. Nakamura², F. Miyaji¹, K. Ishihara²; ¹Japan Medical Materials Corporation, Osaka, JAPAN, ²The University of Tokyo, Tokyo, JAPAN.

POSTER PRESENTATIONS

- 599** Mechanical Properties of Highly Crosslinked UHMWPE Blended With Vitamin E
A. S. Rufner, D. L. Pletcher, T. L. Rowe, H. E. Brinkerhuff, M. E. Hawkins; Zimmer, Inc., Warsaw, IN.
- 601** Shear, Tensile and Fatigue Properties of a Titanium Foam Coating on Ti6Al4V Substrates
D. Scholvin, R. Obert, M. Carroll, J. Moseley; Wright Medical Technology, Inc., Arlington, TN.
- 602** Oxidative Stability of Highly Crosslinked UHMWPE Blended with Vitamin E
R. A. Pals, D. L. Pletcher, R. A. Gsell, H. E. Brinkerhuff, M. E. Hawkins; Zimmer, Inc., Warsaw, IN.
- 603** Preparation of Bioresorbable Magnesium-substituted Tricalcium Phosphate Ceramics
X. Zhang, K. S. Vecchio; University of California, San Diego, La Jolla, CA.
- 604** A Unified Approach for Evaluation of UHMWPE Performance in a Hip Simulator Using Wear Volume and Debris Size Distribution: Effect of Fabrication Method
P. Williams, I. C. Clarke; Loma Linda University, Loma Linda, CA.
- 605** Pyrophosphate Modification Prevents Long Term Stability of Brushite Cement
L. M. Grover¹, J. Rose², D. F. Farrar³, U. Gbureck⁴, J. E. Barralet⁵; ¹University of Birmingham, Birmingham, UNITED KINGDOM, ²Smith and Nephew, Memphis, TN, ³Smith and Nephew, York, UNITED KINGDOM, ⁴University of Wuerzburg, Wuerzburg, GERMANY, ⁵McGill University, Montreal, PQ, CANADA.
- 606** Morphological Characterization and Corrosion Resistance of NiTi Foams for Biomedical Applications
S. Fare¹, L. de Nardo², M. F. Brunella³, G. Rondelli³, A. Cigada³, P. Jardine⁴, L. Yahia⁵; ¹Bioengineering Dept, Politecnico di Milano, Milan, ITALY, ²Chemistry, Materials and Chemical Engineering Dept, Politecnico di Milano, Milan, ITALY, ³National Research Council, CNR-IENI, Milan, ITALY, ⁴ShapeChange Technologies LLC, Thousand Oaks, CA, ⁵LIAB, Ecole Polytechnique, Montreal, PQ, CANADA.
- 607** Effects of Big-Ball Concepts for Wear of New Crosslinked UHMWPE Cups under the Microseparation Wear Mode
D. D. Green¹, A. G. Gustafson², I. C. Clarke¹; ¹Loma Linda Medical University, Loma Linda, CA, ²Gustafson Orthopaedics, Loma Linda, CA.
- 608** Dynamic Mechanical Studies of Injection Molded and Gamma Sterilized PEEK and PEEK Composites
K. Zhang, M. E. Wallick, D. L. Pletcher, H. E. Brinkerhuff, M. E. Hawkins; Zimmer Inc., Warsaw, IN.
- 609** Surface Characterization of a Bioactive Composite: Theory for Mechanism of Action of Bone Bonding
M. M. Darmoc, E. M. Erbe, G. M. Nagvajara, R. S. Owsiany; Orthovita, Inc., Malvern, PA.
- 610** The Use of Sirius Red for Plastic Histology of the Intervertebral Disc
T. P. Schaer; University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA.
- 611** Electron Beam Crosslinking of UHMWPE-Vitamin E Blends
D. L. Pletcher, R. A. Gsell, R. A. Pals, H. E. Brinkerhuff, M. E. Hawkins; Zimmer, Inc., Warsaw, IN.
- 612** Gender Differences Impact the In-Vivo Head Penetration of Conventional and Cross-linked Polyethylene in Total Hip Arthroplasty
R. W. McCalden¹, J-M. Brandt², K. D. J. Charron¹, E. P. Harvey³, S. MacDonald¹, R. Bourne¹, C. Rorabeck¹, D. Chess¹; ¹University of Western Ontario, London, ON, CANADA, ²University of Waterloo, London, ON, CANADA, ³University of Waterloo, Waterloo, ON, CANADA.
- 613** Polyethylene Wear is Affected by the Type of Calf Serum used in Knee Simulator Wear Testing
J-M. Brandt¹, K. Charron², L. Zhao³, S. MacDonald², S. Koval³, J. Medley¹; ¹University of Waterloo, London, ON, CANADA, ²University of Western Ontario, London, ON, CANADA.
- 615** Submicron and Micron Sized Particle Can be Represented as a Composite of Two Distributions
P. Williams, I. C. Clarke; Loma Linda University, Loma Linda, CA.
- 616** Mechanical Response of Bone Surrounding Osteochondral Graft: A Finite Element Study
D. L. Levine¹, J. Gao², J. Q. Yao²; ¹Zimmer, Inc., Warsaw, IN, ²Zimmer, Inc., Austin, TX.
- 617** Fiber Loaded Calcium Phosphate Cement Improves the Structural Integrity of Defect- Filling Cement Mass under Simulated Dural Pulsation
H. Zandifar¹, M. J. Allen¹, K. A. Mann¹, M. Fulmer², D. Armbruster², E. Jacobson², P. Schaut³, S. A. Tatum¹; ¹State University of New York, Syracuse, NY, ²Synthes Biomaterials, West Chester, PA, ³Synthes Biomaterial, West Chester, PA.
- 618** Wear Particle Analysis of Supercritical Carbon Dioxide Sterilized UHMWPE from Total Knee Replacement Simulation
J. D. Desjardins, J. Hemmer, M. Drews, M. LaBerge; Clemson University, Clemson, SC.
- 619** Improved Allograft Bone Incorporation by Continuous Infusion of OP-1 and FGF
T. Ma¹, J. Gutnick², B. Salazar³, D. Larsen¹, E. Suenaga¹, S. Zilber¹, Z. Huang¹, J. Huddleston¹, R. L. Smith¹, S. B. Goodman¹; ¹Stanford University, Stanford, CA, ²Pennsylvania State University, Pennsylvania, PA, ³University of Illinois at Urbana-Champaign, Champaign, IL.
- 620** Bulk Mechanical Properties of a Novel Titanium Foam
D. Scholvin, R. Obert, M. Carroll, J. Moseley; Wright Medical Technology, Inc., Arlington, TN.
- 621** Impact Test for Ceramic Femoral Heads with and without Adapter Sleever
N. Dong¹, F. Boucher¹, T. Alexander¹, M. Moindreau¹, A. Wang¹, P. Sharkey², M. A. Kester¹; ¹Stryker Orthopaedics, Mahwah, NJ, ²Rothman Institute, Philadelphia, PA.
- 622** Gelatin Coupled with Silane as a New Tissue Engineering Scaffolds
B. Kwon, Z. Yang, M. E. Nimni, B. Han; University of Southern California, Los Angeles, CA.
- 623** Identification of Optimal Tissue Digestion Methods for Polyethylene Wear Debris Analysis
R. M. Baxter; Drexel University, Philadelphia, PA.
- 624** Osteoblast Response to Pulsed Electromagnetic Fields is Substrate Dependent
B. D. Boyan, M. Fisher, R. Olivares-Navarrete, G. Barabino, B. J. Simon, Z. Schwartz; Georgia Institute of Technology, Atlanta, GA.
- 625** Serum Composition Affects the Fluid Uptake and Wear of Polyethylene in Total Knee Simulator Testing
J-M. Brandt¹, K. Charron², L. Zhao³, S. MacDonald², J. Medley¹; ¹University of Waterloo, London, ON, CANADA, ²University of Western Ontario, London, ON, CANADA.
- 626** Bending Fatigue Properties of Nanoprocessed CP Titanium Spine Rods
J. A. Disegi¹, J. A. Thomas², L. D. Zardiackas³; ¹Synthes USA, West Chester, PA, ²University of Mississippi Medical Center, Jackson, MS, ³University of Mississippi Medical Center, Jackson, MS.
- 627** Preliminary Results of the A-CLASS™ Advanced Metal on Metal Bearing Serum Ion Study
J. J. Jacobs, A. Skipor; Rush University Medical Center, Chicago, IL.

POSTER PRESENTATIONS

- 628** Enhanced Osteoblast Proliferation by Bioactive Glass Particles is Associated with Modulation of the Immediate-Early Gene c-Jun
A. Y. Au¹, R. Y. Au¹, J. L. Demko², R. McLaughlin², B. E. Eves¹, C. G. Frondoza¹; ¹Nutramax Laboratories, Inc., Edgewood, MD, ²Mississippi State University, Department of Veterinary Science, Mississippi State, MS.
- 629** The Relationship Between Pre- and Postoperative Flexion Utilizing Three Cruciate-Retaining Knee Prostheses
D. M. Stormont¹, K. J. Chillag², J. W. Scott³, M. A. Klaassen⁴, W. S. Pietrzak⁵; ¹Orthopedics and Sports Medicine, Monroe, WI, ²Moore Orthopedic Clinic, P.A., Columbia, SC, ³Georgia Sports Medicine and Orthopedic Clinic, P.C., Tifton, GA, ⁴OSMC, Elkhart, IN, ⁵Biomet, Warsaw, IN.
- 630** Development of Chitosan/hydroxyapatite Composite Membranes for Guided Bone Regeneration
S-H. Teng, H-E. Kim; Seoul National University, Seoul, REPUBLIC OF KOREA.
- 631** In Vitro and In Vivo Biocompatibilities of the Granule Type Porous TCP Bone Graft Substitutes Fabricated by Fibrous Monolithic Process
H-Y. Song; School of Medicine, Soonchunhyang University, cheonan, REPUBLIC OF KOREA.
- 632** Mechanical Properties of Micro-textured Carbide Surfaces on a CoCrMo Substrate Using Nanoindentation
Y. Amanuel, T. Topoleski; UMBC, Baltimore, MD.
- 633** Proepicardial Cells Modulate the Osteogenic Potential of BMS Cells in Aligned Collagen I Scaffold
M. T. Valarmathi, J. D. Potts, M. J. Yost, R. L. Goodwin, E. Jabbari; University of South Carolina, Columbia, SC.
- 634** Effects of Vitamin E on the Formation of Residual Radicals in Irradiated T-UHMWPE
M. D. Ridley, M. Jahan; University of Memphis, memphis, TN.
- 635** Observation of New Residual Radicals in Irradiated UHMWPE
M. S. Jahan, M. Fuzail, M. D. Ridley; The University of Memphis, Memphis, TN.
- 636** Can We Trust Hip Simulator Predictions: Ceramic-on-Ceramic Micro-Separation Wear Model?
S. McKenzie, P. Williams, D. D. Green, I. C. Clarke; Loma Linda University, Loma Linda, CA.
- 637** Modeling the Effect of Coating on the Contact in Artificial Hip Joints
Y. Liu¹, M. Wimmer², J. Jacobs², Q. Wang¹, A. Martini¹; ¹Northwestern University, Evanston, IL, ²Rush University Medical Center, Chicago, IL.
- 638** Preserving Particle Size Volume Distribution Data At Low Sample Masses Using Low Angle Laser Light Scattering (Lalls) Analysis
N. J. Hallab, Sr., I. Samee, A. Reddy, J. J. Jacobs; Rush University Medical Center, Chicago, IL.
- 639** Osteoprogenitors Are Inhibited by Direct Exposure to Polymethylmethacrylate Particles or by Soluble Factors Released from Particle-Activated Macrophages
R. Chiu, T. Ma, R. L. Smith, S. B. Goodman; Stanford University School of Medicine, Stanford, CA.
- 640** Soluble Molybdenum Can Induce an Adaptive Immune Response
M. S. Caicedo, A. Reddy, J. J. Jacobs, N. J. Hallab; Rush University Medical Center, Chicago, IL.
- 641** Wear Reduction of Large Head Metal-on-Metal Implants in a Hip Simulation Study
Y-S. Liao; DePuy Orthopaedics, Inc., Warsaw, IN.
- Polysaccharide-Based Biomaterials**
- 643** Elastogenic Cues Provided by TGF- β and HA Oligomers Significantly Enhance Vascular Elastin Matrix Synthesis
C. Kothapalli¹, R. T. Smolenski², P. Taylor², S. Yacoub³, A. Ramamurthi¹; ¹Clemson University, Charleston, SC, ²Imperial College of London, Harefield, UNITED KINGDOM.
- 644** Impact of Delivery Mode on Fragment Size Effects of Hyaluronan on Vascular Endothelial Cell Function
S. Ibrahim¹, M. Craps², A. Ramamurthi¹; ¹Clemson University, Charleston, SC, ²Clemson University, Clemson, SC.
- 646** Morphological and Growth Responses of Vascular Smooth Muscle Cells Cultured on Immobilized Heparin and Dextran Sulfate Surfaces
I. S. Robu¹, H. L. Walters², H. W. T. Matthew³; ¹Wayne State University, Detroit, MI, ²Childrens Hospital of Michigan, Detroit, MI.
- 649** Pluronic-based Hydrogel in Chondrogenesis of Adipose-derived Stem Cells
H. Jung¹, K. Park², J. Son², B. Kim¹, J. Rhie³, K. Ahn², D. Han²; ¹Hanyang University, Seoul, REPUBLIC OF KOREA, ²Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, ³Catholic University, Seoul, REPUBLIC OF KOREA.
- 650** Incorporation of Gelatin into Self-Assembled Copper-Capillary Alginate Gel Scaffolds Enables Stem Cell Adhesion
B. J. Willenberg, F-W. Meng, T. Zheng, M. D. Weiss, D. A. Steindler, C. Batich, N. Terada; University of Florida, Gainesville, FL.
- 651** Biocompatible and Tunable Elastic Hyaluronic Acid Hydrogel for Adult Stem Cell Differentiation
F. Rehfeldt, A. J. Engler, D. E. Discher; University of Pennsylvania, Philadelphia, PA.
- 652** Polyethylene Glycol Diacrylate/Hyaluronic Acid semi-IPNs Support Increased Cell Spreading and Proliferation
J. K. Kutty, E. Cho, J. Lee, K. Webb; Clemson University, Clemson, SC.
- 653** Encapsulation of Nucleus Pulposus Cells in Photocrosslinked Alginate Hydrogels: Cell Viability and Extracellular Matrix Production
A. I. Chou, S. B. Nicoll; University of Pennsylvania, Philadelphia, PA.
- 654** GDNF-Blended Chitosan Nerve Guides Promote Both Motor and Sensory Regeneration
M. Patel, L. Mao, B. Wu, P. J. VandeVord; Wayne State University, Detroit, MI.
- 655** Osteoblast Cell Differentiation and Matrix Mineralization in Response to Hyaluronic Acid Hydrogels
S. Bencherif, A. Srinivasan, J. Kwan, E. Walsh, S. McBride, J. Hollinger, N. Washburn; Carnegie Mellon University, Pittsburgh, PA.
- 656** Multifunctional Hydrogels that Promote Osteogenic hMSC Differentiation Through Stimulation and Sequestering of BMP2
D. S. W. Benoit¹, S. D. Collins², K. S. Anseth³; ¹University of Colorado, Boulder, CO, ²University of Delaware, Newark, DE, ³University of Colorado, Howard Hughes Medical Institute, Boulder, CO.
- 657** Purified Chitosan Bone Filler Increases Bone Formation Rates in Bone Defects
J. Ochoa¹, J. A. Szivek², C. P. Geffre², D. S. Margolis², D. W. DeYoung², J. T. Ruth²; ¹University of Illinois at Chicago, Chicago, IL, ²University of Arizona, Tucson, AZ.
- 658** Osteoblast Phenotype and Collagen Production is Enhanced on Composite Chitosan/calcium Phosphate Scaffolds
B. M. Chesnutt¹, Y. Yuan¹, Y. Yang², J. L. Ong³, W. O. Haggard¹, J. D. Bumgardner¹; ¹University of Memphis, Memphis, TN, ²University of Tennessee Health Science Center, Memphis, TN, ³University of Texas San Antonio, San Antonio, TX.

POSTER PRESENTATIONS

- 659** A Nanostructured Degradable Hydrogel Composite for Osseous Regeneration
S. A. Hutchens¹, R. S. Benson¹, H. O'Neill², B. R. Evans², C. J. Rawn¹;
¹University of Tennessee, Knoxville, TN, ²Oak Ridge National Laboratory, Oak Ridge, TN.
- 660** A Novel Heparinized Chitosan/PLAGA Scaffold for Bone Tissue Engineering
T. Jiang, C. T. Laurencin; University of Virginia, Charlottesville, VA.
- 661** Injectable Chitosan-Pluronic® Hydrogel for Cartilage Regeneration
K. Park¹, S. Lee², D. Go³, Y. Joung³, M. Lee², K. Park³; ¹Dept. of Biomedical Engineering, Ajou university, Suwon, REPUBLIC OF KOREA, ²Dept. of Orthopedic Surgery, Seoul National University, College of Medicine, Seoul, REPUBLIC OF KOREA, ³Dept. of Molecular Science and Technology, Ajou university, Suwon, REPUBLIC OF KOREA.
- 662** Injectable Temperature-Sensitive Hydrogels for Cartilage Tissue Engineering
X. Huang, A. Sanghvi, Z. Guo, J. Gao, J. Q. Yao; Zimmer, Inc., Austin, TX.
- 663** A Biodegradable Hydrogel Encapsulating IGF-I Transfected Chondrocytes for Cartilage Tissue Engineering
X. Huang¹, C. Wang², Z. Guo², A. N. Sullivan², J. Gao¹, S. B. Trippel², J. Q. Yao¹; ¹Zimmer, Inc., Austin, TX, ²Indiana University School of Medicine, Indianapolis, IN.
- 664** Fabrication and Characterization of Porous Hyaluronic Acid-Collagen Composite Scaffolds
S. Tang¹, S. Vickers², H-P. Hsu³, M. Spector³; ¹Jinan University, Guangzhou, CHINA, ²Massachusetts Institute of Technology, Cambridge, MA, ³VA Boston Healthcare System, Boston, MA.
- 665** In Vitro Growth and Viability of Cells Encapsulated within Hyaluronic Acid-based Hydrogels
K. R. Pomraning¹, X. Shu², M. A. Firpo², Q. Dai², G. D. Prestwich², R. A. Peattie¹; ¹Oregon State University, Corvallis, OR, ²University of Utah, Salt Lake City, UT.
- 666** Photocrosslinkable Fibronectin-Hyaluronic Acid Hydrogels as 3D Scaffolds
R. R. Rosenberger, C. T. Drinnan, S. K. Seidlits, J. M. Heisler, L. J. Suggs, C. E. Schmidt; University of Texas at Austin, Austin, TX.
- 667** Non-toxic In Situ Gelable Hydrogels Formulated from Oxidized Dextran and N-Carboxyethyl Chitosan
L. Weng, W. Chen; Department of Biomedical Engineering, Stony Brook, NY.
- 668** Preparation of Magnetic Polyelectrolyte Nanoparticles and Their Application to Magnet-induced Injectable Gels
Y-C. Chung; National University of Kaohsiung, Kaohsiung, TAIWAN.
- 669** Injectable Sclerosing Agent: A New Strategy to Prevent Endoleak After Endovascular Aneurysm Repair
M-C. Bonneviot, G. Soulez, J. Raymond, S. Lerouge; CRCHUM-centre de recherche de l'université de Montréal, Montreal, PQ, CANADA.
- 670** Hemorrhage Control Using an Internal Chitosan Hemostatic Dressing in Hepatic Injuries in Swine
L. D. Lucchesi¹, H. Xie¹, J. Teach¹, P-C. Wu¹, S. Shrimpton¹, K. Shultz¹, G. Hillis¹, R. Rowe¹, A. Burke², J. Guo¹, K. Gregory¹; ¹Oregon Medical Laser Center, Portland, OR, ²CV Path, Gaithersburg, MD.
- 671** Biodegradable Adhesive Composed of Polysaccharide and Polyamino Acid S-H. HYON; Frontier Medical Sciences, Kyoto, JAPAN.
- 672** Evaluation of the In Vivo Residence and In Vitro Degradation Characteristics of a Unique Divinyl Sulfone Modified Hyaluronan
E. M. Skrabut¹, S. M. Dethlefsen¹, L. Yu¹, M. J. Colt¹, R. Corazzini¹, J. Boney², L. Yang¹, A. Wan¹, E. Voschin¹, P. A. Konowicz¹; ¹Genzyme, Cambridge, MA, ²Genzyme, Ridgefield, NJ.
- 673** Engineering an Alginate Foam – A New Biocompatible Biomaterial
T. Andersen, M. Dornish; FMC BioPolymer/NovaMatrix, Oslo, NORWAY.
- 675** Layer-by-Layer Nanoshell Build-up onto Human Red Blood Cells
S. Mansouri¹, J. Fatisson¹, Y. Merhi², F. Winnik³, M. Tabrizian¹; ¹McGill University, Montreal, PQ, CANADA, ²Institut de cardiologie de Montreal, Montreal, PQ, CANADA, ³Université de Montreal, Montreal, PQ, CANADA.
- 676** Control of Alginate Microbead Physical Characteristics for Sustained Delivery of Angiogenic Proteins
M. L. Moya¹, E. Opara¹, H. P. Greisler², E. M. Brey¹; ¹Illinois Institute of Technology, Chicago, IL, ²Loyola University Medical Center, Chicago, IL.
- 677** The Effect of Cross-linking on Release of Alkaline Phosphatases of Chitosan Microspheres
Y. Yuan, B. Chesnutt, W. Haggard, J. Bumgardner; The University of Memphis, Memphis, TN.
- 678** Polysaccharide-nanogel Engineering for DDS
K. Akiyoshi, U. Hasegawa, S-i. Sawada, N. Morimoto; Tokyo Medical and Dental University, Tokyo, JAPAN.
- 679** Release of Chondroitin Sulphate from Chitosan-based Complex Hydrogel
E. C. Muniz, Sr.; Universidade Estadual de Maringá, Maringá, BRAZIL.
- 680** Increased Drug Loading of Composite Chitosan/Calcium Phosphate Microspheres by Lyophilization
B. T. Reves, G. Utturkar, Y. Yuan, K. Richelsoff, J. D. Bumgardner, W. O. Haggard; University of Memphis, Memphis, TN.
- 681** Chitosan as an Antibacterial Coating: Tetracycline Release and Activity Against Staphylococci
P. A. Norowski, Jr.¹, H. S. Courtney², Y. Yang³, W. O. Haggard¹, J. D. Bumgardner¹; ¹University of Memphis, Memphis, TN, ²University of Tennessee Health science center, Veterans Affairs Medical center, Memphis, TN, ³University of Tennessee Health Science Center, Memphis, TN.
- 683** Enhanced Wound Healing in Horses and Dogs Using Crosslinked Hyaluronic Acid-Based Hydrogel Films
B. K. Mann¹, J. A. Scott², R. Rees³, J. Brown⁴, M. Seppi⁴, G. Burns⁴, G. D. Prestwich¹; ¹SentrX Animal Care, Salt Lake City, UT, ²Glycosan Biosystems, Salt Lake City, UT, ³South Valley Large Animal Clinic, South Jordan, UT, ⁴University of Utah, Salt Lake City, UT.
- 684** Synthesis of Bioactive Calcium Containing Silica Xerogel/Chitosan Hybrid Materials for Biomedical Application
E-J. Lee, H-E. Kim; Seoul National University, Seoul, REPUBLIC OF KOREA.
- 685** Assay Development and Application for the Determination of Percent Modification of Divinyl Sulfone Modified Hyaluronan Hydrogel
G. Chang¹, J. Boney², P. Konowicz¹, E. Skrabut¹, L. Yu¹, A. Coury¹, P. Jarrett¹; ¹Genzyme Corporation, Cambridge, MA, ²Genzyme Corporation, Ridgefield, NJ.
- 686** The Effect of Different Degrees of Deacetylation and Organic Acids on In Vitro Protein Adsorption of Chitosan Films
N. Brahmamdam;
University of Memphis, Memphis, TN.
- 687** Freeze-drying of Chitosan-PCL Blends Impregnated with Microporous Hydroxyapatite from Algal Origins
P. J. Walsh, F. J. Buchanan, G. M. Walker; Queen's University Belfast, Belfast, UNITED KINGDOM.
- 688** Chitosan-ellagic Acid Composite Films Induce Apoptotic Death in Human Melanoma Cells
S. Kim;
University of Tennessee Health Science Center, Memphis, TN.
- 689** Improvement to the In Vitro Adhesion Test for Chitosan Bandages
P-C. Wu, L. Lucchesi, S. Prah, A. Dayton, K. Gregory;
Oregon Medical Laser Center, Portland, OR.

POSTER PRESENTATIONS

- 690** Synthesis and Rheological Characterization of Disulfide Crosslinked Hyaluronan Hydrogels
S-Y. Choh, C. Wang;
University of Minnesota, Minneapolis, MN.

Protein Adsorption on Microdevice

- 691** Quantifying Surface-Absorbed Protein Structure by Hydrogen-Deuterium Exchange
M. T. Cicerone, J. R. Smith, C. Meuse;
NIST, Gaithersburg, MD.
- 692** Engineering Biomaterial Surfaces for Controlled Release of Therapeutics
H. F. O. Diniz, A. Majumder, A. A. Weiner, V. P. Shastri;
Vanderbilt University, Nashville, TN.

Protein and Cells at Interfaces

- 693** Cytokine Production from Lymphocyte/Macrophage Interactions with Biomaterial Surfaces
D. T. Chang¹, J. A. Jones¹, E. Colton¹, I. K. Kwon², T. Matsuda³, J. M. Anderson¹; ¹Case Western Reserve University, Cleveland, OH, ²Purdue University, West Lafayette, IN, ³Kyushu University, Fukuoka, JAPAN.
- 694** Modulating Macrophage Response to Wear Particles to Mitigate Peri-Implant Osteolysis
T. Zaveri, A. Acharya, B. Keselowsky;
University of Florida, Gainesville, FL.
- 695** Application of α_1 Integrin Deficient Cells in Evaluating Cytokine-Mediated Response to Networks Conjugated with Fibronectin-Derived Peptides
H. Waldeck, W. J. Kao;
University of Wisconsin – Madison, Madison, WI.
- 696** Differential Response of Epithelial Cells to Surfaces Containing Both Cell-Cell and Cell-Matrix Ligands
J. Tsai, L. R. Patel, L. Kam;
Columbia University, New York, NY.
- 697** Influence of Fiber Size of Silk Fibroin Scaffolds on Endothelial Cells Response
S. Fuchs¹, B. Bondar¹, A. Motta², C. Migliaresi², C. J. Kirkpatrick³;
¹Institute of Pathology, Mainz, GERMANY, ²Department of Materials Engineering and Industrial Technologies, University of Trento, Trento, ITALY, ³Johannes Gutenberg University, Mainz, GERMANY.
- 698** Fibroblast Response to PLLA Nanotopographies is Enhanced by Edge Density and Proximity
K. R. Milner, C. A. Siedlecki;
Milton S Hershey Medical Center, Hershey, PA.
- 699** Platelet Adhesion to Nanotextured Polyurethane under Pulsatile Flow
K. R. Milner, A. J. Snyder, C. A. Siedlecki;
Milton S Hershey Medical Center, Hershey, PA.
- 700** Solution-phase Interaction of FXII and Prekallikrein in Material-induced Coagulation
K. Chatterjee¹, J. L. Thornton¹, E. A. Vogler², C. A. Siedlecki¹; ¹Penn State College of Medicine, Hershey, PA, ²Penn State University, University Park, PA.
- 701** Bone Morphogenetic Protein-2 Absorption Influenced by Varying Carboxyl Surface Density via Base Hydrolysis of Poly(lactic-co-glycolic acid)
M. W. Irvin; University of Kentucky, Lexington, KY.
- 702** Quantification of Exudate T Lymphocyte Subpopulations to Biomaterial Implants by Flow Cytometry
A. Rodriguez¹, G. Voskerician², H. Meyerson¹, S. MacEwan¹, J. Anderson¹; ¹Case Western Reserve University, Cleveland, OH, ²Procy Biomedical Limited, Galway, IRELAND.
- 703** Focal Adhesion Kinase, Proline-Rich Tyrosine Kinase-2, Thrombospondin, and Fascin-1 Expression in Adherent Macrophages and Foreign Body Giant Cells
S. R. MacEwan, A. K. McNally, J. M. Anderson; Case Western Reserve University, Cleveland, OH.

- 704** The Interaction Between Hydrolytic and Oxidative Pathways in Macrophage-mediated Polyurethane Degradation
J. E. McBane¹, J. P. Santerre², R. S. Labow³; ¹University of Ottawa, Ottawa, ON, CANADA, ²University of Toronto, Toronto, ON, CANADA, ³University of Ottawa Heart Institute, Ottawa, ON, CANADA.

Protein Polymers and DNA Based Nanostructures

- 705** Modified Multi-Arm Poly(Ethylene Glycol) Nanopatterns for Unidirectional Actin Polymerization
K. L. Christman¹, B. Brough¹, T. Wong¹, C. M. Kolodziej¹, J. G. Forbes², K. Wang², C-M. Ho¹, H. D. Maynard¹; ¹University of California Los Angeles, Los Angeles, CA, ²NIH, Bethesda, MD.

Regenerative Medicine and Clinical Translation

- 706** A New Concept for In Vivo Self-endothelialization of Vascular Prostheses by Immobilized DNA-aptamers Working as Capture Molecules for Circulating Endothelial Progenitor Cells
H. P. Wendel;
University of Tuebingen, Tuebingen, GERMANY.
- 707** Development of Naturally Derived Biomaterial Scaffold for Tissue Engineered Blood Vessel
S. Yazdani, Y. Jarajapu, M. Machingal, B. Watts, M. Van Dyke, G. Christ;
Wake Forest University School of Medicine, Winston Salem, NC.
- 708** Nonhuman Primate Progenitor Cells: Implications for Vascular Disease Therapy
K. Williams, P. Baptista, D. Lee, D. Rapp, A. Atala, S. Soker;
Wake Forest University School of Medicine, Winston Salem, NC.
- 709** Osteogenic Differentiation of Placenta-Derived Adherent Cells (PDACs) on 3D Calcium Phosphate based Scaffolds
M. Pereira, P. Patel, Q. Ye, S. D. Abramson, Q. Liu, W. Hofgartner, R. Hariri;
Celgene Cellular Therapeutics, Summit, NJ.
- 710** Towards a Novel Bone Repair Product: Using Human Placental Derived Adherent Cells (PDACs) and Mineralized Collagen Matrix
S. D. Abramson¹, P. Leung¹, P. Patel¹, M. Pereira¹, Q. Liu¹, W. Hofgartner¹, R. Hariri²; ¹Celgene Cellular Therapeutics, Summit, NJ, ²Celgene Cellular Therapeutics, Cedar Knolls, NJ.
- 712** Effect of Hydrogel Charge on Marrow Stromal Cell Chondrogenic Phenotypic Expression
J. P. Szatkowski, M. Dadsetan, L. Lu, M. Yaszemski; Mayo Clinic, Rochester, MN.
- 713** Bone Allograft Degradable Polymer Composites
S. Lyu¹, S. Haddock², B. Loy¹, M. Kinnane², C. Hobot¹, A. Simonton², J. Gross²; ¹Medtronic Inc, Minneapolis, MN, ²Medtronic Inc, Memphis, TN.
- 714** Bone Formation Increases with Higher Gap Junction Intercellular Communication
R. A. Rosselló¹, Z. Wang¹, E. Kizana², P. Krebsbach¹, D. Kohn¹; ¹University of Michigan, Ann Arbor, MI, ²Johns Hopkins, Baltimore, MD.
- 715** Cellular and Angiogenesis Therapy for Congenital Heart Disease
S. Neshat-Vahid, A. Milanesi, G. Christ, A. Atala, S. Soker;
Wake Forest University School of Medicine, Winston Salem, NC.
- 716** Keratin Proteins for Antibiotic Release and Bone Regeneration
G. Lim, H. Kincaid, E. Howse, A. Atala, M. Van Dyke;
Wake Forest University School of Medicine, Winston Salem, NC.
- 717** Characterization of Immune Cells Recruited To Injectable Matrices Containing Lymphoid Stromal Cells In Vivo
Y. Hori, D. J. Irvine;
Massachusetts Institute of Technology, Cambridge, MA.

POSTER PRESENTATIONS

- 718** Evaluation of the Effect of Growth Factors in Combinations with Injectable Silicone Elastomer Particles on the Proliferative Activity of Dermal Fibroblasts
J. Robinson¹, K. Richelsoff¹, J. Bumgardner¹, P. Yang², W. Haggard¹;
¹The University of Memphis, Memphis, TN, ²The University of Tennessee, Memphis, TN.
- 719** Comparative In Vivo Evaluation of a Novel Silk Hydrogel Injectable for Drug Delivery
A. L. Collette¹, J. Chen², L. Richey³, H. E. Boepple², J. S. Prudom², R. L. Horan², G. H. Altman²; ¹Tufts University, Medford, MA, ²Tissue Regeneration Inc., Medford, MA, ³Tufts New England Medical Center, Boston, MA.
- 720** Novel Fibers as Structural Templates for Ligament Regeneration
K. D. Sinclair; Clemson University, Clemson, SC.
- 721** Functional Enhancement of Bioreactor Assisted Engineered Skeletal Muscle
G. Christ, S. Zare, D. Moon, W. Zhao, A. Atala, J. Yoo;
Wake Forest University School of Medicine, Winston Salem, NC.
- 722** Development, Characterization and Cell-Seeding of a Novel Biocompatible Scaffold for Tendon and Ligament Reconstruction
P. Whitlock, T. Smith, J. Shilt, G. Poehling, M. Van Dyke;
Wake Forest University School of Medicine, Winston Salem, NC.
- 723** Biologically Active Wound Dressings Derived from Human Hair
M. Van Dyke, W. Whitener, T. Mesen, S. Howse, L. Nanney, J. Molnar;
Wake Forest University School of Medicine, Winston Salem, NC.
- 724** Biocompatibility of Keratin Biomaterials Derived from Human Hair
P. Sierpinski, M. Van Dyke; Wake Forest University School of Medicine, Winston Salem, NC.
- 725** Identification and Effects of Bioactive Factors in Decellularized Collagen Biomaterials
S. Chun, E. Kwak, T. Kwon, G. Lim, A. Atala, J. Yoo;
Wake Forest University School of Medicine, Winston Salem, NC.
- 726** Generation of Heterogeneous Three-dimensional Cellular Constructs Using Ink Jet Technology
T. Xu, W. Zhao, A. Atala, J. Yoo;
Wake Forest University School of Medicine, Winston Salem, NC.
- 731** Phosphorylcholine-Based Nanoparticles Covered with Fluorescence Resonance Energy Transfer System for Smart Bioassay
J. Watanabe¹, K. Ishihara²; ¹Graduate School of Engineering, Osaka University, Osaka, JAPAN, ²School of Engineering, The University of Tokyo, Tokyo, JAPAN.
- 732** The Physical and Mechanical Properties of Basement Membrane Hydrogels
S. Uriel¹, E. Labay², Z. Cankova¹, R. Wang¹, E. M. Brey¹;
¹Illinois Institute of Technology, Chicago, IL, ²University of Chicago, Chicago, IL.
- 733** In vitro Characterization of Polycaprolactone Matrices Generated in Aqueous Media
S. V. Madhally, K. N. Wallace, S. Duguay;
Oklahoma State University, Stillwater, OK.
- 734** Surfactant Effect on Gelation in an In Situ Forming Reverse Emulsion Polymeric System for Tissue Reconstruction
R. Y. McLemore, B. Lee, B. L. Vernon; Arizona State University, Tempe, AZ.
- 735** Model Therapeutic Particle Assemblies with Reversible Linkers
V. T. Milam, C. Tison; Georgia Institute of Technology, Atlanta, GA.
- 736** Self Assembly of Surface Modifying End GroupsTM: Overcoming Limitations of SAMs Applied to Polymeric Medical Devices
K. R. McCrea, R. Ward, Y. Tian, S. Coviello, N. Harjati, J. Parakka, J. Yang;
The Polymer Technology Group, Inc., Berkeley, CA.
- 737** Insights into Mechanisms Controlling PEGylated Fibrin Degradation
S. Collins, L. Suggs, C. Drinnan, T. Turner, E. Mosier;
University of Texas at Austin, Austin, TX.

Surface Modification and Characterization of Biomaterials

- 738** Reduction of Protein Non-Specific Binding to Various Substrate Materials Using OptiChem[®] Coatings
K. Emoto, M. J. Lochhead;
Accelr8 Technology Corporation, Denver, CO.
- 739** Study of Protein Attachment to PolyButylCyanoacrylate Nanoparticles
J. M. Olbrich, R. Satishkumar, A. Versteeg;
Clemson University, Clemson, SC.
- 740** Strain Induced Alterations in Protein Modified Surfaces and Cellular Response
L. M. Pakstis, J. P. Dunkers;
National Institute for Standards and Technology, Gaithersburg, MD.
- 741** Kinetics, Conformation, and Two-step Competitive Protein Adsorption Studies with TiO₂ Crystals Using QCM-D
C. Aparicio;
Technical University of Catalonia (UPC), Barcelona, SPAIN.
- 742** Affinity Peptide for Surface Modification of Polypyrrole
J. D. Nickels, C. E. Schmidt; University of Texas at Austin, Austin, TX.
- 743** Surface Analysis of Model Peptide Adsorption and Orientation on Self-Assembled Monolayer Surfaces
J. S. Apte, L. J. Gamble, D. G. Castner;
University of Washington, Seattle, WA.
- 744** Mass Spectrometric Mapping to Investigate Protein Conformations at Solid/Liquid Interfaces
E. A. Scott, D. L. Elbert;
Washington University, St. Louis, MO.
- 745** Bioactive Surface for Neural Electrodes: Tethering Transforming Growth Factor α_1 to Inhibit Gliosis
M. R. Caplan, C. L. Klaver;
Arizona State University, Tempe, AZ.

Self-Assembling Biomaterials

- 727** Poly(N-isopropylacrylamide-co-PEG Acrylate) Simultaneously Physically and Chemically Gelling Polymer Systems
V. Cheng, B. Lee, B. L. Vernon;
Arizona State University, Tempe, AZ.
- 728** Simultaneously Physically and Chemically Cross-linking Thiol Functionalized N-Isopropylacrylamide with Poly(ethylene glycol) diacrylate for Functional Embolization
S. Robb, B. Lee, R. Y. McLemore, B. L. Vernon; Arizona State University, Tempe, AZ.
- 729** A Novel Self-Assembling Nucleobase Scaffold Coating with Nano-Scale Control
A. M. S. Kumar, S. Sivakova, J. D. Fox, J. E. Green, S. J. Rowan, R. E. Marchant; Case Western Reserve University, Cleveland, OH.
- 730** Self-Assembly of Enzyme Responsive Peptide-Functionalised Gold Nanoparticles
L. Koh, A. Laromaine, M. Murugesan, M. M. Stevens;
Imperial College, London, UNITED KINGDOM.

POSTER PRESENTATIONS

- 746** Effect of Substrate Composition and Compliance on Endothelial Expression of ICAM-1 and E-Selectin
B. G. Kelso, M. R. Caplan;
Arizona State University, Tempe, AZ.
- 747** Biotinylated Fibronectin Aids in Augmentation of Endothelial Cells to Teflon-AF Surface
C. C. Anamelechi, E. Clermont, G. A. Truskey, W. M. Reichert; Duke University, Durham, NC.
- 748** Immobilized Integrin and Syndecan Binding Peptides Co-Modulate Human Corneal Epithelial Cell Response to Nanoscale Topography
T. J. Porri, J. D. Foley, C. J. Murphy, P. F. Nealey;
University of Wisconsin-Madison, Madison, WI.
- 749** Honeycomb-patterned Film Providing a Long-term Hepatocyte Survival and Preservation of Hepatospecific Functions
S. Tsukiyama¹, M. Matsushita², M. Tanaka³, H. Tamura², S. Todo², S. Yamamoto¹, M. Shimomura³; ¹Creative Research Initiative 'Sousei' Hokkaido University, sapporo, JAPAN, ²First Department of Surgery, Hokkaido University Graduate School of Medicine, sapporo, JAPAN, ³Research Institute for Electronic Science, Hokkaido University, sapporo, JAPAN.
- 750** Organic/Inorganic Template-Mediated Mineralization Process
H. Kim, Sr., S. Aryal, Sr., M. Khil, Sr.;
Chonbuk National University, Jeonju, REPUBLIC OF KOREA.
- 751** Controlling Calcium Phosphate Formation on Calcium Silicate Thin Film
I. Han, J. Choi, H. Baik, I-S. Lee;
Yonsei University, Seoul, REPUBLIC OF KOREA.
- 752** O₂ Plasma Treatment on the CoCrMo Alloy
S. Yang, L. Salvati; DePuy Orthopaedics, Inc, Warsaw, IN.
- 753** Novel Surface-modification Technique of Collagen Film for Alteration of Its Surface Property
K. Nam, T. Kimura, A. Kishida; Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, JAPAN.
- 754** The Influence of Nano-metric Roughness of Ti-6Al-4V on the Initial Cell Adhesion Force
T-M. Lee¹, M-C. Shieh², Y-C. Shu³, S-P. Yang¹, C-C. Wang²; ¹Institute of Oral Medicine, National Cheng Kung University, Tainan, TAIWAN, ²Institute of Manufacturing Engineering, National Cheng Kung University, Tainan, TAIWAN, ³Institute of Manufacturing Engineering, National Cheng Kung University, Tainan, TAIWAN.
- 755** An Investigation on Surface Topographies of Materials on Biological Behaviors of Cells
H. Hosseinkhani;
National Institute for Materials Science (NIMS), Tsukuba, JAPAN.
- 756** The Effect of Surface Treatments on the Fretting Behaviour of Titanium
R. Chiesa¹, G. Cotogno², P. Schaaff², M. Dalmiglio², U. Holzwarth²;
¹Politecnico di Milano, Milan, ITALY, ²Joint Research Centre – European Commission, Ispra (VA), ITALY.
- 757** Surface versus Solution-Based C-Succinylation of Polymeric Biomaterials
M. M. Morella, S. D. Nagatomi, P. L. Tate, S. W. Shalaby;
Poly-Med, Inc., Anderson, SC.
- 758** Stability of Self-Assembled Monolayers on Titanium for Biomedical Applications
G. Mani¹, D. M. Johnson¹, D. Marton², V. Dougherty¹, M. Feldman², D. Patel², A. Ayon¹, C. M. Agrawal¹; ¹The University of Texas at San Antonio, San Antonio, TX, ²The University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 759** Surface Grafting of Biocompatible Phospholipid Polymers for Obtaining Excellent Lubrication
K. Kitano, T. Konno, M. Takai, K. Ishihara;
The University of Tokyo, Tokyo, JAPAN.
- 760** Control of Cell Function on Carbohydrate-conjugated Phosphorylcholine Polymer Surfaces
Y. Iwasaki;
Tokyo Medical and Dental University, Chiyoda-ku, Tokyo, JAPAN.
- 762** Layer-by-Layer Assembly for Nitric Oxide Generation Based on Catalytic Decomposition of S-Nitrosothiols by Organoselenium Species
J. Yang, M. E. Meyerhoff; University of Michigan, Ann Arbor, MI.
- 763** Surface Modification of a Titanium Alloy for Reduced Thrombogenicity in Cardiovascular Devices
S. YE, J. Woolley, C. A. Johnson, Jr., T. A. Snyder, W. R. Wagner;
University of Pittsburgh, Pittsburgh, PA.
- 764** The Effects of Plasma-Polymerized Surface Interactions on R1 Mouse Embryonic- Stem-Cell Differentiation
E. Hanley, J. L. Lauer, J. L. Shohet, G. E. Lyons; University of Wisconsin-Madison, Madison, WI.
- 765** Characterization of a Metal-binding Interfacial Peptide Using AFM and QCM-D
X. Khoo¹, D. J. Kenan², M. W. Grinstaff¹;
¹Boston University, Boston, MA, ²Duke University, Durham, NC.
- 766** Interfacial Peptide Coatings Facilitate Biological Control on Material Surfaces
S. R. Meyers¹, D. J. Kenan², A. K. Solan¹, M. W. Grinstaff¹;
¹Boston University, Boston, MA, ²Duke University Medical Center, Durham, NC, ³Affinergy Corporation, Durham, NC.
- 767** Thermoresponsive Polymer Brush Interfaces; Surface Characterization for Controlled Cell Adhesion
A. Mizutani¹, A. Kikuchi², J. Kobayashi³, Y. Akiyama³, M. Yamato³, H. Kanazawa¹, T. Okano³; ¹Kyoritsu University of Pharmacy, Tokyo, JAPAN, ²Tokyo University of Science, Chiba, JAPAN, ³Tokyo Women's Medical University, Tokyo, JAPAN.
- 769** Surface Free Energy Calculations for the Plasma Modified PMMA Surfaces
N. Hasirci, C. Ozcan;
Middle East Technical University, Ankara, TURKEY.
- 770** Functional Changes in Adsorbed Fibrinogen Measured by Adhesion Mode AFM
Z. Rice, P. Soman, C. Siedlecki;
Pennsylvania State University, Hershey, PA.
- 771** In Vitro Biocorrosion of Titanium by Macrophage Cells
D. L. Mueller¹, A. M. Viano¹, J. Bumgardner²;
¹Rhodes College, Memphis, TN, ²University of Memphis, Memphis, TN.
- 772** The Electrochemical Impedance of Polarized 316L Stainless Steel: Structure-Property-Adsorption Correlation
R. T. T. Gettens, P. Patel, J. L. Gilbert; Syracuse University, Syracuse, NY.
- 773** Probing Coating Morphology and Polymer-drug Segregation with Novel Environmental SPM Methodology
G. Haugstad¹, K. Wormuth²;
¹University of Minnesota, Minneapolis, MN, ²Surmodics, Inc., Eden Prairie, MN.
- 775** Immune Cell Response to Cytokine Tethered Non-fouling Surfaces
D. H. Kim, J. Smith, A. Chilkoti, W. M. Reichert;
Duke university, Durham, NC.
- 777** Protein Resistant Surfaces Based on Hydrophilic Polymer Grafts: Investigation by Neutron Reflectometry
W. Feng¹, M-P. Nieh², S. Zhu¹, J. Katsaras², J. L. Brash¹; ¹McMaster University, Hamilton, ON, CANADA, ²Canadian Neutron Beam Centre, Chalk River, ON, CANADA.
- 778** Titanium in Medicine: Electrochemical Treatments for Bacteria Proliferation Control
R. Chiesa¹, C. Giordano¹, L. Visai², M. Pedferri¹, E. Saino³, A. Cigada¹;
¹Politecnico di Milano, Milan, ITALY, ²University of Pavia, Pavia, ITALY, ³University of Pavia, Pavia, ITALY.

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- 779** Biomembrane Mimetic Polymer Layer Constructed on Polydimethylsiloxane: Antibiofouling Characteristics
T. Goda, T. Konno, M. Takai, K. Ishihara; The University of Tokyo, Tokyo, JAPAN.
- 780** Reducing Biological Adhesion to Silicones: New Mechanisms Indicated by Contact Angle Anomalies
A. E. Meyer, R. E. Baier; University at Buffalo, Buffalo, NY.
- 781** Engineered Substratum Topography to Disrupt Bacterial Biofilm Formation
K. Chung, J. Schumacher, E. Sampson, R. Burne, P. Antonelli, A. Brennan; University of Florida, Gainesville, FL.
- 782** Polymer Thickness-dependency of Cell Adhesion on Poly(N-isopropylacrylamide)-grafted Glass Surfaces
K. Fukumori¹, Y. Akiyama², A. Kikuchi², M. Yamato², K. Sakai¹, T. Okano²; ¹Waseda University, Tokyo, JAPAN, ²Tokyo Women's Medical University, Tokyo, JAPAN.
- 783** Antimicrobial Effects of Ag Incorporated Calcium Phosphate Film
I-S. Lee¹, I. Han¹, J-H. Song², M-H. Lee¹, J-C. Park¹, G-H. Lee³, X-D. Sun¹, S-M. Chung²; ¹Yonsei University, Seoul, REPUBLIC OF KOREA, ²KIST, Seoul, REPUBLIC OF KOREA, ³KIMM, Changwon, REPUBLIC OF KOREA, ⁴Tsinghua University, Beijing, CHINA, ⁵Drroot Research Center, Seoul, REPUBLIC OF KOREA.
- 784** Tissue Factor Bearing Microparticles and Biomaterial Thrombogenesis
C. L. Hall, S. Patchipulusu, M. Turturro; Illinois Institute of Technology, Chicago, IL.
- 785** Synthesis, Surface Characterization and in vitro Platelet Compatibility Study of the Self-assembled Monolayer with Lipid-like Zwitterionic Phosphorylcholine Terminal Group
M-Y. Tsai, J-C. Lin; National Cheng Kung University, Tainan, TAIWAN.
- 786** Physical Adsorption of Human Thrombomodulin onto Biomaterials for Developing Blood Compatible Materials
M. Omichi¹, M. Matsusaki¹, I. Maruyama², M. Akashi¹; ¹Osaka University, Osaka, JAPAN, ²Kagoshima University, Kagoshima, JAPAN.
- 787** Cell and Protein Compatibility of Parylene-C Membranes
V. G. Yadav¹, B. Rajalingam², S. De Leo³, A. Mohedas⁴, S. Selvarasah⁵, M. R. Dokmeci⁶, A. Khademhosseini⁶; ¹University of Waterloo, Waterloo, ON, CANADA, ²Harvard Medical School, Boston, MA, ³Louisiana State University, Baton Rouge, LA, ⁴Texas A and M University, College Station, TX, ⁵Northeastern University, Boston, MA, ⁶Harvard-MIT, Cambridge, MA.
- 788** Plasma Polymerized Tetraglyme Shows Improved Blood Compatibility
E. Hanley¹, J. L. Lauer¹, J. L. Shohet¹, R. M. Albrecht¹, S. Esnault¹, J. S. Malter¹, U. H. von Andrian², S. B. Shohet³; ¹University of Wisconsin-Madison, Madison, WI, ²Harvard Medical School, Boston, MA, ³University of California, San Francisco, San Francisco, CA.
- 789** Chondroitin-collagen Coatings to Promote Healing Around Stent-graft in Abdominal Aortic Aneurysms
C. Charbonneau¹, J. E. Gautrot², M-J. Hébert¹, X. X. Zhu², S. Lerouge¹; ¹Centre de Recherche du CHUM/Université de Montréal, Montreal, PQ, CANADA, ²Department of Chemistry/Université de Montréal, Montreal, PQ, CANADA.
- 790** Development of Novel Stent Coating Process using Supercritical Fluid and Dry Powder Electrostatic Coating Methods to Deposit Crystalline Sirolimus
D. Taylor; Micell Technologies, Inc., Raleigh, NC.
- 791** Surface Engineering of Cardiovascular Stents for Multimodal Imaging
T. Soike, Sr., C. Guan, V. P. Shastri; Vanderbilt University, Nashville, TN.
- 792** TGF- β -grafted PLLA Scaffold for Chondrogenic Differentiation of Adipose-derived Stem Cells
K. Cho¹, K. Park¹, J. Son¹, K-D. Ahn¹, I. Kim¹, J. Rhie², D. Han¹; ¹Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, ²Catholic University, Seoul, REPUBLIC OF KOREA.
- 793** Fabrication of Bi-layered PU Scaffold with PEG-grafted Surface for Reconstruction of Tracheal Defects
S-H. Shin; Yonsei University College of Medicine, Seoul, REPUBLIC OF KOREA.
- 794** The Effect of Nitrogen Gas Flow in the Production of Chromium Nitride Coatings Deposited by DC Magnetron Sputtering for Biomedical Implant Applications
S. A. Chowdhury, W. C. Clem, A. Stanishevsky, Y. K. Vohra; University of Alabama at Birmingham, Birmingham, AL.
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- ## Surface Modification and Characterization of Orthopaedic and Dental Implants at the Nano/Micro Scale for Improved Osseointegration
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- 796** Hydrophobic/Hydrophilic Characteristic of Titanium Surfaces: Machined, Dual Acid Etched (Osseotite®), and Dual Acid Etched with Nanometer-scale CaP (NanoTite™)
P. Gubbi, R. Towse, B. Berckmans; 3i-A Biomet Company, Palm Beach Gardens, FL.
- 797** Integrin Alpha-2 Silencing Alters Osteoblast Response to Titanium Microtopography but Not Surface Energy
R. Olivares-Navarrete¹, R. A. Chaudhri¹, J. Chen¹, G. Zhao¹, M. Wieland², B. D. Boyan¹, Z. Schwartz¹; ¹Georgia Institute of Technology, Atlanta, GA, ²Institut Straumann AG, Basel, SWITZERLAND.
- 798** A Comparative Study of Osteoblast Response to PEEK or Titanium Commonly Used in Dental Implants
J. Devine¹, G. Gronowicz²; ¹Invisio, Thornton Cleveleys, UNITED KINGDOM, ²University of Connecticut, Farmington, CT.
- 799** Multiscale Topography Analysis of Microtextured Titanium: Importance of Lateral Spatial Resolution
G. Sosale; McGill University, Montreal, PQ, CANADA.
- 800** Comparison Among Prosthetic and Commercially Pure Metals on Retrieved Human Fibroblasts
R. A. Mostardi, M. W. Kovacic, J. Finefrock, T. F. Bear, M. J. Askew; Summa Health System, Akron, OH.
- 801** Dissolution of Discrete Calcium Phosphate Crystals from Candidate Ti-based Implant Surfaces
P. Pezeshki, J. E. Davies, S. Lugowski; University of Toronto, Toronto, ON, CANADA.
- 802** Modeling Interfacial Shear Strength at a CAP-Modified Titanium and Bone
C. Pan, J. Chau, V. C. Mendes, C. A. Simmons, J. E. Davies; University of Toronto, Toronto, ON, CANADA.
- 803** Assessment of Poly(diols citrate) Composites of Micro/Nano Hydroxyapatite
H. Qiu¹, P. Kodali², S. Yang², J. Koh², G. A. Ameer¹; ¹Northwestern University, Biomedical Engineering Department, Evanston, IL, ²Northwestern University, Feinberg school of medicine, Chicago, IL.
- 804** Qualitative and Quantitative Analyses of NanoTite-Surfaced Implants
P. Gubbi, R. Towse; 3i-A Biomet Company, Palm Beach Gardens, FL.
- 805** Macrophage Adhesion on Conventional and Nanophase Alumina
P. Liu-Snyder, T. Webster; Brown University, Providence, RI.
- 806** Nanometre-sized Wear Particles in vivo: Conventional and Highly Crosslinked Polyethylene Prostheses
L. J. Richards¹, M. H. Stone², G. Reinisch³, E. Ingham¹, J. Fisher¹; ¹The University of Leeds, Leeds, UNITED KINGDOM, ²Leeds General Infirmary, Leeds, UNITED KINGDOM, ³BMF, Vienna, AUSTRIA.

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- 807** Implants Treated with Discrete Crystalline Depositions of Nanometer-scale Calcium Phosphate Crystals Enhance Early Implant-Bone Fixation in a Rat Femur Push-In Model
I. Nishimura, A. Lin, C. J. Wang, J. Kelly;
UCLA School of Dentistry, Los Angeles, CA.
- 809** Discrete Deposition of Calcium Phosphate Nanocrystals Promotes Bone-Bonding on Titanium Surfaces
V. C. Mendes, R. Moineddin, J. E. Davies;
University of Toronto, Toronto, ON, CANADA.
- 810** Enhancing the Osteogenic Potential of Bioabsorbable Implants through Control of Surface Charge
J. J. Cooper¹, J. A. Hunt², F. Pu²; ¹BioComposites Ltd, Staffordshire, UNITED KINGDOM, ²UK Centre for Tissue Engineering, Liverpool, UNITED KINGDOM.
- 811** Mineralization from Marrow Cells On Al₂O₃ Grit Blasted Ti6Al4V Disks Is Greater Than SiO₂ Grit Blasted Disks
E. Hippensteel, S. Vass; DePuy Orthopaedics, Warsaw, IN.
- 812** Biomineralization Approach as Osteoconductive Materials for Orthopaedic and Dental Application
J. Watanabe, M. Akashi; Graduate School of Engineering, Osaka University, Osaka, JAPAN.
- 813** Solution-Mediated Effect of Biomimetically-Mineralized Poly(lactide-co-glycolide) Scaffold on Osteogenic Differentiation of Mouse Bone Marrow Stromal Cell
K. Shin, D. H. Kohn; University of Michigan, Ann Arbor, MI.
- 819** Sol-gel Derived Nano/macroporous Scaffolds for Bone Regeneration
A. C. Marques¹, H. Jain², M. Ammar², R. M. Almeida¹; ¹Instituto Superior Tecnico, Lisbon, PORTUGAL, ²Lehigh University, Department of Materials Science and Engineering, Bethlehem, PA.
- 820** An Elastic Fibrous Scaffold for Cardiovascular Tissue Engineering
S. H. Kim¹, E. Chung¹, S. H. Kim¹, D. I. Kim², E. Kim², Y. G. Ko¹, J. W. Han¹, I. S. Park¹; ¹Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, ²Samsung Medical Center, Seoul, REPUBLIC OF KOREA.
- 821** Oxygen Diffusion across Extracellular Matrix-derived Scaffolds
D. O. Freytes, J. E. Valentin, C. M. Pesyna, J. M. Freund, S. F. Badylak;
McGowan Institute for Regenerative Medicine, Pittsburgh, PA.
- 822** Electrospun Polycaprolactone Nanofibrous Scaffolds for Hepatocyte Culture
J. M. Gluck¹, L. Samuelson², D. A. Gerber², M. W. King¹; ¹North Carolina State University, Raleigh, NC, ²University of North Carolina at Chapel Hill, Chapel Hill, NC.
- 823** The Evolution of Calcium Phosphates for Orthopedic Applications: Optimization of the Osteoconductive Scaffold
M. B. Havener, G. M. Nagvajara, T. Clineff, E. M. Erbe, M. M. Darmoc; Orthovita, Inc., Malvern, PA.
- 824** *In Vitro* and *In Vivo* Study to Evaluate Polycaprolactone/Hydroxyapatite/Collagen I Electrospun Scaffolds for Bone Tissue Engineering Applications
W. C. Clem, S. A. Catledge, S. Chowdhury, K. M. Hennessy, S. L. Bellis, Y. K. Vohra; University of Alabama at Birmingham, Birmingham, AL.
- 825** Shear Loads on Cartilage Tissue Supporting Scaffolds can be Measured Using Embedded Strain Gauges
C. L. Bliss, J. A. Szivek, C. Fuentes, J. T. Ruth;
University of Arizona, Tucson, AZ.
- 826** Synthesis of Superporous Hydrogel Scaffolds for Tissue Engineering
V. Keskar; University of Illinois at Chicago, Chicago, IL.
- 827** A New Method to Synthesize Porous 3D PLGA Scaffolds for Tissue Engineering
G. GUPTA, J. Chen, T. A. Milbrant, D. A. Puleo;
University of Kentucky, Lexington, KY.
- 828** Macroporous Calcium Phosphate Scaffolds Derived from Freeze Drying
Y. Liu¹, S. Kim¹, R. Heck¹, J. Bumgardner², W. Haggard³, Y. Yang¹;
¹University of Tennessee Health Science Center, Memphis, TN, ²University of Memphis, Memphis, TN.
- 829** MAPK Signaling in 3-D Hydroxyapatite Scaffolds with Low-Intensity Ultrasound
M. Appleford¹, S. Oh², J. Cole³, J. Bumgardner³, W. Haggard³, J. Ong²;
¹University of Tennessee Health Science Center, Memphis, TN, ²University of Texas at San Antonio, San Antonio, TX, ³University of Memphis, Memphis, TN.
- 830** Electrospinning Process Temperature Modulates 3D Architecture but Not Cellular Behavior
M. F. White¹, J. A. Henry², G. Voskerician³; ¹Procy Biomedical, Galway, IRELAND, ²Department of Mechanical and Biomedical Engineering, National University of Ireland Galway, Galway, IRELAND, ³Case Western Reserve University, Cleveland, OH.
- 831** Engineering a Human Skin Equivalent Using Electrospun Poly(DTE carbonate) Matrix as Dermal Scaffold
P. Chandra, P. Batheja, C. Florek, B. Michniak, J. Kohn;
Rutgers University, Piscataway, NJ.
- 832** Cellular Deformations in Micro-integrated Elastomeric Electrospun Scaffolds under Biaxial Stretch
J. Liao, Y. Hong, W. Merryman, G. Papworth, W. R. Wagner, M. S. Sacks; University of Pittsburgh, Pittsburgh, PA.

Tissue Engineered Products for Clinical Applications

- 814** *In vivo* Evaluation of the Suitability of Starch-based Scaffolds for Bone Tissue Engineering Constructs Using Adipose Derived Adult Stem Cells and Transgenic Mice
T. C. Santos¹, K. Tuzlakoglu¹, T. Morton², K. Lang², K. Reise², A. P. Marques¹, A. G. Castro³, H. Redl², R. L. Reis¹, M. van Griensven²; ¹3B's Research Group, Dept. Polymer Engineering, Braga, PORTUGAL, ²Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Vienna, AUSTRIA, ³Institute of Health and Life Sciences, School of Health Sciences, Braga, PORTUGAL.
- 815** *In Vitro* Testing of a Novel Gene Enhanced Tissue Engineered Scaffold: Use of Insulin-like Growth Factor-1 and Platelet Derived Growth Factor C. Pantazopoulos¹, P. Razzano¹, H. Yuri¹, J. Mason¹, J. Farmer², D. A. Grande¹; ¹Feinstein Institute For Medical Research, Manhasset, NY, ²Hospital for Special Surgery, New York, NY.
- 816** *In Vitro* and *In Vivo* Degradation Behavior of Elastic PLCL Scaffolds for Vascular Tissue Engineering
Y. KIM;
Gwangju Inst Sci Tech (GIST), Gwangju, REPUBLIC OF KOREA.
- 817** Cross-linking and Polymer Immobilization of Decellularized Blood Vessel for Bioscaffold Application
K. Nam¹, A. Murakoshi¹, T. Kimura¹, T. Fujisato², A. Kishida¹; ¹Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, JAPAN, ²National Cardiovascular Center Research Institute, Osaka, JAPAN.
- 818** Biofunctionalised Nanofibres Based on Resorbable Poly(ethylene glycol)-b-polyesters for Tissue Engineering
D. Grafahrend¹, D. Klee¹, J. Salber¹, P. D. Dalton², M. Moeller¹;
¹Institute of technical and macromolecular chemistry of RWTH Aachen University and DWI at RWTH Aachen, Aachen, GERMANY, ²School of Biological Sciences, University of Southampton, Bassett Cr East, Southampton SO16 7PX, United Kingdom, Southampton, UNITED KINGDOM.

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- 833** High Osteoprogenitor Cell Retention in Mineralized Bovine Collagen Bone Graft Substitutes
J. O. Seidel, C. Fang, C. E. Holy, J. Geesin, S. P. Bruder;
Johnson and Johnson Regenerative Therapeutics, LLC, Raynham, MA.
- 834** The Effect of Cyclic Mechanical Compression on Articular Cartilage Tissue Engineering
P-Y. Wang¹, H-W. Fang², W-B. Tsai¹; ¹National Taiwan University, Taipei, TAIWAN, ²National Taipei University of Technology, Taipei, TAIWAN.
- 835** Cortoplasty: Augmentation of Osteoporotic Vertebral Compression Fractures with Cortoss®
E. M. Erbe, M. Persenaire, G. M. Nagvajara, M. B. Havener, D. Entreklin; Orthovita, Inc., Malvern, PA.
- 836** Bone Production by Murine Osteoprogenitor Cells Treated With OP-1 and bFGF on Allograft Bone
E. R. Nelson, H. Z. Huang, T. Ma, R. L. Smith, S. B. Goodman;
Stanford University School of Medicine, Stanford, CA.
- 837** Highly Purified Atelopeptide Human Placental Collagen
W. Wu, M. Bhatia; Celgene Cellular Therapeutics, Summit, NJ.
- 839** *In Vivo* Response to Tissue Engineered Injectable Devices for Breast Reconstruction
C. T. Gomillion, S. E. Ellis, K. J. L. Burg; Clemson University, Clemson, SC.
- 840** Concentration of Neural Regulators in Platelet Rich Plasma
M. J. Swift, Z. Welch, J. Greene, J. Woodell-May;
Biomet Biologics, Inc, Warsaw, IN.
- 841** Platelet-Rich Plasma for Excisional Wound Healing
H-W. Lee, M. Reddy, N. Geurs, K. Palcanis, J. Lemons, C. Davis, D. Feldman; UAB, Birmingham, AL.
- 842** Platelet-Rich Plasma Enhances the Osteoinductive Potential of Demineralized Bone Matrix
B. Han¹, J. Woodell-May², M. Ponticello³, Z. Yang¹, M. Nimni¹;
¹University of Southern California, Los Angeles, CA, ²Biomet Inc., Warsaw, IN, ³Interpore Cross International, Irvine, CA.
- 843** Migration of Endothelial Cells on Polyurethane-gold Nanocomposites
H. S. Hung, Sr.; National Chung Hsing University, Taichung, Taiwan, ROC, Taichung, TAIWAN.
- 844** The Effect of Osteoclast Conditioned Medium on Mesenchymal Stem Cells
S. S. Kay, K. J. L. Burg; Clemson University, Clemson, SC.
- 845** Tendon Tissue Engineering Using Mesenchymal Stem Cells, Natural Biomaterial, and Mechanical Stimulation
R. Aboosleiman, Y. Reyes, P. S. McFetridge, V. Sikavitsas;
University of Oklahoma, Norman, OK.
- 846** Differentiation of Human Mesenchymal Stem Cells into Ligament Tissue on Collagen-Elastin Nanofibers with Appliance of Cyclic Strain
J. H. Kim, I-H. Kim, H. Suh, S-N. Park;
Yonsei University College of Medicine, Seoul, REPUBLIC OF KOREA.
- 847** *In vitro* Model of Vascular Healing in the Presence of Biomaterials
S. L. Rose, J. E. Babensee;
Georgia Institute of Technology, Atlanta, GA.
- 848** Functional Recovery of Infarcted Heart Using Vascular Endothelial Growth Factor Loaded Injectable Hyaluronic Acid Based Hydrogel
S. Yoon, S. Yoon; Korea Artificial Organ Center, Seoul, DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA.
- 849** Improving Islet Survival by Microencapsulation in Hydrogels Modified with Anti-Apoptotic Peptides
J. SU; Northwestern University, Evanston, IL.
- 850** Evaluation of viability of Osteoprogenitor Cells Retained on HEALOS Processed with COLLECT
C. Fang¹, J. C. Geesin¹, C. E. Holy², J. F. Volenec², S. P. Bruder²;
¹Regenerative Therapeutics, LLC, Somerville, NJ, ²Regenerative Therapeutics, LLC, Raynham, MA.
- 851** USP Testing for Oasis® Wound Matrix
A. M. Overby, C. E. Johnson;
Cook Biotech, Inc., West Lafayette, IN.
- 852** Clinical Review of a New Bio-engineered Collagen Dressing on Diabetic Ulcer Wounds
S. Gunasekaran; Encoll Corporation, Fremont, CA.
- 853** A Keratin Biomaterial Gel Derived from Human Hair is Hemostatic in an Acute Liver Hemorrhage Model
T. AbouShwareb, D. Eberli, C. Ward, C. Broda, A. Atala, M. Van Dyke;
Wake Forest University School of Medicine, Winston Salem, NC.

Tissue Engineering

- 854** A New Route to Produce Starch-based Fiber Mesh Scaffolds by Wet Spinning and the Improvement in Cell Attachment and Proliferation by Tailoring Their Surface Properties
K. Tuzlakoglu, I. Pashkuleva, M. Rodrigues, M. E. Gomes, R. L. Reis;
3B's Research Group, Braga, PORTUGAL.
- 855** Controlled Release of Bioactive TGF- β 1 from Fibrin Gels
I. Catelas, J. F. Dwyer, S. Helgersson;
Baxter Healthcare Corporation, Round Lake, IL.
- 856** Control of Network Structure of Photopolymerized Poly(ethylene glycol) Diacrylate Hydrogels
G. Papavasiliou¹, M. Morris², F. Teymour¹, E. Brey¹;
¹Illinois Institute of Technology, Chicago, IL, ²University of Utah, Salt Lake City, UT.
- 857** Degradation of Hydrogel from Glycolide-Based Macromer and Polyethylene Glycol Diacrylates
L. S. Brown, J-G. Park, J. Zhao, D. Xie, T-M. G. Chu;
Indiana University Purdue University Indianapolis, Indianapolis, IN.
- 858** Augmentation of *in vitro* Angiogenesis Induced by the R136K Thrombin Resistant FGF-1 Mutant within Fibrin Hydrogels
D. V. Bufalino; Loyola University Medical Center, Maywood, IL.
- 859** Effect of Ionic Concentration on Chitosan Scaffold Characteristics Measured by Electrochemical Impedance Spectroscopy
S. Tully, H. Cardenas, P. S. Sit; Louisiana Tech University, Ruston, LA.
- 860** Regenerative Tissue Scaffolds Prepared by Gamma Ray Irradiation
T. Fujisato¹, S. Funamoto², K. Yoshida³, T. Yamaoka¹, T. Kimura², M. Kikuchi⁴, Y. Kobayashi⁴, A. Kishida², T. Nakatani¹;
¹National Cardiovascular Center, Suita, JAPAN, ²Tokyo Medical and Dental University, Tokyo, JAPAN, ³Foundation for Biomedical Research and Innovation, Kobe, JAPAN, ⁴Japan Atomic Energy Agency, Takasaki, JAPAN.
- 861** Development of Three-dimensional Hybrid Scaffold Using Chondrocytes Encapsulated Alginate Hydrogel
S-J. Lee¹, B. Kim¹, G. Lim¹, J-W. Rhie², D. Kim³, D-W. Cho¹;
¹Pohang University of Science and Technology, Pohang, REPUBLIC OF KOREA, ²The Catholic University of Korea, Seoul, REPUBLIC OF KOREA, ³Chung-Ang University, Seoul, REPUBLIC OF KOREA.
- 863** Basic Fibroblast Growth Factor-releasing Polycaprolactone Scaffolds for Intestinal Smooth Muscle Regeneration
M. Lee, B. M. Wu, J. C. Y. Dunn; UCLA, Los Angeles, CA.
- 864** Cytocompatibility of Electrospun PCL/CNF Scaffolds with and without Electrophoretically Deposited HA
H. D. Deshpande, M. V. Jose, V. Thomas, W. C. Clem, S. Chowdhary, D. R. Dean; University of Alabama at Birmingham, Birmingham, AL.

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- 865** PLGA/Collagen/HA Nanofibrous Scaffolds with Tunable Mechanical and Degradation Characteristics
M. V. Jose; University of Alabama at Birmingham, Birmingham, AL.
- 866** Preparation of Nanocrystalline Hydroxyapatite Scaffolds at Room Temperature by 3D Powder Printing
U. Gbureck¹, T. Hölzel¹, F. A. Mueller², J. E. Barralet³; ¹University of Wuerzburg, Wuerzburg, GERMANY, ²University of Erlangen-Nuernber, Erlangen, GERMANY, ³McGill University, Montreal, PQ, CANADA.
- 867** Analysis and Comparison of Physical Characteristics of Electrospun Tissue Engineered Scaffolds for Temporomandibular Joint Repair
P. A. Turner, R. Nassar, D. K. Mills, P. S. Sit;
Louisiana Tech University, Ruston, LA.
- 868** Oxidative Degradation Study of L-tyrosine based Polyurethanes
D. Sarkar, S. Lopina; The University of Akron, Akron, OH.
- 869** Structure Property Relationship of L-tyrosine based Polyurethanes for Tissue Engineering
D. Sarkar, J-C. Yang, S. Lopina; The University of Akron, Akron, OH.
- 870** Enrichment of Mesenchymal Stem Cell Population Modulates Cell Differentiation
E. V. Leonova; University of Michigan, Ann Arbor, MI.
- 871** Electrospun Collagen-Elastin Nanofibers: A Biomimetic Extracellular Matrix for Smooth Muscle Cell Proliferation
A. Sul; Yonsei University College of Medicine, Seoul, REPUBLIC OF KOREA.

Urological Tissue Engineering and Biomaterials

- 872** Creep, Stress Relaxation and Fatigue Properties of Polypropylene Mesh
K. Horn, M. Deng; Ethicon, a Johnson and Johnson Company, Somerville, NJ.
- 873** Inorganic-Organic Hybrid Monofilaments: A Preliminary Study
K. W. Clinkscales, J. M. Lindsey, III, K. A. Carpenter, M. S. Taylor, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.
- 874** Sphere-templated Scaffolds of Acetone-Treated Fibrinogen for Tissue Engineering
M. P. Linnes; University of Washington, Seattle, WA.