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Solution Piezoresponse Force Microscopy of Lysozyme and Insulin Amyloid Fibrils

G. L. Thompson, III[1], B. J. Rodriguez[2], S. V. Kalinin[2], A. A. Vertegel[1];
[1]Clemson University, Clemson, SC, [2]Oak Ridge National Laboratory, Oak Ridge, TN.

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L. J. Gamble[1], C-Y. Lee[1], P-C. Nguyen[1], D. W. Grainger[2], D. G. Castner[1];
[1]University of Washington, Seattle, WA, [2]University of Utah, Salt Lake City, UT.

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S. K. Tam[1], L. Yahia[1], J-P. Hallé[2], B. J. de Haan[3], S. Polizu[1], P. de Vos[3];
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G. Mani[1], D. M. Johnson[1], D. Marton[2], V. Dougherty[1], M. Feldman[2], D. Patel[2], A. Ayon[1], C. M. Agrawal[1];
[1]The University of Texas at San Antonio, San Antonio, TX, [2]The University of Texas Health Science Center at San Antonio, San Antonio, TX.

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Artificial Cell Technologies, New Haven, CT.

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P. Soman[1], C. Siedlecki[2];
[1]Penn State University, Hershey, PA, [2]Pennsylvania State University, Hershey, PA.

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A. Martins[1], E. D. Pinho[1], J. Cunha[2], F. Macedo[2], R. L. Reis[1], N. M. Neves[1];
[1]University of Minho - 3B's Research Group, Braga, PORTUGAL, [2]University of Minho - Department of Physics, Braga, PORTUGAL.

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S. Cai[1], T. Minko[2], D. E. Discher[1];
[1]University of Pennsylvania, Philadelphia, PA, [2]State University of New Jersey - Rutgers, Piscataway, NJ.

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[1]University of Pennsylvania, Philadelphia, PA, [2]Thomas Jefferson University, Philadelphia, PA.

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[1]Georgia Institute of Technology/Emory University, Atlanta, GA, [2]Kyungpook National University, Daegu, REPUBLIC OF KOREA, [3]University of Florida, Gainesville, FL.

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[1]VA Boston Healthcare System, Boston, MA, [2]Massachusetts Institite of Technology, Cambridge, MA, [3]Massachusetts Institute of Technology, Cambridge, MA.

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[1]Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, [2]Gwangju Institute of Science and Technology, Gwangju, REPUBLIC OF KOREA, [3]Seoul National University, Seoul, REPUBLIC OF KOREA.

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[1]University of Virginia, Charlottesville, VA, [2]Medical University of South Carolina, Charleston, SC, [3]Clemson University, Clemson, SC.

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[1]Waseda University, Tokyo, JAPAN, [2]Tokyo Women's Medical University, Tokyo, JAPAN.

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[1]McGowan Institute for Regenerative Medicine, Pittsburgh, PA, [2]University of Pittsburgh, Pittsburgh, PA.

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[1]Case Western Reserve University, Cleveland, OH, [2]DePuy Orthopaedics, Inc., Warsaw, IN.

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[1]Rush University Medical Center, Chicago, IL, [2]Hospital Militar de Santiago, Santiago, CHILE.

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[1]University of Waterloo, London, ON, CANADA, [2]University of Western Ontario, London, ON, CANADA.

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[1]Missouri Bone & Joint Research Foundation, St. Louis, MO, [2]Vanderbilt University School of Medicine, Nashville, TN, [3]Whiteside Biomechanics, Inc., St. Louis, MO.

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[1]Loma Linda University, Loma Linda, CA, [2]Kyoto University, Kyoto, JAPAN.

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Y. Yang[1], M. L. Becker[1], J. Kohn[2], C. G. Simon, Jr.[1];
[1]NIST, Gaithersburg, MD, [2]New Jersey Center for Biomaterials,Rutgers University, Piscataway, NJ.

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[1]Rutgers University, Piscataway, NJ, [2]National Institute of Standards and Technology, Gaithersburg, MD.

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M. B. Ariganello[1], J. M. Lee[1], R. S. Labow[2];
[1]Dalhousie University, Halifax, NS, CANADA, [2]University of Ottawa, Ottawa, ON, CANADA.

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[1]University of Maryland, College Park, MD, [2]University of Maryland Dental School, Baltimore, MD.

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[1]Iowa State University, Ames, IA, [2]Iowa Cancer Research Foundation, Urbandale, IA.

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K. C. L. Black, IV[1], N. Kirkpatrick[2], L. Xu[2], J. Vagner[2], R. Gillies[2], U. Utzinger[2], M. Romanowski[2];
[1]Northwestern University, Evanston, IL, [2]University of Arizona, Tucson, AZ.

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G. Tae[1], Y-I. Chung[1], K-M. Ahn[2], S-H. Jeon[3], S-Y. Lee[1], J-H. Lee[3];
[1]Gwangju Institute of Science and Technology, Gwangju, REPUBLIC OF KOREA, [2]Ulsan University, Asan Medical Center, Seoul, REPUBLIC OF KOREA, [3]Seoul National University, Seoul, REPUBLIC OF KOREA.

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University of California, Berkeley, Berkeley, CA.

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[1]Nobil Bio Ricerche, Villafranca d'Asti, ITALY, [2]Istituti Ortopedici Rizzoli, Bologna, ITALY.

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[1]Georgia Institute of Technology, Atlanta, GA, [2]ETH-Zurich, Zurich, SWITZERLAND.

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[1]Princeton Univ., Princeton, NJ, [2]Spectra-Physics, Inc., Montain View, CA, [3]Alexandria University, Alexandria, EGYPT.

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Y. Yuan[1], T. Topoleski[1], W. Mergner[2], L. Li[3];
[1]UMBC, Baltimore, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Office of the Chief Medical Examiner, Baltimore, MD.

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[1]Dalhousie University, Halifax, NS, CANADA, [2]University of Pittsburgh, Pittsburgh, PA.

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R. Hernandez[1], J. Weksler[2], A. Padsalgikar[2], J. Runt[1];
[1]Pennsylvania State University, University Park, PA, [2]AorTech Biomaterials, Melbourne, AUSTRALIA.

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Ethicon, a Johnson & Johnson Company, Somerville, NJ.

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[1]University of Minho - 3Bs Research Group, Braga, PORTUGAL, [2]University of Tras os Montes e Alto Douro, Vila Real, PORTUGAL.

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E. Christenson[1], W. Soofi[1], J. Holmes[1], N. Cameron[2], A. Mikos[1];
[1]Rice University, Houston, TX, [2]University of Durham, Durham, UNITED KINGDOM.

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S. J. Bryant[1], D. J. Mortisen[2], S. M. LaNasa[1], K. D. Hauch[2], B. D. Ratner[2];
[1]University of Colorado, Boulder, CO, [2]University of Washington, Seattle, WA.

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J. P. Spalazzi[1], E. Dagher[2], S. B. Doty[2], X. E. Guo[1], S. A. Rodeo[2], H. H. Lu[1];
[1]Columbia University, New York, NY, [2]Hospital for Special Surgery, New York, NY.

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R. A. Rosselló, Z. Wang, P. Krebsbach, D. Kohn;
University of Michigan, Ann Arbor, MI.

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L. Yang[1], P. Frey[2], T. H. Barker[3], J. A. Hubbell[1];
[1]Institute of Bioengineering, Ecole Polytechnique Fédérale de Lausanne, Lausanne, SWITZERLAND, [2]Department of Pediatric Surgery, Centre Hospitalier Universitaire Vaudois Lausanne, Lausanne, SWITZERLAND, [3]Department of Biomedical Engineering, Georgia Tech and Emory University, Atlanta, GA.

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J. F. Alvarez-Barreto[1], P. L. DeAngelis[2], **V. Sikavitsas**[1];
[1]University of Oklahoma, Norman, OK, [2]University of Oklahoma Health Sciences Center, Oklahoma City, OK.

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K. E. Swindle[1], P. D. Hamilton[2], Y-B. Shui[1], D. C. Beebe[1], N. Ravi[2];
[1]Washington University, Saint Louis, MO, [2]Department of Veterans Affairs, Saint Louis, MO.

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T. G. van Kooten[1], S. A. Koopmans[1], A. M. M. Hooymans[1], H. J. Busscher[1], T. Terwee[2];
[1]University Medical Center Groningen, Groningen, THE NETHERLANDS, [2]AMO, Groningen, THE NETHERLANDS.

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[1]University at Buffalo, Buffalo, NY, [2]Alcon Research, Ltd., Fort Worth, TX.

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University of Wisconsin-Madison, Madison, WI.

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S. T. Reddy[1], C. P. O'neil[1], V. Angeli[2], G. J. Randolph[2], E. Simeoni[1], M. A. Swartz[1], J. A. Hubbell[1];
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Bone & Joint Research Laboratory (151F), Salt Lake City, UT.

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M. T. Ehrensberger, J. L. Gilbert;
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M. Deng;
University of Virginia, Charlottesville, VA.

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G. Zhao[1], A. L. Raines[1], Z. Schwartz[1], M. Wieland[2], B. D. Boyan[1];
[1]Georgia Institute of Technology, Atlanta, GA, [2]Institut Straumann AG, Basel, SWITZERLAND.

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M. Van Dyke[1], A. Goldstein[2], C. Hamilton[1], P. Santago[1], W. Grant[2];
[1]Wake Forest University School of Medicine, Winston Salem, NC, [2]Virginia Tech, Blacksburg, VA.

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K. Chatterjee[1], Z. Guo[1], E. A. Vogler[2], C. A. Siedlecki[1];
[1]Penn State College of Medicine, Hershey, PA, [2]Penn State University, University Park, PA.

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D. M. Dinnes[1], J. P. Santerre[2], **R. S. Labow**[1];
[1]University of Ottawa Heart Institute, Ottawa, ON, CANADA, [2]Institute for Biomaterials and Biomedical Engineering, Faculty of Dentistry, University of Toronto, Toronto, ON, CANADA.

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J. A. Jones[1], D. T. Chang[1], E. Colton[1], I. K. Kwon[2], T. Matsuda[3], J. M. Anderson[1];
[1]Case Western Reserve University, Cleveland, OH, [2]Purdue University, West Lafayette, IN, [3]Kyushu University, Fukuoka, JAPAN.

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University of Wisconsin - Madison, Madison, WI.

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Bio-interactive 3D PEG hydrogels for phenotypic modulation of SMCs during bladder tissue remodeling

C. A. M. AdelÃ¶w[1], T. Segura[2], P. Frey[1], J. A. Hubbell[1];
[1]Ecole Polytechnique FÃ©dÃ©ral de Lausanne, Lausanne, SWITZERLAND, [2]UCLA, Los Angeles, CA.

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Bladder Smooth Muscle Cell Response to Contact Guidance and Mechanical Stretch

R. A. Long, A. Parekh, M. B. Chancellor, M. S. Sacks;
University of Pittsburgh, Pittsburgh, PA.

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Hydrogel Scaffolds for Bladder Tissue Regeneration

M. Guvendiren[1], D. A. Harrington[2], E. Y. Cheng[2], K. R. Shull[1];
[1]Northwestern University, Evanston, IL, [2]Northwestern University, Chicago, IL.

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Cytokine and Growth Factor Expression in Cerebrospinal Fluid in Patients with Hydrocephalus

M. Killer[1], A. Arthur[2], A. Al Schameri[1], D. Elbert[3], J. Shum[4], **G. M. Cruise**[4];
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[4]MicroVention, Aliso Viejo, CA.

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J. N. Cawse, **L. Yu**, Z. Pang, A. J. Dulgar-Tulloch, A. Beletskii;
GE Global Research, Niskayuna, NY.

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A. Hezi-Yamit, C. Sullivan, J. Wong, M. Chen, C. Wilcox, K. Udipi;
Medtronic Vascular, Santa Rosa, CA.

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High Throughput In vitro Cytotoxicity Screening of Biomaterial Libraries

B. Narasimhan, L. Petersen, A. Adler, J. Wilson, J. Thorstenson, M. Wannemuehler;
Iowa State University, Ames, IA.

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Identifying chemical moieties to control hMSC differentiation using a high-throughput methodology

D. S. W. Benoit[1], K. S. Anseth[2];
[1]University of Colorado, Boulder, CO, [2]University of Colorado, Howard Hughes Medical Institute, Boulder, CO.

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Y. Xu, M. Takai, K. Ishihara;
The university of Tokyo, Tokyo, JAPAN.

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Effects of Long Term Implantation on in vivo Chemical Sampling Calibration into Microdialysis Probes

X. Mou[1], M. Lennartz[2], D. Loegering[3], J. A. Stenken[1];
[1]Rensselaer Polytechnic Institute, Troy, NY, [2]2Center for Cell Biology and Cancer Research, Albany Medical College, Albany, NY, [3]3Center for Cardiovascular Sciences, Albany Medical College, Albany, NY.

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J. Sibarani, K. Ishihara, M. Takai, T. Konno;
The University of Tokyo, Tokyo, JAPAN.

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Cooperative Probes for Biological and Biomedical Detection: eliminating false positives

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[1]Arizona State University, Tempe, AZ, [2]Arcxis Biotechnologies, Pleasanton, CA.

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L-C. XU, C. A. Siedlecki;
Penn State University College of Medicine, Hershey, PA.

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Q. Lv, C. T. Laurencin;
University of Virginia, Charlottesville, VA.

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Changes in cytoskeletal structure and viscoelastic properties of hMSC induced by nanotopography

E. K. F. Yim, E. M. Darling, S. Zauscher, F. Guilak, K. W. Leong;
Duke University, Durham, NC.

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Biodegradable Composite Scaffolds Produced by Selective Laser Sintering

M. Wang, W. Zhou, W. Cheung;
The University of Hong Kong, Hong Kong, HONG KONG.

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Microfabricated Polymer Scaffolds for Spatially Patterned Multi-lineage Differentiation of Stem Cells

G. Mapili, L. Nguyen, M. Kim, J. Rytlewski, Y. Lu, S. Chen, K. Roy;
The University of Texas at Austin, Austin, TX.

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Nanofibrous Membranes Consisting of Aligned Fibers and Multilayered Structures for Tissue Engineering Applications

H. Tong, M. Wang;
The University of Hong Kong, Hong Kong, HONG KONG.

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Patterned Surface Immobilization of Vascular Endothelial Growth Factor to Promote Endothelial Cell Tubulogenesis

J. E. Leslie, J. L. West;
Rice University, Houston, TX.

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B. Ratner;
University of Washington, Seattle, WA.

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C. C. Larsen[1], F. Kligman[2], R. E. Marchant[1], K. Kottke-Marchant[2];
[1]Case Western Reserve University, Cleveland, OH, [2]Cleveland Clinic Foundation, Cleveland, OH.

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Increasing the rate of endothelial cell migration on RGD/PEG materials without compromising cell adhesion strength

D. L. Elbert, B. K. Wacker, E. A. Scott;
Washington University, St. Louis, MO.

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J. Gao, **P. M. Crapo**, A. E. Ensley, R. M. Nerem, Y. Wang;
Georgia Institute of Technology, Atlanta, GA.

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Penta-Galloyl Glucose Stabilizes Elastin and Reduces Calcification in Bioprosthetic Heart Valves

J. C. Isenburg[1], A. Greer[1], B. C. Starcher[2], N. R. Vyavahare[1], D. T. Simionescu[1];
[1]Clemson University, Clemson, SC, [2]University of Texas Health Center at Tyler, Tyler, TX.

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Analysis of the heparin coating of an EXCOR® Ventricular Assist Device after 855 days in a patient

J. Riesenfeld[1], D. Ries[2], R. Hetzer[3];
[1]Carmeda AB, Upplands Väsby, SWEDEN, [2]Berlin Heart AG, Berlin, GERMANY, [3]Deutsches Herzzentrum Berlin, Berlin, GERMANY.

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A. D. Rosenberg[1], A. Tofighi[1], M. Aiolova[1], L. Gillès de Pélichy[1], D. Egan[1], H. B. Seim, III[2], A. S. Turner[2];
[1]ETEX Corporation, Cambridge, MA, [2]Veterinary Medical Center, Colorado State University, Fort Collins, CO.

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S. D. Nagatomi, P. L. Tate, D. E. Linden, M. A. Hucks, S. W. Shalaby;
Poly-Med, Inc., Anderson, SC.

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Functionalization of Titania Nanotube Arrays for Therapeutic Drug Delivery

C. YAO, T. Webster, Jr.;
Brown University, Providence, RI.

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Primary Hepatocyte Culture on Polymeric Microsphere Scaffold with Human Hepatocyte Growth Factor Release

X. Zhu, **Y. Tong**;
National University of Singapore, 4 Engineering Drive 4, SINGAPORE.

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Effects of a mixture of growth factors and serum proteins on human osteogenic cell cultures

P. Tambasco de Oliveira;
University of Sao Paulo, Ribeirao Preto, BRAZIL.

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R. Nair, S. Shukla, A. Ngangan, **T. C. McDevitt**;
Georgia Tech / Emory, Atlanta, GA.

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Immediate shape-retentive wound dressings formed in situ using hydrogel nanoparticle powders

J. V. St. John[1], S. A. Brown[2], B. C. Ponder[1], L. Waller[1], D. Noble[3], D. A. Hatef[3];
[1]ULURU Inc., Addison, TX, [2]University of Texas Southwestern Medical Center, Dalla, TX, [3]University of Texas Southwestern Medical Center, Dallas, TX.

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D. Eberli, J. Yoo, A. Atala;
Wake Forest University School of Medicine, Winston Salem, NC.

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Biocompatibility of Zn-Containing Sol-Gel Derived Glasses in a Murine Wound Model

D. B. Jaroch, L. K. Miller, A. M. Raehl, S. E. Gibbs, K. K. McKeown, J. Goldman, D. C. Clupper;
Michigan Technological University, Houghton, MI.

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S. Farè[1], S. Bertoldi[1], M. Moscatelli[1], A. Addis[2], M. Campagnol[2], F. Vitari[3], C. Domeneghini[3], **M. C. Tanzi**[1];
[1]Politecnico di Milano, MILANO, ITALY, [2]CRABCC University of Milano, MILANO, ITALY, [3]Dept VSTFS, University of Milano, MILANO, ITALY.

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S. M. Willerth, S. E. Sakiyma-Elbert;
Washington University in St. Louis, Saint Louis, MO.

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E. Ahn;
Angstrom Medica, Woburn, MA.

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[1]University of Texas Southwestern Medical School, Dallas, TX, [2]University of Texas at Arlington, Arlington, TX.

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*In Vitro* Evaluation of Biomimetic Nanofiber-Based Scaffolds for Rotator Cuff Repair

K. L. Moffat[1], J. P. Spalazzi[1], S. B. Doty[2], W. N. Levine[1], H. H. Lu[1];
[1]Columbia University, New York, NY, [2]Hospital for Special Surgery, New York, NY.

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Long term patency and transmural endothelialisation of small caliber microporous compliant vascular bypass grafts manufactured from poly(carbonate-urea) urethane incorporating polyhedral oligomeric silsesquioxane pendant nanocage within its hard segment in an ovine model

S. Sarkar, G. Hamilton, A. M. Seifalian;
Royal Free and University College Medical School, London, UNITED KINGDOM.

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A poly(butyl methacrylate-co-methacrylic acid) tissue engineering scaffold with proangiogenic potential in vivo

Mark J. Butler, Michael V. Sefton.
Department of Chemical Engineering and Applied Chemistry, Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto, ON Canada

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A. Chilkoti, M. Dreher, A. Simnick, A. MacKay;
Duke University, Durham, NC.

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Dynamic hydrogels based on changes in nanoscale protein assembly

W. L. Murphy[1], **M. Mrksich**[2];
[1]University of Wisconsin, Madison, WI, [2]University of Chicago, Chicago, IL.

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Layer-by-layer Assembly of PEG-rich, Nano-thin, Conformal Coatings for Intraportal Islet Transplantation

J. T. Wilson[1], W. Cui[2], E. L. Chaikof[1];
[1]Georgia Institute of Technology and Emory University, Atlanta, GA, [2]Emory University, Atlanta, GA.

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M. Matsusaki, K. Kadowaki, M. Akashi;
Osaka University, Osaka, JAPAN.

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Layer-by-layer films containing plasmid DNA and reducible TAT polypeptide

J. L. Blacklock;
Wayne State University, Detroit, MI.

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N. A. Peppas;
The University of Texas at Austin, Austin, TX.

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Heart Valve Tissue Engineering and Regeneration: A Pathologist's Point of View

F. J. Schoen;
Brigham and Women's Hospital and Harvard Medical School, Boston, MA.

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Blood-Material Interactions of Polyurethanes

S. L. Cooper;
The Ohio State University, Columbus, OH.

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Surgical Adhesion Prevention: Current Therapies and Beyond

A. J. Coury;
Genzyme Corporation, Cambridge, MA.

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Bioactive Ceramics and Glasses: Reactivity, Biological Effects and Tissue Engineering Use

P. Ducheyne;
University of Pennsylvania, Philadelphia, PA.

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Challenges in Spinal Repair and Regeneration

A. J. T. Clemow;
Nexgen Spine, Inc., Whippany, NJ.

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Polyethylene glycol-based Microgel Coatings Reduce Leukocyte Adhesion In Vivo

A. W. Bridges, N. Singh, K. L. Burns, J. E. Babensee, L. A. Lyon, A. J. García;
Georgia Institute of Technology, Atlanta, GA.

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Characterization of a Decorin Surface Coating for Reduction of Fibrous Encapsulation Around Implants

M. L. Sylvester, B. D. Ratner;
University of Washington, Seattle, WA.

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N. M. Shah, A. T. Metters;
Clemson University, Clemson, SC.

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Versatile Gradient Substrates for 'Click' Biofunctionalization

N. D. Gallant, K. A. Lavery, E. J. Amis, M. L. Becker;
National Institute of Standards and Technology, Gaithersburg, MD.

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The effect RGD ligand density on macrophage inflammatory and matrix remodeling response

A. S. Chung;
University of Wisconsin-Madison, Madison, WI.

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Biofunctional Star PEG Coatings on 3 Dimensional Polyvinylidene fluoride Scaffolds for Specific
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D. Klee, J. Heuts, J. Salber, J. Groll, M. Möller;
RWTH Aachen University, Aachen, GERMANY.

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RGDC peptide immobilization on titanium nitride-coated Nitinol surface enhances osteprogenitor cell attachment

G. Zorn[1], R. Adadi[2], I. Gotman[1], E. Y. Gutmanas[1], C. N. Sukenik[2];
[1]Technion, Haifa, ISRAEL, [2]Bar-Ilan University, Ramat-Gan, ISRAEL.

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Covalent Attachment of Self-Assembled Peptide Amphiphile Nanofibers to Metallic Implant Surfaces

T. D. Sargeant[1], S. I. Stupp[1], M. S. Rao[2], C-Y. Koh[1];
[1]Northwestern University, Evanston, IL, [2]Morton Grove Pharmaceuticals, Morton Grove, IL.

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Integrin linked kinase production prevents anoikis in human mesenchymal stem cells

M. C. Tripodi[1] D. S. W. Benoit[1], J. O. Blanchette[2], S. J. Langer[1], L. A. Leinwand[1], K. S. Anseth[1];
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A. Reddy, M. S. Caicedo, I. Samee, J. J. Jacobs, N. J. Hallab;
Rush University Medical Center, Chicago, IL.

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Effect of a Fatty Acid Based Coated Mesh Material on Visceral Adhesion Formation and Tenacity

J. F. Ferraro[1], P. Martakos[1], T. Karwoski[1], S. K. Williams[2], L. B. Kleinert[2];
[1]Atrium Medical Corporation, Hudson, NH, [2]University of Arizona, Tucson, AZ.

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The Effect of Chemically Crosslinking SIS-ECM Scaffold Materials on the Macrophage Phenotype

J. E. Valentin, A. M. Stewart-Akers, A. Ravindra, S. F. Badylak;
University of Pittsburgh, Pittsburgh, PA.

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Tooth attachment in a Narwhal *(Monodon monoceros)* compared to a Human *(Homo sapien)*

S. P. Ho[1], N. Eidelman[2], F. C. Eichmiller[3], N. T. Martin[4], S. J. Marshall[1], G. W. Marshall[1];
[1]University of California San Francisco, San Francisco, CA, [2]National Institute of Standards and Technology, Gaithersburg, MD, [3]Delta Dental of Wisconsin, Stevens Point, WI, [4]Harvard University, Boston, MA.

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Handling and mechanical properties of collagen -brushite composite

K. Balamurugan[1], J. Barralet[1], C. Doillon[2], U. Gbureck[3];
[1]McGill University, Montreal, PQ, CANADA, [2]Laval University, Quebec, PQ, CANADA, [3]University of Wurzburg, Wurzburg, GERMANY.

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Co-cultivation of oral keratinocytes and osteoblast-like cells on different carriers

R. Glaum[1], M. Wiedmann-Al-Ahmad[2], U. Huebner[2], N-C. Gellrich[1], R. Schmelzeisen[2];
[1]Medical University of Hannover, Hannover, GERMANY, [2]University of Freiburg, Freiburg, GERMANY.

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M. Sarikaya;
University of Washington, Seattle, WA.

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J. T. Connelly, T. A. Petrie, A. A. Garcia, M. E. Levenston;
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Template-Assembly of Collagen-Mimetic Peptides (CMPs) based on Collagen $\alpha_1$(I) 502-507 Ligand Binding Site

S. Khew, **Y. Tong**;
National University of Singapore, 4 Engineering Drive 4, SINGAPORE.

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C. J. Reedy, M. A. Firestone;
Argonne National Laboratory, Argonne, IL.

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Integrin Specificity Modulates Implant Osseointegration: Functionalization of Stable Poly(OEGMA) Brush-Coated Ti Implants with $FNIII_{7-10}$ and RGD

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E. Jabbari, A. S. Sarvestani, X. He;
University of South Carolina, Columbia, SC.

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Modulus and Proteolytic Resistance of PEGylated Fibrinogen Hydrogel Biomaterials Affects 3-D Smooth Muscle Cell-Mediated Spreading and Remodeling

D. Seliktar, D. Dikovsky;
Technion, Haifa, ISRAEL.

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Case Western Reserve University, Cleveland, OH.

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E. K. F. Yim, K. W. Leong;
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Regulation of In Vivo Angiogenesis by Heparin-controlled Dual Growth Factor Release from Hyaluronan Hydrogels

R. A. Peattie[1], P. W. Fuegy[1], C. M. Riley[1], S. Cai[2], B. Yu[2], R. J. Fisher[3], M. A. Firpo[2], X. Shu[2], G. D. Prestwich[2];
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Direct Fabrication by Manual Brushing of Suspended Microscale Fibers for Cell Culture Scaffolds

Scott M. Berry[1], Santosh Pabba[3], Jessica L. Fernades[3], Jeremy M. Rathfon[4], Khaled A. Aamer[4], Gregory N. Tew[4], Andrea S. Gobin[2], Robert W. Cohn[3], and Robert S. Keynton[1,2]
Departments of Mechanical Engineering[1], and Bioengineering[2], and ElectroOptics Research Institute and Nanotechnology Center[3], University of Louisville; Department of Polymer Science[4], University of Massachusetts

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Spiral Structured Nanofibrous 3D Scaffolds for Bone Tissue Engineering

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Stevens Institute of Technology, Hoboken, NJ.

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Self-Assembling Peptide Nanofiber Hydrogels for Inductive Tissue Engineering Applications: Functional Protein Release Kinetics, In-Scaffold Diffusion Mechanisms and Eluted Protein Structure

L. D. Unsworth[1], S. Koutsopoulos[2], Y. Nagai[2], S. Zhang[3];
[1]National Research Council (Canada), Edmonton, AB, CANADA, [2]Center for Biomedical Engineering, MIT, Cambridge, MA, [3]Center for Biomedical Engineering, Cambridge, MA.

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Poly-lactic-co-glycolic acid with nano-scale topography influences murine mesenchymal stem cell function and differentiation

L. Smith, E. A. Nauman;
Purdue University, West Lafayette, IN.

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Synthesis and Characterization of Hydrogels Grown on Surfaces by ATRP

H. D Chirra, H. James. Z.;
University of Kentucky, Lexington, KY.

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A. K. Moghe, B. S. Gupta, M. W. King;
North Carolina State University, Raleigh 27695-8301, NC.

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Fibrinolytic Surface by Immobilization of Lysine on Polyurethane through a PEG Spacer

H. Chen[1], X. Hu[1], D. Li[1], Y. Zhang[1], W. G. McClung[2], J. L. Brash[2];
[1]Wuhan University of Technology, Wuhan, CHINA, [2]McMaster University, Hamilton, ON, CANADA.

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Surface Engineering in Microfluidic Devices for the Isolation of Smooth Muscle Cells and Endothelial Cells

S. K. Murthy[1], B. Plouffe[1], M. Radisic[2];
[1]Northeastern University, Boston, MA, [2]University of Toronto, Toronto, ON, CANADA.

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R. Gupta, M. V. Sefton;
University of Toronto, Toronto, ON, CANADA.

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Multivalent Sonic Hedgehog as an Enhanced Potency Biomaterial Modification for Angiogenesis

S. T. Wall, K. Saha, D. V. Schaffer, k. E. Healy;
UC Berkeley, Berkeley, CA.

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Aligned poly(ε-caprolactone) nanowire/fiber arrays: properties for drug delivery and control of cellular interactions

S. L. Tao, T. A. Desai;
UCSF, San Francisco, CA.

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E. K. Cushnie, C. T. Laurencin;
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X. Cui, N. Flohr, T. Boland;
Clemson University, Clemson, SC.

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University of Michigan, Ann Arbor, MI.

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D. A. Carr, M. C. Boudes, O. Z. Fisher, N. A. Peppas;
The University of Texas at Austin, Austin, TX.

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J. C. Garbern, A. S. Hoffman, P. S. Stayton;
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C-C. Lin, A. T. Metters;
Clemson University, Clemson, SC.

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Queen's University, Kingston, ON, CANADA.

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Georgia Institute of Technology, Atlanta, GA.

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S. Zhang, J. E. I. Wright, H. Uludag;
University of Alberta, Edmonton, AB, CANADA.

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Analyzing Intratumoral Chemotherapeutic Drug Penetration in Ablated Tumors Using Finite Element Methods

R. B. Patel[1], B. D. Weinberg[1], J. Gao[2], A. A. Exner[1], G. M. Saidel[1];
[1]Case Western Reserve University, Cleveland, OH, [2]University of Texas Southwestern Medical Center, Dallas, TX.

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L. Zhang[1], S. Ramsaywack[2], H. Fenniri[3], T. J. Webster[1];
[1]Brown University, Providence, RI, [2]University of Alberta, Edmonton, AB, CANADA, [3]National Institute for Nanotechnology and University of Alberta, Edmonton, AB, CANADA.

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K. M. Hennessy, W. C. Clem, **S. L. Bellis**;
University of Alabama at Birmingham, Birmingham, AL.

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Z. Schwartz[1], G. Zhao[2], P. Raz[1], Y. Barak[3], M. Tauber[4], B. D. Boyan[2];
[1]Hebrew University Hadassah, Jerusalem, ISRAEL, [2]Georgia Institute of Technology, Atlanta, GA, [3]Impliant Inc., Jerusalem, ISRAEL, [4]Arkade Klinik, Breitungen, GERMANY.

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Polymer-Ceramic Composite Induces Osteogenesis of Human Mesenchymal Stem Cells

N. L. Leong, J. Jiang, N. N. Okoh, H. H. Lu;
Columbia University, New York, NY.

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Characterization of Aggrecan Retention in Fumarate-Based Hydrogels for Orthopaedic Tissue Engineering

K. S. Brink, J. J. Lim, J. D. Weaver, D. M. Doroski, **J. S. Temenoff**;
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Cellular Evaluation of Bone Morphogenetic Protein-Derived Oligo-peptides as Candidate Biomolecules for Surface Modified Scaffolds in Bone Tissue Engineering

D. A. Lee[1], C. T. Laurencin[2];
[1]Drexel University, Philadelphia, PA, [2]University of Virginia, Charlottesville, VA.

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Effect of rapidly resorbable calcium-alkali-orthophosphate bone substitute materials on osteogenesis and osteoblastic phenotype expression *in vivo*

C. Knabe[1], G. Berger[2], R. Gildenhaar[2], C. Koch[1], S. Jonscher[1], A. Rack[3], H. Seligmann[1], M. Stiller[1];
[1]Charite University Medical Center, Berlin, GERMANY, [2]Federal Institute for Materials Research and Testing, Berlin, GERMANY, [3]Helmholtz Research Center Karlsruhe, Karlsruhe, GERMANY.

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*Ex Vivo* Gene Therapy in Combination with a Novel Tubular Sintered Microsphere Scaffold: The *In Vivo* Delivery of BMP-2 Producing Cells

M. D. Kofron[1], J. Li[1], K. Martin[2], S. G. Kumbar[1], A. Adeniran[3], X. Wen[4], C. T. Laurencin[1];
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C. Kothapalli, A. Ramamurthi;
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C. Kothapalli, A. Ramamurthi;
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Recruitment of Endogenous Stem Cells for Tissue Repair

J. Zhao[1], N. Zhang[1], A. Scott[2], G. D. Prestwich[3], X. Wen[1];
[1]Clemson University, Charleston, SC, [2]Glycosan BioSystems Inc., Salt Lake City, UT, [3]University of Utah, Salt Lake City, UT.

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Chemically Modified Light-curable Chitosans with Enhanced Potential in Bone Tissue Engineering

Y. Qiu[1], N. Zhang[1], Q. kang[2], Y. An[2], X. Wen[1];
[1]Clemson University, Charleston, SC, [2]Medical University of South Carolina, Charleston, SC.

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Immobilized Glycosaminoglycans Modulate Proliferation and Organization of Cultured Cholangiocytes

L. Chen, H. W. T. Matthew;
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B. Ghosn, K. Roy, S. P. Kasturui, H. Abdul-Razzak;
University of Texas at Austin, Austin, TX.

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Regulation of Osteogenic and Chondrogenic Differentiation of MSCs in Extracellular Matrix-Hydrogels

N. S. Hwang, S. Varghese, H. Li, A. Canver, J. Elisseeff;
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georgia institute of technology, atlanta, GA.

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integrin-specific instructions to mesenchymal stem cells

M. Martino[1], M. Mochizuki[1], M. Smith[2], S. A. Rempel[3], J. A. Hubbell[1], T. H. Barker[4];
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Cytokine Expression from Monocytes/Macrophages response to Ti-particles and discs

D. H. Kim[1], M. Novak[1], J. Wilkins[2], A. Saywer[2], W. M. Reichert[1];
[1]Duke university, Durham, NC, [2]BD Technologies, RTP, NC.

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C. P. O'Brien;
Clemson University, Clemson, SC.

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pH Dependence of Albumin Spatial Distribution on a Patterned PS/PMMA Surface

L. Li[1], J. L. Brash[1], A. P. Hitchcock[1], A. Scholl[2], A. Doran[2];
[1]McMaster University, Hamilton, ON, CANADA, [2]Advanced Light Source, Berkeley, CA.

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R. A. Latour, Y. Sun, B. N. Dominy;
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H. D. Maynard, K. L. Christman, R. M. Broyer, Z. P. Tolstyka, E. Schopf, Y. Chen;
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Investigation of Surface Hydrolysis in Thin Organic Films Using Time-of-Flight Secondary Ion Mass Spectrometry and Principal Component Analysis

F. Cheng[1], L. J. Gamble[2], D. W. Grainger[3], **D. G. Castner**[2];
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E. V. Rosca, M. R. Caplan;
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Thermosensitizer for Hyperthermic Treatment of Tumors

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Photo-crosslinkable and temperature sensitive chitosan/pluronic nanogel for local drug delivery

J. Han, J. Choi, J. Lee, H. Yoo;
Kangwon National University, Chuncheon, REPUBLIC OF KOREA.

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Devices for Alternating Release of Multiple Biomolecules

J. Jeon[1], M. Thomas[2], D. Puleo[1];
[1]Center for Biomedical Engineering, Univesity of Kentucky, Lexington, KY, [2]College of Dentistry, Univesity of Kentucky, Lexington, KY.

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Controlled delivery of GM-CSF from PLG scaffolds primes dendritic cells for the generation of anti-tumor immune responses

O. A. Ali[1], **O. A. Ali**[1], G. Dranoff[2], D. J. Mooney[1];
[1]Harvard University, Cambridge, MA, [2]Dana-Farber Cancer Institute, Boston, MA.

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B. LI, B. LINDSEY, B. JIANG, B. BOYCE, S. SALIHU, D. HUBBARD;
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Enhanced Bone Formation via Intermittent Release of Simvastatin

J. Jeon[1], W. Piepgrass[2], M. Thomas[2], D. Puleo[1];
[1]Center for Biomedical Engineering, Univesity of Kentucky, Lexington, KY, [2]College of Dentistry,Univesity of Kentucky, Lexington, KY.

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Ectopic Bone Formation by Combinational Technology of Gene Therapy and Tissue Engineering

H. Hosseinkhani;
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D. C. Clupper, A. D'Souza, D. B. Jaroch;
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MPEG-PCL diblock copolymer as an in situ gel forming drug carrier

M. Kim;
Korea Research Institute of Chemical Technology, Daejeon, REPUBLIC OF KOREA.

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A New Injectable Hydrogel Induces Angiogenesis through Controlled Release of Basic Fibroblast Growth Factor

H. Hosseinkhani;
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Estimating Local Doxorubicin Transport Properties in Experimental Liver Carcinoma

B. D. Weinberg[1], R. B. Patel[1], A. A. Exner[1], G. M. Saidel[1], J. Gao[2];
[1]Case Western Reserve University, Cleveland, OH, [2]University of Texas Southwestern Medical Center, Dallas, TX.

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Effect of Drug Structure on Release from Absorbable Electrospun Fibers

M. S. Taylor, J. M. Lindsey, III, E. F. Powell, S. W. Shalaby;
Poly-Med, Inc., Anderson, SC.

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Calcium Phosphate Cement as a Carrier for the Local Delivery of Antibiotic

J. Zitelli[1], S. Coyle[1], C. Scott[2];
[1]Stryker, Mahwah, NJ, [2]Concept Design Associates, Hackensack, NJ.

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Controlled Drug Release from Bioerodible Hydrogels Based on Poly(ethylene glycol) and Sebacic acid

J. Kim, L. Lu, B. L. Currier, M. J. Yaszemski;
Mayo Clinic, Rochester, MN.

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The Elution Behavior of Daptomycin Loaded Calcium Sulfate Pellets

N. D. Webb[1], K. Richelsoph[1], J. Bumgardner[1], P. Yang[2], W. Haggard[1];
[1]University of Memphis, Memphis, TN, [2]University of Tennessee, Memphis, TN.

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L. J. Taite, P. S. Stayton;
University of Washington, Seattle, WA.

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Controlling multiphasic, multi-drug release kinetics from single delivery matrix

K. R. Kleinbeck, A. Stajkowski, W. J. Kao;
University of Wisconsin School of Pharmacy, Madison, WI.

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Rapid Improvement in Myocardial Infarction Therapy by Application of an Injectable Tissue Engineered Nanoscaffold

H. Hosseinkhani;
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Development and in vitro biocompatibility evaluation of a microparticle type drug delivery device for controlled delivery of therapeutic proteins using a novel L-tyrosine based polyphosphate

P. N. Shah, S. T. Lopina, Y. H. Yun;
The University of Akron, Akron, OH.

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Simvastatin Incorporated Perivascular Polymeric Controlled Drug Delivery System for the Inhibition of Intimal Hyperplasia

A. KRISHNAN[1], S. T. LOPINA[1], M. EVANCHO-CHAPMAN[2], S. P. SCHMIDT[2], D. DONOVAN[2], J. R. GREENE[1];
[1]THE UNIVERSITY OF AKRON, AKRON, OH, [2]SUMMA HEALTH SYSTEM, AKRON, OH.

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A Dual-Functional Polymeric Coating Combining Rapamycin and Nitric Oxide Release

B. Wu, M. E. Meyerhoff;
University of Ann Arbor, Ann Arbor, MI.

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Potential use of cholecalciferol polyethylene glycol succinate as a novel pharmaceutical additive

L-Y. L. Yung;
National University of Singapore, Singapore, SINGAPORE.

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Platelet adhesion on peptide fluorosurfactant polymers

C. Tang[1], F. Kligman[2], R. E. Marchant[1], K. Kottke-Marchant[2];
[1]Case Western Reserve University, Cleveland, OH, [2]Cleveland Clinic Foundation, Cleveland, OH.

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Serotonin Antagonists Inhibit Reactive Oxygen Species Generation in Polyurethane Seeded Monocyte Derived Macrophages

S. J. Stachelek, I. Alferiev, J. Fulmer, R. J. Levy;
Children's Hospital of Philadelphia, Philadelphia, PA.

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The Electrophysiological Properties of Cardiac Fibroblast in a Surface Patterned Cell Culture Model

P. Mitchell[1], T. Borg[2], R. Gourdie[3], B. Z. Gao[1];
[1]Clemson University, Clemson, SC, [2]University of South Carolina, Columbia, SC, [3]Medical University of South Carolina, Charleston, SC.

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Apoptosis induced by elastin derived peptides and TGF-β1 in rat aortic smooth muscle cells in vitro

A. SIMIONESCU, N. VYAVAHARE;
CLEMSON UNIVERSITY, CLEMSON, SC.

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Production and Function of a Novel Percutaneous Device Realizing of Prevention of Germ Infection Made of a Nano-scaled Hydroxyapatite Crystals/polymer Composite

Y. Kogai[1], M. Okada[2], J. Tanaka[3], T. Furuzono[2];
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Glycosaminoglycan Stabilization in Bovine Pericardium

L. A. Browne, N. Vyavahare;
Clemson University, Clemson, SC.

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S. A. Sell[1], M. J. McClure[1], C. P. Barnes[1], J-C. Tille[2], B. H. Walpoth[2], **G. L. Bowlin**[1];
[1]Virginia Commonwealth University, Richmond, VA, [2]University Hospital, Geneva, SWITZERLAND.

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M. Dadsetan[1], A. M. Knight[2], C. Vallejo[1], L. Lu[1], A. J. Windebank[2], M. J. Yaszemski[1];
[1]Orthopedic Research Dept., Rochester, MN, [2]Neurology Research, Rochester, MN.

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The Effect of Fibronectin and Collagen IV on Neurite Extension in 3D Collagen Gels

M. J. Blewitt;
Saint Louis University, St. Louis, MO.

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Spiral Structured Nanofibrous Scaffolds for Neural Tissue Engineering.

C. Valmikinathan, J. Tian, X. Yu;
Stevens Institute of Technology, Hoboken, NJ.

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Carbon Nanotubes Fibers as Neural Biomaterial:
Nanoscale Surface and Biocompatibility

S. C. Polizu[1], M. Rouabhia[2], O. Savadogo[3], P. Poulin[4], L. Yahia[3];
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Polypyrrole Micropatterns for Electrical and Topological Stimulation of Hippocampal Neurons

J. Y. Lee, N. Gomez, J. Nickels, C. E. Schmidt;
The University of Texas at Austin, Austin, TX.

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Synthesis and Characterization of di-Functional PEG-based Crosslinkers for L1 Immobilization

J-S. Lee, R. Cribb, E. Cho, J. K. Kutty, K. Webb;
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Rice University, Houston, TX.

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J. G. BOWSHER[1], T. K. Donaldson[2], A. Wang[3], A. Essner[3], I. C. Clarke[1];
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[1]University of Washington, Seattle, WA, [2]University of Connecticut Health Center, Farmington, CT.

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A. Boger;
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M. Cannella[1], W. Perea[2], J. Yang[2], A. J. Vega[2], T. Polenova[2], M. Marcolongo[1];
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The Effect of Age-related Microstructural Changes on Constitutive Behavior of Human Renal Arteries

Y. Yuan[1], T. Topoleski[1], W. Mergner[2], L. Li[3];
[1]UMBC, Baltimore, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Office of the Chief Medical Examiner, Baltimore, MD.

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INJE University, Kimhae City, REPUBLIC OF KOREA.

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K. C. Popat[1], C. A. Grimes[2], T. Desai[1];
[1]University of California, San Francisco, San Francisco, CA, [2]Pennsylvania State University, State College, PA.

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A. Stanishevsky[1], S. Chowdhury[1], H. Yockell-Lelievre[2], Y. Vohra[1];
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Peptide-Functionalised Gold Nanoparticle Assembly for Rapid and Sensitive Protease Detection

L. Koh[1], A. Laromaine[1], M. Murugesan[1], R. V. Ulijn[2], M. M. Stevens[1];
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Y-C. Huang, D. Irvine;
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Controlled Generation of Chemokine Gradients in 3D Matrices for Directing T Cell Migration

Y. Wang, D. J. Irvine;
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Effects of microstructured topography on the differentiation of H945RB.3 human neural progenitor cells

Z-Z. Wu[1], Y. Zhao[2], **W. S. Kisaalita**[2];
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Localized Mechanical Strain Gradients in Type-I Collagen Biomaterials Around a Sharp Notch Under Tension

J. Lee, M. Shaw;
California Lutheran University, Thousand Oaks, CA.

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Optimizing Tissue Scaffold Composition for X-ray-Based Imaging

C. G. Simon, Jr.[1], Y. Yang[1], S. M. Dorsey[1], G. E. Schumacher[2], G. M. Flaim[2], J. Kohn[3], S. Lin-Gibson[1], M. L. Becker[1];
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Cell Migration and Contraction Behavior in Collagen-GAG Scaffolds: Influence of Microstructure and Stiffness

B. A. Harley[1], H-D. Kim[2], M. H. Zaman[3], I. V. Yannas[2], D. A. Lauffenburger[2], L. J. Gibson[2];
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Generating Protein Gradients on Polymeric Nanofibrous Scaffolds for Neural Tissue Engineering

C. Valmikinathan, N. G. Golwala, X. Yu;
Stevens Institute of Technology, Hoboken, NJ.

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Focal adhesions of fibroblasts on dinamic surfaces: an additional approach for tissue engineering

M. F. Cannas, M. Bosetti, F. Boccafoschi;
Università degli Studi del Piemonte Orientale, Novara, ITALY.

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T. J. Stefonek, K. S. Masters;
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Rapid Assessment of Dental Polymers Using Gradient Samples

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Effect of Cyclic Uniaxial Strains on Neurite Development in PC12 Cells Cultured on Deformable Micro-Textured Substrates

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Controlling Immobilization of BMP on PLGA scaffolds via Heparin

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Investigation of Protein Immobilization on Nitrilotriacetic acid (NTA)-terminated Self-assembled Monolayers by Time-of-Flight Secondary Ion Mass Spectrometry and Principal Component Analysis

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The Use of Interfacial Peptide Coatings for Vascular Device Applications

S. R. Meyers[1], D. J. Kenan[2], M. W. Grinstaff[1];
[1]Boston University, Boston, MA, [2]Duke University Medical Center, Durham, NC.

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C. A. Middleton, C. J. Pendegrass, D. Gordon, J. Jacobs, G. Blunn;
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The Effects of Continuous Sustained Release of DHEA and DHEAS on Male Rat Reproductive Tissue

H. Benghuzzi, M. A. Tucci;
University of Mississippi Medical Center, Jackson, MS.

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delivery of Esterogen Benzoiate (EB) and EB *plus* PROGETERONE by means of ZNCAP drug delivery system using an osteoporotic rat model

H. Benghuzzi[1], M. A. Tucci[1], B. England[2];
[1]University of Mississippi Medical Center, Jackson, MS, [2]University of Michigan Medical Center, Ann Arbor, MI.

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J. Broom[1], J. Stopek[2], M. Soltz[1], T. Wenchell[1], D. Racenet[1];
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J. Tierney, J. Hodde;
Cook Biotech Inc., West Lafayette, IN.

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In vivo wound healing treatments using biocompatible nanofibers immobilized with epidermal growth factor (EGF)

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P. Cheng[1], A. Driessen[2], E. Tijsma[3], K. Udipi[1], A. Hezi-Yamit[1], C. Sullivan[1], J. Wong[1], J. Wilcox[1];
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J. McClain;
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J. Stopek[1], J. Migliozzi[1], C. Cai[1], A. Irfan[1], S. Tsai[1], J. Hotter[1], J. Thomas[2];
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Biomimetic Nanocoatings as Novel Drug Delivery Systems

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Vancomycin Adsorption and Desorption to 3D Printed Calcium Phosphate Ceramics

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Two-phase controlled release of gentamicin from a bioabsorbable elastomeric film

D. Armbruster, X. Liu, P. Schaut;
Synthes, West Chester, PA.

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*In Situ* Setting Polymer/Ceramic Composite Bone Cements for Controlled Release of Simvastatin

M. Fulmer[1], X. Liu[1], E. Gruskin[1], M. Lepre[2];
[1]Synthes Inc., West Chester, PA, [2]Synthes Europe, Oberdorf, SWITZERLAND.

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Drug releasing from biocompatible phospholipid polymer reserver on titanium alloy for cardiovascular stent

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The University of Tokyo, Tokyo, JAPAN.

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Effectiveness and Stability of OptiChem® Poly (ethylene glycol) - Coatings Against Bacterial Adhesion

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Incorporation of Osteogenic Protein-1 Plasmid into Chitosan Nanoparticles for Non-Viral Gene Transfer to Chondrocytes

X. Xu[1], R. M. Capito[2], M. Spector[3];
[1]Jiangsu University, Zhenjiang, MA, [2]Massachusetts Institute of Technology, Cambridge, MA, [3]VA Boston Healthcare System, Boston, MA.

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Biotin-conjugated Block Copolymeric Nanoparticles for Tumor-targeted Drug Delivery System

S. Kim[1], J. Kim[1], Y. Lee[2];
[1]Korea Institute of Ceramic Engineering and Technology, Seoul, REPUBLIC OF KOREA, [2]Hanyang University, Seoul, REPUBLIC OF KOREA.

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Hydrophobic drug delivery: micelles of poly(ethylene glycol-*b*-propylene sulfide) as vehicles of Cyclosporin A

D. Velluto;
Laboratory for Regenerative Medicine & Pharmacobiology(LMRP),EPFL, Lausanne, SWITZERLAND.

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Magnetic Nanoparticles as a Template for In Vivo Nanomedical Systems

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N. K. Vail, G. Rossini, S. Crumlett, J. Trevino;
Southwest Research Institute, San Antonio, TX.

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Self Assembled Nanoparticles based on Chitosan and Anacardic acid for Oral Insulin Delivery

R. Shelma, W. Paul, **C. P. Sharma**;
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W. Paul, **C. P. Sharma**;
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S. Lim, I. Rubinstein, H. Önyüksel;
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T. Thula, G. Schultz, C. Batich;
University of Florida, Gainesvilles, FL.

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CISPLATIN INCORPORATED PLGA NANOPARTICLES for LOCAL DRUG DELIVERY.

A. J. Darr, A. Jayasuriya;
University of Toledo, Toledo, OH.

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Particulates of Calcium Phosphate/Cisplatin Overcome Drug Resistance of A2780cis Cells

L. Kuhn, X. Cheng;
University of Connecticut Health Center, Farmington, CT.

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In vivo evaluation of immune activation by novel biodegradable polymer adjuvants

J. Wilson, M. P. Torres, S. Lopac, M. Modest, M. Wannemuehler, S. K. Mallapragada, B. Narasimhan;
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A New Predictive Model for Drug Release Based on Void Growth and Coalescence: A Continuum and Ensemble Approach.

W. J. Federspiel, S. N. Rothstein, S. R. Little;
University of Pittsburgh, Pittsburgh, PA.

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Injectable Sol Gel Controlled Release Carrier for the Delivery of Small Pharmaceuticals

M. Ni[1], S. Radin[1], A. Zeiger[2], P. Ducheyne[1];
[1]University of Pennsylvania, Philadelphia, PA, [2]Thomas Jefferson University, Philadelphia, PA.

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Emulsified Sol-Gel Microspheres for Controlled Drug Delivery: In Vitro Release and Stability

S. Radin, T. L. Chen, P. Ducheyne;
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A. P. Griset, M. W. Grinstaff;
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In vitro Loading and Release Study of Liposome-based Nanoparticles for their potential use in Protein Delivery

Z. S. Haidar[1], F. Azari[2], R. C. Hamdy[3], M. Tabrizian[2];
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Antibody-Directed and Ultrasonically-Activated Drug Carrier

D. S. Lewis, W. G. Pitt;
Brigham Young University, Provo, UT.

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Green Synthesis of Silver Nanoparticles

O. C. Wilson, Jr.[1], A. Pfeffer[1], J. Kambuga[1], H. Iravani[1], K. Kennedy[1], P. Mehl[1], W. Anderson[2], A. Gugsa[2];
[1]The Catholic University of America, Washington, DC, [2]Howard University, Washington, DC.

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Solubilization of 17-Allylamino-17-demethoxygeldanamycin in Biocompatible and Biodegradable Sterically Stabilized Phospholipid Mixed Micelles - A Novel Nanomedicine for Treatment of Breast Cancer

P. Mohanty, I. Rubinstein, H. Onyuksel;
University of Illinois at Chicago, Chicago, IL.

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Synthesis and Characterization of 'Smart' Microgels that Respond to pH and Temperature Changes

T. Omura, A. S. Hoffman, P. S. Stayton;
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Novel magnetic resonance imaging contrast agents using fatty acid

J. Yang, Y-M. Huh, H-G. Yoon, S. Haam;
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Nanodevices for Targeted Delivery of Tissue Plasminogen Activator to Blood Clots

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Specific Targeting of Microglia with Quantum Dots

K. C. Popat, B. Sun, Y. Zhou, L. Mucke, T. Desai, L. Gan;
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HA-PLGA Nanoparticles As Novel Drug Carrier for Cancer Therapeutics

J. Park;
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Nanoshells targeted with anti-PSMA for prostate cancer therapy.

A. M. Gobin, C. B. Williams, J. L. West;
Rice University, Houston, TX.

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Development of triazine-based cationic lipid for gene delivery

G. Candiani[1], M. Frigerio[2], F. Viani[1], D. Pezzoli[1], C. Pellegrini[1], C. Sala[1], C. Verpelli[1], M. Zanda[1];
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Factors affecting calcium phosphate nanoparticle mediated gene transfection

C. E. Pedraza;
McGill University, Montreal, PQ, CANADA.

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Effect of Acrylic Acid as a pH-sensitive Moiety on Paclitaxel Release from Hydrotropic Micelles

S. Kim, J. Kim, X. Wei, K. Park;
Purdue University, West Lafayette, IN.

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An arginine-based poly(aminoglycerol ester) facilitates the transport of genetic information across the cell membrane of lung epithelial cells.

B. J. Zern;
Georgia Institute of Technology, Atlanta, GA.

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Immuno-Nanoparticles by Diels-Alder Chemistry

M. Shi, M. S. Shoichet;
University of Toronto, Toronto, ON, CANADA.

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Nanoparticle-mediated Topical Delivery of Methylprednisolone After Contusion Injury to the Spinal Cord

Y-T. Kim, S. A. Chvatal, A. Bratt-Leal, R. V. Bellamkonda;
Georgia Institute of Technology and Emory University, Atlanta, GA.

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Polyketals: A new family of polymers for drug delivery

N. Murthy, M. Heffernan, S. Yang, S. Lee, S. Khaja;
Georgia Tech, Atlanta, GA.

# Orthopaedic Biomaterials

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Backside Polyethylene Wear: The Influence of Different Surface Finish on Debris Morphology and Size Distribution

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Crystallinity Changes of UHMWPE Acetabular Liners in a Hip Simulator Study with Roughened Heads

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Modulation of Prostaglandin E-2 Production by Chondrocytes on Solid Collagen Microcarriers

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Evaluation of the effect of femoral head size on sequentially cross-linked acetabular liners.

L. Herrera, R. Lee, J. Longaray, A. Essner, A. Wang, J. Dumbleton, J. D'Antonio, W. Capello;
Stryker Orthopaedics, Mahwah, NJ.

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SOLUBLE METAL DEBRIS INDUCE PRO-INFLAMMATORY CYTOKINE SECRETION IN HUMAN MONOCYTES SIMILAR TO PARTICULATE DEBRIS

M. S. Caicedo, A. Tarabishi, A. Reddy, J. J. Jacobs, N. J. Hallab;
Rush University Medical Center, Chicago, IL.

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In vitro interaction between brushite calcium phosphate cement and osteoclasts

D. Le Nihouannen[1], G. Uwe[2], S. Komarova[1], J. Barralet[1];
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Validation and Quantification of an In Vitro Model of Continuous Infusion of Sub-Micron Sized Particles

S. G. Ortiz, T. Ma, R. L. Smith, S. B. Goodman;
Stanford Medical School, Stanford, CA.

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Wear of Pyrocarbon and Metal Against Cortical Bone in a Joint Simulator

R. B. More[1], J. Klawitter[1], S. D. Cook[2], S. Salkeld[2];
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Nanoindentation of microstructural elements in bone cement

T. Topoleski, J. Gurganus;
UMBC, Baltimore, MD.

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The Effects Of Serum Protein Concentration On The Wear Rates In A Hip Simulator

K. R. St. John;
University of Mississippi Medical Center, Jackson, MS.

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HISTOLOGIC AND MECHANICAL EVALUATION OF A CALCIUM PHOSPHATE BONE CEMENT IN A SHEEP VERTEBROPLASTY MODEL

H. Kobayashi[1], T. Fujishiro[1], N. Kobayashi[1], S. Turner[2], H. Seim, III[2], J. Zitelli[3], M. Hawkins[3], S. Belkoff[4], T. W. Bauer[1];
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Biodegradable Microfibers Containing Hydroxyapatite Nanospheres for Bone Tissue Engineering

H. Tong, M. Wang;
The University of Hong Kong, Hong Kong, HONG KONG.

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Modeling the Crystallization Kinetics of an Injectable Calcium Phosphate Cement from FTIR and XRD Data

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Multiwall Carbon Nanotubes Enhance the Fatigue Performance of Methyl Methacrylate Copolymer

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University of Kentucky, Lexington, KY.

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Thermal reactions of brushite cements

M. Bohner[1], U. Gbureck[2];
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BMSCs function on 3D porous PLGA scaffolds coated with bone like minerals through rapid mineralization

C. B. Shah, N. A. Ebrahim, C. A. Jayasuriya;
The University of Toledo, Toledo, OH.

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UHMWPE Tibiofemoral Contact Area Comparison of Different Designs in High Flexion

T. S. Johnson, K. Mimnaugh;
Zimmer, Inc., Warsaw, IN.

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Keratinocyte growth and expression of adhesion complex molecules is influenced by titanium alloy surface topography

C. Pendegrass, D. Gordon, S. Ng Man Sun, C. Middleton, G. Blunn;
University College London, Stanmore, Middlesex, UNITED KINGDOM.

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Stripe Wear Analyses in Large-diameter Ceramic-on-Ceramic Bearings in Microseparation Simulator Mode

D. D. Green, P. A. Williams, I. C. Clarke;
Loma Linda Medical University, Loma Linda, CA.

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Developing CNTs-Ti-based Biosensors for Monitoring Orthopedic Tissue Growth

S. Sirivisoot, C. Yao, X. Xiao, B. W. Sheldon, T. J. Webster;
Brown University, Providence, RI.

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SEVERE CORROSION AND HYDROGEN EMBRITTLMENT OF RETRIEVED MODULAR BODY TITANIUM ALLOY HIP-IMPLANTS

D. B. C. Rodrigues[1], R. M. Urban[2], J. J. Jacobs[2], J. L. Gilbert[1];
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Restoration of Marrow Varies with Bone Graft Materials

Z. Schwartz[1], T. Doukarsky-Marx[1], E. Nasatzky[1], J. Goultschin[1], D. C. Greenspan[2], J. Sela[1], D. M. Ranly[3], B. D. Boyan[3];
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In Vitro Mineralization of PEUUR and PEUUR/DBM Composite Foams

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Biocompatibility of a Silicone-polycarbonate-urethane Used in a Prosthetic Lumbar Spinal Disc

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Evaluation of Bone Regeneration within a Critical-Sized Calvarial Defect in Athymic Rats Utilizing a DBM/AM Composite

Q-Q. Qiu[1], H. V. Mendenhall[2], D. S. Garlick[2], J. Connor[1];
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MHC-CLASS II EXPRESSION IN MACROPHAGES/MONOCYTES IS AFFECTED BY BOTH SOLUBLE AND PARTICULATE METAL IMPLANT DEBRIS

M. S. Caicedo, J. J. Jacobs, N. J. Hallab;
Rush University Medical Center, Chicago, IL.

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High density grafting of nano-polymer makes ultra-longevity for artificial joints

M. Kyomoto[1], T. Moro[2], T. Konno[2], H. Kawaguchi[2], Y. Takatori[2], K. Nakamura[2], F. Miyaji[1], K. Ishihara[2];
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Mechanical Properties of Highly Crosslinked UHMWPE Blended With Vitamin E

A. S. Rufner, D. L. Pletcher, T. L. Rowe, H. E. Brinkerhuff, M. E. Hawkins;
Zimmer, Inc., Warsaw, IN.

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Shear, Tensile and Fatigue Properties of a Titanium Foam Coating on Ti6Al4V Substrates

D. Scholvin, R. Obert, M. Carroll, J. Moseley;
Wright Medical Technology, Inc., Arlington, TN.

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Oxidative Stability of Highly Crosslinked UHMWPE Blended with Vitamin E

R. A. Pals, D. L. Pletcher, R. A. Gsell, H. E. Brinkerhuff, M. E. Hawkins;
Zimmer, Inc., Warsaw, IN.

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Preparation of Bioresorbable Magnesium-substituted Tricalcium Phosphate Ceramics

X. Zhang, K. S. Vecchio;
University of California, San Diego, La Jolla, CA.

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A Unified Approach for Evaluation of UHMWPE Performance in a Hip Simulator Using Wear Volume and Debris Size Distribution: Effect of Fabrication Method

P. Williams, I. C. Clarke;
Loma Linda University, Loma Linda, CA.

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Pyrophosphate modification prevents long term stability of brushite cement

L. M. Grover[1], J. Rose[2], D. F. Farrar[3], U. Gbureck[4], J. E. Barralet[5];
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Morphological Characterization and Corrosion Resistance of NiTi Foams for Biomedical Applications

S. Fare[1], L. de Nardo[2], M. F. Brunella[2], G. Rondelli[3], A. Cigada[2], P. Jardine[4], L. Yahia[5];
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Effects of Big-Ball Concepts for Wear of New Crosslinked UHMWPE Cups under the Microseparation Wear Mode

D. D. Green[1], A. G. Gustafson[2], I. C. Clarke[1];
[1]Loma Linda Medical University, Loma Linda, CA, [2]Gustafson Orthopaedics, Loma Linda, CA.

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Dynamic Mechanical Studies of Injection Molded and Gamma Sterilized PEEK and PEEK Composites

K. Zhang, M. E. Wallick, D. L. Pletcher, H. E. Brinkerhuff, M. E. Hawkins;
Zimmer Inc., Warsaw, IN.

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Surface Characterization of a Bioactive Composite: Theory for Mechanism of Action of Bone Bonding

M. M. Darmoc, E. M. Erbe, G. M. Nagvajara, R. S. Owsiany;
Orthovita, Inc., Malvern, PA.

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THE USE OF SIRIUS RED FOR PLASTIC HISTOLOGY OF THE INTERVERTBRAL DISC

T. P. Schaer;
University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA.

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Electron Beam Crosslinking of UHMWPE-Vitamin E Blends

D. L. Pletcher, R. A. Gsell, R. A. Pals, H. E. Brinkerhuff, M. E. Hawkins;
Zimmer, Inc., Warsaw, IN.

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Gender Differences Impact the In-Vivo Head Penetration of Conventional and Cross-linked Polyethylene in Total Hip Arthroplasty

R. W. McCalden[1], **J-M. Brandt**[2], K. D. J. Charron[1], E. P. Harvey[3], S. MacDonald[1], R. Bourne[1], C. Rorabeck[1], D. Chess[1];
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Polyethylene Wear is Affected by the Type of Calf Serum used in Knee Simulator Wear Testing

J-M. Brandt[1], K. Charron[2], L. Zhao[2], S. MacDonald[2], S. Koval[2], J. Medley[1];
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Submicron and Micron Sized Particle Can be represented as a Composite of Two Distributions

P. Williams, I. C. Clarke;
Loma Linda University, Loma Linda, CA.

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MECHANICAL RESPONSE OF BONE SURROUNDING OSTEOCHONDRAL GRAFT: A FINITE ELEMENT STUDY

D. L. Levine[1], J. Gao[2], J. Q. Yao[2];
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Fiber Loaded Calcium Phosphate Cement Improves the Structural Integrity of Defect-Filling Cement Mass under Simulated Dural Pulsation

H. Zandifar[1], M. J. Allen[1], K. A. Mann[1], M. Fulmer[2], D. Armbruster[2], E. Jacobson[2], P. Schaut[3], S. A. Tatum[1];
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Wear Particle Analysis of Supercritical Carbon Dioxide Sterilized UHMWPE from Total Knee Replacement Simulation

J. D. DesJardins, J. Hemmer, M. Drews, M. LaBerge;
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Improved Allograft Bone Incorporation by Continuous Infusion of OP-1 and FGF

T. Ma[1], J. Gutnick[2], B. Salazar[3], D. Larsen[1], E. Suenaga[1], S. Zilber[1], Z. Huang[1], J. Huddleston[1], R. L. Smith[1], S. B. Goodman[1];
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Bulk Mechanical Properties of a Novel Titanium Foam

D. Scholvin, R. Obert, M. Carroll, J. Moseley;
Wright Medical Technology, Inc., Arlington, TN.

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Impact Test for Ceramic Femoral Heads with and without Adapter Sleever

N. Dong[1], F. Boucher[1], T. Alexander[1], M. Moindreau[1], A. Wang[1], P. Sharkey[2], **M. A. Kester**[1];
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Gelatin Coupled with Silane as a New Tissue Engineering Scaffolds

B. Kwon, Z. Yang, M. E. Nimni, B. Han;
University of Southern California, Los Angeles, CA.

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Identification of Optimal Tissue Digestion Methods for Polyethylene Wear Debris Analysis

R. M. Baxter;
Drexel University, Philadelphia, PA.

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Osteoblast Response to Pulsed Electromagnetic Fields is Substrate Dependent

B. D. Boyan, M. Fisher, R. Olivares-Navarrete, G. Barabino, B. J. Simon, Z. Schwartz;
Georgia Institute of Technology, Atlanta, GA.

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Serum Composition Affects the Fluid Uptake and Wear of Polyethylene in Total Knee Simulator Testing

J-M. Brandt[1], K. Charron[2], L. Zhao[2], S. MacDonald[2], J. Medley[1];
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Bending Fatigue Properties of Nanoprocessed CP Titanium Spine Rods

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Preliminary Results of the A-CLASS™ Advanced Metal on Metal Bearing Serum Ion Study

J. J. Jacobs, A. Skipor;
Rush University Medical Center, Chicago, IL.

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Enhanced Osteoblast Proliferation by Bioactive Glass Particles is Associated With Modulation of the Immediate-Early Gene c-Jun

A. Y. Au[1], R. Y. Au[1], J. L. Demko[2], R. McLaughlin[2], B. E. Eves[1], C. G. Frondoza[1];
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The Relationship Between Pre- and Postoperative Flexion Utilizing Three Cruciate-Retaining Knee Prostheses

D. M. Stormont[1], K. J. Chillag[2], J. W. Scott[3], M. A. Klaassen[4], **W. S. Pietrzak**[5];
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Development of chitosan/hydroxyapatite composite membranes for guided bone regeneration

S-H. Teng, H-E. Kim;
Seoul National University, Seoul, REPUBLIC OF KOREA.

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In vitro and in vivo biocompatibilities of the granule type porous β-TCP bone graft substitutes fabricated by fibrous monolithic process

H-Y. Song;
School of Medicine, Soonchunhyang University, cheonan, REPUBLIC OF KOREA.

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Mechanical properties of micro-textured carbide surfaces on a CoCrMo substrate using nanoindentation

Y. Amanuel, T. Topoleski;
UMBC, Baltimore, MD.

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Proepicardial Cells Modulate the Osteogenic Potential of BMS Cells in Aligned Collagen I Scaffold

M. T. Valarmathi, J. D. Potts, M. J. Yost, R. L. Goodwin, E. Jabbari;
University of South Carolina, Columbia, SC.

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Effects of Vitamin E on the Formation of Residual Radicals in γ-Irradiated α-T-UHMWPE

M. D. Ridley, M. Jahan;
University of Memphis, memphis, TN.

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Observation of New Residual Radicals in Irradiated UHMWPE

M. S. Jahan, M. Fuzail, M. D. Ridley;
The University of Memphis, Memphis, TN.

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Can We Trust Hip Simulator Predictions: Ceramic-on-Ceramic Micro-Separation Wear Model?

S. McKenzie, **P. Williams**, D. D. Green, I. C. Clarke;
Loma Linda University, Loma Linda, CA.

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Modeling the Effect of Coating on the Contact in Artificial Hip Joints

Y. Liu[1], M. Wimmer[2], J. Jacobs[2], Q. Wang[1], A. Martini[1];
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Preserving Particle Size Volume Distribution Data At Low Sample Masses Using Low Angle Laser Light Scattering (Lalls) Analysis

N. J. Hallab, Sr., I. Samee, A. Reddy, J. J. Jacobs;
Rush University Medical Center, Chicago, IL.

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Osteoprogenitors Are Inhibited by Direct Exposure to Polymethylmethacrylate Particles or by Soluble Factors Released from Particle-Activated Macrophages

R. Chiu, T. Ma, R. L. Smith, S. B. Goodman;
Stanford University School of Medicine, Stanford, CA.

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SOLUBLE MOLYBDENUM CAN INDUCE AN ADAPTIVE IMMUNE RESPONSE

M. S. Caicedo, A. Reddy, J. J. Jacobs, N. J. Hallab;
Rush University Medical Center, Chicago, IL.

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Wear Reduction of Large Head Metal-on-Metal Implants in a Hip Simulation Study

Y-S. Liao;
DePuy Orthopaedics, Inc., Warsaw, IN.

# Polysaccharide-Based Biomaterials

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Elastogenic Cues Provided by TGF-β and HA Oligomers Significantly Enhance Vascular Elastin Matrix Synthesis

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Impact of Delivery Mode on Fragment Size Effects of Hyaluronan on Vascular Endothelial Cell Function

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[1]Clemson University, Charleston, SC, [2]Clemson University, Clemson, SC.

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Morphological and Growth Responses of Vascular Smooth Muscle Cells Cultured on Immobilized Heparin and Dextran Sulfate Surfaces

I. S. Robu[1], H. L. Walters[2], H. W. T. Matthew[1];
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Pluronic-based Hydrogel in Chondrogenesis of Adipose-derived Stem Cells

H. Jung[1], K. Park[2], J. Son[2], B. Kim[1], J. Rhie[3], K. Ahn[2], **D. Han**[2];
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Incorporation of Gelatin into Self-Assembled Copper-Capillary Alginate Gel Scaffolds Enables Stem Cell Adhesion

B. J. Willenberg, F-W. Meng, T. Zheng, M. D. Weiss, D. A. Steindler, C. Batich, N. Terada;
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Biocompatible and Tunable Elastic Hyaluronic Acid Hydrogel for Adult Stem Cell Differentiation

F. Rehfeldt, A. J. Engler, D. E. Discher;
University of Pennsylvania, Philadelphia, PA.

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Polyethylene Glycol Diacrylate / Hyaluronic Acid semi-IPNs Support Increased Cell Spreading and Proliferation

J. K. Kutty, E. Cho, J. Lee, K. Webb;
Clemson University, Clemson, SC.

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Encapsulation of Nucleus Pulposus Cells in Photocrosslinked Alginate Hydrogels: Cell Viability and Extracellular Matrix Production

A. I. Chou, S. B. Nicoll;
University of Pennsylvania, Philadelphia, PA.

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GDNF-Blended Chitosan Nerve Guides Promote Both Motor and Sensory Regeneration

M. Patel, L. Mao, B. Wu, **P. J. VandeVord**;
Wayne State University, Detroit, MI.

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Osteoblast cell differentiation and matrix mineralization in response to Hyaluronic Acid Hydrogels

S. Bencherif, A. Srinivasan, J. Kwan, E. Walsh, S. McBride, J. Hollinger, N. Washburn;
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Multifunctional hydrogels that promote osteogenic hMSC differentiation through stimulation and sequestering of BMP2

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Purified Chitosan Bone Filler Increases Bone Formation Rates in Bone Defects

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Osteoblast phenotype and collagen production is enhanced on composite chitosan/calcium phosphate scaffolds

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A Nanostructured Degradable Hydrogel Composite for Osseous Regeneration

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A Novel Heparinized Chitosan/PLAGA Scaffold for Bone Tissue Engineering

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Injectable chitosan-Pluronic® hydrogel for cartilage regeneration

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Injectable Temperature-Sensitive Hydrogels for Cartilage Tissue Engineering

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A Biodegradable Hydrogel Encapsulating IGF-I Transfected Chondrocytes for Cartilage Tissue Engineering

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Fabrication and Characterization of Porous Hyaluronic Acid-Collagen Composite Scaffolds

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In Vitro Growth and Viability of Cells Encapsulated within Hyaluronic Acid-based Hydrogels

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Photocrosslinkable Fibronectin-Hyaluronic Acid Hydrogels as 3D Scaffolds

R. R. Rosenberger, C. T. Drinnan, S. K. Seidlits, J. M. Heisler, L. J. Suggs, C. E. Schmidt;
University of Texas at Austin, Austin, TX.

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L. Weng, W. Chen;
Department of Biomedical Engineering, Stony Brook, NY.

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Preparation of Magnetic Polyelectrolyte Nanoparticles and Their Application to Magnet-induced Injectable Gels

Y-C. Chung;
National Univerfity of Kaohsiung, Kaohsiung, TAIWAN.

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Injectable sclerosing agent: a new strategy to prevent endoleak after endovascular aneurysm repair

M-C. Bonneviot, G. Soulez, J. Raymond, S. Lerouge;
CRCHUM-centre de recherche de l'université de Montréal, Montreal, PQ, CANADA.

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Hemorrhage Control Using an Internal Chitosan Hemostatic Dressing in Hepatic Injuries in Swine

L. D. Lucchesi[1], H. Xie[1], J. Teach[1], P-C. Wu[1], S. Shrimpton[1], K. Shultz[1], G. Hillis[1], R. Rowe[1], A. Burke[2], J. Guo[1], K. Gregory[1];
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S-H. HYON;
Frontier Medical Scienses, Kyoto, JAPAN.

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Evaluation of the *In Vivo* Residence and *In Vitro* Degradation Characteristics of a Unique Divinyl Sulfone Modified Hyaluronan

E. M. Skrabut[1], S. M. Dethlefsen[1], L. Yu[1], M. J. Colt[1], R. Corazzini[1], J. Boney[2], L. Yang[1], A. Wan[1], E. Voschin[1], P. A. Konowicz[1];
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Engineering an Alginate Foam - A New Biocompatible Biomaterial

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FMC BioPolymer/NovaMatrix, Oslo, NORWAY.

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Layer-by-Layer nanoshell build-up onto human Red Blood Cells

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Control of Alginate Microbead Physical Characteristics for Sustained Delivery of Angiogenic Proteins

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The effect of cross-linking on release of alkaline phosphatases of chitosan microspheres

Y. Yuan, B. Chesnutt, W. Haggard, J. Bumgardner;
The University of Memphis, Memphis, TN.

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K. Akiyoshi, U. Hasegawa, S-i. Sawada, N. Morimoto;
Tokyo Medical and Dental University, Tokyo, JAPAN.

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Increased Drug Loading of Composite Chitosan/Calcium Phosphate Microspheres by Lyophilization

B. T. Reves, G. Utturkar, Y. Yuan, K. Richelsoph, J. D. Bumgardner, W. O. Haggard;
University of Memphis, Memphis, TN.

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B. K. Mann[1], J. A. Scott[2], R. Rees[3], J. Brown[4], M. Seppi[4], G. Burns[4], G. D. Prestwich[4];
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Synthesis of Bioactive Calcium Containing Silica Xerogel/Chitosan Hybrid Materials for Biomedical Application

E-J. Lee, H-E. Kim;
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G. Chang[1], J. Boney[2], P. Konowicz[1], E. Skrabut[1], L. Yu[1], A. Coury[1], P. Jarrett[1];
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N. Brahmandam;
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P. J. Walsh, F. J. Buchanan, G. M. Walker;
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Chitosan-ellagic acid composite films induce apoptotic death in human melanoma cells

S. Kim;
University of Tennessee Health Science Center, Memphis, TN.

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S-Y. Choh, C. Wang;
University of Minnesota, Minneapolis, MN.

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H. F. O. Diniz, A. Majumder, A. A. Weiner, V. P. Shastri;
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T. Zaveri, A. Acharya, B. Keselowsky;
University of Florida, Gainesville, FL.

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H. Waldeck, W. J. Kao;
University of Wisconsin - Madison, Madison, WI.

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Differential Response of Epithelial Cells to Surfaces Containing Both Cell-Cell and Cell-Matrix Ligands

J. Tsai, L. R. Patel, L. Kam;
Columbia University, New York, NY.

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Influence of fiber size of silk fibroin scaffolds on endothelial cells response

S. Fuchs[1], B. Bondar[1], A. Motta[2], C. Migliaresi[2], **C. J. Kirkpatrick**[3];
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K. R. Milner, C. A. Siedlecki;
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K. R. Milner, A. J. Snyder, C. A. Siedlecki;
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Solution-phase interaction of FXII and Prekallikrein in material-induced coagulation

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Bone Morphogenetic Protien-2 Absorption Influenced by
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M. W. Irvin;
University of Kentucky, Lexington, KY.

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A. Rodriguez[1], G. Voskerician[2], H. Meyerson[1], S. MacEwan[1], J. Anderson[1];
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S. R. MacEwan, A. K. McNally, J. M. Anderson;
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The interaction between hydrolytic and oxidative pathways in macrophage-mediated polyurethane degradation

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Modified Multi-Arm Poly(Ethylene Glycol) Nanopatterns for Unidirectional Actin Polymerization

K. L. Christman[1], B. Brough[1], T. Wong[1], C. M. Kolodziej[1], J. G. Forbes[2], K. Wang[2], C-M. Ho[1], H. D. Maynard[1];
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# Regenerative Medicine and Clinical Translation

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A new concept for in vivo self-endothelialization of vascular prostheses by immobilized DNA-aptamers working as capture molecules for circulating endothelial progenitor cells

H. P. Wendel;
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Development of Naturally Derived Biomaterial Scaffold for Tissue Engineered Blood Vessel

S. Yazdani, Y. Jarajapu, M. Machingal, B. Watts, M. Van Dyke, G. Christ;
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Nonhuman Primate Progenitor Cells: Implications for Vascular Disease Therapy

K. Williams, P. Baptista, D. Lee, D. Rapp, A. Atala, S. Soker;
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Osteogenic Differentiation of Placenta-Derived Adherent Cells (PDACs) on 3D Calcium Phosphate based Scaffolds

M. Pereira, P. Patel, Q. Ye, S. D. Abramson, Q. Liu, W. Hofgartner, R. Hariri;
Celgene Cellular Therapeutics, Summit, NJ.

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Towards a novel bone repair product: using human placental derived adherent cells (PDACs) and mineralized collagen matrix

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Effect of Hydrogel Charge on Marrow Stromal Cell Chondrogenic Phenotypic Expression

J. P. Szatkowski, M. Dadsetan, L. Lu, M. Yaszemski;
Mayo Clinic, Rochester, MN.

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Bone Allograft Degradable Polymer Composites

S. Lyu[1], S. Haddock[2], B. Loy[1], M. Kinnane[2], C. Hobot[1], A. Simonton[2], J. Gross[2];
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Bone Formation Increases with Higher Gap Junction Intercellular Communication

R. A. Rosselló[1], Z. Wang[1], E. Kizana[2], P. Krebsbach[1], D. Kohn[1];
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Cellular and angiogenesis therapy for congenital heart disease

S. Neshat-Vahid, A. Milansesi, G. Christ, A. Atala, S. Soker;
Wake Forest University School of Medicine, Winston Salem, NC.

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Keratin Proteins for antibiotic release and bone regeneration

G. Lim, H. Kincaid, E. Howse, A. Atala, **M. Van Dyke**;
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Y. Hori, D. J. Irvine;
Massachusetts Institute of Technology, Cambridge, MA.

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Evaluation of the Effect of Growth Factors in Combinations with Injectable Silicone Elastomer Particles on the Proliferative Activity of Dermal Fibroblasts

J. Robinson[1], K. Richelsoph[1], J. Bumgardner[1], P. Yang[2], W. Haggard[1];
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Comparative *In Vivo* Evaluation of a Novel Silk Hydrogel Injectable for Drug Delivery

A. L. Collette[1], J. Chen[2], L. Richey[3], H. E. Boepple[2], J. S. Prudom[2], R. L. Horan[2], G. H. Altman[2];
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Novel Fibers as Structural Templates for Ligament Regeneration

K. D. Sinclair;
Clemson University, Clemson, SC.

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G. Christ, S. Zare, D. Moon, W. Zhao, A. Atala, J. Yoo;
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P. Whitlock, T. Smith, J. Shilt, G. Poehling, M. Van Dyke;
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Biologically Active Wound Dressings Derived from Human Hair

M. Van Dyke, W. Whitener, T. Mesen, S. Howse, L. Nanney, J. Molnar;
Wake Forest University School of Medicine, Winston Salem, NC.

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Biocompatibility of Keratin Biomaterials Derived from Human Hair

P. Sierpinski, M. Van Dyke;
Wake Forest University School of Medicine, Winston Salem, NC.

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Identification and Effects of Bioactive Factors in Decellularized Collagen Biomatrices

S. Chun, E. Kwak, T. Kwon, G. Lim, A. Atala, J. Yoo;
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T. Xu, W. Zhao, A. Atala, J. Yoo;
Wake Forest University School of Medicine, Winston Salem, NC.

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V. Cheng, B. Lee, B. L. Vernon;
Arizona State University, Tempe, AZ.

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Simultaneously Physically and Chemically Cross-linking Thiol Functionalized N-Isopropylacrylamide with Poly(ethylene glycol) diacrylate for Functional Embolization

S. Robb, B. Lee, R. Y. McLemore, B. L. Vernon;
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A Novel Self-Assembling Nucleobase Scaffold Coating with Nano-Scale Control

A. M. S. Kumar, S. Sivakova, J. D. Fox, J. E. Green, S. J. Rowan, R. E. Marchant;
Case Western Reserve University, Cleveland, OH.

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L. Koh, A. Laromaine, M. Murugesan, M. M. Stevens;
Imperial College, London, UNITED KINGDOM.

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Phosphorylcholine-Based Nanoparticles Covered with Fluorescence Resonance Energy Transfer System for Smart Bioassay

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S. Uriel[1], E. Labay[2], Z. Cankova[1], R. Wang[1], E. M. Brey[1];
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S. V. Madihally, K. N. Wallace, S. Duguay;
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Model Therapeutic Particle Assemblies with Reversible Linkers

V. T. Milam, C. Tison;
Georgia Institute of Technology, Atlanta, GA.

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Self Assembly of Surface Modifying End Groups™:
Overcoming Limitations of SAMs Applied to Polymeric Medical Devices

K. R. McCrea, R. Ward, Y. Tian, S. Coviello, N. Harjati, J. Parakka, J. Yang;
The Polymer Technology Group, Inc., Berkeley, CA.

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S. Collins, L. Suggs, C. Drinnan, T. Turner, E. Mosier;
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J. M. Olbrich, R. Satishkumar, A. Vertegel;
Clemson University, Clemson, SC.

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L. M. Pakstis, J. P. Dunkers;
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C. Aparicio;
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J. D. Nickels, C. E. Schmidt;
University of Texas at Austin, Austin, TX.

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J. S. Apte, L. J. Gamble, D. G. Castner;
University of Washington, Seattle, WA.

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Mass Spectrometric Mapping to Investigate Protein Conformations at Solid/Liquid Interfaces

E. A. Scott, D. L. Elbert;
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Bioactive surface for neural electrodes: tethering transforming growth factor β1 to inhibit gliosis

M. R. Caplan, C. L. Klaver;
Arizona State University, Tempe, AZ.

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Effect of Substrate Composition and Compliance on Endothelial Expression of ICAM-1 and E-Selectin

B. G. Kelso, M. R. Caplan;
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Biotinylated Fibronectin Aids in Augmention of Endothelial Cells to Teflon-AF Surface

C. C. Anamelechi, E. Clermont, G. A. Truskey, W. M. Reichert;
Duke University, Durham, NC.

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Immobilized Integrin and Syndecan Binding Peptides Co-Modulate Human Corneal Epithelial Cell Response to Nanoscale Topography

T. J. Porri, J. D. Foley, C. J. Murphy, P. F. Nealey;
University of Wisconsin-Madison, Madison, WI.

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Honeycomb-patterned film providing a long-term hepatocyte survival and preservation of hepatospecific functions.

S. Tsukiyama[1], M. Matsushita[2], M. Tanaka[3], H. Tamura[2], S. Todo[2], S. Yamamoto[1], M. Shimomura[3];
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Organic/Inorganic Template-Mediated Mineralization Process

H. Kim, Sr., S. Aryal, Sr., M. Khil, Sr.;
Chonbuk National University, Jeonju, REPUBLIC OF KOREA.

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Controlling calcium phosphate formation on calcium silicate thin film

I. Han, J. Choi, H. Baik, I-S. Lee;
Yonsei University, Seoul, REPUBLIC OF KOREA.

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S. Yang, L. Salvati;
DePuy Orthopaedics, Inc, Warsaw, IN.

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Novel surface-modification technique of collagen film for alteration of its surface property

K. Nam, T. Kimura, A. Kishida;
Institute of Biomaterials and Bioengineering,Tokyo Medical and Dental University, Tokyo, JAPAN.

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The influence of nano-metric roughness of Ti-6Al-4V on the initial cell adhesion force

T-M. Lee[1], M-C. Shieh[2], Y-C. Shu[3], S-P. Yang[1], C-C. Wang[2];
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National Institute for Materials Science (NIMS), Tsukuba, JAPAN.

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The Effect of Surface Treatments on the Fretting Behaviour of Titanium

R. Chiesa[1], G. Cotogno[2], P. Schaaff[2], M. Dalmiglio[2], U. Holzwarth[2];
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Surface versus Solution-Based C-Succinylation of Polymeric Biomaterials

M. M. Morella, S. D. Nagatomi, P. L. Tate, S. W. Shalaby;
Poly-Med, Inc., Anderson, SC.

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Stability of Self-Assembled Monolayers on Titanium for Biomedical Applications

G. Mani[1], D. M. Johnson[1], D. Marton[2], V. Dougherty[1], M. Feldman[2], D. Patel[2], A. Ayon[1], C. M. Agrawal[1];
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Surface Grafting of Biocompatible Phospholipid Polymers for Obtaining Excellent Lubrication

K. Kitano, T. Konno, M. Takai, K. Ishihara;
The University of Tokyo, Tokyo, JAPAN.

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Control of cell function on carbohydrate-conjugated phosphorylcholine polymer surfaces

Y. Iwasaki;
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Layer-by-Layer Assembly for Nitric Oxide Generation Based on Catalytic Decomposition of S-Nitrosothiols by Organoselenium Species

J. Yang, M. E. Meyerhoff;
University of Michigan, Ann Arbor, MI.

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S. YE, J. Woolley, C. A. Johnson, Jr., T. A. Snyder, W. R. Wagner;
University of Pittsburgh, Pittsburgh, PA.

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The Effects of Plasma-Polymerized Surface Interactions on R1 Mouse Embryonic- Stem-Cell Differentiation

E. Hanley, J. L. Lauer, J. L. Shohet, G. E. Lyons;
University of Wisconsin-Madison, Madison, WI.

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Characterization of a Metal-binding Interfacial Peptide Using AFM and QCM-D

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Interfacial Peptide Coatings Facilitate Biological Control on Material Surfaces

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Thermoresponsive Polymer Brush Interfaces; Surface Characterization for Controlled Cell Adhesion

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Surface Free Energy Calculations for the Plasma Modified PMMA Surfaces

N. Hasirci, C. Ozcan;
Middle East Technical University, Ankara, TURKEY.

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Functional Changes in Adsorbed Fibrinogen Measured by Adhesion Mode AFM

Z. Rice, **P. Soman**, C. Siedlecki;
Pennsylvania State University, Hershey, PA.

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In vitro biocorrosion of Titanium by macrophage cells

D. L. Mueller[1], A. M. Viano[1], J. Bumgardner[2];
[1]Rhodes College, Memphis, TN, [2]University of Memphis, Memphis, TN.

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The Electrochemical Impedance of Polarized 316L Stainless Steel: Structure-Property-Adsorption Correlation

R. T. T. Gettens, P. Patel, J. L. Gilbert;
Syracuse University, Syracuse, NY.

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Probing coating morphology and polymer-drug segregation with novel environmental SPM methodology

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[1]University of Minnesota, Minneapolis, MN, [2]Surmodics, Inc., Eden Prairie, MN.

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Immune Cell Response to Cytokine Tethered Non-fouling Surfaces

D. H. Kim, J. Smith, A. Chilkoti, W. M. Reichert;
Duke university, Durham, NC.

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Protein resistant surfaces based on hydrophilic polymer grafts: investigation by neutron reflectometry

W. Feng[1], M-P. Nieh[2], S. Zhu[1], J. Katsaras[2], J. L. Brash[1];
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Titanium in medicine: electrochemical treatments for bacteria proliferation control

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Biomembrane Mimetic Polymer Layer Constructed on Polydimethylsiloxane: Antibiofouling Characteristics

T. Goda, T. Konno, M. Takai, K. Ishihara;
The University of Tokyo, Tokyo, JAPAN.

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Reducing Biological Adhesion to Silicones: New Mechanisms Indicated by Contact Angle Anomalies

A. E. Meyer, R. E. Baier;
University at Buffalo, Buffalo, NY.

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Engineered Substratum Topography to Disrupt Bacterial Biofilm Formation

K. Chung, J. Schumacher, E. Sampson, R. Burne, P. Antonelli, **A. Brennan**;
University of Florida, Gainesville, FL.

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Polymer thickness-dependency of cell adhesion on poly(*N*-isopropylacrylamide)-grafted glass surfaces

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Antimicrobial effects of Ag incorporated calcium phosphate film

I-S. Lee[1], I. Han[1], J-H. Song[2], M-H. Lee[1], J-C. Park[1], G-H. Lee[3], X-D. Sun[4], S-M. Chung[5];
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Tissue Factor Bearing Microparticles and Biomaterial Thrombogenesis

C. L. Hall, S. Patchipulusu, M. Turturro;
Illinois Institute of Technology, Chicago, IL.

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Synthesis, surface characterization and *in vitro* platelet compatibility study of the self-assembled monolayer with lipid-like zwitterionic phosphonylcholine terminal group

M-Y. Tsai, **J-C. Lin**;
National Cheng Kung University, Tainan, TAIWAN.

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Physical Adsorption of Human Thrombomodulin onto Biomaterials for Developing Blood Compatible Materials

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Cell and Protein Compatibility of Parylene-C Membranes

V. G. Yadav[1], B. Rajalingam[2], S. De Leo[3], A. Mohedas[4], S. Selvarasah[5], M. R. Dokmeci[5], A. Khademhosseini[6];
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Plasma Polymerized Tetraglyme Shows Improved Blood Compatibility

E. Hanley[1], J. L. Lauer[1], J. L. Shohet[1], R. M. Albrecht[1], S. Esnault[1], J. S. Malter[1], U. H. von Andrian[2], S. B. Shohet[3];
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Chondroitin-collagen coatings to promote healing around stent-graft in abdominal aortic aneurysms

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Development of Novel Stent Coating Process using Supercritical Fluid and Dry Powder Electrostatic Coating Methods to Deposit Crystalline Sirolimus

D. Taylor;
Micell Technologies, Inc., Raleigh, NC.

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Surface Engineering of Cardiovascular Stents for Multimodal Imaging

T. Soike, Sr., C. Guan, V. P. Shastri;
Vanderbilt Universty, Nashville, TN.

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TGF-β-grafted PLLA Scaffold for Chondrogenic Differentiation of Adipose-derived Stem Cells

K. Cho[1], K. Park[1], J. Son[1], K-D. Ahn[1], I. Kim[1], J. Rhie[2], **D. Han**[1];
[1]Korea Institute of Science and Technology, Seoul, REPUBLIC OF KOREA, [2]Catholic University, Seoul, REPUBLIC OF KOREA.

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Fabrication of Bi-layered PU Scaffold with PEG-grafted Surface for Reconstruction of Tracheal Defects

S-H. Shin;
Yonsei University College of Medicine, Seoul, REPUBLIC OF KOREA.

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The Effect of Nitrogen Gas Flow in the Production of Chromium Nitride Coatings Deposited by DC Magnetron Sputtering for Biomedical Implant Applications

S. A. Chowdhury, W. C. Clem, A. Stanishevsky, Y. K. Vohra;
University of Alabama at Birmingham, Birmingham, AL.

# Surface Modification and Characterization of Orthopaedic and Dental Implants at the Nano/Micro Scale for Improved Osseointegration

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Hydrophobic/Hydrophilic Characteristic of Titanium Surfaces: Machined, Dual Acid Etched (Osseotite ®), and Dual Acid Etched with Nanometer-scale CaP (NanoTite ™)

P. Gubbi, **R. Towse**, B. Berckmans;
3i-A Biomet Company, Palm Beach Gardens, FL.

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Integrin Alpha-2 Silencing Alters Osteoblast Response to Titanium Microtopography but Not Surface Energy

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A Comparative Study of Osteoblast Response to PEEK or Titanium Commonly Used in Dental Implants

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Multiscale Topography Analysis of Microtextured Titanium: Importance of Lateral Spatial Resolution

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McGill University, Montreal, PQ, CANADA.

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Comparison Among Prosthetic and Commercially Pure Metals on Retrieved Human Fibroblasts

R. A. Mostardi, M. W. Kovacik, J. Finefrock, T. F. Bear, M. J. Askew;
Summa Health System, Akron, OH.

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Dissolution of Discrete Calcium Phosphate Crystals from Candidate Ti-based Implant Surfaces

P. Pezeshki, J. E. Davies, S. Lugowski;
University of Toronto, Toronto, ON, CANADA.

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Modeling Interfacial Shear Strength at a CAP-Modified Titanium and Bone

C. Pan, J. Chau, V. C. Mendes, C. A. Simmons, J. E. Davies;
University of Toronto, Toronto, ON, CANADA.

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Assessment of Poly(diol citrate) Composites of Micro/Nano Hydroxyapatite

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Qualitative and Quantitative Analyses of NanoTite-Surfaced Implants

P. Gubbi, R. Towse;
3i-A Biomet Company, Palm Beach Gardens, FL.

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Macrophage Adhesion on Conventional and Nanophase Alumina

P. Liu-Snyder, T. Webster;
Brown University, Providence, RI.

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Nanometre sized wear particles *in vivo*: Conventional and highly crosslinked polyethylene prostheses

L. J. Richards[1], M. H. Stone[2], G. Reinisch[3], E. Ingham[1], J. Fisher[1];
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Implants Treated with Discrete Crystalline Depositions of Nanometer-scale Calcium Phosphate Crystals Enhance Early Implant-Bone Fixation in a Rat Femur Push-In Model

I. Nishimura, A. Lin, C. J. Wang, J. Kelly;
UCLA School of Dentistry, Los Angeles, CA.

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Discrete Deposition of Calcium Phosphate Nanocrystals Promotes Bone-Bonding on Titanium Surfaces

V. C. Mendes, R. Moineddin, J. E. Davies;
University of Toronto, Toronto, ON, CANADA.

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Enhancing the Osteogenic Potential of Bioabsorbable Implants through Control of Surface Charge

J. J. Cooper[1], J. A. Hunt[2], F. Pu[2];
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Mineralization from Marrow Cells On $Al_2O_3$ Grit Blasted Ti6A14V Disks Is Greater Than $SiO_2$ Grit Blasted Disks

E. Hippensteel, S. Vass;
DePuy Orthopaedics, Warsaw, IN.

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Biomineralization Approach as Osteoconductive Materials for Orthopaedic and Dental Application

J. Watanabe, M. Akashi;
Graduate School of Engineering, Osaka University, Osaka, JAPAN.

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Solution-Mediated Effect of Biomimetically-Mineralized Poly*(lactide-co-glycolide)* Scaffold on Osteogenic Differentiation of Mouse Bone Marrow Stromal Cell

K. Shin, D. H. Kohn;
University of Michigan, Ann Arbor, MI.

# Tissue Engineered Products for Clinical Applications

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*In vivo* evaluation of the suitability of starch-based scaffolds for bone tissue engineering constructs using Adipose Derived Adult Stem Cells and transgenic mice

T. C. Santos[1], K. Tuzlakoglu[1], T. Morton[2], K. Lang[2], K. Reise[2], A. P. Marques[1], A. G. Castro[3], H. Redl[2], R. L. Reis[1], M. van Griensven[2];
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In Vitro Testing of a Novel Gene Enhanced Tissue Engineered Scaffold: Use of Insulin-like Growth Factor-1 and Platelet Derived Growth Factor

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In vitro and in vivo degradation behavior of elastic PLCL scaffolds for vascular tissue engineering

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Cross-linking and polymer immobilization of decellularized blood vessel for bioscaffold application

K. Nam[1], A. Murakoshi[1], T. Kimura[1], T. Fujisato[2], A. Kishida[1];
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Biofunctionalised nanofibres based on resorbable poly(ethyleneglycol)-*b*-polyesters for tissue engineering

D. Grafahrend[1], D. Klee[1], J. Salber[1], P. D. Dalton[2], M. Moeller[1];
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Sol-gel derived nano/macroporous scaffolds for bone regeneration

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An Elastic Fibrous Scaffold for Cardiovascular Tissue Engineering

S. H. Kim[1], E. Chung[1], S. H. Kim[1], D. I. Kim[2], E. Kim[2], Y. G. Ko[1], J. W. Han[1], I. S. Park[1];
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Oxygen Diffusion across Extracellular Matrix-derived Scaffolds

D. O. Freytes, J. E. Valentin, C. M. Pesyna, J. M. Freund, S. F. Badylak;
McGowan Institute for Regenerative Medicine, Pittsburgh, PA.

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Electrospun Polycaprolactone Nanofibrous Scaffolds for Hepatocyte Culture

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The Evolution of Calcium Phospates for Orthopedic Applications: Optimization of the Osteoconductive Scaffold

M. B. Havener, G. M. Nagvajara, T. Clineff, E. M. Erbe, M. M. Darmoc;
Orthovita, Inc., Malvern, PA.

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*In Vitro and In Vivo* Study to Evaluate Polycaprolactone/ Hydroxyapatite/ Collagen I Electrospun Scaffolds for Bone Tissue Engineering Applications

W. C. Clem, S. A. Catledge, S. Chowdhury, K. M. Hennessy, S. L. Bellis, Y. K. Vohra;
University of Alabama at Birmingham, Birmingham, AL.

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SHEAR LOADS ON CARTILAGE TISSUE SUPPORTING SCAFFOLDS CAN BE MEASURED USING EMBEDDED STRAIN GAUGES

C. L. Bliss, J. A. Szivek, C. Fuentes, J. T. Ruth;
University of Arizona, Tucson, AZ.

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Synthesis of Superporous Hydrogel Scaffolds for Tissue Engineering

V. Keskar;
University of Illinois at Chicago, Chicago, IL.

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A New Method to Synthesize Porous 3D PLGA Scaffolds for Tissue Engineering

G. GUPTA, J. Chen, T. A. Milbrant, D. A. Puleo;
UNIVERSITY OF KENTUCKY, LEXINGTON, KY.

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Macroporous Calcium Phosphate Scaffolds Derived from Freeze Drying

Y. Liu[1], S. Kim[1], R. Heck[1], J. Bumgardner[2], W. Haggard[2], Y. Yang[1];
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MAPK Signaling in 3-D Hydroxyapatite Scaffolds with Low-Intensity Ultrasound

M. Appleford[1], S. Oh[2], J. Cole[3], J. Bumgardner[3], W. Haggard[3], J. Ong[2];
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Electrospinning Process Temperature Modulates 3D Architecture but Not Cellular Behavior

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Engineering a human skin equivalent using electrospun poly(DTE carbonate) matrix as dermal scaffold

P. Chandra, P. Batheja, C. Florek, B. Michniak, J. Kohn;
Rutgers University, Piscataway, NJ.

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Cellular Deformations in Micro-integrated Elastomeric Electrospun Scaffolds under Biaxial Stretch

J. Liao, Y. Hong, W. Merryman, G. Papworth, W. R. Wagner, M. S. Sacks;
University of Pittsburgh, Pittsburgh, PA.

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HIGH OSTEOPROGENITOR CELL RETENTION IN MINERALIZED BOVINE COLLAGEN BONE GRAFT SUBSTITUTES

J. O. Seidel, C. Fang, C. E. Holy, J. Geesin, S. P. Bruder;
Johnson & Johnson Regenerative Therapeutics, LLC, Raynham, MA.

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The Effect of Cyclic Mechanical Compression on Articular Cartilage Tissue Engineering

P-Y. Wang[1], H-W. Fang[2], W-B. Tsai[1];
[1]National Taiwan University, Taipei, TAIWAN, [2]National Taipei University of Technology, Taipei, TAIWAN.

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Cortoplasty: Augmentation of Osteoporotic Vertebral Compression Fractures with Cortoss®

E. M. Erbe, M. Persenaire, G. M. Nagvajara, M. B. Havener, D. Entrekin;
Orthovita, Inc., Malvern, PA.

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Bone Production by Murine Osteoprogenitor Cells Treated With OP-1 and bFGF on Allograft Bone

E. R. Nelson, H. Z. Huang, T. Ma, R. L. Smith, S. B. Goodman;
Stanford University School of Medicine, Stanford, CA.

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Highly Purified Atelopeptide Human Placental Collagen

W. Wu, M. Bhatia;
Celgene Cellular Therapeutics, Summit, NJ.

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*In Vivo* Response to Tissue Engineered Injectable Devices for Breast Reconstruction

C. T. Gomillion, S. E. Ellis, K. J. L. Burg;
Clemson University, Clemson, SC.

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Concentration of Neural Regulators in Platelet Rich Plasma

M. J. Swift, Z. Welch, J. Greene, J. Woodell-May;
Biomet Biologics, Inc, Warsaw, IN.

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Platelet-Rich Plasma for Excisional Wound Healing

H-W. Lee, M. Reddy, N. Geurs, K. Palcanis, J. Lemons, C. Davis, **D. Feldman**;
UAB, Birmingham, AL.

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Platelet-Rich Plasma Enhances the Osteoinductive Potential of Demineralized Bone Matrix

B. Han[1], J. Woodell-May[2], M. Ponticiello[3], Z. Yang[1], M. Nimni[1];
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Migration of endothelial cells on polyurethane-gold nanocomposites

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National Chung Hsing University, Taichung, Taiwan, ROC, Taichung, TAIWAN.

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The Effect of Osteoclast Conditioned Medium on Mesenchymal Stem Cells

S. S. Kay, K. J. L. Burg;
Clemson University, Clemson, SC.

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Tendon Tissue Engineering Using Mesenchymal Stem Cells, Natural Biomaterial, and Mechanical Stimulation

R. Abousleiman, Y. Reyes, P. S. McFetridge, **V. Sikavitsas**;
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Differentiation of Human Mesenchymal Stem Cells into Ligament Tissue on Collagen-Elastin Nanofibers with Appliance of Cyclic Strain

J. H. Kim, I-H. Kim, H. Suh, S-N. Park;
Yonsei University College of Medicine, Seoul, REPUBLIC OF KOREA.

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In *vitro* Model of Vascular Healing in the Presence of Biomaterials

S. L. Rose, J. E. Babensee;
Georgia Institute of Technology, Atlanta, GA.

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FUNCTIONAL RECOVERY OF INFARCTED HEART
USING VASCULAR ENDOTHELIAL GROWTH FACTOR LOADED
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S. Yoon, **S. Yoon**;
Korea Artificial Organ Center, Seoul, DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA.

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Improving Islet Survival by Microencapsulation in Hydrogels Modified with Anti-Apoptotic Peptides

J. SU;
Northwestern University, Evanston, IL.

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Evaluation of viability of Osteoprogenetor Cells Retained on HEALOS Processed with CELLECT

C. Fang[1], J. C. Geesin[1], C. E. Holy[2], J. F. Volenec[2], S. P. Bruder[2];
[1]Regenerative Therapeutics, LLC, Somerville, NJ, [2]Regenerative Therapeutics, LLC, Raynham, MA.

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A. M. Overby, C. E. Johnson;
Cook Biotech, Inc., West Lafayette, IN.

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CLINICAL REVIEW OF A NEW BIO-ENGINEERED COLLAGEN DRESSING ON DIABETIC ULCER WOUNDS

S. Gunasekaran;
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A Keratin Biomaterial Gel Derived from Human Hair is Hemostatic in an Acute Liver Hemorrhage Model

T. AbouShwareb, D. Eberli, C. Ward, C. Broda, A. Atala, M. Van Dyke;
Wake Forest University School of Medicine, Winston Salem, NC.

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A New Route to Produce Starch-based Fiber Mesh Scaffolds by Wet Spinning and the Improvement in Cell Attachment and Proliferation by Tailoring Their Surface Properties

K. Tuzlakoglu, I. Pashkuleva, M. Rodrigues, M. E. Gomes, R. L. Reis;
3B's Research Group, Braga, PORTUGAL.

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Controlled Release of Bioactive TGF-β1 from Fibrin Gels

I. Catelas, J. F. Dwyer, S. Helgerson;
Baxter Healthcare Corporation, Round Lake, IL.

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Control of Network Structure of Photopolymerzed Poly(ethylene glycol) Diacrylate Hydrogels

G. Papavasiliou[1], M. Morris[2], F. Teymour[1], E. Brey[1];
[1]Illinois Institute of Technology, Chicago, IL, [2]University of Utah, Salt Lake City, UT.

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Degradation of Hydrogel from Glycolide-Based Macromer and Polyethylene Glycol Diacrylates

L. S. Brown, J-G. Park, J. Zhao, D. Xie, T-M. G. Chu;
Indiana University Purdue University Indianapolis, Indianapolis, IN.

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Augmentation of *in vitro* Angiogenesis Induced by the R136K Thrombin Resistant FGF-1 Mutant within Fibrin Hydrogels

D. V. Bufalino;
Loyola University Medical Center, Maywood, IL.

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Effect of ionic concentration on chitosan scaffold characteristics measured by electrochemical impedance spectroscopy

S. Tully, H. Cardenas, **P. S. Sit**;
Louisiana Tech University, Ruston, LA.

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Regenerative Tissue Scaffolds Prepared by Gamma Ray Irradiation

T. Fujisato[1], S. Funamoto[2], K. Yoshida[3], T. Yamaoka[1], T. Kimura[2], M. Kikuchi[4], Y. Kobayashi[4], A. Kishida[2], T. Nakatani[1];
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Development of three-dimensional hybrid scaffold using chondrocytes encapsulated alginate hydrogel

S-J. Lee[1], B. Kim[1], G. Lim[1], J-W. Rhie[2], D. Kim[3], D-W. Cho[1];
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Basic fibroblast growth factor-releasing polycaprolactone scaffolds for intestinal smooth muscle regeneration

M. Lee, B. M. Wu, J. C. Y. Dunn;
UCLA, Los Angeles, CA.

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Cytocompatibility of Electrospun PCL/CNF Scaffolds with and without Electrophoretically Deposited HA

H. D. Deshpande, M. V. Jose, V. Thomas, W. C. Clem, S. Chowdhary, D. R. Dean;
University of Alabama at Birmingham, Birmingham, AL.

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PLGA/Collagen/HA Nanofibrous Scaffolds with Tunable Mechanical and Degradation Characteristics

M. V. Jose;
University of Alabama at Birmingham, Birmingham, AL.

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Preparation of Nanocrystalline Hydroxyapatite Scaffolds at Room Temperature by 3D Powder Printing

U. Gbureck[1], T. Hölzel[1], F. A. Mueller[2], J. E. Barralet[3];
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Analysis and comparison of physical characteristics of electrospun tissue engineered scaffolds for temporamandibular joint repair

P. A. Turner, R. Nassar, D. K. Mills, **P. S. Sit**;
Louisiana Tech University, Ruston, LA.

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Oxidative Degradation Study of L-tyrosine based Polyurethanes

D. Sarkar, S. Lopina;
The University of Akron, Akron, OH.

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Structure Property Relationship of L-tyrosine based Polyurethanes for Tissue Engineering

D. Sarkar, J-C. Yang, S. Lopina;
The University of Akron, Akron, OH.

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Enrichment of mesenchymal stem cell population modulates cell differentiation

E. V. Leonova;
University of Michigan, Ann Arbor, MI.

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Electrospun Collagen-Elastin Nanofibers: a Biomimetic Extracellular Matrix for Smooth Muscle Cell Proliferation

A. SUL;
Yonsei University College of Medicine, Seoul, REPUBLIC OF KOREA.

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Creep, Stress Relaxation and Fatigue Properties of Polypropylene Mesh

K. Horn, M. Deng;
Ethicon, a Johnson & Johnson Company, Somerville, NJ.

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Inorganic-Organic Hybrid Monofilaments: A Preliminary Study

K. W. Clinkscales, J. M. Lindsey, III, K. A. Carpenter, M. S. Taylor, S. W. Shalaby;
Poly-Med, Inc., Anderson, SC.