What is the State of the Stent?


101. Fluorinated diamond-like carbon as a potential coating for re-endothelialization of intravascular stent platform - S. Nagashima; Keio University, Yokohama, JAPAN.


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104. Polymeric STAR Systems for an Artificial Cornea to Treat Global Blindness - S. Garty, R. Shirakawa, B. D. Ratner, T. T. Shen; University of Washington, Seattle, WA.

105. Preparation and Characteristics of Novel Porous PLGA Microsphere by Gas Foaming Method Using Hydrogen Peroxide - J. S. Son1, S. Oh2, K. Park1, D. K. Han1; 1Biomaterials Research Center, Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, 2The University of Texas at San Antonio, San Antonio, TX.

Inflammation and Immunology

106. Macrophage Phenotypic Stability During Extended Culture - L. M. Chamberlain1, M. Gonzalez-Juarrero2, D. W. Grainger1; 1University of Utah, Salt Lake City, UT, 2Colorado State University, Fort Collins, CO, CO.

107. The role of substrate rigidity in epithelial to mesenchymal transitions (EMT); implications in fibrotic responses m- A. E. Carson, J. Chen, T. H. Barker; Georgia Institute of Technology, Atlanta, GA.

108. 3-D Scaffolds for Tissue Engineering with Control of Dendritic Cell Phenotype - J. Park, J. Babensee; Georgia Institute of Technology, Atlanta, GA.

109. Multi-Functional Bioscaffolds to Modulate Local Inflammation L. Sun; Carnegie Mellon University, Pittsburgh, PA.

Spine and Nerve Repair


111. Bioprinting Methods to Create an Elastic Lamellar Scaffold for Intervertebral Disc Regeneration - B. R. Whatley, Y. Qiu, X. Wen; Clemson- MUSC, Charleston, SC.

112. A New Nitrogen Plasma Implanted Titanium Surface To Inhibit Orthopaedic Related Infection - K. Y. Leung1, R. Kao1, P. Chu1, K. Cheung1, K. Luk1, K. Yeung2; 1The University of Hong Kong, Pokfulam, HONG KONG, 2City University of Hong Kong, Kowloon Tong, HONG KONG.

113. Optimization of novel two-solution based bone cements for vertebraloplasty and kyphoplasty applications - D. B. C. Rodrigues, J. M. Hasenwinkl; Syracuse University, Syracuse, NY.

114. Novel Cell Encapsulation through Co-axial Electrospinning; Mimicking the Natural Tissue - R. A. Pareta, T. J. Webster; BROWN UNIVERSITY, PROVIDENCE, RI.

Current and Future Strategies for Repair and Replacement of Hard Tissues

115. A Prolonged Two-Phase Peptide Release Achieved Using Amino-Silane Chemistry Functionalization and Nanocrystalline Hydroxyapatite in a Degradable Polymer Composite - H. Liu, T. J. Webster; Brown University, Providence, RI.

116. Composite Materials Consisting of Hydroxyapatite Implanted Collagen Matrices Affect Osteoblast Behavior - B. L. Rogers1, Y. Li2, S. Jee3; 1Georgia Institute of Technology, Atlanta, GA, 2University of Florida, Gainesville, FL.


118. Use of novel fibrin-binding peptides as a delivery vehicle for proteins into fibrin matrices - A. Soon, S. Stabenfeldt, T. H. Barker; Georgia Institute of Technology, Atlanta, GA.

119. 5kDa Component of Enamel Matrix Derivative Possesses Osteogenic Properties - R. Olivares-Navarrete1, R. A. Chaudhri1, M. Dard2, M. Wieland2, B. D. Boyan1, Z. Schwartz2; 1Georgia Institute of Technology, Atlanta, GA, 2institut Straumann AG, Basel, Switzerland.

120. Simple Application of Fibronectin-Mimetic Coating Enhances Implant Osseointegration - T. A. Petrie, C. D. Reyes, K. L. Burns, A. J. Garcia; Georgia Institute of Technology, Atlanta, GA.

121. Biodegradable Composite Scaffolds for Directing Osteogenesis and Bone Formation - K. Leach, J. He, D. Genetos; University of California, Davis, Davis, CA.

122. A Novel Osteostimulatory Resorbable Composite for Orthopaedic Fixation Applications - J. J. Cooper1, J. A. Hunt1, A. T. Mackie1; 1Biocomposites Ltd, Staffordshire, UNITED KINGDOM, 2UKCTE University of Liverpool, Liverpool, UNITED KINGDOM.

123. Mechanically-dynamic polymer nanocomposites for intracortical microelectrode substrates - J. R. Capadona1, K. Shanmuganathan1, J. P. Harris1, D. J. Tyler1, S. J. Rowan2, C. Weder2; 1L. Stokes Cleveland VAMC, Cleveland, OH, 2Case Western Reserve University, Cleveland, OH.

124. Modulation of Osteogenic and vasculogenic Differentiation of Stromal Cells in a Collagen Scaffolding - J. A. Henderson, X. He, E. Jabbari; University of South Carolina, Columbia, SC.

125. Novel Bilayered Polymeric Microspheres for Bone Tissue Engineering Applications: Effects of Alginate Coating on Release Kinetics - Y. M. Khan, B. Corgiat, K. Ondesko; University of Virginia, Charlottesville, VA.


129. Calcium Phosphate-Containing Scaffolds Stimulate Early Stage Osteogenic Differentiation - J. R. Popp1, B. J. Love2, K. E. Lafﬁn1; 1Virginia Tech, Blacksburg, VA, 2University of Michigan, Ann Arbor, MI. 

130. A novel method to fabricate unidirectional porous hydroxyapatite body using ethanol bubble in a viscous slurry - B-T. Lee1, S. Islam1, Y-K. Min1, H-Y. Song1; 1Dept. of Biomedical Engg. & Materials, Soonchunhyang University, Cheonan, South Korea, Cheonan, Republic of Korea, 2Dept. of Physiology, Soonchunhyang University, Cheonan, South Korea, Cheonan, Republic of Korea, 3Dept. of Microbiology, Soonchunhyang Univerisity, Cheonan, South Korea, Cheonan, Republic of Korea.

131. Canine Mandibular Augmentation Using Autologous Bone Marrow Stromal Cells - M. H. Mankani; UCSF, San Francisco, CA.

132. Fabrication of Calcium Phosphate-Calcium Sulfate Injectable Bone Substituting Chitosan and Citric Acid - H-Y. Song1, A. H. E. Rahman2, M. A. Jyoti1, J-Y. Mang1, B. Lee1; 1Department of Microbiology, School of Medicine, Soonchunhyang University, cheonan, Republic of Korea, 2Department of Biomedical Engineering & Materials, Soonchunhyang University, cheonan, Republic of Korea, 3Department of Chemistry, Soonchunhyang University, cheonan, Republic of Korea.

133. Surface Characterization of Co-Cr Alloy L605 Electropolishing in 15 vol % Phosphoric Acid - H. Aharga, G. S. Selvadoray; San Jose State University, San Jose, CA.


135. Reverse thermo-responsive polymers for in situ generated implants D. Cohn, A. Sosnik, S. Garty; The Hebrew University Of Jerusalem, Jerusalem, ISRAEL.


137. Structural implant concept for buco-maxilo-facial applications T. H. Samed e Sousa, C. A. Fortulan, Sr., E. A. Santos, B. M. Purquerio, Sr.; University of Sao Paulo, Sao Carlos, BRAZIL.

138. Specificity of multivalent constructs is concentration dependent E. V. Rosca, M. R. Caplan; Arizona State University, Tempe, AZ.

139. Ellagic acid-chitosan based local delivery system has an anti-tumor effect on brain cancer both in vitro and in vivo. - S. Kim, M. Gaber, Y. Yang; University of Tennessee Health Science Center, Memphis, TN.


141. Enhanced Mineralization and Vessel Stabilization of a Cranial Defect by Activation of Specific Sphingosine-1-Phosphate Receptors Using Polymer Encapsulated Small Molecule Delivery - C. E. Petrie Aronin, L. S. Seﬁcik, T. L. Macdonald, K. R. Lynch, R. C. Ogle, E. A. Botchwey; University of Virginia, Charlottesville, VA.


143. Biodegradable Self-Assembled Nanoparticles for Targeted Delivery of Paclitaxel to Tumor Cells - X. He, A. E. Mercado, W. Xu, E. Jabbari; University of South Carolina, Columbia, SC.

144. The Kinetics of Particle Release from DNA-Linked Multiparticle Drug Delivery Vehicles - C. K. Tison, V. T. Milam; Georgia Institute of Technology, Atlanta, GA.


146. Nanodevices for Treatment of Hyperlipidemia. - V. Reukov, V. Maximov, A. Vertegel; Clemson University, Clemson, SC.

147. Preliminary Investigation of Lyophilization To Improve Drug Delivery For Chitosan-Calcium Phosphate Bone Scaffolds Construct - B. T. Reves1, J. D. Bumgardner1, J. Cole1, Y. Yang1, W. O. Haggard1; 1University of Memphis, Memphis, TN, 2University of Tennesse Health Science Center, Memphis, TN.

148. Design of a Tissue Engineering System to Influence and Quantify Oxygen Gradients - E. F. Bland, K. J. L. Burg; Clemson University, Clemson, SC.

149. Sustained In Situ Delivery of rhBMP-2 by Conjugation to Novel Biodegradable Nanoparticles - A. E. Mercado, X. He, E. Jabbari; University of South Carolina, Columbia, SC.

150. An arginine-based polycation/heparin matrix for the controlled delivery of growth factors - B. J. Zern, A. Nguyen, Y. Wang; Georgia Institute of Technology, Atlanta, GA.

151. Translational Research in Expandible Devices for Aneurysm Embolization - H. Plenk, Jr.; 1G. M. Cruise1; 1Medical Univ.of Vienna, Vienna, AUSTRIA, 2MicroVention Terumo Inc., Aliso Viejo, CA.

152. Control of Macromolecular Drugs Delivery Using Polysaccharide Microgels - J. Schmidt1, A. Virdi2, D. Summer3, H. Kong4; 1University of Illinois, Urbana, IL, 2Rush Medical College, Chicago, IL.
153. Functionalized Biodegradable Triclosan Macromers for Controlled Release Applications - **R. S. Bezwada**; Bezwada Biomedical, LLC, Hillisborough, NJ.

**Musculoskeletal Applications**

154. Keratin Biomaterials Activate Regenerative Cells and Promote Peripheral Nerve Regeneration at Early and Late Stages in a Mouse Model - **P. Sierpinsk**; J. Garrett, J. Ma, D. Klorig, T. Smith, A. Atala, L. Koman, M. Van Dyke; Wake Forest University, Winston-Salem, NC.

155. Synthesis and Characterization of Chondroitin Sulfate Methacrylamide Micelles - **J. J. Lim**; T. M. Hammoudi, J. S. Temenoff; Georgia Institute of Technology and Emory University, Atlanta, GA.

156. Determination of Adhesion Strength of Discrete Nanocrystalline HA Deposition Using Atomic Force Microscopy - **G. GUPTA**; P. Gubbi, G. Shekhawat; 1Biomet, Inc., Warsaw, IN, 2Biomet 3i, Palm Beach Gardens, FL, 3Northwestern University, Evanston, IL.


160. Bone Marrow Regeneration following Tibial Marrow Ablation in Rats is Age Dependent - **M. Fisher**, R. Guldberg, Z. Schwartz, B. D. Boyan; Georgia Institute of Technology, Atlanta, GA.


162. Determining an optimal medial-lateral resection angle for varus patients undergoing a total knee arthroplasty - **M. Aanstoos**; D. F. Scott, R. D. Bloebaum; 1University of Utah, Salt Lake City, UT, 2Spokane Joint Replacement Center, Spokane, WA, 3VA Medical Center SLC, Salt Lake City, UT.

163. Fluid Shear Stress Affects Differentiation of Growth Plate Chondrocytes - **T. A. Denison**; M. Doroudi, Z. Schwartz, B. D. Boyan; Georgia Institute of Technology, Atlanta, GA.


165. Hydrophilic Soft-tissue Replacements - **D. N. Ku**; SaluMedica, LLC, Atlanta, GA.

**Biomaterials for Nanomedicine: From Bench to Bed**


167. Influence of chemical treatment of electrospun nanofibers on protein adsorption and delivery - **D. S. Katti**; R. Vasita; Indian Institute of Technology Kanpur, Kanpur, INDIA.

168. High Resolution Inkjet Printing as a Tool for Creating Tissue Test Systems - **C. A. Parzel**; T. Burg, R. Groff, M. Hill, B. Stripe, T. Boland, K. Burg; Clemson University, Clemson, SC.

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170. Parallel Synthesis of Peptidic Dendrimers as Macromolecular Host for Enantioselective catalysis with the PSW1100 - **J. Schroer**; Chemspeed Technologies, NJ.

171. Fabrication of Nano Crystalline Hydroxyapatite-Polymer Composite - **N. Meenakshisundaram**; M. Rajkumar, V. Rajendra; K.S.Rangasamy College of Technology, Tiruchengode Namakkaldt. Tamil Nadu, India.

**Cell Interfacing Technologies**

172. Agarose Micрогels for Protein Delivery within Embryoid Body Microenvironments - **A. M. Bratt-Leal**, R. Carpenedo, T. McDevitt; Georgia Institute of Technology, Atlanta, GA.

173. Nanoscale Patterning of Active Adhesion Proteins - **S. Coyer**, A. Garcia; Georgia Institute of Technology, Atlanta, GA.


175. Phthalimide Neovascular Factor 1 (PNF1) Modulates Endothelial MT1-MMP Activity - **K. A. Wieghaus**, E. P. Gianchandani, J. A. Papin, E. A. Botchwey; University of Virginia, Charlottesville, VA.

176. Phospholipase D Induced Differentiation in MG63 Osteoblast-like Cells in Response to Surface Energy Involves Protein Kinase C - **M. Fang**; M. Wieland, B. D. Boyan, Z. Schwartz; 1Georgia Institute of Technology, Atlanta, GA, 2Institut Straumann AG, Basel, SWITZERLAND.


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180. The role of substrate stiffness on stem cell differentiation into osteogenic cells - X. Li, A. McClary, N. Zhang, A. Scott, G. D. Prestwich, X. Wen; 1Department of Bioengineering, Clemson University, Charleston, SC, 2South Carolina Governor School of Mathematics and Science, Orangeburg, SC, 3Department of Bioengineering, Clemson University, Charleston, SC, 4Glycosan BioSystems, Inc., Salt Lake City, UT, 5Department of Medicinal Chemistry, University of Utah, Salt Lake City, UT.

181. Human Astrocytoma Cells Are Differentially Susceptible to the Cytotoxic Effects of Metal Oxide Nanoparticles - J. C. K. Lai; Idaho State University College of Pharmacy, Pocatello, ID.

182. Mechanical and Biochemical Cues for Adipose Stem Cell Differentiation into Heart Valve Intersitial Cells - R. S. Stowers, A. Simionescu, D. T. SIMIONESCU; Clemson University, Clemson, SC.

183. Bone marrow stromal cell function on hybrid microparticles A. Bhat, A. C. Jayasuriya; University of Toledo, Toledo, OH.

184. Quantifying Biofilm-Surface Interactions Using Quartz Crystal Microbalance with Dissipation - M. A. Poggi, H. Uddenberg; 1Q-Sense Inc, Gein Burnie, MD, 2Q-Sense AB, Goteborg, SWEDEN.


**Tissue Engineering Strategies**


187. Comparison between Static and Rotational Culture on Chondrocyte/Silk Fibroin-based Scaffolds - Y. Wang, C. Lee, A. Motta, E. Bella, C. Migliarese, Z. Schwartz, B. Boyan; 1Department of Biomedical Engineering and Institute of Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta, GA, 2Department of Materials Engineering and Industrial Technologies, University of Trento, Via Mesiano, ITALY.


189. Mechano-morphological Properties of Electrospun Micro/Nano-fibrous Vascular Scaffold of Protein/Polylactide Blends by Carbodimide X. Zhang, V. Thomas, Y. K. Vohra; University of Alabamat at Birmingham, Birmingham, AL.

190. In Vitro Expanded Living Skin Matrices for Reconstructive Procedures M. R. Ladd, S. Lee, A. A. Atala, J. J. Yoo; Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC.

191. Scale up and optimization of hybrid microparticles for bone regeneration - A. C. Jayasuriya, A. Bhat; University of Toledo, Toledo, OH.

192. Human Vascular Smooth Muscle Cell Calcification on Poly-lactic Acid 2D Films - B. Zhu, S. R. Bailey, C. M. Agrawal; 1The University of Texas at San Antonio, San Antonio, TX, 2The University of Texas Health Science Center at San Antonio, San Antonio, TX.

193. Modeling Oxygen Transport in Modular Tissue Engineering L. E. Corstorphine, M. V. Sefton; University of Toronto, Toronto, ON, CANADA.

194. Biocompatibility of PGG-Stabilized Collagen Scaffolds used for Heart Valve Tissue Engineering - M. E. Tedder, D. T. Simionescu; Clemson University, Clemson, SC.

195. Cell recruitment strategies for in vivo vascular tissue engineering A. A. Kurane, N. Vyvahare; Clemson University, Clemson, SC.

196. Numerical Modeling and Cell Adhesion of a Tissue Engineered Loop of Henle Device - J. L. Charest; Draper Laboratory, Cambridge, MA.

197. Development of an In Vitro Model for Skin Substitutes with Endothelialized Microvasculature - W-H. Liang, V. Janakiraman, F. Berthiaume, H. Baskaran; 1Case Western Reserve University, Cleveland, OH, 2Massachusetts General Hospital, Harvard Medical School and Shriners Burns Hospital, Boston, MA.


199. Concentrated Plasma as a Carrier for Stem Cell Delivery J. E. Woodell-May, B. Han, J. Martin, Z. Welch, M. Swift; 1Biomet, Inc., Warsaw, IN, 2University of Southern California, Los Angeles, CA.

200. Characteristics of Heparin-functionalized Porous PLGA Scaffold for Tissue Regeneration - J. S. Son, S. Oh, K. Park, D. K. Han; 1Biomaterials Research Center, Korea Institute of Science and Technology, Seoul, Republic of Korea, 2The University of Texas at San Antonio, San Antonio, TX.


202. Alterations in metabolic activity of human umbilical vein endothelial cells cultured on gas-plasma treated poly(β-d-lactic) acid scaffolds A. R. Shah, P. D. Bowman, J. C. Wenke, C. M. Agrawal; 1University of Texas at San Antonio, San Antonio, TX, 2Institute of Surgical Research, San Antonio, TX.

203. A collagen/vascular smooth muscle cells (SMCs) incorporating elastic scaffold for tissue-engineered vascular graft - I. Park; Korea Institute of Science and Technology, Seoul, Republic Of Korea.

204. Porous Elastin Scaffolds with Controlled Degradation Rate for Vascular Grafts - T-H. Chuang, D. Simionescu; Clemson University, Clemson, SC.

205. Pulsatile Bioreactor for Conditioning Tissue Engineered Heart Valves L. N. Sierad, A. Simionescu, D. T. Simionescu; Clemson University, Clemson, SC.

206. Alginate Microencapsulation Technology for Percutaneous Delivery of Human Adipose Derived Stem Cells (ADSCs) - H. R. Moyer, J. K. Williams, Z. Schwartz, B. D. Boyan; 1Emory University, Atlanta, GA, 2Children’s Healthcare of Atlanta, Atlanta, GA, 3Georgia Institute of Technology, Atlanta, GA.
207. Effect of Degradation Media on Physical Properties of Porous PLAGA 86/15 Scaffolds - H. E. Naguib\(^1\), J. Perron\(^2\), J. Daka\(^3\), A. Chawla\(^3\), R. Wilkins\(^3\); \(^1\)University of Toronto, Toronto, ON, CANADA, \(^2\)University of Ottawa, Toronto, ON, CANADA, \(^3\)Health Canada, Ottawa, ON, CANADA.

208. Proliferation constant study of the CRL-1888 mouse tumor cell-line for the application of hyperthermia animal model - Y. Kim\(^1\), E. Hwang; Inje University, Kimhae City, REPUBLIC OF KOREA.

Novel Biomaterials

209. Osteoblast Proliferation and Differentiation are Sensitive to Substrate Stiffness - S. Hyzy, K. Smith, R. Olivares-Navarrete, K. Gall, Z. Schwartz, B. D. Boyan; Georgia Institute of Technology, Atlanta, GA.

210. Piezoresponse Force Microscopy of Biological Materials and Cells G. L. Thompson, III\(^1\), B. Rodriguez\(^2\), S. Kalinin\(^2\), S. Hohlbauch\(^3\), R. Proksch, A. Vertegel\(^1\); \(^1\)Clemson University, Clemson, SC, \(^2\)Center for Nanophase Materials Science and Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, \(^3\)Asylum Research, Santa Barbara, CA.

211. Contraction of 3D Designed Polycaprolactone Scaffolds During Post-Processing - J. M. Kemppainen, A. G. Mitsak, K. L. Wolff, S. J. Hollister, C. Flannigan; University of Michigan, Ann Arbor, MI.

212. Fabrication and Function of Three-Dimensional Device Made of Amino-Group-Modified Titanium Dioxide/Polymer NanoComposite Fibers M. Masuda\(^1\), M. Okada\(^1\), Y. Kogai\(^1\), N. Nitta\(^1\), A. Kaya\(^1\), T. Yamane\(^1\), T. Taguchi\(^1\), T. Furuzono\(^1\); \(^1\)Department of Bioengineering, National Cardiovascular Center Research Institute, Suita/city.Osaka, JAPAN, \(^2\)National Institute of Advanced Industrial Science and Technology, Tsukuba/city.Ibaraki, JAPAN, \(^3\)National Institute for Materials Science, Tsukuba/city.Ibaraki, JAPAN.

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214. Toughness and Modulus of Photopolymerizable Acrylate-based Networks are Altered under Physiological Conditions - K. Smith; Georgia Institute of Technology, Atlanta, GA.


216. Degradation Behavior of a Resorbable Composite - E. M. Perepezko; Biomet Inc., Warsaw, IN.

217. Development of a swine model for the evaluation of novel compounds in the prevention of postoperative adhesions M. E. Cheung\(^1\), B. Fenton\(^2\), M. Chapman\(^2\), M. Kovacik\(^2\), D. Noe\(^2\), N. Ree\(^2\), S. Lopina\(^1\); \(^1\)The University of Akron, Akron, OH, \(^2\)Summa Health Systems, Akron, OH.

218. Neomycin B binding to BHVs Prevent Glycosaminoglycan Loss after Storage and In Vitro Cyclic Fatigue - D. Raghavan, N. Vyavahare; Clemson University, Clemson, SC.


220. A Novel Bioabsorbable Omega-3 Fatty Acid Based Biomaterial J. F. Ferraro, P. Martakos, T. Karwoski; Atrium Medical Corporation, Hudson, NH.

221. Stability of Autologous Clotting Factor Produced at the Point-of-Care H. Enyart, A. Landis, Z. Welch, J. Martin, J. Higgins; Biomet Biologics, Warsaw, IN.

222. Three Dimensional Polymer Scaffolds for High Throughput Cell-Based Assay Systems - K. Cheng, W. Kisaalita; University of Georgia, Athens, GA.


224. Comparison of Sterilization Methods for Resorbable Polymers E. M. Perepezko; Biomet Inc., Warsaw, IN.

225. Novel Absorbable Polymers from Functionalized Hydroquinone R. S. Bezwada; Bezwada Biomedical, LLC, Hillsborough, NJ.

226. The Study of Collagen-Chitosan Complex Film Containing VCR-microspheres - H. L. Chen, Jr., H. Chen, Jr., O. Q. Zhang, Sr., L. R. Liu, Sr., P. Yuan, Jr.; Institute of Biomedical Engineering, Chinese Academy of Medical Sciences, Tianjin, CHINA.