



BIODEGRADABLE HYDROGELS FOR TISSUE ENGINEERING

Organized by Tissue Engineering SIG

- 230 **Neocartilage Formation by Auricular Chondrocytes in Photopolymerizable HA Networks** C. Chung¹, J. Mesa², M. A. Randolph², J. A. Burdick¹; ¹University of Pennsylvania, Philadelphia, PA, ²Massachusetts General Hospital, Boston, MA.
- 231 **Synthesis and Characterization of HA-grafted Thermo-reversible Chitosan Hydrogel for Cartilage and Meniscus Tissue Engineering** T-H. Cheng, J-P. Chen; Chang Gung University, Taoyuan, TAIWAN REPUBLIC OF CHINA.
- 232 **Quality and Extent of Nerve Regeneration Through Chitosan Nerve Guides.** M. Patel, P. Vandevord, L. Mayton, H. Matthew, S. P. DeSilva, P. H. Wooley; Wayne State University, Detroit, MI.
- 233 **Hydrogels that Mimic the Viscoelastic Behavior of the Nucleus Pulposus Under Dynamic Torsional Loading** R. A. Bader, W. E. Rochefort; Oregon State University, Corvallis, OR.
- 234 **Degradation and Mechanical Characteristics of Photopolymerized PEGDA Hydrogels as Tissue Engineering Scaffold** X. Xin, C. Gaydos, J. Mao; University of Illinois at Chicago, Chicago, IL.
- 235 **Modified collagen with DOPA as a tissue repair matrix** J. Zhang; University of Pittsburgh, Pittsburgh, PA.
- 237 **Primary macrophage gelatinase A and B expression on interpenetrating networks containing gelatin modified with PEGylated RGD** A. S. Gustafson, Q. Gao, W. J. Kao; University of Wisconsin-Madison, Madison, WI.
- 238 **Recoverable Polymer Hydrogel Composed of Novel Phospholipid Polymer for 3D-Tissue Culture** K. Ishihara, T. Konno; The University of Tokyo, Tokyo, JAPAN.
- 239 **Enzymatic Surface Erosion of Poly(trimethylene carbonate) Films Studied by Atomic Force Microscopy** Z. Zhang¹, S. Zou², G. J. Vancso³, D. W. Grijpma¹, J. Feijen¹; ¹Institute for Biomedical Technology (BMTI) and Department of Polymer Chemistry and Biomaterials, Enschede, THE NETHERLANDS, ²Materials Science and Technology of Polymers, MESA+ Institute for Nanotechnology, University of Twente, Enschede, THE NETHERLANDS.
- 240 **In vitro Degradation of NovoSorb™ Polyurethanes Designed for Orthopaedic Applications** R. Adhikari, L. Tatai, M. RTA, T. Moore, S. Houshyar, L. Hanu, M. Wickramaratna, D. Menzies, P. Johnston, I. Griffiths, P. Gunatillake; PolyNovo Biomaterials Pty Ltd, Clayton South, AUSTRALIA.
- 241 **In-Situ Biodegradable Hydrogels Based on Poly(ethylene glycol)-Polylactide Star Block Copolymers** Z. Zhong, C. Hiemstra, P. J. Dijkstra, J. Feijen; University of Twente, Enschede, THE NETHERLANDS.
- 242 **Biphasic Mechanical Properties of Poly(vinyl alcohol) Hydrogels for Cartilaginous Tissue Replacement** H. Yao¹, Z. Schwartz¹, S. J. Kennedy², B. D. Boyan¹; ¹Georgia Institute of Technology, Atlanta, GA, ²Orthonics, Inc., Atlanta, GA.
- 243 **Influence of Cross-linker Chemistry on Hydrogel Properties for DNA Delivery** S. A. Bencherif, J. A. Sheehan, L. M. Walker, J. O. Hollinger, N. R. Washburn; Carnegie Mellon University, Pittsburgh, PA.
- 244 **Design Of Bone, Cartilage And Osteochondral Tissue Engineering Chitosan-Based Produced By A Particle Aggregation Methodology** P. Malafaya; 3B's Research Group- Biomaterials, Biodegradables and Biomimetics, Braga, PORTUGAL.
- 245 **Novel Biocompatible Adhesives from Plant Derived Monomers** C. Klapperich¹, R. P. Wool², L. Zhu², L. Bonnaillie²; ¹Boston University, Boston, MA, ²University of Delaware, Newark, DE.
- 246 **Study of GDNF Release From Chitosan Scaffolds** R. A. Gawade, P. J. VandeVord; Wayne State University, Detroit, MI.
- 247 **In Vivo Stability and Encapsulation of Subcutaneously Implanted Alginate Disks** E. A. Nunamaker, E. K. Purcell, D. R. Kipke; University of Michigan, Ann Arbor, MI.
- 248 **Composition-Property Relationships of Chitosan-Egg Phosphatidylcholine Films For Use in Drug Delivery** J. Grant; University of Toronto, Toronto, ON, CANADA.
- 249 **Semi-degradable Multifunctional Hydrogel Constructs for the Repair of Cartilage Defects** K. L. Spiller¹, S. Maher², D. Charlton², A. Lowman¹; ¹Drexel University, Philadelphia, PA, ²Hospital for Special Surgery, New York, NY.
- 250 **Transition Behavior of Hydrogels Consisting of Enantiomeric Block Copolymers of Polylactides (PLLA or PDLA) and Poly(ethylene glycol) (PEG)** T. Fujiwara¹, J. Nakano², Y. Kimura², T. Yamaoka³; ¹Boise State University, Boise, ID, ²Kyoto Institute of Technology, Kyoto, JAPAN, ³National Cardiovascular Center Research Institute, Osaka, JAPAN.
- 251 **Deconstructing the Mechanism behind Poly(vinyl alcohol) - Amino Acid Hydrogel Formation** Z. Tatum, E. E. Johnson, B. D. Ratner; University of Washington, Seattle, WA.
- 252 **Host Cell Infiltration to Implanted Vascular Grafts Made of Collagen Fibers in Porcine Model** T. Fujisato¹, N. Sasayama², K. Minatoya¹, K. Yoshida¹, S. Funamoto¹, A. Kishida³, A. Shirasu², T. Nakatani¹, H. Takano², H. Hattori²; ¹National Cardiovascular Center, Suita, JAPAN, ²Nipro Corporation, Kusatsu, JAPAN, ³Tokyo Medical and Dental University, Tokyo, JAPAN.
- 253 **Amphiphilic Diblock Copolymer based on PPDO and PEG: Synthesis, Characterization, and Micellization** R. KC¹, S. Bhattarai¹, S. Aryal¹, D. Lee², H. Kim²; ¹Dept. of Bionanosystem Eng., Chonbuk National University, Jeonju, REPUBLIC OF KOREA, ²Dept. of Textile Eng., Chonbuk National University, Jeonju, REPUBLIC OF KOREA.
- 254 **Preparation of biodegradable porous hydrogels cross-linked with polyphosphates** C. Wachiralarpphaithoon, Y. Iwasaki, K. Akiyoshi; Tokyo Medical and Dental University, Tokyo, JAPAN.
- 255 **New Alginate Self-gelling Technology for Tissue Engineering** J. Melvik, J. Bjørnstad, M. Dornish; NovaMatrix/FMC Biopolymer, Oslo, NORWAY.
- 256 **Thermosensitive, Biodegradable, and Cell Adhesive Pluronic Hydrogels for Tissue Engineering** D. Han¹, S. Cha¹, K-D. Ahn¹, J-M. Kim², K. Park³; ¹Korea Institute of Science and Technology, Seoul 130-650, REPUBLIC OF KOREA, ²Hanyang University, Seoul 133-791, REPUBLIC OF KOREA, ³Ajou University, Kyungki 443-749, REPUBLIC OF KOREA.
- 257 **The effects of functionalized self-assembling peptide scaffolds on osteoblast proliferation and differentiation** A. Horii, F. Gelain, S. Zhang; MIT, Cambridge, MA.



- 258 **Structural and Physicochemical Characterisation of an Enzymatically Cross-linked Collagen Scaffold** Y. Garcia; National Centre for Biomedical Engineering Science, NUI Galway, Galway, IRELAND.
- 259 **In Vitro Development and Characterization of a Cortical Neural Stem Cell-Seeded Alginate Scaffold** E. K. Purcell, D. R. Kipke; University of Michigan, Ann Arbor, MI.
- 260 **Three Dimensional Constructs Composed from Extracellular Matrix Particles** J. E. Valentin, S. F. Badylak; University of Pittsburgh, Pittsburgh, PA.
- 261 **Natural collagen scaffolds for blood vessel engineering** S. Yazdani, J. Berry, A. Atala, S. Soker; Wake Forest University School of Medicine, Winston Salem, NC.
- 262 **Fabrication of tissue-engineered blood vessel using electrospinning** J. Liu, S. Lee, S. Soker, G. Lim, A. Atala, J. Stitzel; Wake Forest University School of Medicine, Winston Salem, NC.
- 263 **Anisotropic Hydrogels for Peripheral Nerve Regeneration Across Long Nerve Gaps** M. Dodla, R. V. Bellamkonda; Georgia Institute of Technology, Atlanta, GA.
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- 264 **In vitro biocompatibility and biodegradation of poly(esterurethane urea) scaffolds** A. Srinivasan¹, K. Gallagher², S. McBride¹, S. Khetan³, S. Guelcher⁴, J. O. Hollinger¹; ¹Carnegie Mellon University, Pittsburgh, PA, ²Duquesne University, Pittsburgh, PA, ³Johns Hopkins, Baltimore, MD, ⁴Vanderbilt University, Nashville, TN.
- 265 **Starch-PolyCaprolactone Fiber Based Scaffolds Are Suitable For Cartilage Tissue Engineering Approaches** J. T. Oliveira; 3B's Research Group-Biomaterials, Biodegradables and Biomimetics, Braga, PORTUGAL.
- 266 **L-tyrosine based Polyurethanes: Potential material for tissue engineering** D. Sarkar, J.-C. Yang, S. T. Lopina; The University of Akron, Akron, OH.
- 267 **Novel pH-responsive hydrogels based on chemically modified Arabic Gum polysaccharide** E. C. Muniz, Sr.; Universidade Estadual de Maringá, Maringá, BRAZIL.
- 268 **Mechanical properties and in vivo performance of light-cured hydrogel/ABM/P-15 grafting materials** K. S. Walline¹, B. L. Atkinson²; ¹Dentsply Friadent CeraMed, Lakewood, CO, ²BioSet Inc., Rockville, MD.
- 269 **Growth Factor Influence on Myoblastic Cells Attached to a Novel Polymer** E. E. Falco¹, J. S. Roth², J. P. Fisher¹; ¹University of Maryland, College Park, MD, ²University of Maryland Medical School, Baltimore, MD.
- 270 **N-isopropylacrylamide-based Copolymer with Hydrolysis-dependent Lower Critical Solution Temperature as Injectable, Bioresorbable Gelling Materials for Controlled Drug Delivery** Z. Cui, B. Lee, B. L. Vernon; Arizona State University, Tempe, AZ.
- 271 **Cell Colonization on Negatively Charged Polysaccharide Matrices** A. Ullm, J. Tillman, S. V. Madihally; Oklahoma State University, Stillwater, OK.
- 272 **Injectable PEG-Genipin Hydrogels for Tissue Engineering** A. J. DeFail, A. I. Idriss, K. G. Marra; University of Pittsburgh, Pittsburgh, PA.
- 273 **Resistance of Self-interpenetrating Poly(Sulfobetaine methacrylate) Hydrogels to Fibrinogen Adsorption and Platelet Adhesion** Z. ZHANG; University of Washington, Seattle, WA.
- 274 **A novel thermosensitive chitosan for the treatment of degenerative intervertebral disc** K. Park¹, J. Bae¹, Y. Lee², J. Shin², K. Park¹; ¹Ajou university, Suwon, REPUBLIC OF KOREA, ²Inje University, Gimhae, REPUBLIC OF KOREA.
- 275 **Improved Mesenchymal Stem Cell Proliferation on Glycosaminoglycan Immobilized Chitosan - Effects of Membrane Thickness** B. E. Saygili, H. W. T. Matthew; Wayne State University, Detroit, MI.
- 276 **One-step preparation of injectable hyaluronic acid based hydrogel at physiological condition** J. Kim¹, Y. Park¹, G. Tae², K. Lee¹, S. Hwang³, I. Kim³, I. Nho⁴, K. Sun¹; ¹Korea University, Korea Artificial Organ Center, Seoul, REPUBLIC OF KOREA, ²GIST, Gwang-ju, REPUBLIC OF KOREA, ³Seoul National University, Seoul, REPUBLIC OF KOREA, ⁴Seoul National University of Technology, Seoul, REPUBLIC OF KOREA.
- 277 **In Vitro and In Vivo Degradation Behaviors of Acetylated Chitosan Porous Beads** D. Song¹, S. Oh¹, D. Lee-Yoon², E. Bae², J. Lee¹; ¹Hannam University, Daejeon, REPUBLIC OF KOREA, ²Regen Biotech, Inc., Seoul, REPUBLIC OF KOREA.
- 278 **Optimizing Mechanical and Cell Adhesion Properties of Chitosans Through Simultaneous Manipulation of Molecular Weight and Crosslinking** R. Piparia, I. Robu, H. W. T. Matthew; Wayne State University, Detroit, MI.
- 279 **Microhardness of Starch Based Biomaterials in Simulated Physiological Solutions as a Tool to Predict its Surface Stiffness When Implanted** N. Alves; University of Minho, Guimaraes, PORTUGAL.
- 280 **Effects of UV Laser Parameters on Fabricating Three-Dimensional Poly(propylene fumarate) Scaffolds with Controlled Macropores Using Stereolithography** K-W. Lee, B. Fox, S. Wang, J. Gruetzmacher, L. Lu, M. Yaszemski; Mayo Clinic College of Medicine, Rochester, MN.
- 281 **Fabrication of Permeable Tubular Structure from Chemically Modified Chitosan with Anticoagulant Activities for Small Blood Vessel Engineering** Y. Qiu¹, N. Zhang¹, Q. Kang², Y. An², X. Wen¹; ¹Clemson University, Charleston, SC, ²Medical University of South Carolina, Charleston, SC.
- 282 **Di-biotin Functionalized Polymers via Atom Transfer Radical Polymerization and Click Chemistry** D. J. Siegwart, R. R. Gil, J. O. Hollinger, K. Matyjaszewski; Carnegie Mellon University, Pittsburgh, PA.

BIOMIMESIS IN DRUG DELIVERY

Organized by Drug Delivery SIG

- 283 **Polymerization Kinetics of PEO-pNIPAAm Block Copolymers** W. G. Pitt, Y. Zeng; Brigham Young University, Provo, UT.
- 284 **Controlled release of sphingosine 1-phosphate, a potent stimulator of endothelial cell migration** D. L. Elbert, B. K. Wacker, S. K. Hughes, M. M. Kaneda, E. A. Scott; Washington University, St. Louis, MO.
- 285 **Magnetic Resonance Imaging of Osteoconductive Calcium Polyphosphate Drug Delivery Devices** J. M. Bray¹, S. D. Beyea²; ¹Dalhousie University, Halifax, NS, CANADA, ²Institute for Biodiagnostics (Atlantic) - NRC, Halifax, NS, CANADA.
- 286 **Controlled Release of rhVEGF from Heparin-Functionalized Nanoparticles** G. Tae¹, Y.-I. Chung¹, S. K. Kim², K.-O. Cho², S. H. Yook³; ¹Gwangju Institute of Science and Technology, Gwangju, REPUBLIC OF KOREA, ²Chonnam National University, Gwangju, REPUBLIC OF KOREA, ³Hannam University, Daejeon, REPUBLIC OF KOREA.



- 287 **Management of the infected arthroplasty using antibiotic-loaded hydroxyapatite blocks combined with cement spacer.** Y. Mochida, K. Ishii, N. Taki, N. Mitsugi, T. Saito; Yokohama City University, Yokohama, JAPAN.
- 288 **Intermittent Exposure to Simvastatin Enhances Osteoblastic Activity** J. Jeon¹, M. V. Thomas², D. A. Puleo¹; ¹University of Kentucky, Center for biomedical Engineering, Lexington, KY, ²University of Kentucky, College of dentistry, Lexington, KY.
- 289 **Stability of Disulfide-Linked Fetuin-Bisphosphonate Conjugates for Increased Mineral Affinity** S. Zhang, J. E. I. Wright, G. Bansal, H. Uludag; University of Alberta, Edmonton, AB, CANADA.
- 290 **Cellular Response to Simvastatin Released from Calcium Sulfate** C. A. Martin¹, M. V. Thomas², D. A. Puleo¹; ¹University of Kentucky, Center for Biomedical Engineering, Lexington, KY, ²University of Kentucky, College of Dentistry, Lexington, KY.
- 291 **Antibacterial sol-gel films on implant material with tailored controlled release properties** S. Radin¹, J. Parvizi², P. Ducheyne¹, I. Shapiro²; ¹University of Pennsylvania, Philadelphia, PA, ²Thomas Jefferson University, Philadelphia, PA.
- 292 **Spatial Engineering of Soft Tissue Within Osseous Defect Using Microencapsulated Transforming Growth Factor- β** E. K. Moiola, P. A. Clark, J. J. Mao; University of Illinois at Chicago, Chicago, IL.
- 293 **Controlled Release of bFGF from Elastomeric Biodegradable Microporous Sheets** J. J. Stankus, J. Guan, K. Fujimoto, W. R. Wagner; University of Pittsburgh, Pittsburgh, PA.
- 294 **In vivo targeting of dendritic cells in lymph nodes with poly(propylene sulfide) nanoparticles** S. T. Reddy; EPFL, Lausanne, SWITZERLAND.
- 295 **Polymeric nanoparticles as cell-specific drug carriers** H. Maie, Y. Iwasaki, K. Akiyoshi; Tokyo Medical and Dental University, Tokyo, JAPAN.
- 296 **Novel Sol-Gel Synthesis of Microspheres for the Control Delivery of Drugs** T. L. Chen, S. Radin, P. Ducheyne; University of Pennsylvania, Philadelphia, PA.
- 297 **Cysteine Capped Gold Nanoparticles for DNA Delivery** S. Bhattacharai¹, S. aryal¹, R. KCI, H. Yi², P. Hwang³, H. Kim⁴; ¹Dept. of Bionanosystem Eng., Chonbuk National University, Jeonju, REPUBLIC OF KOREA, ²Dept. of Biochemistry, School of Dentistry, Chonbuk National University, Jeonju, REPUBLIC OF KOREA, ³Dept. of Pediatrics, School of Medicine, Chonbuk National University, Jeonju, REPUBLIC OF KOREA, ⁴Dept. of Textile Eng., Chonbuk National University, Jeonju, REPUBLIC OF KOREA.
- 298 **Liposome-Hydroxyapatite Core-Shell Structure as Drug Carriers** Q. Xu, J. Czernuszka; University of Oxford, Oxford, UNITED KINGDOM.
- 299 **Preparation of Protein-loaded Biodegradable Nanoparticles Based on Poly(α -glutamic acid) Hydrophobic Derivatives and Their Potential Biomedical Applications** T. Akagi¹, S. Nakagawa², M. Baba³, M. Akashi¹; ¹Department of Applied Chemistry, Graduate School of Engineering, Osaka University, Suita, JAPAN, ²Department of Biopharmaceutics, Graduate School of Pharmaceutical Sciences, Osaka University, Suita, JAPAN, ³Division of Antiviral Chemotherapy, Center for Chronic Viral Diseases, Graduate School of Medical and Dental Sciences, Kagoshima University, Kagoshima, JAPAN.
- 300 **Indomethacin Release Behavior from pH-and Thermo-responsive Alginate -Ca²⁺ Containing Poly(N-isopropylacrylamide) semi-IPN Beads** J. Shi; University of Minho, Guimarães, PORTUGAL.
- 301 **Examination of a Polyacrylate Hydrogel System for Extended Cisplatin Delivery** X. Yan, R. A. Gemeinhart; University of Illinois at Chicago, Chicago, IL.
- 302 **Degradable Calcium Polyphosphate Strategies For The Delivery of Therapeutic Agents** C. Petrone, M. Filiaggi; Dalhousie University, Halifax, NS, CANADA.
- 304 **The effect of crosslinking of chitosan microspheres with genipin on protein release** Y. Yuan, B. M. Chesnutt, G. Utturkar, W. O. Haggard, Y. Yang, J. L. Ong, J. D. Bumgardner; The University of Memphis-University of Tennessee, Memphis, TN.
- 305 **Controlled Release of Bupivacaine from Injectable Hydrogel Combined With Microspheres: Potential Use for Discogenic Back Pain Control** J. Lee, T-H. Lim, J. B. Park; The University of Iowa, Iowa City, IA.

BIONANOTECHNOLOGY: THE FUTURE OF BIOMATERIALS SYMPOSIUM

- 306 **Nanosized Therapeutic Self Assembled Monolayers (T-SAMs) on 316L Stainless Steel** A. Mahapatro¹, D. M. Johnson¹, D. N. Patel², M. D. Feldman², A. Ayon¹, C. M. Agrawal¹; ¹University of Texas at San Antonio, San Antonio, TX, ²University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 307 **Drug Elution Using Therapeutic Self-Assembled Monolayers** G. Mani¹, D. M. Johnson¹, D. Marton², A. Mahapatro¹, M. Feldman², D. N. Patel², A. Ayon¹, C. M. Agrawal¹; ¹University of Texas at San Antonio, San Antonio, TX, ²University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 308 **Targeted Drug Delivery with Magnetic Nanoparticles** C. P. Sharma, W. Paul; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 310 **Cell Growth on Single Wall Carbon Nanotube Fibers** R. A. Dubin¹, G. C. Callegari², J. Kuppler², K. G. Kornev², S. Ruetsch², A. V. Neimark², J. Kohn³; ¹New Jersey Center for Biomaterials, Rutgers University, Piscataway, NJ, ²Center for Modeling and Characterization of Nanoporous Materials, TRI/Princeton University, Princeton, NJ, ³Rutgers University, Piscataway, NJ.
- 311 **PLGA Nanospheres for Delivery of Chondroitinase ABC to the Glial Scar** A. Y. Au¹, P. Garna¹, D. J. Osterhout², D. J. Stelzner², J. M. Hasenwinkel¹; ¹Syracuse University, Syracuse, NY, ²SUNY Upstate Medical University, Syracuse, NY.
- 312 **Nanostructured Biomaterials based on Carbon Nanotubes: Electroactive Support for Cells Regeneration** P. C. C. STEFANIA, JR.; Ecole Polytechnique of Montreal, Montreal, PQ, Canada.
- 314 **Drug Delivery Using Biodegradable Tyrosine-based Nanospheres** L. Sheihet, R. A. Dubin, D. Devore, J. Kohn; New Jersey Center for Biomaterials, Rutgers University, Piscataway, NJ.
- 315 **Nano-stamped structures for bio-template and MRI applications** N. Farkas¹, R. Aryal¹, E. A. Evans¹, R. D. Ramsier¹, L. V. Ileva², S. T. Fricke², J. A. Dagata³; ¹The University of Akron, Akron, OH, ²Georgetown University, Washington, DC, ³National Institute of Standards and Technology, Gaithersburg, MD.
- 317 **Zinc Phosphate-Insulin-Alginate particles for Oral Insulin Delivery: Feasibility Studies** C. P. Sharma, W. Paul; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 318 **Increased Osteoblast Adhesion on Nano-structured Anodized CoCrMo** C. Yao, E. Slamovich, T. Webster; Purdue University, West Lafayette, IN.



- 319 Synthesis and properties of crosslinked recombinant proresilin - an insect rubber-like biomaterial** C. M. Elvin¹, J. Werkmeister², J. Ramshaw³, M. Kim¹, R. Lyons¹, T. Tebb²; ¹CSIRO Livestock Industries, Brisbane, AUSTRALIA, ²CSIRO Molecular and Health Technologies, Clayton, AUSTRALIA.
- 320 Utilization of Nanofibrous Polyester Materials as Drug/Protein Release Vehicles** M. D. Phaneuf¹, M. J. Bide², T. M. Phaneuf¹, P. J. Brown³; ¹BioSurfaces, Ashland, MA, ²University of Rhode Island, Kingston, RI, ³Clemson University, Clemson, SC.
- 321 Degradation Kinetics of Poly(lactide-co-glycolide) Mediated by Titania Nanoparticles** H. Liu, E. B. Slamovich, T. J. Webster; Purdue University, West Lafayette, IN.
- 322 Enhanced Fibronectin Adsorption on Carbon Nanotubes in Polycarbonate Urethane Composites Directs Osteoblast Adhesion** D. Khang¹, S. Durbin², T. Webster³; ¹Department of Physics, Purdue University, West Lafayette, IN, ²Department of Physics, Purdue University, West Lafayette, IN, ³Weldon School of Biomedical Engineering and School of Materials Engineering, Purdue University, West Lafayette, IN.
- 323 Development of Core-Sheath Nanofibers for Soft Tissue Engineering via Co-axial Electrospinning** A. K. Moghe, B. S. Gupta, M. W. King; North Carolina State University, Raleigh, NC.
- 324 Surface Modification of Plaque-Targeting Nanoparticles Allows for Control of Cell Internalization** A. Mukherjee, J. Pillai, M. A. Ruegsegger; The Ohio State University, Columbus, OH.
- 325 Multimerizing Peptides Inspired by the Coiled Coil Domain of Fibrin for Constructing Self-Assembled Biomaterials** A. D. Gedra, A. Jain, E. K. Fox, J. H. Collier; University of Cincinnati, Cincinnati, OH.
- 326 Electrically Conductive Biopolymers Incorporating Carbon Nanotubes** R. A. MacDonald, J. P. Stegemann; Rensselaer Polytechnic Institute, Troy, NY.
- 327 Stability of Therapeutic Self-Assembled Monolayers During Drug Loading and In-vitro Drug Delivery** G. Mani¹, D. M. Johnson¹, D. Marton², A. Mahapatro¹, M. Feldman², D. N. Patel³, A. Ayon¹, C. M. Agrawal¹; ¹University of Texas at San Antonio, San Antonio, TX, ²University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 328 Tailoring Polymer Surface Nanostructure with Surface Modifying End Groups (SMEs): Using SMEs to Create Polymer Surfaces with Covalently Bonded Self-Assembled Monolayers** R. S. Ward, K. R. McCrea, Y. Tian, J. Parakkal; The Polymer Technology Group, Inc., Berkeley, CA, CA.
- 329 Characterization of Nanoporous Titanium Dioxide Films for Biomedical Applications** A. A. Ayon; University of Texas at San Antonio, San Antonio, TX.
- 330 Interconnected Biodegradable Polymers in Sub-Micron Precision** R. J. Fasching, W. Ryu, F. Prinz; Stanford University, Stanford, CA.
- 331 Utilization of Nanoporous Titanium Dioxide Films on Drug-Eluting Stents** A. A. Ayon; University of Texas at San Antonio, San Antonio, TX.
- 332 Differences between Standard Methods Used to Characterize Particulate Implant Debris** N. J. Hallab, B. McLachlan, A. Tarabishy, J. J. Jacobs; Rush University Medical Center, Chicago, IL.
- 334 Improved Nanodimensional Analysis by Morphological Models Generated from Atomic Force Microscope Images** Z. Liu, S. J. Eppell; Case Western Reserve University, Cleveland, OH.
- 335 Cysteine-containing Polypeptides Allow Control over Various Properties of Biodegradable Multilayer Nanofilms** D. T. Haynie, Y. Zhong; Louisiana Tech University, Ruston, LA.
- 336 Surface Modification of Nitinol Alloy by Novel Biocompatible Zwitterionic PEG for Peripheral Arterial Stents** D. Han¹, J. Kim¹, K-D. Ahn¹, J-M. Kim²; ¹Korea Institute of Science and Technology, Seoul 130-650, REPUBLIC OF KOREA, ²Hanyang University, Seoul 133-791, REPUBLIC OF KOREA.
- 337 Fibrous Scaffolds from Elastomeric Biodegradable PLCL for Cardiovascular Tissue Engineering** S. Chung¹, M. W. King¹, S. Kim²; ¹North Carolina State University, Raleigh, NC, ²Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA.
- 338 Novel Electrospun Polycaprolactone Nanofibrous Scaffolds to use for Tissue Engineering** J. M. Gluck, G. Montero, M. W. King, J. P. Hinestroza; North Carolina State University, Raleigh, NC.
- 339 Biomimetic nanotechnology: conformational behavior of polypeptides** B. LI¹, J. Rozas², D. Haynie³; ¹West Virginia University School of Medicine, Morgantown, WV, ²University of Louisiana, Lafayette, LA, ³Louisiana Tech University, Ruston, LA.
- 340 A New Bone Tissue Engineering Scaffold for the Release of Biological Molecules** K. -. Jahed, A. El-Ghannam; University of Kentucky, Lexington, KY.
- 341 Novel Nanoemulsions for Improved Oral Delivery of Hydrophobic Drugs** S. Tiwari, M. Amiji; Northeastern University, Boston, MA.
- 342 A comparative Second-Degree Burn Treatment Trial of Collagen Dressing vs. Silver Sulphadiazine Alone** S. Gunasekaran¹, M. Kwolek², A. Dhanikachalam³, R. P. Narayan⁴; ¹Encoll Corp., Fremont, CA, ²Cosmetic Dermatologist, Danville, CA, ³Head of Plastic Surgery, KMC Hospital, Chennai, INDIA, ⁴Head of Plastic Surgery, Sudarjung Hospital, New Delhi, INDIA.
- 343 Ligands Designed for Targeting Nanoparticles Differentiate Normal and Atherosclerotic Tissue** J. Pillai, J. Shapiro, A. Mukherjee, S. C. Lee, M. A. Ruegsegger; The Ohio State University, Columbus, OH.

CELL RESPONSE TO MICRO/NANOPATTERNED BIOMATERIALS

Organized by Proteins and Cells at Interfaces SIG and Surface Characterization and Modification SIG

- 344 Oriented and Interconnected Poly(L-lactic acid) Scaffolds for Guided Tissue Regeneration** S. Ghosh, J. F. Mano, J. C. Viana, R. L. Reis; University of Minho, Guimaraes, PORTUGAL.
- 345 Tetraglyme Plasma Treatment of Polyethylene Tubing Inhibits Platelet Activation: Flow Cytometry Studies** L. Cao, B. D. Ratner, T. A. Horbett; University of Washington, Seattle, WA.
- 346 Genomic and Morphological Analysis of Human Neuroblastoma Cell Growth in Three-Dimensional Matrices** C. M. Gourd, E. S. Deweerd, L. L. Livi, G. N. Li, D. Hoffman-Kim; Brown University, Providence, RI.
- 347 Progress in Processing and Evaluation of Hydroxyapatite Ultra-Thin Film Coatings for Coronary Stents** A. Rajtar¹, G. Kaluza², F. Clubb², M. Lien¹, D. Smith¹, D. Hakimi³, Q. Yang³, M. Tsui³, T. Troczynski³; ¹MIV Therapeutics Inc, Vancouver, BC, CANADA, ²Texas Heart Institute, Houston, TX, ³University of British Columbia, Vancouver, BC, CANADA.
- 348 Macrophage Depletion Diminishes UHMWPE Particle-Induced Inflammatory Osteolysis in a Mouse Model** Y.



- Ding¹, X. Peng¹, B. Wu¹, P. H. Wooley¹, R. Schwendener², W. Ren, Sr.; ¹Department of Orthopedic Surgery, Detroit, MI, ²Division of Molecular Cell Biology, Paul Scherrer Institute, SWITZERLAND.
- 349 Sexual Dimorphism in Osteoblast Response to Surface Microstructure** G. Zhao¹, R. Olivares-Navarrete¹, A. Raines¹, M. A. Duran¹, M. Wieland², B. D. Boyan¹, Z. Schwartz¹; ¹Georgia Institute of Technology, Atlanta, GA, ²Institut Straumann AG, Basel, SWITZERLAND.
- 350 The Use of Alkanethiols and Circular Dichroism to Monitor Conformational Changes in Adsorbed Proteins** J. Marigliano, R. Latour, Jr., N. Vyavahare; Clemson University, Clemson, SC.
- 352 In Vivo Performance of Complex 3D Calcium Phosphate Cement Scaffolds** L. Jongpaiboonkit, S. J. Hollister, J. W. Halloran; University of Michigan, Ann Arbor, MI.
- 353 Quantifying Individual Cell Migration and Contraction Behavior in a Series of Well-Characterized Collagen-Glycosaminoglycan Scaffolds** B. A. Harley, H-D. Kim, M. H. Zaman, I. V. Yannas, L. J. Gibson; Massachusetts Institute of Technology, Cambridge, MA.
- 354 Excimer Laser Channel Creation in Polyethersulfone Hollow Fibers for Compartmentalized In Vitro Neuronal Culture Models** C. A. Brayfield, K. G. Marra, J. P. Leonard, W. R. Stauffer, X. T. Cui, J. C. Gerlach; University of Pittsburgh, Pittsburgh, PA.
- 355 Enhancement of Mineralization From Bone Marrow Cells on a Nano-Structured Titanium Surface** E. Hippensteel, X. Yang, S. Vass, P. Li; DePuy Orthopaedics, Warsaw, IN.
- 356 Rapid prototyping of micropatterned cells by liquid-crystal display projection method** J. Kobayashi, K. Itoga, M. Yamato, A. Kikuchi, T. Okano; Tokyo Women's Medical University, Tokyo, JAPAN.
- 357 Construction of 3-Dimensional Artificial Tissues by Layer-by-Layer Assembly Technique** Y. Nakahara¹, M. Matsusaki², M. Akashi²; ¹Institute of Biomedical Research and Innovation, Kobe, JAPAN, ²Osaka University, Suita, JAPAN.
- 358 Cell Morphogenesis and Organization on Electrospun Scaffolds is Guided by Varying Porosity and Fiber Diameter** C. A. Florek¹, P. A. Johnson¹, P. V. Moghe², J. Kohn¹; ¹New Jersey Center for Biomaterials, Rutgers University, Piscataway, NJ, ²Department of Biomedical Engineering, Rutgers University, Piscataway, NJ.
- 359 In Vivo Cytokine Sampling during the Foreign Body Response** X. Wang¹, D. Loegering², J. Stenken¹; ¹Rensselaer Polytechnic Institute, Troy, NY, ²Albany Medical College, Albany, NY.
- 360 Nanoporosity of PEOT/PBT Electrospun Scaffolds Enhances Cell Proliferation and Influences Cell Morphology.** L. Moroni, R. Licht, J. R. de Wijn, C. A. van Blitterswijk; University of Twente, Utrecht, THE NETHERLANDS.
- 361 Co-Electrospun Nanofiber Fabrics of Polyester (PLCL) with Type I Collagen or Heparin** I. Kwon¹, T. Matsuda², K. Park¹; ¹Purdue University, West Lafayette, IN, ²Kyushu University, Fukuoka, JAPAN.
- 362 Identification and Initial Characterization of High Affinity Ligands Binding Specifically to Endothelial Progenitor Cells Using Phage Display Screening** A. N. Veleva¹, C. Patterson², S. Cooper²; ¹North Carolina State University, Raleigh, NC, ²University of Chapel Hill, Chapel Hill, NC, ³Ohio State University, Columbus, OH.
- 363 Neurite Outgrowth in Response to Micropatterned Molecular Cues and Three Dimensional Matrices** C. M. Gourd, V. J. Fong, D. Hoffman-Kim; Brown University, Providence, RI.
- 364 Resorption of Biomimetic Apatite by Osteoclasts Cultured From Bone Marrow Cells With and Without Vitamin D E.** Hippensteel, J. Longworth, W. Tong, P. Li; DePuy Orthopaedics, Warsaw, IN.
- 365 Quantitative Effects of NGF Encapsulating PLGA Microsphere on Neurite Outgrowth at Single Cell Level** A. J. Sweeney¹, K. Burg¹, M. Kindy², G. Z. Bruce¹; ¹Clemson University, Clemson, SC, ²Medical University of South Carolina, Charleston, SC.
- 366 Evaluation of Microcarrier Formulations for Propagation of Osteoblasts and Chondrocytes** P. Phan¹, M. Grzanna¹, A. Polotsky¹, A. Shikani², D. S. Hungerford¹, C. G. Frondoza¹; ¹Johns Hopkins University, Dept of Orthopaedic Surgery, Baltimore, MD, ²Johns Hopkins University, Dept of Otolaryngology, Baltimore, MD.
- 367 In Vitro Evaluation of Electrospun Nanofiber Conduits for Vascular Substitutes** S. Lee, J. Yoo, G. Lim, A. Atala, J. Stitzel; Wake Forest University School of Medicine, Winston Salem, NC.
- 368 The effect of substrate topography on the proliferation and morphology of chondrocytes** J. Nam, Y. Huang, M. Anghelina, S. Agarwal, J. Lannutti; The Ohio State University, Columbus, OH.
- 369 Micromolding of photocrosslinkable hyaluronic acid for cell encapsulation and entrapment** A. Khademhosseini¹, G. Eng², J. Yeh², J. Fukuda², J. Blumling III², J. Karp², R. Langer², J. Burdick³; ¹Harvard-MIT, Cambridge, MA, ²MIT, Cambridge, MA, ³University of Pennsylvania, Philadelphia, PA.
- 370 Mechanism of Bone Formation and Guided Tissue Growth at the Interface with Resorbable Bioactive Implant** A. El-Ghannam, C. Ning; University of Kentucky, Lexington, KY.
- 371 Histological and Immunohistochemical Study of Biopsies Sampled after Sinus Floor Augmentation Using Tricalcium Phosphate Particles with Varying Porosity** C. Knabel¹, C. Koch¹, A. Rack², M. Stiller¹; ¹Charite University Medical Center, Berlin, GERMANY, ²Helmholtz Research Center, Karlsruhe, GERMANY.
- 372 Electrospun Acrylic Terpolymer Nanofibers for Engineered Vascular Replacements** A. N. Veleva¹, J. Johnson², D. Heath³, C. Patterson³, S. Cooper², J. Lannutti²; ¹North Carolina State University, Raleigh, NC, ²Ohio State University, Columbus, OH, ³University of Chapel Hill, Chappel Hill, NC.
- 374 In-Vivo evaluation of nano-coated calcium phosphate scaffolds for bone regeneration** S. Oh¹, N. Oh², H. Yoon¹, Y. Yang¹, M. Appleford¹, J. Bumgardner³, W. Haggard³, J. Ong¹; ¹University of Tennessee, Memphis, TN, ²Inha University, Incheon, REPUBLIC OF KOREA, ³University of Memphis, Memphis, TN.
- 375 Control of Cell-Matrix Interactions on Fibrin Bi-layers and Micro-Patterned Surfaces** H. Wang¹, B. Ratner¹, H. Sage², S. Jiang¹; ¹University of Washington, Seattle, WA, ²Hope Heart Program, Benaroya Research Institute at Virginia Mason, Seattle, WA.
- 376 Oriented Pore Scaffolds from an Elastase-Sensitive, Biodegradable Elastomer to Achieve Mechanical Anisotropy and Improved Cellularization** J. Guan, W. R. Wagner; University of Pittsburgh, Pittsburgh, PA.
- 377 Capillary Flow Networks in Collagen-Based Scaffolds for Microvascularized Tissue-Engineered Products** V. Janakiraman, B. L. Kienitz, H. Baskaran; Case Western Reserve University, Cleveland, OH.
- 378 Controlled chemical oxidation of titanium creates a nanotopography that enhances in vitro osteogenesis** A. Nanci¹, d. Paulo², A. Rosa², S. Zalzal¹, L. Richert¹, J-H. Yi¹, J. Wuest³, F. Rosei²; ¹Laboratoire de recherche sur les tissus calcifiés et les biomatériaux, Montreal, PQ, CANADA, ²University of Sao Paulo, Ribeirao Preto, BRAZIL, ³Université de Montréal, Montreal, PQ, CANADA, ⁴INRS-EMT, Varennes, PQ, CANADA.



- 379 **Porogen-induced Surface Modification of Nano-fibrous Poly(L-lactic acid) Scaffolds for Bone Tissue Engineering** X. Liu, Y. Won, P. X. Ma; University of Michigan, Ann Arbor, MI.
- 380 **Effects of Nanoscale Pore Size and Microscale Particle Size on Diffusion of Proteinase K out of Sol-Gel Silica** W. Dong, W. Lin, Y. Lin, D. Elmatari, N. Contreras, S. Vo, M. Torres; Cal Poly Pomona, Pomona, CA.
- 381 **Mechanisms of Enhanced Functions of Osteoblasts on Undoped and Yttrium-doped Nanocrystalline Hydroxyapatite** M. Sato¹, M. A. Sambito², A. Aslani², N. M. Kalkhoran², E. B. Slamovich¹, T. J. Webster¹; ¹Purdue University, West Lafayette, IN, ²Spire Biomedical, Inc., Bedford, MA.
- 382 **Layer-by-Layer Assembled Titanium Dioxide Thin Films for Bone Tissue Engineering** S. M. Sriram; Louisiana Tech University, Ruston, LA.
- 383 **AFM Investigation of Fibroblast-Fibroblast Interactions on Collagen Substrates** D. Dean¹, R. Gourdie², T. Borg³, L. Dooley¹, B. Z. Gao¹; ¹Clemson University, Clemson, SC, ²Medical University of South Carolina, Charleston, SC, ³University of South Carolina Medical School, Charleston, SC.
- 384 **Manipulating protein structure and distribution on surfaces to control endothelial cell behavior** L. Liu¹, T. Chao¹, B. D. Ratner¹, H. Sage², S. Jiang¹; ¹University of Washington, Seattle, WA, ²Benaroya Research Institute at Virginia Mason, Seattle, WA.
- 385 **Modulation of osteoblast-like cells, MG-63, on polyelectrolyte multilayer films** W-B. Tsai, S. Tan; National Taiwan University, Taipei, TAIWAN REPUBLIC OF CHINA.
- 386 **The effect of combined hypergravity and microgrooved surface topography on the behavior of fibroblasts** W. Loesberg; Radboud University Nijmegen, Nijmegen, THE NETHERLANDS.
- 387 **Quantitative Assessment of Continuous Infusion of Submicron-Sized Particles** S. G. Ortiz; Stanford Medical School, Stanford, CA.
- 388 **Adsorption-Induced Changes in Protein Bioactivity Correlated with Adsorbed Protein Orientation and Conformation** K. Fears, R. A. Latour; Clemson University, Clemson, SC.
- 389 **Hydrogels from chemically modified PVA with chondroitine sulfate: chemical characterization and biocompatibility.** E. C. Muniz, Sr.; Universidade Estadual de Maringá, Maringá, BRAZIL.
- 390 **Epithelial Cell Response to a Chemically Modified, Flexible Substrate, Presenting Nanoscale Topographic Features** T. J. Porri, K. Mallon, J. A. Dumesic, C. J. Murphy, P. F. Nealey; University of Wisconsin-Madison, Madison, WI.
- 391 **Mineralization from Bone Marrow Cells on a Biomimetic Nano-crystalline Apatite Coating: An SEM Study** X. Yang, E. Hippensteel, P. Li; DePuy Orthopaedics, Inc, Warsaw, IN.
- 392 **Generation of Laminin Micropatterns on Biocompatible Substrates Using Microscale Plasma-Initiated Patterning** B. Langowski, K. E. Uhrich; Rutgers University, Piscataway, NJ.
- 393 **3D Multi-layered Micro-fabricated Tissue Scaffolds of Biodegradable Polymers** W. Ryu, S. Min, R. J. Fasching, F. B. Prinz; Stanford University, Stanford, CA.
- 394 **U937 Macrophage Adhesion and TNF- and IL-1, mRNA Expression on Gelatin-Based Interpenetrating Network (IPN) Grafted With PEGylated Fibronectin (FN)-Derived Peptides** Q. Gao¹, A. Gustafson¹, W. Kao²; ¹School of Pharmacy, University of Wisconsin-Madison, Madison, WI, ²School of Pharmacy, Department of Biomedical Engineering, University of Wisconsin-Madison, Madison, WI.
- 395 **Controlling Protein Adsorption and Bone Cells Response to PDLLA by a Gas Plasma Surface Treatment** C. M. Alves¹, Y. Yang², D. Carnes², J. Ong², V. Sylvia², D. Dean², R. Reis¹, C. Agrawal²; ¹3B's Research Group - University of Minho, Braga, PORTUGAL, ²Center for Clinical Bioengineering, UTHSCSA, San Antonio, TX.

CELLULAR SIGNAL TRANSDUCTION SYMPOSIUM

- 397 **Polycarbonate-based Polyurethanes Stimulate Reactive Oxygen Species Production in Macrophages** J. E. McBane¹, J. P. Santerre², R. S. Labow¹; ¹University of Ottawa Heart Institute, Ottawa, ON, CANADA, ²University Toronto, Toronto, ON, CANADA.
- 398 **Effects of Local Infusion of Osteogenic Protein-1 on NSAID-Mediated Bone Formation in vivo** S. Goodman¹, E. Nelson¹, M. Chang¹, T. Ma¹, T. mawatari¹, K. J. Oh², M. Larsen¹, R. L. Smith¹; ¹Stanford University, Stanford, CA, ²Konkuk University, Seoul, REPUBLIC OF KOREA.
- 399 **Studies on the signalling of oxidative stress induced by metallic corrosion products in human endothelial cells in vitro** K. Peters, R. Tsaryk, R. E. Unger, M. Fischer, C. Kirkpatrick; Institute of Pathology, Mainz, GERMANY.
- 400 **Inhibitory effect of zinc ions in zinc-containing γ -tricalcium phosphate on function of matured osteoclasts** Y. Yamada¹, A. Ito², H. Kojima², M. Sakane³, S. Miyakawa³, R. Z. LeGros⁴, T. Uemura²; ¹Graduate School of Comprehensive Human Science, University of Tsukuba, Tsukuba, JAPAN, ²AIST(National Institute of Advanced Industrial Science and Technology), Tsukuba Ibaraki, JAPAN, ³Graduate School of Comprehensive Human Science, University of Tsukuba, Tsukuba Ibaraki, JAPAN, ⁴New York University, New York, NY.
- 401 **Material surfaces affect the protein expression patterns of human macrophages: a proteomics approach** D. M. Dinnes¹, H. Marcal², S. M. Mahler³, J. P. Santerre⁴, R. S. Labow¹; ¹University of Ottawa Heart Institute, Ottawa, ON, CANADA, ²Graduate School of Biomedical Engineering, University of New South Wales, Sydney, AUSTRALIA, ³Bioengineering Centre, University of New South Wales, Sydney, AUSTRALIA, ⁴Faculty of Dentistry, Institute for Biomaterials and Biomedical Engineering, University of Toronto, Toronto, ON, CANADA.
- 402 **Effect of various surface adsorbed proteins and phosphorylation inhibitor AG18 upon intracellular signaling proteins in adherent U937 cells identified by LC/MS** S. T. Zuckerman, W. J. Kao; University of Wisconsin-Madison, Madison, WI.
- 403 **Measuring the Biologic Reactivity of Implant Debris Using In Vitro Cellular Reactivity Correlated with In Vivo Serum Biomarkers** M. Caicedo, S. Anderson, A. Reddy, J. J. Jacobs, N. J. Hallab; Rush University Medical Center, Chicago, IL.
- 404 **Effect of Surface Chemistry on Dendritic Cell Responses and Profile of Carbohydrates Associated with Adsorbed Proteins** S. Shankar¹, B. Keselowsky¹, R. Cornelius², J. Brash², A. Garcia¹, J. Babensee¹; ¹Georgia Institute of Technology, Atlanta, GA, ²McMaster University, Hamilton, ON, CANADA.
- 405 **Promotion of neurite outgrowth on multi-molecular gradients by modulating downstream Rho pathways** E. S. Deweerd; Brown University, Providence, RI.
- 406 **Measurement of Cytokines Collected from Lipopolysaccharide-Stimulated Monocytes** R. J. Schutte, D. Wang, W. Reichert; Duke University, Durham, NC.
- 407 **Effects of Heparin on MC3T3-E1 Osteoblast-like Cell Behavior** T. Jiang, C. T. Laurencin; University of Virginia, Charlottesville, VA.



- 408 **Effects of Simulated Microgravity on Human Osteoblast Behavior: A Proteomics Study** H. L. Nichols¹, N. Zhang¹, S. Holton², X. Wen¹; ¹Clemson University, Charleston, SC, ²University of South Carolina, Columbia, SC.
- 409 **Fibronectin-mimetic Surfaces Directing $\alpha 5\beta 1$ Integrin-Mediated Adhesion, Signaling, and Proliferation** T. A. Petrie, J. R. Capadona, A. J. Garcia; Georgia Institute of Technology, Atlanta, GA.
- 410 **Effect of Changing Surface Hydrophobicity Alters Protein Expression and Cellular Dynamics** I. S. Miller¹, S. C. Penney¹, D. P. O'Connor¹, I. Lynch², K. Dawson², W. M. Gallagher²; ¹UCD School of Biomolecular and Biomedical Science, Conway Institute of Biomolecular and Biomedical Research, Dublin, IRELAND, ²Centre for Colloid Science and Biomaterials, School of Chemistry and Chemical Biology, University College Dublin, Ireland, Dublin, IRELAND.
- 411 **Influence of Smooth Muscle Cell Phenotype on Endothelial Cell Response to Biomaterial-Pretreated Leukocytes in an EC/SMC Co-Culture Model** S. Rose, J. Babensee; Georgia Institute of Technology, Atlanta, GA.
- 412 **In Vitro Metal-Reactivity Is Associated With In Vivo Metal-Specific Antibodies (IgG) In Individuals with Metal Implants** M. S. Caicedo, A. Reddy, S. Anderson, J. J. Jacobs, N. J. Hallab; Rush University Medical Center, Chicago, IL.
- 413 **Enhanced ECM regeneration in Mechano-active vascular tissue engineering** Y. KIM¹, J. LIM², S-H. KIM², S. KIM²; ¹Gwangju Inst Sci Tech (GIST), Gwangju, REPUBLIC OF KOREA, ²Korea Inst Sci Tech (KIST), Seoul, REPUBLIC OF KOREA.
- 414 **Characterization of Single lumen and Multi-channel Poly(ϵ -capro-lactone-fumarate)(PCLF) for Experimental Nerve and Spinal Cord Repair.** I. A. Onyeneho, G. C. W. de Ruiter, S. Wang, L. Lu, J. Gruetzmacher, R. J. Spinner, B. Currier, A. J. Windebank, M. J. Yaszemski; Mayo Clinic College of Medicine, Rochester, MN.
- 415 **Adjuvant-like Activity of Silicone Breast Implants against Extracellular Matrix Molecules** R. C. de Guzman, P. H. Wooley, P. J. VandeVord; Wayne State University, Detroit, MI.
- 416 **Biological response of calcium phosphate ceramics synthesized by using recycled eggshell** N. Oh¹, S. Song¹, J. Choi¹, S. Oh², S. Lee³, M. Lee³; ¹Inha University, Incheon, REPUBLIC OF KOREA, ²University of Tennessee, Memphis, TN, ³Mokpo National University, Mokpo, REPUBLIC OF KOREA, ⁴Korea Institute of Ceramic Eng.&Tech., Seoul, REPUBLIC OF KOREA.
- 417 **Investigation of the Wound Healing Processes in the Region Adjacent to an Implanted Biosensor by Application of Electrical Impedance Spectroscopy** F. B. Karp¹, T. Valdes², K. Böhringer¹, B. Ratner¹; ¹University of Washington, Seattle, WA, ²University of Connecticut Health Center, Farmington, CT.
- 418 **Poly(propylene fumarate)-co-Poly(ϵ -caprolactone) Tube for Guided Nerve Regeneration** S. Wang, G. C. W. de Ruiter, A. M. Knight, L. Lu, R. J. Spinner, B. L. Currier, A. J. Windebank, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 419 **Evaluation of biological tissue response of b-TCP bone substitute in high molecular sodium hyaluronate matrix in sheep for improved handling properties** Y. Bruderer¹, T. Stoll¹, P. Schupbach²; ¹Synthes, Oberdorf, SWITZERLAND, ²Peter Schüpbach GmbH, Mikroskopische Analysen, Horgen, SWITZERLAND.
- 420 **Neurotoxicity Screening Test for Deep Brain Stimulation Leads** S. M. Hooper; Advanced Neuromodulation Systems, Inc., Plano, TX.

- 421 **Peripheral Nerve Regeneration by a Novel Microporous PLGA/Pluronic Nerve Guide Conduit** S. Oh¹, J. Kim¹, S. Ghil², J. Yoon¹, K. Song³, B. Jeon³, I. Lee⁴, J. Lee¹; ¹Hannam University, Daejeon, REPUBLIC OF KOREA, ²Kyonggi University, Suwon, REPUBLIC OF KOREA, ³Chungnam National University Hospital, Daejeon, REPUBLIC OF KOREA, ⁴Catholic University Hospital, Daejeon, REPUBLIC OF KOREA.

CLINICAL RELEVANCE OF STENT FRACTURES, CAUSE, EFFECT, AND IMPROVED DESIGNS

- 422 **Biopolymer-Hydroxyapatite Matrix Composite Coatings for Stents** Q. Yang¹, M. Tsui¹, M. Lien², D. Smith², A. Rajtar², T. Troczynski¹; ¹The University of British Columbia, Vancouver, BC, CANADA, ²MIV Therapeutics Inc, Vancouver, BC, CANADA.
- 423 **Curcumin-loaded bioresorbable stents based on internally coiled helix designs** A. Dasnurkar; University of Texas Southwestern Medical School, Dallas, TX.

FIBRIN SEALANT AND ITS APPLICATION IN TISSUE ENGINEERING

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- 424 **Recombinant fibrinogen synthesis: transient transfection CHO cells in suspension** L. Yang; Laboratory for Regenerative Medicine and Pharmacobiology, Lausanne, SWITZERLAND.
- 425 **Optimisation of a Fibrin Scaffold for Sustained Release of an Adenoviral Gene Vector** A. M. Breen¹, P. Strappe², T. H. Barker³, J. A. Hubbell³, T. O'Brien², A. S. Pandit¹; ¹National Centre for Biomedical Engineering and Science, Galway, IRELAND, ²Regenerative Medicine Institute, Galway, IRELAND, ³Ecole Polytechnique Federale de Lausanne, Lausanne, SWITZERLAND.
- 426 **DNA Ligands for Integrating Biointeractive Materials** R. Mittal, N. R. Washburn, K. L. Robertson, B. A. Armitage; Carnegie Mellon University, Pittsburgh, PA.
- 427 **Use of Radiochemically Sterilized, Absorbable Tissue Adhesive for Cat and Dog Lung Repair** S. W. Shalaby¹, D. Nickelson², M. A. Vaughn¹, T. Kennedy², P. L. Tate¹; ¹Poly-Med, Inc., Anderson, SC, ²Veterinary Products Laboratories, Phoenix, AZ.
- 428 **Sustained Release of Transforming Growth Factor-Beta 1 from PEGylated Fibrin Gels** C. T. Drinnan¹, G. Zhang², J. Zhang², L. J. Suggs¹; ¹University of Texas at Austin, Austin, TX, ²University of Minnesota, Minneapolis, MN.
- 429 **Plasminogen Free Fibrin Sealant** A. J. Gorman; Ethicon Inc, Somerville, NJ.
- 430 **MAP Cell Binding Domain to Attach R28 Retinal Stem Cells to RCS Eyecups Over Time** M. P. Olivieri, M. I. Hurley, L. Trawally, R. Quarshie, C. Gurita; D'Youville College, Buffalo, NY.
- 432 **Evaluation of Chitosan/-TCP/Platelet-Rich Plasma Microspheres to Bone Repairing Materials** S-M. Kuo¹, T. Wang¹, L-C. Lin², S. Chang¹; ¹Department of Biomedical Engineering, Kaohsiung County, TAIWAN REPUBLIC OF CHINA, ²Orthopedic Department of Veteran General Hospital, Kaohsiung, TAIWAN REPUBLIC OF CHINA.
- 433 **Use of Radiochemically Sterilized, Absorbable Tissue Adhesive for Rabbit Kidney Repair** P. L. Tate, B. L. Anneaux, M. A. Vaughn, S. W. Shalaby; Poly-Med, Inc., Anderson, SC.



MECHANOBIOLOGY OF SKIN AND BONE

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- 434 **Synthesis and Characterization of Injectable Bioreponsive Hydrogels for Soft Tissue Replacement** J. D. Thomas¹, M. Marcolongo¹, G. W. Fussell², A. M. Lowman¹; ¹Drexel University, Philadelphia, PA, ²Synthes-Spine, West Chester, PA.
- 435 **Mechanical Properties of Cell Seeded Porous Hydroxyapatite Scaffolds** M. Appleford¹, S. Oh¹, Y. Yang¹, J. Bumgardner², W. Haggard², J. L. Ong¹; ¹University of Tennessee Health Science Center, Memphis, TN, ²University of Memphis, Memphis, TN.
- 436 **Effect of Human Fibroblasts Over the Osteoblastic Activity of Human Osteoblastic-like Cells: Role for Cell-Cell Interactions** R. P. Pirraco, A. P. Marques, R. L. Reis; 3B's Research Group, Braga, PORTUGAL.
- 437 **Cyclic mechanical strain regulates secretion of angiogenic cytokines** Y. Yung; Harvard University, Cambridge, MA.
- 438 **EDC Crosslinking Increases Cultured Skin Substitute Stability and Strength** H. M. Powell, S. T. Boyce; Shriners Hospital for Children, Cincinnati, OH.
- 439 **Age Related Structure-Function Changes of Human Renal Arteries** Y. Yuan¹, L. D. T. Topoleski¹, W. J. Mergner², L. Li³; ¹UMBC, Baltimore, MD, ²Univ. Maryland, Baltimore, Baltimore, MD, ³Office of the State Medical Examiner, Baltimore, MD.
- 440 **The Effect of Surfactant Treatments on the Mechanical and Delamination Behavior of Human Stratum Corneum** K. Levi¹, K. S. Wu¹, K. P. Ananthapadmanabhan², R. H. Dauskardt¹; ¹Stanford University, Stanford, CA, ²Unilever Research and Development, Trumbull, CT.
- 441 **Synthesis and Evaluation of Isopropyl Alcohol-Miscible Copolymers as Sprayable Skin Protective Barriers** J. M. Lindsey, III¹, M. Shalaby², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²Lehigh Valley Hospital, Allentown, PA.
- 442 **Effect of Hyaluronic Acid Molecular Weight on the Rheology of Synovial Fluid Analogues** H. Fam, J. Lian, M. Kontopoulou, J. T. Bryant; Queen's University, Kingston, ON, CANADA.
- 443 **Extracellular Matrix Molecules Enhance Allograft Skin Viability** K. L. Fitzpatrick¹, Y-I. Yang², K. R. Kirker¹, M. Massey³, J. Shelby¹; ¹Bacterin International, Inc., Belgrade, MT, ²School of Medicine, Inje University, Gae-Kum-dong, Pusan-Jin-gu, Pusan, REPUBLIC OF KOREA, ³Department of Surgery, University of Utah, Salt Lake City, UT.
- 444 **Biodegradable polyurethane scaffolds for tissue engineering** S. Gogolewski¹, K. Gorna¹, E. Zaczynska², B. Zywicka³, A. Czarny²; ¹Polymer Research, AO Research Institute, Davos, SWITZERLAND, ²Institute of Immunology and Experimental Therapy, Polish Academy of Sciences, Wroclaw, POLAND, ³Institute of Experimental Surgery and Biomaterials Research, Medical University, Wroclaw, POLAND.
- 445 **Lattice Architecture of the Cholecyst Derived Extracellular Matrix dictates an Integrative Tissue Response** A. Pandit, K. Burugapalli; National University of Ireland, Galway, Galway, IRELAND.
- 446 **Development of Functional Nucleic Acid Aptamers for Inhibition of Cytokines Activity** S. Sun; Carnegie Mellon University, Pittsburgh, PA.
- 447 **Influence of NaF and CaO Addition on Mechanical Properties of Tricalcium Phosphates** Z. M. Seeley; Washington State University, Pullman, WA.

- 448 **The Potential for Reuse of Ilizarov Composite Half-Rings A.** Hahn, K. Golovin, A. S. Litsky; Ohio State Univeristy, Columbus, OH.
- 449 **Mechanical properties of injectable calcium phosphate cement incorporated with PLGA microparticles** D. P. Link, J. van den Dolder, W. J. Jurgens, J. G. Wolke, J. A. Jansen; Radboud University Nijmegen, Nijmegen, THE NETHERLANDS.
- 450 **Mechanical Properties upon Curing of Orthopaedic Composites** B. E. Carroll, T. D. Clineff, E. M. Erbe; Orthovita, Inc., Malvern, PA.
- 451 **Bimodal porosity in bone scaffold materials: dual function of enhancing both biological function and fracture energy?** M. J. Baumann, I. O. Smith, E. D. Case; Michigan State University, East Lansing, MI.
- 452 **Compartmentalized Bioreactor for Long-term Culture of Bone Cells** R. Dhurjati, E. Vogler; Penn State University, University Park, PA.

MODELING BIORESPONSE TO BIOMATERIALS

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- 453 **Rat Root Apical Bone Resorption Model: A New Aseptic Loosening Model** X. Peng, Jr., W. Ren, Sr., B. Wu, Jr., L. Mao, Jr., J. Hua, Sr., P. H. Wooley, Sr.; Wayne State University School of Medicine, Detroit, MI.
- 454 **Bone Analog Development for Orthopaedic Device Evaluation** K. L. Calvert¹, L. A. Kirkpatrick², K. P. Trumble¹, T. J. Webster¹; ¹Purdue University, West Lafayette, IN, ²Zimmer, Inc., Warsaw, IN.
- 455 **Comparison Between Force Field-Based Implicit Solvent Models and DFT/SCRF for Protein-Surface Interactions** Y. Sun, R. A. Latour; Clemson University, Clemson, SC.
- 456 **Long Term Inlay Mobility In A Mobile Bearing Total Knee Replacement** M. Muenchinger¹, A. Franz², C. Reinschmidt¹; ¹Zimmer GmbH, Winterthur, SWITZERLAND, ²St. Marienkrankenhaus, Siegen, GERMANY.
- 457 **Identifying In-Vivo Prosthetic Wear Debris Using Spectroscopic Techniques** M. W. Kovacic¹, J. D. Ehrman², E. T. Bender², N. Stojilovic², R. D. Ramsier²; ¹Summa Health System Hospitals, Akron, OH, ²The University of Akron, Akron, OH.
- 458 **Molecular Modeling and Computational Study of Tyrosine-Derived Polyarylates** L. M. Valenzuela¹, A. Gubskaya², J. Kohn¹, D. Knight²; ¹New Jersey Center for Biomaterials, Rutgers University, Piscataway, NJ, ²Dept. of Mechanical & Aerospace Engineering, Rutgers University, Piscataway, NJ.
- 459 **Molecular Simulation Study of Nanoscale Friction between Phosphocholine Self-Assembled Monolayer Surfaces Immersed in Aqueous Solution** Y. He; University of Washington, Seattle, WA.
- 460 **The Biomaterials Store** D. Pulavarthi¹, D. Knight¹, J. Kohn²; ¹Rutgers-The State University of New Jersey, piscataway, NJ, ²Rutgers-The State University of New Jersey and NJ center for Biomaterials, Piscataway, NJ.
- 461 **Adaptive Umbrella Sampling Algorithm for the Calculation of Peptide/Surface Adsorption Free Energy** F. Wang, D. Y. Sun, S. J. Stuart, R. A. Latour, Jr.; Clemson University, Clemson, SC.
- 462 **A Capacitive Immunosensor for Atrazine-Detection** C. Schröder¹, S. Braschoß¹, H. Schubert¹, U. Gross²; ¹TU Berlin, Berlin, GERMANY, ²Freie Universität Berlin, Berlin, GERMANY.

NEW CONCEPTS AND CHALLENGES FOR THE DELIVERY OF THERAPEUTIC NUCLEIC ACIDS SYMPOSIUM

Organized by Drug Delivery SIG

- 463 **pH-Responsive Copolymers for Intracellular Drug Delivery** S. M. Henry, C. M. Pirie, M. E. H. El-Sayed, P. S. Stayton, A. S. Hoffman; University of Washington, Seattle, WA.
- 465 **Biomaterial-Mediated Retroviral Gene Transfer Using Self-Assembled Monolayers** C. A. Gersbach, J. M. Le Doux, A. J. Garcia; Georgia Institute of Technology, Atlanta, GA.
- 466 **Degradable PEG Nanogels for Cytosol-specific Release of Plasmid DNA** T. Park; KAIST, Daejeon, REPUBLIC OF KOREA.
- 467 **PEGylated Nano-hybrid Adenovirus: Retargeting Adenovirus to Tumor Cells** T. Park; KAIST, Daejeon, REPUBLIC OF KOREA.
- 468 **Nanoparticles for Hepatocyte-targeted Delivery** J. M. Bergen, H. A. von Recum, T. T. Goodman, A. P. Massey, S. H. Pun; University of Washington, Seattle, WA.
- 469 **Relationship between the gene transfer efficacy and the facilitated disassembly of polyplexes composed of self-assembling amphiphilic polycations** T. Yamaoka¹, T. Kitagawa², K. Ishihara³, A. Mahara¹, A. Murakami², A. Kishida⁴; ¹National Cardiovascular Center Research Institute, Suita, JAPAN, ²Kyoto Institute of Technology, Kyoto, JAPAN, ³The University of Tokyo, Tokyo, JAPAN, ⁴Tokyo Medical and Dental University, Tokyo, JAPAN.
- 470 **Freeze-drying Differentially Influences the Transfection Efficiency of Polyethylenimine-DNA Condensates** L. Hahn; Harvard University, Cambridge, MA.
- 471 **Major Histocompatibility Complex (MHC) Class II-Directed Oligodeoxynucleotide Delivery in Dendritic Cells** J. R. Kovacs¹, Y. Zheng¹, L. Jia¹, E. S. Gawalt¹, H. Shen², W. S. Meng¹; ¹Duquesne University, Pittsburgh, PA, ²University of Pittsburgh, Pittsburgh, PA.
- 472 **Potential of Palmitic-Acid Modified Polyethylenimine (PEI) and Poly-L-Lysine (PLL) to Transfer Plasmid DNA into Bone Marrow Stromal Cells (BMSC)** H. Uludag¹, E. Tunis¹, V. Incani¹, C. Kucharski¹, B. Acan¹, A. Lavasanifar¹, Y. Li¹, A. Ghahary²; ¹University of Alberta, Edmonton, AB, CANADA, ²University of British Columbia, Vancouver, BC, CANADA.
- 473 **Cell Binding and Cytotoxicity of Palmitic-Acid Modified Polyethylenimine (PEI) and Poly-L-lysine (PLL) on Bone Marrow Stromal Cells (BMSC)** V. Incani, C. Olson, E. Tunis, C. Kucharski, H. Uludag; University of Alberta, Edmonton, AB, CANADA.
- 474 **Magnetic Nanobeads for the Delivery of Therapeutic Nucleic Acids to the Heart** W. Li; University of Rostock, Rostock, GERMANY.

OPHTHALMIC DRUG DELIVERY

Organized by Ophthalmological Biomaterials SIG

- 475 **Dendrimer crosslinked collagen hydrogels modified with YIGSR peptide and their effects on cellular behaviors of human corneal epithelial cell line and nerve regeneration** D. Duan; McMaster University, Hamilton, ON, CANADA.
- 476 **Quantification of doxorubicin concentration in rat tissues using polymeric micelles in ultrasonic-drug delivery** B. J. Staples, B. Roeder, W. G. Pitt; Brigham Young University, Provo, UT.

ORGANIC/INORGANIC HYBRID BIOMATERIALS SYMPOSIUM

Organized by Dental / Craniofacial, and Tissue Engineering SIGs

- 477 **Bioreactivity Responses to Bone Cement Are Dose Dependent** N. J. Hallab, S. Anderson, A. Reddy, M. Caicedo, J. J. Jacobs; Rush University Medical Center, Chicago, IL.
- 479 **Bone induction by equine COLLOSS® E-filled titanium scaffolding material** X. Walboomers, M. E. L. Nienhuijs, M. A. W. Merkx, P. J. W. Stoelinga, J. A. Jansen; Radboud University Nijmegen Medical Center, Nijmegen, THE NETHERLANDS.
- 480 **Preparation of hydroxyapatite/gelatine scaffolds crosslinked by Glutaraldehyde** m. kazemzadeh narbat; Materials and Energy Research Center, karaj, IRAN (ISLAMIC REPUBLIC OF).
- 481 **The Effects Of Amino Acid Binders On Proliferation And Viability Of Fibroblast Cells** M. A. Tucci, H. A. Benghuzzi; University of Mississippi Medical Center, Jackson, MS.
- 482 **Cytokine Expression after Endovascular Embolization of Experimental Aneurysms** G. M. Cruise¹, D. L. Elbert², J. C. Shum¹; ¹MicroVention, Inc., Aliso Viejo, CA, ²Washington University in St. Louis, St. Louis, MO.
- 483 **Study on in vitro biocompatibility of PHBV/Wollastonite composites** J. Chang, H. Li, W. Zhai; Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, CHINA.
- 484 **Structure/Property Relationships in Urethane Dimethacrylate-based ACP Composites** W. F. Regnault¹, T. B. Icenogle¹, J. M. Antonucci², D-W. Liu², D. Skrtic²; ¹Food and Drug Administration, Rockville, MD, ²National Institute of Standards and Technology, Gaithersburg, MD, ³American Dental Association Foundation, Gaithersburg, MD.
- 485 **Interfacial Bonding and Mechanical Properties of Polyurethane Composites under Wet Conditions** S. Lyu, J. Schley, C. Hobot, R. Sparer; Medtronic Inc, Minneapolis, MN.
- 486 **Enhanced Strength Retention of Bioresorbable Implants Sterilized by Ethylene Oxide (ETO)** A. J. McManus, R. C. Moser, R. B. Dabkowski, K. A. Thomas; MacroPore Biosurgery, San Diego, CA.
- 487 **Bioresorbable Radiopaque Markers for Visualization of Resorbable Polymer Spinal Implants** K. A. Thomas; MacroPore Biosurgery, San Diego, CA.
- 488 **Preparation of Biodegradable PHBV and Lignosulfonate Composite by Reactive Extrusion and Their Mechanical and Morphological Characterization** N. Durán, Sr.; Universidade Estadual de Campinas, Campinas, BRAZIL.
- 489 **Osteoblast Response to Bioactive Borate Glass Surfaces for Titanium** R. F. Brown, T. King, L. Peddi, R. K. Brow; University of Missouri-Rolla, Rolla, MO.
- 490 **Protein adsorption of sol-gel derived bioactive glasses/collagen composite scaffolds** J. Chang¹, W. Xia¹, J. Zhong²; ¹Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, CHINA, ²NovaBone Products, LLC, Alachua, FL.
- 491 **In Situ Crosslinkable Bioresorbable Poly(Lactide Fumarate) Scaffolds for Guided Bone Regeneration** E. Jabbari; University of South Carolina, Columbia, SC.
- 492 **Increase of cell adhesiveness on poly(ethylene terephthalate) fabric by coating of sintered hydroxyapatite nanocrystals** M. Masuda¹, M. Okada¹, S. Yasuda¹, H. Kadono¹, R. Tanaka², K. Miyatake³, T. Furuzono¹; ¹Department of Biomedical Engineering, National Cardiovascular Center Research Institute, Suita/city.Osaka, JAPAN, ²National Cardiovascular Center, Suita/city.Osaka, JAPAN, ³National Hospital Organization Osaka Minami Medical Center, Kawachinagano/city.Osaka, JAPAN.



- 493 **Biocompatibility and Biodegradation of NovoSorb™ Biodegradable Polyurethanes** P. A. Gunatillake¹, R. Adhikari¹, R. T. A. Mayadunne¹, S. Houshyar¹, L. Hanu¹, J. Field¹, M. McGee¹, M. McGee¹, J. Werkmeister², D. Menzis¹, T. Moore³, I. Griffiths⁴; ¹PolyNovo Biomaterials, Clayton South, AUSTRALIA, ²CSIRO Molecular & Health Technologies, Clayton South, AUSTRALIA.
- 494 **Biodegradable NovoSorb™ Polymers: Structure/Property Relationships & In-vitro/In-vivo Degradation** R. T. A. Mayadunne¹, P. A. Gunatillake¹, R. Adhikari¹, I. M. Griffiths¹, J. R. Field², S. Houshyar¹, L. Hanu¹, D. Menzis¹, T. Moore¹, P. Johnston¹, L. Tatai¹, M. Wickramaratna¹; ¹PolyNovo Biomaterials Pty. Ltd., Clayton Sout MDC, Victoria, AUSTRALIA, ²Flinders University, Adelaide, AUSTRALIA.
- 495 **Collagen-Hydroxyapatite Membranes for Guided Bone Regeneration** J. H. Song¹, B. H. Yoon¹, S. H. Lee¹, I. K. Jun¹, H. E. Kim¹, H. W. Kim²; ¹Seoul National University, Seoul, REPUBLIC OF KOREA, ²Dankook University, Cheonan, REPUBLIC OF KOREA.
- 496 **In Vitro Biodegradation of Fibroin Woven Scaffolds for Anterior Cruciate Ligament** A. Alessandrino¹, A. Boschi², M. Colombo¹, S. Fare¹, M. C. Tanzi¹, G. Freddi²; ¹Politecnico di Milano, Milan, ITALY, ²Silk Experimental Station, Milan, ITALY.
- 497 **Copolymers from L-Lactide and PEG as Fast Resorbing Polymers with High Mechanical Strength** A. Enderle; Boehringer Ingelheim Pharma GmbH & Co. KG, Ingelheim, GERMANY.
- 498 **Bone Matrix and Demineralized Bone Matrix Incorporated PLGA Matrices for Long-term Bone Repair and Bone Tissue Engineering** A. C. Jayasuriya; Medical University of Ohio at Toledo, Toledo, OH.
- 499 **Effect of Porosity and Pore Size on Microstructures and Mechanical Properties of Poly- ϵ -Caprolactone (PCL)-Hydroxyapatite (HA) Composites** H. Yu, S-Y. Yang, H. W. Matthew, C. D. Huber, P. H. Wooley; Wayne State University, Detroit, MI.
- 500 **Biostability of Materials for an Implanted Drug Delivery Device** S. Lipka, J. Maloney; MicroCHIPS, Inc., Bedford, MA.
- 501 **Withdrawn**
- 502 **Comparison of Glycosaminoglycan-Targeted Fixation Chemistries and their Effects on Bioprosthetic Heart Valve Cuspal Tissue** J. Mercuri, S. Shah, E. Pardue, J. Isenburg, D. Simionescu, N. Vyavahare; Clemson University, Clemson, SC.
- 503 **Two Photon Induced Polymerization of Organic/Inorganic Hybrid Biomaterials For Microstructured Medical Devices** A. Doraiswamy¹, R. J. Narayan¹, A. Ovsianikov², R. Modi³, D. B. Chrisey³, B. Chichkov³; ¹University of North Carolina, Chapel Hill, NC, ²Laser Zentrum Hannover ev., Hannover, GERMANY, ³U. S. Naval Research Laboratory, Washington, DC.
- 504 **Molecular Dynamics Simulations in Investigating the Liquid Crystalline Behavior Found in Biodegradable Polyarylates A.** V. Gubskaya; Rutgers University, The State University of New Jersey, Piscataway, NJ.
- 505 **Development of Hybrid Nanofibrous Matrices for Bone Regeneration** H-W. Kim; Dankook University, Cheonan, REPUBLIC OF KOREA.
- 506 **Bioactive Hybrid Microspheres for Bone Defect Filler** B-H. Yoon¹, H-W. Kim², J-H. Song¹, H-E. Kim¹; ¹Seoul National University, Seoul, REPUBLIC OF KOREA, ²Dankook University, Cheonan, REPUBLIC OF KOREA.
- 507 **Production of Novel Ddense Composites of Hydroxyapatite-Bioglass by Hot-Pressing Technique** E-J. Lee, H-W. Kim, H-E. Kim; Seoul National University, seoul, REPUBLIC OF KOREA.
- 508 **Failure Tolerance of Preformed PFM Veneer Using Paste System** M-H. Lee¹, W-S. Seo¹, J-S. Han², D-H. Kim³, N-S. Oh⁴; ¹Korea Institute of Ceramic Engineering and Technology, Seoul, REPUBLIC OF KOREA, ²Seoul National University, Seoul, REPUBLIC OF KOREA, ³Che-Il Dental Laboratory, Seoul, REPUBLIC OF KOREA, ⁴Inha University, Incheon, REPUBLIC OF KOREA.
- 509 **Effects of Temperature on In Vitro Degradation Behavior of a Poly(glycolide-co-L-lactide) Monofilament** M. Deng, D. Jamiolkowski, J. Zhou, G. Chen, Y. Xu, T. Barbolt; Ethicon, Inc., Somerville, NJ.
- 510 **Mechanical Properties of a Fiber Loaded Calcium Phosphate Cement In Vitro** E. D. Jacobson, M. T. Fulmer, P. J. Leamy, P. W. Schaut, X. Liu; Synthes, West Chester, PA.
- 511 **Wear Properties of a Pyrolytic Carbon Intervertebral Disc Replacement** N. Cheema¹, N. Hawkins², S. Salkeld¹, S. Cook³, K. Bailey²; ¹Fellowship of Orthopaedic Researchers, Metairie, LA, ²EBI, LP, Parsippany, NJ, ³Tulane University School of Medicine, New Orleans, LA.
- 512 **Effect of Irradiation on the Tensile Properties of Injection Molded PVA Hydrogels** K. Liu, B. Thomas, K. Day, D. Yakimicki, J. Mason; Zimmer Holdings, Inc, Warsaw, IN.
- 513 **Effect of Polymer Solution Viscosity on Injectability of Calcium Phosphate Cements** P. J. Leamy, M. T. Fulmer, M. Lehmicke; Synthes, West Chester, PA.
- 514 **In-vitro Degradation and Cell Viability Analysis of a Biodegradable Polyesterurethane** J. A. Henry; National Centre for Biomedical Engineering Science, NUI Galway, Galway, IRELAND.
- 515 **Investigation into the Influence of the Processing Environment on the Degree of Fibre Welding and Mesh Porosity** J. A. Henry; National Centre for Biomedical Engineering Science, NUI Galway, Galway, IRELAND.
- 516 **Evaluation of in situ setting calcium phosphate cements as carrier materials for antibiotics** X. Liu, M. Fulmer; Synthes, West Chester, PA.
- 517 **The effects of fiber length and loading on the handling and mechanical properties of a calcium phosphate material** E. D. Jacobson, P. J. Leamy, X. Liu, P. W. Schaut, D. Armbruster, M. T. Fulmer; Synthes, West Chester, PA.
- 518 **Polyether Urethane With Covalently Attached Di-Tert-Butylphenol and Cholesterol Resists Oxidative Degradation** S. J. Stachelek¹, I. Alferiev¹, M. S. Sacks², R. J. Levy¹; ¹Children's Hospital of Philadelphia, Philadelphia, PA, ²University of Pittsburgh, Pittsburgh, PA.
- 519 **Effect of Autologous Growth Factors on the Osteoinductive Properties of a DBM-based Bone Graft Substitute** K. E. Good, K. Sly, S. Lin; Exactech, Inc., Gainesville, FL.
- 520 **Biosynthetic Hydrogels Promote 3-D Outgrowth and Dedifferentiation at the Edge of Articular Cartilage Explants in an in vitro Model** M. Livnat¹, Y. Tal¹, J. Boss², J. Bejar², D. Seliktar²; ¹Regentis Biomaterials Ltd., Haifa, ISRAEL, ²Technion, Haifa, ISRAEL.
- 521 **Evaluation of Drug Release Profile for a Combination of Antibiotics in a Demineralized Bone Matrix Carrier** J. L. Simon, J. Manocchio, P. D'Antonio; EBI, LP, Parsippany, NJ.
- 522 **A Collagen-Anorganic Bone Composite for Bone Repair: Part I. In Vitro Characterization Studies** S-T. Li; Collagen Matrix Inc., Franklin Lakes, NJ.
- 523 **Packing Behavior of Calcium Phosphate Bone Graft Substitutes** T. D. Clineff, J. P. Murphy, J. G. Marx; Orthovita, Inc., Malvern, PA.
- 524 **Addition of Minocycline and Rifampin to Calcium Sulfate Cement Slows Bulk Ceramic Resorption** J. L. Simon, J. Manocchio, P. D'Antonio; EBI, LP, Parsippany, NJ.



- 525 **A Collagen-Anorganic Bone Composite for Bone Repair: Part II: In Vivo Study in a Rabbit Radius Defect Model** S-T. Li; Collagen Matrix Inc., Franklin Lakes, NJ.
- 526 **In vivo results of a polylactide - ceramic composite in sheep at 3 years** W. R. Walsh¹, M. Borden², J. Hernandez²; ¹Uni New South Wales, Randwick, Sydney, NSW, AUSTRALIA, ²Interpore-Cross International, Irvine, CA.
- 527 **Biomimetic Mineral Stability on 3D PLGA Scaffolds Immersed in Different Media** A. C. Jayasuriya; Medical University of Ohio at Toledo, Toledo, OH.
- 528 **Influence of TiO₂ and Ag₂O Addition on Properties of Tricalcium Phosphates** Z. M. Seeley; Washington State University, Pullman, WA.
- 529 **In vivo comparison of ACL reconstruction in the ovine model between a sterile allograft and autograft tendon** R. E. Olsen¹, A. M. York², C. W. Robinson¹, A. A. Zhukauskas², J. R. Bianchi²; ¹Frontier BioMedical Inc., Logan, UT, ²Regeneration Technologies Inc., Alachua, FL.
- 530 **Crosslinking Characteristics and Shape Memory Effect of a Biodegradable Multiblock Copolymer Poly(propylene fumarate)-co-Poly(ϵ -caprolactone)** S. Wang, L. Lu, J. A. Gruetzmacher, K-w. Lee, B. L. Currier, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 531 **In vivo Biocompatibility Assessment of a Pediatric Ventricular Assist Device** T. A. Snyder¹, C. Johnson, Jr.¹, J. Woolley¹, P. Wearden², A. Koert³, S. Richardson³, K. Dasse³, H. S. Borovetz¹, W. R. Wagner¹; ¹University of Pittsburgh, Pittsburgh, PA, ²Children's Hospital of Pittsburgh, Pittsburgh, PA, ³Levitronix, Waltham, MA.
- 532 **Development and Characterization of a Self-Healing/Autonomic Acrylic Bone Cement** L. Jones, III, G. Lewis², P. Biggs¹; ¹Chicago State University, Chicago, IL, ²The University of Memphis, Memphis, TN.
- 533 **Calcium Phosphate and Gypsum Composite Set with Hydroxypropyl Methylcellulose for Control of Degradation Rate** S. Kim; Yeungnam University, Gyeongbuk, REPUBLIC OF KOREA.
- 534 **Nanocomposite of Poly(propylene fumarate) with Crosslinkable Hydroxyapatite** S. Wang, D. H. Kempen, L. Lu, J. A. Gruetzmacher, T. Hefferan, B. L. Currier, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 535 **Controllable Properties of Photocrosslinked Blends of Poly(propylene fumarate) and Poly(caprolactone fumarate)** S. Wang, D. H. Kempen, L. Lu, J. A. Gruetzmacher, B. L. Currier, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 536 **A Novel Percutaneous Device Realized the Prevention of Germ Infraction Made of a Nano-Scaled Hydroxyapatite Crystals/Polymer Composite** Y. Kogai¹, S. Yasuda¹, 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, ³Independent Administrative Institution National Institute for Materials Science, Tsukuba/city, Ibaraki, JAPAN.
- 538 **"Characterization of Biodegradable Blends of PHBV/Tannin and PHBV/Lignin of sugarcane bagasse"** N. Duran; Universidade Estadual de Campinas, Campinas, BRAZIL.
- 540 **The Effect of Surface Finish on Micro Rotation and Frictional Torque of Taper-Locked Femoral Stems in Cemented Hip Joint Replacements** Z. Lu¹, H. McKellop¹, T. Schmalzried²; ¹Orthopaedic Hospital/UCLA, Los Angeles, CA, ²The Joint Replacement Institute, Los Angeles, CA.
- 541 **A long-term Wear study of 28mm UHMWPE Hip liners against Silicon Nitride Versus Cobalt Chrome Femoral Heads** J. G. BOWSER¹, T. K. DONALDSON¹, D. D. GREEN¹, R. LAKSHMINARAYANAN², A. KHANDKAR², I. C. CLARKE²; LOMA LINDA UNIVERSITY, LOMA LINDA, CA, ²AMEDICA, Salt lake city, UT.
- 542 **No or Extremely Low Wear Debris from Cross-Linked Polyethylene Cups** H. G. Willert¹, I. Lang¹, L. Rabenseifner², R. Hilgers¹; ¹University of Goettingen, Goettingen, GERMANY, ²Department of Orthopaedics, General Hospital, Baden-Baden, GERMANY.
- 543 **Debris from Combinations of Alumina Versus Alumina Matrix Composite: a Hip Simulator Model with Microseparation Test Mode** P. A. Williams, D. D. Green, N. L. Caffery, I. C. Clarke; Loma Linda University Medical Center, Loma Linda, CA.
- 544 **Performance of Mechanically Enhanced Crosslinked Polyethylene Under Standard and Severe Wear Simulator Modes** J. G. Bowhser, P.A. Williams, D.D. Green, I.C. Clarke, T.K. Donaldson; Loma Linda University, Loma Linda, CA.
- 545 **Thermally Stimulated Luminescence in Oxidized Gamma Sterilized Ultra High Molecular Weight Polyethylene** J. M. Gray, M. S. Jahan, M. Dunagan; The University of Memphis, Memphis, TN.
- 546 **Effects of Protein Concentration in the Serum Lubricant on the Wear of Crosslinked, Thermally Treated UHMWPE** J. Chen, A. Alberts, Y-S. Liao; DePuy Orthopaedics, Inc., Warsaw, IN.
- 547 **Retrieval Analysis of a Dislocating 38 mm Metal-on-Metal Hip Replacement** T.K. Donaldson, J. G. Bowhser, P.A. Williams, D.D. Green, I.C. Clarke; Loma Linda University, Loma Linda, CA.
- 548 **Quantification of Total Knee Replacement Kinematics During UHMWPE Wear** J. A. Cammon, Sr.; Clemson University, Clemson, SC.
- 549 **Effects of Negative Clearance on the Wear Performance of a Modern Metal-on-Metal Implants in a Hip Simulation Study** Y-S. Liao, M. Hanes; DePuy Orthopaedics, Inc., Warsaw, IN.
- 550 **Three Dimensional Laser Micrometry Analysis of Clinically Retrieved Acetabular Cups** J. Gaumer¹, J. Lannutti¹, J. Dyce¹, L. Nelson¹, P. Pavka¹, A. Kohm², V. Ravula¹, T. Dey¹, G. Li¹; ¹The Ohio State University, Columbus, OH, ²University of California Berkeley, Berkeley, CA.
- 551 **Effects of Crosslinking on the Wear of Polyethylene after 5 Years Real Time Aging in Oxygen** K. R. St. John; University of Mississippi Medical Center, Jackson, MS.
- 552 **Molded GUR1050 Resin Type Performance Versus ArCom 1900H In Knee Wear Simulation Study** R. Tsukamoto¹, M. Ogino², K. Yamada³, G. Pezzotti³, H. Shoji¹, I. C. Clarke¹; ¹Loma Linda University, Loma Linda, CA, ²Tsukamoto Orthopaedic Hospital, Tokyo, JAPAN, ³Kyoto Institute of Technology, Kyoto, JAPAN.
- 553 **Wear Debris Morphology of Silicon-Nitride Generated from a Hip Simulator Model** P. A. Williams¹, A. Lakshminarayana², A. Khandkar², D. D. Green¹, I. C. Clarke¹; ¹Loma Linda University Medical Center, Loma Linda, CA, ²Amedica Corp, Salt Lake City, UT.
- 554 **Raman Microspectroscopy of Polyethylene Structure, Strain & Oxidation Using New Glenoid Prostheses to Demonstrate Effects of Design and Manufacture** C. M. Jobe¹, G. Pezzotti², W. Phipatanakul¹; ¹Loma Linda University, Loma Linda, CA, ²Kyoto Institute of Technology, Kyoto, JAPAN.

ORTHOPEDIC BEARING SURFACES

Organized by Dental Craniofacial SIG, Implant Pathology SIG

- 539 **Detection of Vitamin E Radicals in Gamma-Irradiated --T-UHMWPE** M. D. Ridley, M. S. Jahan; University of Memphis, Memphis, TN.



- 555 **Evaluation of Bio-mimic Collagen II/HA copolymer as scaffold for chondrocytes** S-J. Chang¹, T. Kuan¹, S. Kuo¹, Y. Wang², Y. Wang³; ¹I-Shou University, Kaohsiung County, TAIWAN REPUBLIC OF CHINA, ²Yang Ming University, Taipei, TAIWAN REPUBLIC OF CHINA, ³Yang Ming University, Taipei, TAIWAN REPUBLIC OF CHINA.
- 556 **Biological Evaluation of Poly(propylene fumarate)-co-Poly(\bar{A} -caprolactone) for Bone Tissue Engineering** S. Wang, D. H. Kempen, L. Lu, T. Hefferan, B. L. Currier, M. J. Yaszemski; Mayo Clinic, Rochester, MN.
- 557 **Testing Parameters that Effect the Compressive Mechanical Behavior of the Intervertebral Disc** M. Cannella, M. Marcolongo; Drexel University, Philadelphia, PA.
- 558 **Low-Grade Systemic Inflammation Increases Endothelial Superoxide Levels and Reduces Nitric Oxide Availability** C. H. Coyle, R. Kato, M. B. Chancellor, W. C. de Groat, F. de Miguel, N. Yoshimura; University of Pittsburgh, Pittsburgh, PA.
- 571 **Differentiation of Human Mesenchymal Stem Cells on Biodegradable Polyurethane Membranes for Tissue Engineering** A. Chrosiccka, Y. K. Tsui, M. Alini, S. Gogolewski; AO Research Institute, CH-7270 Davos, SWITZERLAND.
- 572 **Fluorescent Activated Cell Sorting for the Characterization of Primary Rabbit Bone Marrow Fat Cell, Bone Marrow Stromal Cell, and Osteoblastic Cell Populations** M. D. Kofron¹, D. Lee², C. T. Laurencin¹; ¹University of Virginia, Charlottesville, VA, ²Drexel University, Philadelphia, PA.
- 573 **Biophysical Regulation of Stem Cell Differentiation is Surface Dependent** B. D. Boyan¹, M. Duran¹, S. Safavinya¹, G. Barabino², B. J. Simon³, Z. Schwartz¹; ¹Georgia Institute of Technology, Atlanta, GA, ²Northeastern University, Boston, MA, ³EBI, LP, Parsippany, NJ.
- 574 **Design and Qualification of a Novel Flex-Stretch-Flow Bioreactor for Engineering Heart Valve Tissues** G. C. Engelmayer, Jr.¹, L. Soletti¹, S. C. Vigmostad², S. G. Budilarto¹, W. J. Federspiel¹, K. B. Chandran², D. A. Vorp¹, M. S. Sacks¹; ¹University of Pittsburgh, Pittsburgh, PA, ²The University of Iowa, Iowa City, IA.

STEM CELLS: SOURCE, CULTURE AND APPLICATION

Organized by Biomaterial/Cell Organ Therapy SIG

- 559 **Evaluating the Influence of Cell-Substratum Adhesivity on Human Mesenchymal Stem Cell Neural Differentiation** Y-S. Lee¹, J. Kohn², T. L. Arinze¹; ¹New Jersey Institute of Technology, Newark, NJ, ²Rutgers University and New Jersey Center for Biomaterials, Piscataway, NJ.
- 560 **The Effects of Substrate on Muscle-Derived Stem Cell Differentiation** R. A. Long, J. Huard, M. B. Chancellor, M. S. Sacks; University of Pittsburgh, Pittsburgh, PA.
- 561 **Maintaining Mixed Populations of Adult Stem Cells Enhances Osteogenic Potential** K. M. Esterly, J. J. Lee, G. Poynter, C. Parrish, J. A. Rowley, J. Hock, K. Goltry; Aastrom Biosciences, Inc., Ann Arbor, MI.
- 562 **Osteogenic Differentiation of hMSC on Tyrosine Derived Polycarbonates** T. Briggs¹, T. Livingston Arinze¹, J. Kohn²; ¹New Jersey Institute of Technology, Newark, NJ, ²New Jersey Center for Biomaterials, Piscataway, NJ.
- 563 **Development of an Acellular Stem Cell-Derived Biomaterial** R. Nair, T. C. McDevitt; Georgia Institute of Technology, Atlanta, GA.
- 565 **Osteoprogenitor Cells Exposed to Polymethylmethacrylate Particles during the Proliferation Stage Are Susceptible to Irreversible Inhibition of Osteoblastic Differentiation** R. Chiu, T. Ma, R. L. Smith, S. B. Goodman; Stanford University School of Medicine, Stanford, CA.
- 566 **Undifferentiated Marrow Stromal Cells Lose Their Osteogenic Capability After Exposure to Polymethylmethacrylate Particles in a Non-Osteogenic Environment** R. Chiu, T. Ma, R. L. Smith, S. B. Goodman; Stanford University School of Medicine, Stanford, CA.
- 567 **Genomics-Guided Biomaterials Development** T. Xu, J. Hipp, G. Lim, J. Yoo, M. Van Dyke; Wake Forest University School of Medicine, Winston Salem, NC.
- 568 **Osteogenic Differentiation of Human Mesenchymal Stem Cells in Injectable In situ Thermogelling Chitosan Solutions** L. S. Nair, T. Starnes, C. T. Laurencin; University of Virginia, Charlottesville, VA.
- 569 **Differentiation of Adipose-Derived Stem Cells on Bone Tissue Engineering Scaffolds** A. J. Wirtel, III¹, M. D. Kofron¹, X. Li¹, A. Mesfin², C. T. Laurencin¹; ¹University of Virginia, Charlottesville, VA, ²Drexel University, Philadelphia, PA.
- 570 **Human Mesenchymal Stem Cell Response to Tethered Epidermal Growth Factor as a Surface Modification on Bone Implants** V. Fan; MIT, Cambridge, MA.
- 575 **A Rapid Technique for the Isolation and Concentration of Stem Cells from Human Bone Marrow** M. Ponticello; Intepore Cross Int'l, Irvine, CA.
- 576 **In Vitro Optimization of Clinical Formulations of Adult Stem Cells with Matrices for Bone Regeneration** J. A. Rowley, K. Esterly, B. McEwen, B. Pavlic, K. Goltry, J. Hock; Aastrom Biosciences, Ann Arbor, MI.
- 577 **Adipose-derived Stem Cell Attachment to Biomaterials** H. L. Prichard, W. Reichert, B. Klitzman; Duke University, Durham, NC.
- 578 **Establishing procedures for using a goat model for studying autologous tissue engineering strategies for the repair of cartilage and bone defects** M. T. Rodrigues; University of Minho, Braga, PORTUGAL.
- 579 **In Vitro and In Vivo Evaluation of Neural Stem Cells Seeded on Neural Probes** E. A. Charley, K. Lesk, W. R. Stauffer, G. T. Gobbel, X. Cui; University of Pittsburgh, Pittsburgh, PA.
- 580 **The Effect of Varying the Architecture of Scaffolds on Mesenchymal Stem Cell Osteogenesis and Chondrogenesis** S. Shanmugasundaram¹, A. S Mautone², M. Jaffe¹, L. Rizio³, T. Livingston Arinze¹; ¹New Jersey Institute of Technology, Newark, NJ, ²University of Virginia, Richmond, VA, ³New Jersey Sports Medicine Institute, Verona, NJ.
- 581 **Transfected neural precursor cultures exhibit dopaminergic properties when coated with pona/laminin** M. Timmer¹, K. Cesnulevicius¹, J. Grosskreutz¹, L. Just², J. Bufler¹, C. Grothe¹; ¹Hannover Medical School, Hannover, GERMANY, ²University of Tübingen, Tübingen, GERMANY.
- 582 **Controlled Release Biomaterials for Directed Embryonic Stem Cell Differentiation** R. L. Carpenedo; Georgia Institute of Technology, Atlanta, GA.
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- 584 **Optimization of endothelial progenitor cells for pulmonary regeneration: Agarose cocooning for enhanced cell survival and targeted engraftment** M. L. Ormiston¹, G. Karoubi¹, J. Chan¹, D. J. Stewart², D. W. Courtman¹; ¹University of Toronto, Toronto, ON, CANADA, ²St. Michael's Hospital, Toronto, ON, CANADA.
- 585 **Collagen Increases Surface Tissue Factor Activity in Baboon Endothelial Progenitor Cells** B. D. Markway, S. R. Hanson, M. T. Hinds; Oregon Health & Science University, Portland, OR.



- 586 **Functional Polymeric Microcapsules for Neural Stem Cell Culture** S. H. Bakhru, T. W. Link, H. Song, H-Q. Mao; Johns Hopkins University, Baltimore, MD.
- 587 **Adult-Derived Adipose Stem Cells for Bone Regeneration** Y. I. Yang¹, K. R. Kirker², M. Massey³, J. Shelby²; ¹School of Medicine, Inje University, Gae-Kum-dong, Pusan-Jin-gu, Pusan, REPUBLIC OF KOREA, ²Bacterin International, Inc., Belgrade, MT, ³Department of Surgery, University of Utah, Salt Lake City, UT.
- 588 **Local Versus Systemic Delivery of Endothelial Progenitor Cells for a Tissue Scaffold** J. A. Jennings, J. W. McCullars, S. T. Moore, D. S. Feldman; University of Alabama at Birmingham, Birmingham, AL.
- 589 **Notch Signaling Biomaterials for the Generation of T cells from Hematopoietic Stem Cells** S. Taqvi, L. A. Dixit, K. Roy; University of Texas at Austin, Austin, TX.
- 590 **Effect of Scaffold Architecture and Culture Conditions on Hematopoietic Differentiation of Embryonic Stem Cells** S. Taqvi, L. A. Dixit, K. Roy; University of Texas at Austin, Austin, TX.
- 601 **Exploring the Efficiency of a Surface-Tethered Hyaluronan Model for Testing Endothelial Cell Responses** S. Ibrahim, A. Ramamurthi; Clemson University, Charleston, SC.
- 602 **Procoagulant Efficiency of Activated Hageman Factor (FXIIa) on Solid Substrates** K. Chatterjee¹, E. A. Vogler², C. A. Siedlecki¹; ¹Penn State College of Medicine, Hershey, PA, ²Penn State University, University Park, PA.
- 603 **Interactions of the Platelet Integrin Receptor GPIIb/IIIa with Surface-Adsorbed Fibrinogen** A. Agnihotri, C. A. Siedlecki; Penn State, Hershey, PA.
- 604 **Modification of biomaterials with ephrins and Eph ligands for angiogenic applications** J. J. Moon, S. Lee, J. L. West; Rice University, Houston, TX.
- 605 **von Willebrand's Factor Has a Major Role in Mediating Platelet Adhesion to Biomaterials at Higher Shear Rates** M. Zhang, Y. Wu, T. A. Horbett; University of Washington, Seattle, WA.
- 606 **A functionally flexible, biomimetic scaffold for tissue repair** J. F. Alvarez-Barreto¹, S. Mullin¹, M. Shreve², P. DeAngelis², V. Sikavitsas³; ¹University of Oklahoma, Norman, OK, ²University of Oklahoma Health Science Center, Oklahoma City, OK.

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- 594 **A Biocompatible Contact Lens to Prevent Non-Specific Protein Adsorption: Development of Novel Procedure to Modify Hydrogels with Phosphorylcholine** Y. SUDA¹, K. MAENO¹, K. MIYAZAWA¹, K. ISHIHARA²; ¹Shiseido Co., Ltd., Yokohama, JAPAN, ²The University of Tokyo, Tokyo, JAPAN.
- 595 **Rapid Screening of Pyrolytic Carbon Leaflets and Fully Assembled Heart Valves for Blood Compatibility** B. Pederson¹, R. Nachreiner¹, K. Brandy², D. Cocking Johnson², G. H. R. Rao²; ¹ATS Medical, Minneapolis, MN, ²University of Minnesota, Minneapolis, MN.
- 596 **Electrospray Coating: Optimization of Process Parameters for Biomedical Applications** S. G. Kumbar, S. Sethuramana, S. Bhattacharyya, C. T. Laurencin; University of Virginia, Charlottesville, VA.
- 597 **Peptide fluorosurfactant polymer modification of ePTFE facilitates in vitro adhesion and growth of endothelial cells** C. C. Larsen¹, F. Kligman², R. E. Marchant¹, K. Kottke-Marchant²; ¹Case Western Reserve University, Cleveland, OH, ²Cleveland Clinic Foundation, Cleveland, OH.
- 598 **Preparation of 3D Porous Collagen Scaffold around Implantable Biosensor for Improving Biocompatibility** Y. Ju; University of South Florida, Tampa, FL.
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- 600 **Fibrinogen Adsorption on 316L Stainless Steel: Voltage Effects** R. T. Gettens, J. L. Gilbert; Syracuse University, Syracuse, NY.
- 607 **Histomorphometrical and clinical study of connective tissue around titanium dental implants with porous surface in a canine model** B. Zhao¹, I. Han¹, W. Bai², H. Feng², F-Z. Cui³, I-S. Lee³; ¹Yonsei University, Seoul, REPUBLIC OF KOREA, ²Peking University, Beijing, CHINA, ³Tsinghua University, Beijing, CHINA.
- 608 **CaP Coating of Polyurethane Foams for Bone Regeneration** S. Fare, C. De Marco, M. Moscatelli, M. C. Tanzi; Politecnico di Milano, Milan, ITALY.
- 609 **Ectopic bone formation by microstructured synthetic materials through in vivo protein adsorption** H. Yuan¹, C. A. van Blitterswijk¹, K. de Groot¹, J. D. de Bruijn²; ¹University of Twente, Enschede, THE NETHERLANDS, ²Queen Mary University of London, London, UNITED KINGDOM.
- 611 **Attachment of Osteoblasts to New Surface-Modified Substrates - A Preliminary Report** P. L. Tate¹, M. A. Hucks¹, S. Nagatomi¹, M. A. Vaughn¹, M. Shalaby², S. W. Shalaby¹; ¹Poly-Med, Inc., Anderson, SC, ²Lehigh Valley Hospital, Allentown, PA.
- 612 **Mechanical Properties, Elution Profile and Antimicrobial Activity of a Silver-Coated Foam Dressing for Use with V.A.C.[®] Therapy** A. Ambrosio, J. Payne, C. Kauffman, D. Ginther; KCI, San Antonio, TX.
- 613 **A high throughput method using electron microprobe analysis for quantification of protein adsorption** Z. Bai, M. J. Filiaggi, R. E. Mar, P. Stoffyn-Egli, J. R. Dahn; Dalhousie University, Halifax, NS, CANADA.
- 614 **Molecular Detection of Proteins on Polymer Materials by Atomic Force Microscopy** P. Soman¹, Z. Rice², L-C. Xu¹, C. Siedlecki¹; ¹Pennsylvania State University, Hershey, PA, ²The University of Texas at Austin, Austin, TX.
- 615 **Comparison of Mechanical and Structural Properties of Zirconia Femoral Head Implants in vitro and in vivo** S. A. Chowdhury¹, Y. K. Vohra¹, J. E. Lemons¹, M. Ueno², J. Ikeda²; ¹University of Alabama at Birmingham, Birmingham, AL, ²Japan Medical Materials Corporation (JMMC), Osaka, JAPAN.
- 616 **The Synthesis and Characterization of Heparin-Doped Polypyrrole for Biomedical Applications** S. Meng, G. Shi, M. Rouabhia, Z. Zhang; Laval University, Québec, PQ, CANADA.
- 617 **Immobilization of recombinant human activated protein C to poly (ethylene terephthalate) (Dacron): Creation of a novel anti-coagulant surface** S-Q. Wu¹, M. Phaneuf², F. LoGerfo³; ¹Beth Israel Deaconess Medical Center, Boston, MA, ²BioSurfaces, Ashland, MA/Beth Israel Deaconess Medical Center, Boston, MA.



- 618 **Development and Characterization of PLGA Impregnated Vascular Graft for Endovascular Abdominal Aortic Aneurysm (AAA) Repair** O. Moloye; University of Florida, Gainesville, FL.
- 619 **Surface characterization of Polymeric Biomaterials processed by Reactive Ion Etching (RIE) plasma sterilization** T. A. Pinto, D. C. Oliveira, A. M. Oliveira, A. J. Moreira, M. R. Boscaroli, J. M. F. Silva, N. Ordonez, R. D. Mansano; College of Pharmaceutical Sciences - University of São Paulo, São Paulo, BRAZIL.
- 620 **Effect of Sterilization on the Activity of a Biomimetic Coating containing Polymer and Protein Components** W. Takeguchi¹, T. Kupumbati², J. Neff¹; ¹Allvivo Vascular, Inc, Lake Forest, CA, ²Medtronic Heart Valves, Santa Ana, CA.
- 621 **Wet spinning and Characterization of Collagen Fibers Incorporating Hydroxyapatite in Mixed and Coated Form** S. N. Prakash, M. Jaffe, G. Collins, R. T. Dombrowski; New Jersey Institute of Technology, Newark, NJ.
- 622 **Long-term and zero-order release of basic fibroblast growth factor from heparin-conjugated poly(L-lactide-co-glycolide) nanospheres and fibrin gel** O. Jeon, S-W. Kang, H-W. Lim, B-S. Kim; Hanyang University, Seoul, REPUBLIC OF KOREA.
- 623 **Albumin Self-assembled Liposomes for Drug Delivery Applications** C. P. Sharma, K. Kaladhar; Sree Chithra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, INDIA.
- 624 **Surface characteristics of surface-engineered titanium implants: surface chemistry, morphology, pore size configuration, oxide thickness, crystal structure and roughness** Y-T. Sul¹, E. Byon², B-S. Kang¹, A. Wennerberg¹; ¹Dept. of Biomaterials, Gothenburg University, Gothenburg, SWEDEN, ²Korea Institute of Machinery and Materials, Changwon, REPUBLIC OF KOREA.
- 625 **Addition of Antibiotic Increases Fracture Toughness of PMMA Bone Cement** L. J. Pogula¹, M. W. Kovacic², D. A. Noe², M. J. Askew²; ¹The University of Akron, Akron, OH, ²Summa Health System Hospitals, Akron, OH.
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- 630 **New Technique for Evaluation of Retrieved Total Hip Arthroplasty** J. Gaumer¹, J. Lannutti¹, A. Kohm², P. Pavka¹, L. Pruitt², M. Reis³, V. Ravula¹, T. Dey¹, G. Li¹; ¹The Ohio State University, Columbus, OH, ²University of California Berkeley, Berkeley, CA, ³University of California San Francisco, San Francisco, CA.
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- 633 **Tribological Evaluation of Nanostructured Diamond Coatings Against Ultra-High Molecular Weight Polyethylene** M. Hill, V. Kononov, B. Etheridge, A. Stanishevsky, A. Catledge, J. Lemons, Y. Vohra, A. Eberhardt; University of Alabama at Birmingham, Birmingham, AL.
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- 638 **Control of Surface Density and Distribution of FGF2 for Neural Stem Cell Expansion** X. LIU; Johns Hopkins University, BALTIMORE, MD.
- 639 **Fabrication of a poly(D,L-lactide-co-glycolide)/hydroxyapatite composite scaffold with enhanced osteoconductivity** S-S. Kim¹, S-J. Gwak², K-M. Ahn¹, M. Park², J-H. Lee¹, C. Choi¹, B-S. Kim²; ¹Seoul National University, Seoul, REPUBLIC OF KOREA, ²Hanyang university, Seoul, REPUBLIC OF KOREA.
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- 648 **The use of low and high viscosity cement in hip resurfacing arthroplasty: an In-vitro study** R. Howald¹, U. Kesteris², M. Wittwer³, R. Klabunde¹, J. Krevolin¹; ¹Zimmer Corporate Research, Winterthur, SWITZERLAND, ²University Hospital, Lund, SWEDEN, ³ETH, Zurich, SWITZERLAND.
- 649 **Retrospective Study on Long Term Storage Effects on UHMWPE in an Inert Environment** A. S. Rufner, R. A. Gsell, H. E. Brinkerhuff, M. E. Hawkins; Zimmer, Inc., Warsaw, IN.
- 650 **Clot lysis on lysine-coated peripheral stents preadsorbed with tPA** W. G. McClung¹, D. E. Babcock², W. Ebeling², J. A. Chinn², J. L. Brash¹; ¹McMaster University, Hamilton, ON, CANADA, ²SurModics, Inc., Eden Prairie, MN.
- 651 **Osteoblast Response to Surface Microtopography is Modulated by Caveolin-1** B. F. Bell, Jr.¹, N. Majidi¹, H. Jo², M. Wieland³, Z. Schwartz¹, B. D. Boyan¹; ¹Georgia Institute of Technology, Atlanta, GA, ²Emory University Medical School, Atlanta, GA, ³Institut Straumann AG, Basel, SWITZERLAND.



- 652 **Morphology and size distribution of polyethylene debris generated during multiple activity knee wear testing** O. O. Popoola, T. S. Johnson, S. S. Bhambri; Zimmer Inc., Warsaw, IN.
- 653 **Plasma Fibronectin Modulates Foreign Body Response to Biomaterials** B. G. Keselowsky¹, K. E. Burns², C. C. Tate², M. C. LaPlaca³, J. E. Babensee², A. J. Garcia²; ¹University of Florida, Gainesville, FL, ²Georgia Institute of Technology, Atlanta, GA.
- 654 **Serum Proteins Limit the Kinetics of Surface Reactions in Novel Porous Bioactive Nanocomposites** G. GUPTA, A. El-Ghannam; University of Kentucky, Lexington, KY..
- 655 **Reduction of Pseudomonas Aeruginosa Biofilms In Vitro and Attenuation of Foreign Body Response In Vivo by Salicylic Acid-Derived Poly(Anhydride-Esters)** J. Bryers¹, R. Jarvis², J. Lebo², A. Prudencio³, T. Kyriakides⁴, K. E. Uhrich³; ¹University of Washington, Seattle, WA, ²University of Connecticut Health Center, Farmington, CT, ³Rutgers University, Piscataway, NJ, ⁴Yale University, New Haven, CT.
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- 659 **Novel Matrix Metalloproteinase-Inhibiting Polymers for the Treatment of Chronic Skin Wounds** G. A. Skarja¹, R. K. Ho¹, M. H. May¹, M. V. Sefton²; 1Rimon Therapeutics Ltd., Toronto, ON, CANADA, 2University of Toronto, Toronto, ON, CANADA.
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- 664 **Bone Regeneration with Calcium Sulfate/Poly (l lactic acid) Composites** S. S. Mamidwar¹, M. Weiner², A. Yampolsky³, J. L. Ricci², H. Alexander¹; 1Orthogen Corporation, Springfield, NJ, 2New York University College of Dentistry, New York, NY, 3New York University College of Dentistry, Piscataway, NJ.
- 665 **Plasma Surface Modification of Chitosan Membranes and Its Effect on Cell Adhesion and Proliferation** S. S. Silva, S. M. Luna, M. E. Gomes, J. Benesch, J. F. Mano, R. L. Reis; University of Minho, Braga, PORTUGAL.
- 666 **Cell Adhesion Peptide Modified Silicone Rubber: Potential for Use in Blood Contacting Applications** A. S. Mikhail, K. S. Jones, H. Sheardown; McMaster University, Hamilton, ON, CANADA.
- 667 **Effect on Osteoblast Responses of the Self-Assembly and Cross-linking of Collagen Immobilized on Titanium H-W.** Kim; Dankook University, Cheonan, REPUBLIC OF KOREA.

- 668 **Optimization of Trans-Vinylene Index Measurements for Orthopaedic UHMWPE** C. A. Doyle; Zimmer Inc., Warsaw, IN.
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- 672 **Water-based fabrication and biological evaluation of calcite coatings on stainless steel** Y. Liu¹, W. Chen¹, Y. Yang¹, J. Ong¹, J. Bumgardner², W. Haggard²; 1UT Health Science Center, Memphis, TN, 2UM, Memphis, TN.
- 673 **Fabrication of nanoscale titania coating and their osteoblast responses** Y. Yang¹, N. Oh¹, Y. Liu¹, M. Appleford¹, W. Chen¹, S. Oh¹, W. Haggard², J. Bumgardner², J. Ong¹; 1University of Tennessee Health Science Center, Memphis, TN, 2University of Memphis, Memphis, TN.
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- 676 **Probing Multiscale Cell-Biomaterial Interactions via Confocal/Multiphoton Imaging and X-ray micro-Tomography** M. Treiser, P. Johnson, R. Dubin, A. Rege, J. Kohn, P. V. Moghe, D. Denhardt; Rutgers University, Piscataway, NJ.

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- 683 **TEM quantification of changes in collagen distribution in the anterior vaginal wall of post-menopausal women undergoing cystocele repair** R. C. Eberhart; University of Texas Southwestern Medical School, Dallas, TX.
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- 685 **Calcium Phosphates Formation On Bioactive Glasses In HEPES Solutions** K. Zhang¹, L. F. Francis²; ¹Zimmer Inc., Warsaw, IN, ²University of Minnesota, Minneapolis, MN



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COLLAGEN 3D BIO-SCAFFOLD MATRICES

- ▶ **PureCol™**
purified Type I collagen in solution
3 mg/ml, pH 2
- ▶ **SpongeCol™**
collagen interpenetrating porous sponge
- ▶ **Nutragen™**
purified Type I collagen in solution
6 mg/ml, pH 2
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atelopeptide fibrillar collagen, available by special order
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spherical collagen beads composed of Type I collagen
- ▶ **Corium Homogenate**
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