THURSDAY, OCTOBER 7, 2010

POSTER SESSION - 7A - 9:30AM - 1:00PM Exhibit Hall 4

Track: Biomedical Engineering Education - **PS-7A-1** - ***Community Partnerships: Innovation in Engineering Education***

PS-7A-1-1 **Low Cost Seizure Simulation Bed for Medical Training**
J. H. McIsaac[1], J. Palladino[2], W. Sisson[3,4], B. Lawler[3,5], M. Ebraheem[2], M. Powers[2], and S. Zerbini[3,6]
[1]Univ. of CT/Hartford Hospital, Avon, CT, [2]Trinity College, Hartford, CT, [3]Hartford Hospital, Hartford, CT, [4]Resselaer Polytechnic Institute, Troy, NY, [5]Duke University, Durham, NC, [6]Wheaton College, Norton, MA

PS-7A-1-2 **The Advantages of a Teaching Partnership between a Science Expert and Teachers in the GK-12 Classroom**
L. H. Nguyen[1], C. Ellard[2], and A. Lyon[3]
[1]University of Texas at Austin, Austin, TX, [2]Pillow Elementary, Austin, TX, [3]Burnet Middle School, Austin, TX

PS-7A-1-3 **Student Involvement in Engineering Education: A Case Study of the Student Platform for Engineering Education Development (SPEED)**
D. Delaine[1], S. B. Seif-Naraghi[2], S. Al-Haque[3], N. Wojewoda[4], Y. Meninato[5], and J. DeBoer[6]
[1]Drexel, Philadelphia, PA, [2]University of California, San Diego, La Jolla, CA, [3]University of Toronto, Toronto, Ontario, Canada, [4]Student Platform for Engineering Education Development, Spoleto, Italy, [5]Technische Universiteit Eindhoven, Eindhoven, Netherlands, [6]Vanderbilt University, Nashville, TN

PS-7A-1-4 **Micro-CT Scanner Training in a 3D Virtual World: Second Life Aided Training and Education (SLATE)**
S. J. Lee[1], K. S. Sharma[1], E. A. Fox[1], and G. Wang[1]
[1]Virginia Tech, Blacksburg, VA

PS-7A-1-5 **An Outreach Experience: Developing Scientific Minds through Lessons in Embryonic Development**
P. Buskohl[1], A. Brittenham[2], and J. T. Butcher[1]
[1]Cornell University, Ithaca, NY, [2]Elmcrest Children's Center, Syracuse, NY

PS-7A-1-6 **Using Team-based Design to Improve Surgical Safety in the Operating Room (OR)**
J. J. Kang-Mieler[1], D. W. Gatchell[1], and J. White[2]
[1]Illinois Institute of Technology, Chicago, IL, [2]Advocate Lutheran General Hospital, Park Ridge, IL

PS-7A-1-7 **Partnering with K-12 Teachers to Produce Tissue Engineering Class Modules**
C. Cass[1], C. Gomillion[1], B. Hungerford[2], and K. Burg[1]
[1]Clemson University, Clemson, SC, [2]TL Hanna High School, Anderson, SC

Track: Biomedical Engineering Education - **PS-7A-2** - ***Graduate Education***

PS-7A-2-8 **Clinical Engineering at the University of Toronto: 25 Years in the Making**
T. Chau[1], and P. Staszuk[1]
[1]University of Toronto, Toronto, Ontario, Canada

Track: Biomedical Engineering Education - **PS-7A-3** - ***Instructional Strategies in Global Health***

PS-7A-3-9 **Impact of International Service Learning on Engineering Students**
C. B. Paschal[1]
[1]Vanderbilt University, Nashville, TN

PS-7A-3-10 **Engineering World Health: A World of Opportunity for Engineering Students**
M. D. Beard[1], and J. P. Cooper[1]
[1]Engineering World Health, Durham, NC

Track: Biomedical Imaging and Optics - **PS-7A-4** - ***Imaging in Cancer***

PS-7A-4-11 **Fluorescent Deoxyglucose to Improve Breast Cancer Visualization in Breast Conservation Therapy**
R. J. Langsner[1,2], L. Middleton[2], R. Drezek[1], and T-K. Yu[2]
[1]Rice University, Houston, TX, [2]University of Texas, MD Anderson Center, Houston, TX

PS-7A-4-12 **Multimodal Optical Coherence Tomography and Fluorescence Lifetime Imaging combined system for diagnosis of oral cancer**
S. Shrestha[1], J. Park[1], B. E. Applegate[1], P. Pande[1], and J. A. Jo[1]
[1]Texas A&M University, College Station, TX

PS-7A-4-13 **Automated Calculation of Ptosis on Clinical Photographs**
E. Kim[1], J. LEE[2], E. K. Beahm[3], M. A. Crosby[3], G. P. Reece[3], and M. K. Markey[1]
[1]The University of Texas Department of Biomedical Engineering, Austin, TX, [2]Department of Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, [3]Department of Plastic Surgery, The University of Texas M. D. Anderson Cancer Center, Houston, TX

PS-7A-4-14 **Spatiotemporal Temporal Temperature and Cell Viability Measurement Analysis of Nanohorn Photoabsorbers for Use in Photothermal Therapy**
J. Whitney[1], B. Will[1], C. Zawaski[1], H. Dorn[1], D. Geohegan[2], and M. N. Rylander[1]
[1]Virginia Tech, Blacksburg, VA, [2]Oak Ridge National Laboratory, Oak Ridge, TN

PS-7A-4-15 **Human Breast Tumor Co-registration of Optical Coherence Tomography and Biomedical Imaging Modalities**
J. Sun[1], S. G. Adie[1], and S. A. Boppart[1]
[1]University of Illinois at Urbana-Champaign, Champaign, IL

PS-7A-4-16 **Gadolinium-Conjugated Dendrimer Nanoclusters as a Tumor-Targeted T1 Magnetic Resonance Imaging Contrast Agent**
Z. Cheng[1]
[1]University of Pennsylvania, Philadelphia, PA

PS-7A-4-17 **Size-tunable Fluorescent Probes: Encapsulation of Quantum Dots Within Polymeric Micelles**
L. Chou[1], and W. Chan[1]
[1]Donnelly Centre for Cellular and Biomolecular Research, University of Toronto, Toronto, Ontario, Canada

PS-7A-4-18 **Computer-aided Detection of Spiculated Masses**
A. K. Hu[1], G. S. Muralidhar[1], A. C. Bovik[1], and M. K. Markey[1]
[1]The University of Texas at Austin, Austin, TX

PS-7A-4-19 **Mid-Infrared Imaging as a Label-Free Alternative to Immunohistochemistry for Breast Cancer Pathology**
M. J. Walsh[1], A. Kajdacsy-Balla[2], and R. Bhargava[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]University of Illinois at Chicago, Chicago, IL

PS-7A-4-20 **Confocal Microscope for Imaging Inflammation in the Mouse Colon**
M. A. Saldua[1], and K. C. Maitland[1]
[1]Texas A&M University, College Station, TX

PS-7A-4-21 **A Throughput-Optimized Detector for Multiple-Mouse Dynamic Contrast-Enhanced MRI**
M. S. Ramirez[1], and J. A. Bankson[1]
[1]The University of Texas M. D. Anderson Cancer Center, Houston, TX

PS-7A-4-22 **Multimodal Nanoparticles Targeting ICAM-1 in Tumor and Its Inflamed Milieu for Diagnosis and Therapy**
X. Chen[1], J. Leelawattanachai[1], R. Wong[1,2], A. Wang[3], A. Nikitin[1], Y. Wang[1,2], and M. Jin[1]
[1]Cornell University, Ithaca, NY, [2]Weill Cornell Medical College, New York, NY, [3]Ocean Nanotech, Springdale, AR

PS-7A-4-23 **A Comparison of Gold Nanoplates and Nanorods for Photoacoustic Image-Guided Photothermal Therapy**
G. P. Luke[1], K. Homan[1], Y-S. Chen[1], W. Frey[1], and S. Emelianov[1]
[1]University of Texas at Austin, Austin, TX

PS-7A-4-24 **Targeted Delivery of Gold Coated Iron Oxide Nanoclusters for Near Infrared Cancer Imaging and MRI Contrast Enhancement**
L. L. Ma[1], J. Tam[1], A. Borwankar[1], B. W. Willsey[1], D. Rigdon[1], K. Sokolov[1,2], R. Ramesh[2], and K. P. Johnston[1]
[1]University of Texas at Austin, Austin, TX, [2]M.D. Anderson Cancer Center, Houston, TX

PS-7A-4-25 **Depth Discrimination and Quantitative Oximetry in Spectrally-resolved Optical Mammography**
Y. Yu[1], A. Sassaroli[1], M. J. Homer[2], R. A. Graham[2], and S. Fantini[1]
[1]Tufts University, Medford, MA, [2]Tufts Medical Center, Boston, MA

PS-7A-4-26 **A New Hybrid Tomosynthesis Reconstruction Method for Breast Cancer Imaging**
M. A. Barrera[1], and W. Qian[1]
[1]University of Texas at El Paso, El Paso, TX

PS-7A-4-27 **Beveled Multifiber Probes for Polarized Reflectance Spectroscopy in Tissue**
R. Karnik[1], L. T. Nieman[2], and K. Sokolov[1,2]
[1]University of Texas at Austin, Austin, TX, [2]University of Texas M.D. Anderson Cancer Center, Houston, TX

PS-7A-4-28 **Intraoperative Imaging for Cancer Resection - Requirements for Real Time Imaging**
G. M. Thurber[1], J-L. Figueiredo[1], and R. Weissleder[1]
[1]Harvard Medical School/Mass General Hospital, Boston, MA

PS-7A-4-29 **Electromagnetically Tracking System and Forceps for Transbronchial Biopsy**
L. Gruionu[1], G. Gruionu[2], and J. Choi[3]
[1]University of Craiova, Severin, MH, Romania, [2]Indiana University School of Medicine, Indianapolis, IN, [3]Catholic University of America, Washington, DC

PS-7A-4-30 **Biodegradable Near-Infrared Plasmonic Nanoclusters for Biomedical Applications**
J. O. Tam[1], J. M. Tam[1], A. Murthy[1], D. Ingram[1], L. L. Ma[1], K. A. Travis[1], K. Johnston[1], and K. V. Sokolov[1]
[1]University of Texas at Austin, Austin, TX

PS-7A-4-31 **Uptake of Polymer Coated Silicon Nanocrystals in Cancer Cells**
P. Puvanakrishnan[1], M. Bosch[1], C. Hessel[1], M. Rasch[1], B. A. Korgel[1], and J. W. Tunnell[1]
[1]The University of Texas at Austin, Austin, TX

PS-7A-4-32 **Simultaneous Measurement of RBC Velocity, Flux, Hematocrit and Shear Rate in Vascular Networks**
W. S. Kamoun[1], R. K. Jain[1], and L. L. Munn[1]
[1]MGH/HMS, Boston, MA

PS-7A-4-33 **Effective Shape Feature Extraction Algorithms for Prostate Cancer Image Analysis**
D. Stockton[1], F. Yuan[2], and Y. Feng[2]
[1]UTSA/UTHSCSA, San Antonio, TX, [2]UTSA, San Antonio, TX

PS-7A-4-34 **Computer Aided Diagnosis (CAD) of Squamous Cell Carcinoma (SCC) of Head and Neck (H&N)**
Y. Sharma[1], R. M. Parry[1], S. H. Raza[1], Q. Chaudry[1], T. H. Stokes[1], X. Wang[2], S. Muller[2], G. Z. Chen[2], and M. D. Wang[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA

PS-7A-4-35 **Automated Renal Cell Carcinoma Subtype Classification using Cellular Features of Elliptical Models of Segmented Nuclear Clusters**
Q. Chaudry[1], S. H. Raza[1], Y. Sharma[1], S. Kothari[2], A. N. Young[4], and M. D. Wang[1]
[1]Georgia Institute of Technology, Atlanta, GA, [I]Emory University, Atlanta, GA

PS-7A-4-36 **Biodistribution and Reticuloendothelial System Uptake of ICG-loaded Nanocapsules in Mice**
B. Bahmani[1], B. Jung[1], S. Gupta[1], and B. Anvari[1]
[1]University of California, Riverside, CA

PS-7A-4-36 **Development of Tumor-Targeted MRI Contrast Agent for Imaging**
L. Cui[1], C. Karmonik[2], B. Lorenz[1], and M. Bikram[1]
[1]University of Houston, Houston, TX, [2]Methodist Hospital, Houston, TX

PS-7A-4-38 **A Dual-modality Optical Probe for Improving Prostate Cancer Diagnosis**
V. Sharma[1], N. Patel[1], and H. Liu[1]
[1]The University of Texas at Arlington, Arlington, TX

PS-7A-4-39 **Analysis of Transit Time Tomography of Microwave Breast Imaging Data with Curvelets**
A. S. Pai[1], V. S. Potunuru[1], and W. Qian[1]
[1]University of Texas at El Paso, El Paso, TX

Track: Biomedical Imaging and Optics - **PS-7A-5** - ***Imaging in Cardiovascular Medicine***

PS-7A-5-40 ***Ex Vivo* Imaging of Vulnerable Atherosclerotic Plaques Using MMP-9-Dependent Macrophage-Binding Iron Oxide Nanoparticles**
S. S. Yu[1,2], W. G. Jerome[3], D. J. Maron[4], J. H. Dickerson II[1,2], and T. D. Giorgio[1,2]
[1]Vanderbilt University, Nashville, TN, [2]Vanderbilt Institute of Nanoscale Science & Engineering, Nashville, TN, [3]Vanderbilt University Medical Center, Nashville, TN, [4]Vanderbilt Heart & Vascular Institute, Nashville, TN

PS-7A-5-41 **Deep Tissue Optical Imaging of Decubitus Ulcers**
R. Moza[1], J. M. DiMaio[1], and J. Melendez[2]
[1]UTSouthwestern Medical Center, Dallas, TX, [2]Spectral MD Inc., Lakeway, TX

PS-7A-5-42 **Directional Interpolation of Fluid Velocity Fields**
C. M. Zwart[1], H. M. Babiker[1], and D. H. Frakes[1]
[1]Arizona State University, Tempe, AZ

PS-7A-5-43 **A Novel Method to Quantify Late Gadolinium Enhancement in Cardiac MRI using Rician PDFs**
J. H. Jordan[1], W. G. Hundley[2], and C. A. Hamilton[1,2]
[1]VT-WFU School of Biomedical Engineering and Sciences, Winston-Salem, NC, [2]Wake Forest University School of Medicine, Winston-Salem, NC

PS-7A-5-44 **Automatic Measurement of CT Phantoms in Major Cardiovascular Population Studies**
M. Zheng[1,2], and Y. Ge[1,2]
[1]Wake Forest University Health Sciences, Winston-Salem, NC, [2]VT-WFU School of Biomedical Engineering & Sciences, Winston-Salem, NC

PS-7A-5-45 **Analysis of MSC Homing in a Myocardial Infarct Model with Cryo-Imaging and Monte Carlo Modeling**
K. E. Sullivant[1], G. J. Steyer[1], L. Kanodia[1], D. Roy[1], M. Penn[2], and D. L. Wilson[1]
[1]Case Western Reserve University, Cleveland, OH, [2]Cleveland Clinic, Cleveland, OH

PS-7A-5-46 **Imaging Tools to Study the Lymphatic System**
T. J. Akl[1], E. Rahbar[1], Z. V. Nepiyushchikh[2], J. E. Moore[1], A. A. Gashev[2], D. C. Zawieja[2], and G. L. Coté[1]
[1]Texas A&M University, College Station, TX, [2]Texas A&M Health Science Center, Temple, TX

PS-7A-5-47 **Design of Molecular Imaging Agent for Atherosclerosis-Targeting to Activated Macrophages**
A. L. Doiron[1], L. Andersen[1], A-L. Aulanier[1], R. Shepherd[1], K. D. Rinker[1], and R. Frayne[1]
[1]University of Calgary, Calgary, Alberta, Canada

PS-7A-5-48 **Echocardiographic Characterization of the Postnatal Development of Elastin-Insufficient Mice**
V. Le[1], and J. Wagenseil[1]
[1]Saint Louis University, Saint Louis, MO

PS-7A-5-49 **Depolarizing the Mitochondrial Network is Not Cardioprotective During Global Ischemia**
R. M. Smith[1], S. S. Velamakanni[1], and E. G. Tolkacheva[1]
[1]University of Minnesota, Minneapolis, MN

PS-7A-5-50 **Design and Build of Left Ventricular Motion Phantom for Cardiac MRI**
M. Ersoy[1], M. Kotys[2], X. Zhou[3], and R. M. Setser[1,3]
[1]Cleveland State University, Cleveland, OH, [2]Philips Healthcare, Cleveland, OH, [3]Cleveland Clinic, Cleveland, OH

PS-7A-5-51 **Automatic Cardiac & Respiratory Cycle Detection of Self-gated Cardiac Cine MRI Navigator Projections**
D. N. Mhembere[1,2], L. Guo[1], J. A. Deryshire[3], E. R. McVeigh[1], and D. A. Herzka[1]
[1]Johns Hopkins School of Medicine, Baltimore, MD, [2]Morgan State University, Baltimore, MD, [3]DIR, NHLBI, NIH, DHHS, Bethesda, MD

PS-7A-5-52 **Biophysical Properties of Vascular Endothelial Cells upon Drug-loaded Nanoparticle Delivery**
Y. Wu[1], G. D. McEwen[1], S. Kona[2], H. Xu[2], K. T. Nguyen[2], and A. Zhou[1]
[1]Utah State University, Logan, UT, [2]University of Texas at Arlington, Arlington, TX

PS-7A-5-53 **Imaging the Endothelial Glycocalyx Response to Flow and Role in Mechanotransduction**
E. E. Ebong[1,2], D. C. Spray[2], and J. M. Tarbell[1]
[1]The City College of New York, New York, NY, [2]Albert Einstein College of Medicine, Bronx, NY

PS-7A-5-54 **Predicting the Local Onset of Alternans in Heart**
A. R. Cram[1], H. Rao[1], and E. G. Tolkacheva[1]
[1]University of Minnesota, Minneapolis, MN

PS-7A-5-55 **Multi Channel Phased Array Coils for Small Animal Cardiac Imaging**
C-W. Chang[1], K. Feng[1], J. Bosshard[1], K. L. Moody[1], S. M. Wright[1], and M. P. McDougall[1]
[1]Texas A&M University, College Station, TX

PS-7A-5-56 **Trial of Carotid Intima-Media Thickness (IMT) in the Evaluation of Patients with Acute Chest Pain**
L. A. Melniker[1], and D. J. Orbach[1]
[1]NY Methodist Hospital, Brooklyn, NY

PS-7A-5-57 **A Blood Pool Contrast Agent for Cardiovascular Computed Tomography Imaging**
K. B. Ghaghada[1], O. Kravchuk[2], S. Haynes[2], A. Halaweish[2], A. Diveka[2], E. Van Beek[3], E. Hoffman[2], and A. Annapragada[1]
[1]The University of Texas Health Science Center, Houston, TX, [2]The University of Iowa, Iowa City, IA, [3]The University of Edinburgh, Edinburgh, Edinburgh, United Kingdom

PS-7A-5-58 **High Speed Doppler Fourier Domain Optical Coherence Tomography**
R. Wang[1], R. Goodwin[2], R. R. Markwald[3], and B. Z. Gao[1]
[1]Clemson Univ., Clemson, SC, [2]University of South Carolina, Columbia, SC, [3]Medical University of South Carolina, Charleston, SC

Track: Cardiovascular Engineering - **PS-7A-6** - ***Cardiac Electrical Structure and Contraction***

PS-7A-6-59 **Cardiac Mechanoenergetic Changes due to Plasma Viscosity During Hemodilution**
S. Chapung[1], and P. Cabrales[1]
[1]University of California, San Diego, La Jolla, CA

PS-7A-6-60 **Cardiac Systolic Function Recovery After Hemorrhage Determines Survivability During Shock**
S. Chapung[1], and P. Cabrales[1]
[1]University of California, San Diego, La Jolla, CA

PS-7A-6-61 **Micro-ECG to Monitor Susceptibility of Regenerated Zebrafish Heart to a Potassium Channel Blocker**
F. Yu[1], N. Chi[2], and T. K. Hsiai[1]
[1]University of Southern California, Los Angeles, CA, [2]University of California, San Diego, San Diego, CA

PS-7A-6-62 **Pulsed Infrared (IR) Radiation Evoked Calcium Release in Neonatal Cardiac Myocytes**
G. M. Dittami[1], S. M. Rajguru[2], R. A. Lasher[1], R. W. Hitchcock[1], S. S. Dharia[1], and R. D. Rabbitt[1]
[1]University of Utah, Salt Lake City, UT, [2]Northwestern University, Chicago, IL

PS-7A-6-63 **The Effect of Substrate Stiffness on Cardiomyocyte Action Potential Decay Time**
J. D. Myers[1], and J. G. Jacot[1,2]
[1]Rice University, Houston, TX, [2]Texas Children's Hospital, Houston, TX

PS-7A-6-64 **Hysteresis of Transition between 1:1 and 2:2 Rhythms in Restitution-independent Activation in pigs**
L. Jing[1], and A. Patwardhan[1]
[1]University of Kentucky, Lexington, KY

PS-7A-6-65 **Single Probe, Fiber Optic System for Whole Heart Intracellular Calcium Transient Measurement**
C. Evans[1], S. Woodruff[2], B. Chorpening[2], J. Hensel[2], and S. Shroff[1]
[1]University of Pittsburgh, Pittsburgh, PA, [2]National Energy Technology Lab, Morgantown, WV

PS-7A-6-66 **The FFT Estimates Epicardial Activation Rate in Pigs but not Dogs in Late Ventricular Fibrillation**
J. Huang[1], D. J. Dosdall[1], L. Li[1], and R. E. Ideker[1]
[1]University of Alabama at Birmingham, Birmingham, AL

PS-7A-6-67 **Frequency Domain Analysis of Heart Rate Variability using Interpolation and Resampling**
N. Nadvar[1], B. E. Dunne[1], J. Heisner[2], A. K. Camara[2], D. F. Stowe[2], and S. S. Rhodes[1,2]
[1]Grand Valley State University, Grand Rapids, MI, [2]Medical College of Wisconsin, Milwaukee, WI

PS-7A-6-68 **Excitability and Stimulation Thresholds for Nanosecond Pulses in Fish Hearts**
S. Knisley[1], H. R. Phadke[1], J. Kolb[1], K. Schoenbach[1], and J. Pratt[1]
[1]Old Dominion University, Norfolk, VA

PS-7A-6-69 **Noninvasively pacing the embryonic heart with a pulsed laser**
M. W. Jenkins[1], A. R. Duke[2], S. Gu[1], H. J. Chiel[1], H. Fujioka[1], M. Watanabe[1], E. D. Jansen[2], and A. M. Rollins[1]
[1]Case Western Reserve University, Cleveland, OH, [2]Vanderbilt University, Nashville, TN

PS-7A-6-70 **Electrophysiological Changes of Differentiating Bone Marrow Stem Cells Laser Patterned with Cardiomyocytes**
Z. Ma[1], H. Liu[1], X. J. Yun[1], T. K. Borg[2], R. R. Markwald[2], and Z. B. Gao[1]
[1]Clemson University, Clemson, SC, [2]Medical University of South Carolina, Charleston, SC

PS-7A-6-71 **Effects of Micropatterned Obstacles on Propagation in the Cardiac Monolayer**
H. Himel IV[1], and N. Bursac[1]
[1]Duke University, Durham, NC

Track: Cardiovascular Engineering - **PS-7A-7** - ***Cardiovascular Devices***

PS-7A-7-72 **Modulation of Diastolic Filling Using a Cardiac Support Device With a Diastolic Recoil Component**
S. Biswas[1], T. Snowden[1], and J. Criscione[1]
[1]Texas A&M University, College Station, TX

PS-7A-7-73 **The Admittance Method for the Measurement of Left Ventricular Volume in Large Animals**
E. R. Larson[1], J. E. Porterfield[1], J. W. Valvano[1], M. D. Feldman[2], and J. A. Pearce[1]
[1]The University of Texas at Austin, Austin, TX, [2]The University of Texas Health Science Center at San Antonio, San Antonio, TX

PS-7A-7-74 **A Successful Design of Stent Suitable for Patient&[prime]s Condition**
D. Yoshino[1], M. Sato[1,2], and K. Inoue[3]
[1]Graduate School of Engineering, Tohoku University, Sendai, Japan, [2]Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan, [3]Emeritus professor of Tohoku University, Sendai, Japan

PS-7A-7-75 **Design Considerations for a New Device for a Single-Stage Hybrid Aortic Arch Replacement Procedure**
H. M. Sherif[1]
[1]Cardiac Surgery, Newark, DE

PS-7A-7-76 **Minimally Invasive Cardiac Support and Assist Therapy for the Treatment of Congestive Heart Failure**
M. R. Moreno[1,2], and J. C. Criscione[1,2]
[1]Texas A&M University, College Station, TX, [2]CorInnova Incorporated, College Station, TX

PS-7A-7-77 **Left Ventricular Volume for Heart Failure Monitoring Using Admittance**
J. E. Porterfield[1], E. R. Larson[1], J. T. Jenkins[2,3], D. Escobedo[2,3], M. D. Feldman[2,3], J. W. Valvano[1], and J. A. Pearce[1]
[1]The University of Texas at Austin, Austin, TX, [2]The University of Texas Health Science Center, San Antonio, TX, [3]South Texas Veterans Health Care System, San Antonio, TX

PS-7A-7-78 **Frictional Load of Shape Memory Polymer Devices Delivered via Catheter**
W. Hwang[1], T. S. Wilson[2], and D. J. Maitland[1]
[1]Texas A&M University, College Station, TX, [2]Lawrence Livermore National Laboratory, Livermore, CA

PS-7A-7-79 **Finite Element Simulation of Pacemaker Lead Dislodgement in Left Marginal Vein: Potential Risk Factors**
X. Zhao[1], M. Burger[2], Y. Liu[1], and G. S. Kassab[1]
[1]Indiana University-Purdue University, Indianapolis, IN, [2]Livermore Software Technology Corporation, Livermore, CA

PS-7A-7-80 **Assessment of Hemodynamic Parameters using Esophageal Doppler Monitor**
P. Thakore[1], A. Ritter[2], and G. Atlas[3]
[1]Stevens Institute of Technology, Jersey City, NJ, [2]Stevens Institute of Technology, Hoboken, NJ, [3]UMDNJ, Livingston, NJ

PS-7A-7-81 **FEA Analysis of a Biodegradable Alginate Stent**
H. Zeid[1], and M. Mobed Miremadi[2]
[1]San Jose State University, Campbell, CA, [2]San Jose State University, San Jose, CA

PS-7A-7-82 ***In Vitro* Fluid Dynamic Effects of a New Coil Design for Cerebral Aneurysm Embolization**
H. Babiker[1], F. Gonzalez[2], F. Albuquerque[2], D. Collins[1], A. Elvikis[1], and D. Frakes[1]
[1]Arizona State University, Tempe, AZ, [2]St. Joseph's Hospital and Medical Center, Phoenix, AZ

Track: Cardiovascular Engineering - **PS-7A-8** - ***Cardiovascular Fluid Mechanics***

PS-7A-8-83 **Flow Characterization of an Arterial Flow Bioreactor using Particle Image Velocimetry**
E. E. Voigt[1], C. F. Buchanan[1], J. Schmieg[1], M. N. Rylander[1], and P. P. Vlachos[1]
[1]Virginia Tech, Blacksburg, VA

PS-7A-8-84 **Using Computational Fluid Dynamics Model to Predict Changes in Velocity properties in Stented Carotid Artery**
V. B. Sheth[1], and A. B. Ritter[1]
[1]Stevens Institute of Technology, Hoboken, NJ

PS-7A-8-85 **Anatomical Analysis of Optiflo on Patient Specific Geometries**
K. Desai[1], C. Haggerty[1], D. Zelicourt[1], M. Fogel[2], K. Kanter[3], and A. Yoganathan[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Children's Hospital of Philadelphia, Philadelphia, PA, [3]Emory University, Atlanta, GA

PS-7A-8-86 **Study of the Hemodynamics in Dialysis Access Fistulae**
P. M. McGah[1], J. J. Riley[1], and A. Aliseda[1]
[1]University of Washington, Seattle, WA

PS-7A-8-87 **Calculation of Coronary Wall Shear Stress Using Angiographic 3-Dimensional Reconstruction and Doppler Derived Velocity Measurements: A Novel Streamlined Technique for Clinical Assessment of Coronary Plaque Progression**
L. H. Timmins[1,2], J. Suo[1,2], P. Eshtehardi[3], S. S. Dhawan[3], A. R. King[1,2], M. C. McDaniel[3], H. Samady[3], and D. P. Giddens[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA, [3]Emory University School of Medicine, Atlanta, GA

PS-7A-8-88 **Comparison of Inlet Flow Profiles in Patient-Specific Computational Fluid Dynamics**
I. Campbell[1], J. Ries[2], W. Taylor[1,3], and J. Oshinski[1,3]
[1]Georgia Institute of Technology/Emory University, Atlanta, GA, [2]Georgia Institute of Technology, Atlanta, GA, [3]Emory University, Atlanta, GA

PS-7A-8-89 **Flow Reduction in an Intracranial Aneurysm by Multiple Stent Deployment**
M. Ionescu[1], and R. W. Metcalfe[1]
[1]University of Houston, Houston, TX

PS-7A-8-90 **Hematocrit-Dependent Red Blood Cell Exclusion and Restriction Zones are Present at the Wall of Arterioles**
O. Yalcin[1], M. Jivani[1], M. Intaglietta[1], and P. Johnson[1]
[1]UC San Diego, La Jolla, CA

PS-7A-8-91 **Quantitative Variation Of Blood Pressure Dynamics During Simulated Sleep Apnea**
R. M. Alex[1], D. E. Watenpaugh[2], R. Zhang[3], A. Bashaboyina[1], G. Bhave[1], M. Al-Abed[1], S. Iyer[1], E. Altuwaijri[1], and K. Behbehani[1]
[1]University of Texas At Arlington, Arlington, TX, [2]Sleep Consultants, Inc., Fort Worth, TX, [3]Presbyterian Medical Center of Dallas Institute for Exercise and Environmental Medicine, Dallas, TX

PS-7A-8-92 **Uncertainty Quantification and Robust Design of Hemodynamics in Bypass Graft Surgeries**
S. Sankaran[1], and A. Marsden[2]
[1]University of California San Diego, San Diego, CA, [2]University of California San Diego, La Jolla, CA

PS-7A-8-93 **Hemodynamics in a Patient Specific Stented Artery**
M. Ionescu[1], and R. W. Metcalfe[1]
[1]University of Houston, Houston, TX

PS-7A-8-94 **Measured Flow in Compliant AAA Models with Iliac Bifurcation**
C. A. Meyer[1], C. Guivier-Curien[1], E. Bertrand[1], and V. Deplano[1]
[1]IRPHE UMR 6594 CNRS, Marseille, France

PS-7A-8-95 **Large Eddy Simulations Of Blood Flow In A Patient-Specific Aneurysmatic Carotid Artery Geometry**
H. Radhakrishnan[1], D. Grigoriadis[1], and S. C. Kassinos[1]
[1]University of Cyprus, Nicosia, Nicosia, Cyprus

PS-7A-8-96 **The Effect of Imaging Parameters and Geometry on the Ability of MRI to Quantify Turbulent Flow**
S. Pidaparthi[1], N. Lakkadi[1], R. Setser[2], S. Flamm[2], and C. George[1]
[1]Cleveland State University, Cleveland, OH, [2]Cleveland Clinic, Cleveland, OH

PS-7A-8-97 **Using CFD to Model Effects of Aortic Compliance Changes Related to Treatments for Aortic Coarctation**
J. S. Coogan[1], F. P. Chan[1], C. A. Taylor[1], and J. A. Feinstein[1]
[1]Stanford University, Stanford, CA

PS-7A-8-98 **Longitudinal MRI-based CFD Analysis of Hemodynamics in a Porcine Model of Dialysis Graft Stenosis**
R. J. Christopherson[1], C. M. Terry[2], H. Li[2], I. Zhuplatov[2], A. K. Cheung[2,3], and Y-T. E. Shiu[1,2]
[1]Department of Bioengineering, University of Utah, Salt Lake City, UT, [2]Department of Medicine, University of Utah, Salt Lake City, UT, [3]The VA Salt Lake City Health Care System, Salt Lake City, UT

PS-7A-8-99 **A Global Reduced-order Distributed Model for Physiological Fluid Dynamics**
O. San[1], and A. E. Staples[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

PS-7A-8-100 **Shear Stress Determination in an Orbiting Culture Dish Using CFD and Validation with PIV**
J. M. Thomas[1], M. Shakeri[1], R. E. Berson[1], and M. K. Sharp[1]
[1]University of Louisville, Louisville, KY

PS-7A-8-101 **Stent Deployment at Bifurcations with Plaque Structures: Effects on Fluid Shear Stress and Solid Wall Stress**
H. Y. Chen[1], M. Sturek[2], D. Bhatt[3], and G. Kassab[4]
[1]Purdue University, West Lafayette, IN, [2]Indiana University, Indianapolis, IN, [3]Harvard Medical School, Boston, MA, [4]Indiana University Purdue University Indianapolis, Indianapolis, IN

Track: Cellular and Molecular Engineering - **PS-7A-9** - ***Cell Mechanics, Adhesion, and Motility***

PS-7A-9-102 **Geometrical Constraints on Thin Film Substrates Affecting Active Mechanosensing and Cell Morphology**
S. C. Hunley[1], S. Mehrotra[1], K. M. Pawelec[1], L. Zhang[1], C. Chan[1], and S. Baek[1]
[1]Michigan State University, East Lansing, MI

PS-7A-9-103 **Oligomeric Amyloid Beta Peptide on Sialylic LewisX-selectin Bonding at Cerebral Endothelial Surface**
S. Askarova[1], and J. C-M. Lee[1]
[1]University of Missouri, Columbia, MO

PS-7A-9-104 **Quantifying ECM Signaling in Tumor Invasion: Covalent Links Influence Cell Dynamics**
J. Srivastava[1], and M. Zaman[2]
[1]University of Texas at Austin, Austin, TX, [2]Boston University, Boston, MA

PS-7A-9-105 **Lymphocyte Dynamics on Aligned Endothelial Cells**
K. Song[1], K. Kwon[2], J-C. Choi[3], K. Suh[2], and J. Doh[3]
[1]POSTECH, Pohang, Gyeongbuk, Korea, Republic of, [2]Seoul National University, Seoul, Korea, Republic of, [3]POSTECH, Pohang, Korea, Republic of

PS-7A-9-106 **Human Fibroblasts Generate Ten Times More Power in Mixed Hepatocyte/Fibroblast Microtissues than in Pure Fibroblast Microtissues.**
J. Youssef[1], and J. R. Morgan[1]
[1]Brown University, Providence, RI

PS-7A-9-107 **Forward Ray Tracing for High-Throughput Cell Deformation Cytometry with Diode Bar Optical Stretchers**
I. Sraj[1], D. W. Marr[2], and C. D. Eggleton[1]
[1]UMBC, Baltimore, MD, [2]Colorado School of Mines, Golden, CO

PS-7A-9-108 **Biomechanical Effects of Flow and Coculture Environment on Endothelial Progenitor Cells**
L. Cao[1], and G. A. Truskey[1]
[1]Duke University, Durham, NC

PS-7A-9-109 **The Effect of Mechanoregulation on Myotube Alignment During Myogensis**
M. junkin[1], and P. K. Wong[1]
[1]University of Arizona, Tucson, AZ

PS-7A-9-110 **Assembly of Human Umbilical Vein Endothelial Cells on Compliant Hydrogels**
R. Saunders[1], and D. Hammer[1]
[1]University of Pennsylvania, Philadelphia, PA

PS-7A-9-111 **sPLA2-III Enhances sAPPalpha Secretion Through Alterations in Membrane Fluidity**
X. Yang[1], W. Sheng[1], Y. He[1], J. Cui[1], M. Haidekker[2], G. Sun[1], and J. Lee[1]
[1]University of Missouri, Columbia, MO, [2]University of Georgia, Athens, GA

PS-7A-9-112 **Effects of Fatty Acid Unsaturation Numbers on Membrane Fluidity and APP pProcessing**
X. Yang[1], W. Sheng[1], G. Sun[1], and J. Lee[1]
[1]University of Missouri, Columbia, MO

PS-7A-9-113 **System-Level Analysis of Collective Cell Migration in Cancer**
D. Harjanto[1], and M. H. Zaman[1]
[1]Boston University, Boston, MA

PS-7A-9-114 **Endothelial Sarcomere Fluctuations Arise from Actin Polymerization at Focal Adhesions**
R. J. Russell[1], S. Mangroo[1], S. Nakasone[1], R. Dickinson[1], and T. Lele[1]
[1]University of Florida, Gainesville, FL

PS-7A-9-115 **Computational Analysis of Tensile Stress Propagation during the Migration of a Cohesive Cell Sheet**
R. E. Zielinski[1], C. Mihai[1,2], D. L. Knoell[1,2], and S. N. Ghadiali[1,2]
[1]The Ohio State University, Columbus, OH, [2]Dorothy M. Davis Heart and Lung Research Institute, Columbus, OH

PS-7A-9-116 **Directing Dendritic Cell Migration: Using Microfluidics to Uncover Chemotactic Heirarchies**
B. G. Ricart[1], B. John[1], C. A. Hunter[1], and D. A. Hammer[1]
[1]University of Pennsylvania, Philadelphia, PA

PS-7A-9-117 **Proteolytic Activity Disturbs the Responses of Endothelial Cells to Fluid Shear Stress**
A. E. Altshuler[1], S. Chien[1], and G. W. Schmid-Schonbein[1]
[1]University of California, San Diego, La Jolla, CA

PS-7A-9-118 **Effects of EGF on the Migration of Prostate Cancer Cell Line PC3-ML**
U. Tata[1], S. M. N. Rao[1], K. Nguyen[1], and J-C. Chiao[1]
[1]University of Texas at Arlington, Arlington, TX

PS-7A-9-119 **Motor-Clutch Motility Model for U251 Glioblastoma Migration**
B. L. Bangasser[1], C. Chan[1], S. S. Rosenfeld[2], and D. J. Odde[1]
[1]University of Minnesota, Minneapolis, MN, [2]Columbia University, New York, NY

PS-7A-9-120 **The Pyrophosphate Transporter ANKH Is Necessary For Mechanotransduction In The MC3T3 Cell Line**
K. L. Lee[1], and C. R. Jacobs[1]
[1]Columbia University, New York, NY

PS-7A-9-121 **Biomimetic Gel Material to Modulate Branching Morphogenesis of Submandibular Gland**
H. Miyajima[1], S. An[1], K. Lee[2], T. Sakai[1], and T. Matsumoto[1]
[1]Osaka University, Suita, Japan, [2]Hanyang University, Seoul, Korea, Republic of

PS-7A-9-122 **Observation of Podosome Assembly and Disassembly in Real Time *in Vitro***
N. Kim[1], J. Huynh[1], and C. A. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

PS-7A-9-123 **Dissecting the Active Gel Dynamics of the Microtubule Cytoskeleton in Living Epithelial Cells**
B. D. Hoffman[1], K. M. Van Citters[2], A. W. Lau[3], and J. C. Crocker[2]
[1]University of Virginia, Charlottesville, VA, [2]University of Pensylvania, Philadelphia, PA, [3]Florida Atlantic University, Boca Raton, FL

PS-7A-9-124 **Microrheological Assessment of the Viscoelastic Properties of Cardiac Myocytes**
J. Michaelson[1], H. Choi[2], P. So[2], S. Wasserman[2], and H. Huang[1]
[1]Columbia University, New York, NY, [2]Massachusetts Institute of Technology, Boston, MA

PS-7A-9-125 **Extracellular Matrix Binding Protein (Embp) and Its Role in Bacterial Adhesion to Catheter Materials**
J. A. Callihan[1], K. Mikhova[1], and J. D. Bryers[1]
[1]University of Washington, Seattle, WA

PS-7A-9-126 **Effect of Cell and Microvillus Elasticity on Intermolecular Bond Rupture**
V. K. Gupta[1], and C. D. Eggleton[1]
[1]University of Maryland at Baltimore County, Baltimore, MD

PS-7A-9-127 **Force Scanning: A High Resolution Modulus Mapping Approach for Atomic Force Microscopy**
E. M. Darling[1]
[1]Brown University, Providence, RI

PS-7A-9-128 **A Microfluidic Shear Reactor to Study Biofilm Formation and Development**
W. M. Weaver[1], V. Milisavljevic[2], and D. Di Carlo[1,3]
[1]University of California, Los Angeles, Los Angeles, CA, [2]David Geffen School of Medicine, UCLA, Los Angeles, CA, [3]California NanoSystems Institute, Los Angeles, CA

PS-7A-9-129 **Effect of Substrate Stiffness on U251 Glioblastoma Morphology and Motility**
K. Opoku[1], C. Chan[1], E. Tuzel[1], S. Rosenfeld[2], and D. Odde[1]
[1]University of Minnesota, Minneapolis, MN, [2]Columbia University, New York, NY

PS-7A-9-130 **Stokesian Fluid Stimulus Probe for Delivering Localized pN Level Forces to Cultured MLO-Y4 Cells**
D. Wu[1,2], P. Ganatos[1], D. C. Spray[2], and S. Weinbaum[1]
[1]The City College of New York, New York, NY, [2]Albert Einstein College of Medicine, Bronx, NY

PS-7A-9-131 **Osteocyte Characterization on Polydimethylsiloxane Substrates: Quantification of Communication**
L. Simmerman[1], P. Sethu[2], and M. Saunders[1]
[1]University of Kentucky, Lexington, KY, [2]University of Louisville, Louisville, KY

PS-7A-9-132 **Osteocyte Characterization on Polydimethylsiloxane Substrates: Viability, Growth and Sclerostin**
L. Simmerman[1], J. Martin[1], P. Sethu[2], and M. Saunders[1]
[1]University of Kentucky, Lexington, KY, [2]University of Louisville, Louisville, KY

PS-7A-9-133 ***In Vitro*** **Focal Adhesion Complex Manipulation in Single Neurons: A Model for Traumatic Brain Injury**
B. E. Dabiri[1,2], L. Kerscher[1,2], C. Franck[1,2], M. A. Hemphill[1,2], J. A. Goss[1,2], P. W. Alford[1,2], and K. K. Parker[1,2]
[1]Disease Biophysics Group, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, MA

PS-7A-9-134 **Analysis of Primary Cilia Deflection Under Laminar Fluid Flow with 3D Imaging and Advanced Modeling**
M. E. Downs[1], D. Hooey[1], F. Herzog[2], and C. R. Jacobs[1]
[1]Columbia University, New York, NY, [2]Ecole Polytechnique Fédérale de Lausanne, Lausanne, Vaud, Switzerland

PS-7A-9-135 **Nanotopology Guided Migration of T Cells in 2D and 3D**
K. Kwon[1], W. Jeong[2], J. Choi[2], K. Song[2], K-Y. Suh[1], and J. Doh[2]
[1]Seoul National University, Gwanak-gu, Seoul, Korea, Republic of, [2]Pohang University of Science and Technology, Pohang, Gyeongbuk, Korea, Republic of

PS-7A-9-136 **The Importance of Protein N-Terminal Acetylation in Actin Cytoskeleton on Cellular Function**
A. Elósegui[1], C. Gázquez[2], A. Oregi[1], A. Gil[1], R. Aldabe[2], and E. De Juan-Pardo[1]
[1]CEIT and TECNUN (University of Navarra), San Sebastián, Guipuzcoa, Spain, [2]FIMA University of Navarra, Pamplona, Navarra, Spain

PS-7A-9-137 **Molecular Clues to Aberrant Nuclear Structure in Human Aging and Disease**
A. Kalinowski[1], S. Shenoy[1], M. Loesche[1], and K. N. Dahl[1]
[1]Carnegie Mellon University, Pittsburgh, PA

PS-7A-9-138 **Endothelial Cell Phenotyping Using Receptor Expression Changes in Microfluidic Channels**
D. Vickers[1], and S. Murthy[1]
[1]Northeastern University, Boston, MA

PS-7A-9-139 **Impedance Analysis of Cellular Activities of Oral Cancer Cells and Normal Epithelial Cells**
L. Yang[1]
[1]North Carolina Central University, Durham, NC

PS-7A-9-140 **Interaction of Dendritic Cells with Different Matrices and VEGF Biology**
L. Sprague[1], E. Meles[1], A. Venkatesh[1], M. Pate[1], and F. Benencia[1,2]
[1]Ohio University, Athens, OH, [2]Russ College of Engineering, Ohio University, Athens, OH

PS-7A-9-141 **Cancer Stem Cells and Adhesion Molecules: New Insights for Breast Cancer Metastasis**
V. S. Shirure[1], K. A. Henson[1], and M. M. Burdick[1]
[1]Ohio University, Athens, OH

PS-7A-9-142 **Upregulation of Wnt5a Transcripts in Human Monocytes Treated with oxLDL**
P. M. Bhatt[1], C. J. Lewis[1], D. L. House[1], D. J. Goetz[1], and R. Malgor[1]
[1]Ohio University, Athens, OH

PS-7A-9-143 ***In Vitro*** **Elongation of Porcine Embryos Using Alginate Hydrogels as a Three-Dimensional Extracellular Matrix**
C. N. Sargus[1], S. A. Plautz[1], J. R. Miles[2], J. Vallet[2], and A. K. Pannier[1]
[1]University of Nebraska-Lincoln, Lincoln, NE, [2]USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE

PS-7A-9-144 **Parametric Analysis of Cyclic Strain Effects on Cell-cell Adhesions**
J. Sim[1], C. Simmons[1], P. Baechtold[1], N. Borghi[1], and B. L. Pruitt[1]
[1]Stanford University, Stanford, CA

PS-7A-9-145 **Massively Parallel, High Force Interrogation of Single Cell Mechanics via Localized Magnetic Nanoparticles**
P. Tseng[1], J. Judy[1], and D. Di Carlo[1]
[1]UCLA, Los Angeles, CA

PS-7A-9-146 **Chemomechanical Mapping of Lutheran/B-CAM Interaction in Erythrocytes of Hemoglobin Genotype AS**
J. L. Maciaszek[1], and G. Lykotrafitis[1]
[1]University of Connecticut, Storrs, CT

PS-7A-9-147 **The Effect of Metallic Nanoparticles on Vascular Smooth Muscle Cell Mechanics**
W. McAllister[1], L. Wiles[1], J. Turbeville[1], P. Kersher[1], C. Kitchens[1], and D. Dean[1]
[1]Clemson University, Clemson, SC

PS-7A-9-148 **Human a(1,3) Fucosyltransferases Regulating Selectin-Mediated Leukocyte Adhesion**
A. Buffone, Jr.[1], K. P. McHugh[1], and S. Neelamegham[1]
[1]State University of New York at Buffalo, Buffalo, NY

PS-7A-9-149 **Guided Schwann Cell Motility on Cellular Scale Anisotropic Topography**
J. A. Mitchel[1], T. Ramchal[1], and D. Hoffman-Kim[1]
[1]Brown University, Providence, RI

PS-7A-9-150 **Differential Roles of Stretch and Shortening on Cyclic Stretch-induced Stress Fiber Alignment**
C-F. Lee[1], H-J. Hsu[1], and R. Kaunas[1]
[1]Texas A&M University, College Station, TX

PS-7A-9-151 **Incorporating Cellular Mechanical Heterogeneity in a Multicellular Mechanical Model**
S. Deitch[1], and D. Dean[1]
[1]Clemson University, Clemson, SC

PS-7A-9-152 **Digital Microfluidic Techniques for Single-Cell *In Vitro* Developmental Neurotoxicity Screening**
A. J. Sweeney[1], K. J. Burg[1], T. K. Borg[2], and B. Z. Gao[1]
[1]Clemson University, Clemson, SC, [2]Medical University of South Carolina, Charleston, SC

PS-7A-9-153 **A Biomimetic ECM Reveals Independent Effects of Adhesion and Stiffness on Cells in 3D Gels**
R. Reen[1], A. L. Sieminski[2], M. D. Stevenson[1], M. Boehm[1], B. Joddar[1], K. W. Koelling[1], and K. J. Gooch[1]
[1]Ohio State University, Columbus, OH, [2]Franklin W. Olin College of Engineering, Needham, MA

PS-7A-9-154 **Quantitative Comparison of Cellular Traction Forces and Cell Motility in 2D and 3D Hydrogel Scaffolds**
H. Lee[1], and C. Franck[1]
[1]Brown University, Providence, RI

PS-7A-9-155 **Myofibrillogenesis in Single Myocytes Cultured on Aligned-collagen**
H. Liu[1], J. Yun[1], T. Borg[2], and B. Gao[1]
[1]Clemson University, Clemson, SC, [2]Medical University of South Carolina, Charleston, SC

PS-7A-9-156 **Microtubule Depolymerization Induces Traction Force Increase in Two Distinct Pathways**
A. D. Rape[1], W. Guo[1], and Y-L. Wang[1]
[1]Carnegie Mellon University, Pittsburgh, PA

PS-7A-9-157 **Integrin Mediated Injury in Neurons: A Role for Mechanotransduction in Mild Traumatic Brain Injury**
M. A. Hemphill[1,2], B. E. Dabiri[1,2], J. A. Goss[1,2], P. W. Alford[1,2], and K. K. Parker[1,2]
[1]Disease Biophysics Group, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, MA

PS-7A-9-158 **Characterizing Multiple Biomolecular Interactions of Single Cells Using Bead Arrays on Elastic Beams**
C. Ounkomol[1], T. N. Nguyen[1], S. Yamada[1], and V. Heinrich[1]
[1]University of California, Davis, Davis, CA

PS-7A-9-159 **Differential Talin and Vinculin Expression During Vascular Smooth Muscle Cell Mechanotransduction**
O. V. Sazonova[1], K. L. Lee[1], J. Y. Wong[1], and M. A. Nugent[1,2]
[1]Boston University, Boston, MA, [2]Boston University School of Medicine, Boston, MA

PS-7A-9-160 **Contribution of Vimentin Intermediate Filament to Cell Strength and Mechanotransduction**
M. E. Murray[1], and P. A. Janmey[1]
[1]University of Pennsylvania, Philadelphia, PA

PS-7A-9-161 **Dynamic Stretching of Single Live Cells on an Elastomeric Micropost Array**
J. Mann[1], and J. Fu[1]
[1]University of Michigan, Ann Arbor, MI

PS-7A-9-162 **Mechanically-Induced Remodeling of Fibrolast Cytoskeletal in 3D Cultures**
S-L. Lee[1], K. Pryse[2], and E. Elson[2]
[1]Washington University, Saint Louis, MO, [2]Washington University School of Medicine, St. Louis, MO

PS-7A-9-163 **Study Cancer Cell Migration Phenomenon Utilizing a Microfluidic Device Consisting Microgaps with Different Gap Size**
Z. Tong[1], M. Dallas[1], W-C. Hung[1], K. Stebe[2], and K. Konstantopoulos[1]
[1]Johns Hopkins University, Baltimore, MD, [2]University of Pennsylvania, Philadelphia, PA

PS-7A-9-164 **Rigidity-dependent Costimulation of CD4+ T cells**
E. Judokusumo[1], E. Tabdanov[1], and L. C. Kam[1]
[1]Columbia University, New York, NY

PS-7A-9-165 **The Cytoskeleton Modifies the Hyperosmotic Response of the Cell Membrane**
V. Ragoonanan[1], and A. Aksan[1]
[1]University of Minnesota, Minneapolis, MN

PS-7A-9-166 **Characterization of Notch Ligand Endocytosis Using Laser Tweezers**
E. Botvinick[1], B. S. Shergill[1], G. Weinmaster[2], L. Meloty-Kapella[2] and A. Musse[2]
[1]UC Irvine, Irvine, CA, [2]UC LA, Los Angeles, CA

PS-7A-9-167 **Blocking Agent Effects on Motor Protein Motility in the *In Vitro* Motility Assay**
K. N. Miller-Jaster[1], and W. Guilford[1]
[1]University of Virginia, Charlottesville, VA

PS-7A-9-168 **Nanofibrous Engineered Surfaces for Study of Bacterial Adhesion and Biofilm Formation**
M. Kargar[1], J. Wnag[1], A. S. Nain[1], and B. Behkam[1]
[1]Virginia Tech, Blacksburg, VA

PS-7A-9-169 **Transforming Growth Factor-β Enhances the Chemotactic Migration of Platelet-Derived Growth Factor Induced Anaplastic Oligodendrogliomas**
R. A. Able[1,2], C. Nyabeo[2], E. Holland[3], and M. Vazquez[2]
[1]The Graduate Center of CUNY, New York, NY, [2]City College of New York, New York, NY, [3]Memorial Sloan Kettering Cancer Center, New York, NY

PS-7A-9-170 **The Role of Ligand Spacing on Platelet Adhesion to Fibrinogen Under Flow.**
A. G. Van de Walle[1], T. Spain[1], and D. W. Schmidtke[1]
[1]University of Oklahoma, Norman, OK

PS-7A-9-171 **Influence of Cell Deformation, Tether Formation and Catch/slip Bond Behavior on Leukocyte Rolling**
D. B. Khismatullin[1], M. K. Pospieszalska[2], and K. Ley[2]
[1]Tulane University, New Orleans, LA, [2]La Jolla Institute for Allergy & Immunology, La Jolla, CA

PS-7A-9-172 **A Single-shot Microfluidic Device for Investigating the Effects of Shear Stress Magnitude and Spatial Gradients on Endothelial Cells**
H. Muddana[1], D. Ahmed[1], T. J. Huang[1], and P. J. Butler[1]
[1]Penn State University, University Park, PA

PS-7A-9-173 **Evaluation of Elasticity Analyses of Non-Malignant and Malignant Breast Cells Using AFM**
M. Nikkhah[1], J. Strobl[1], E. M. Schmelz[1], and M. Agah[1]
[1]Virginia Tech, Blacksburg, VA

PS-7A-9-174 **Strain and Ligand Dependent Activation of TGF-beta1 by 3T3 Fibroblasts**
M. K. Sewell[1], J. D. Hutcheson[1], and W. D. Merryman[1]
[1]Vanderbilt University, Nashville, TN

PS-7A-9-175 **Regulation of Focal Adhesion Maturation and Cell Edge Dynamics by Epidermal Growth Factor**
I. Schneider[1], and Y. Hou[1]
[1]Iowa State University, Ames, IA

PS-7A-9-176 **Mapping the Interactions among Arrayed Biomaterials, Adsorbed Proteins and Human Embryonic Stem Cells**
Y. Mei[1], S. Gerecht[2], M. Taylor[3], A. Urquhart[4], S. R. Bogatyrev[1], S-W. Cho[1], M. C. Davies[5], M. R. Alexander[5], R. Langer[1], and D. Anderson[1]
[1]MIT, Cambridge, MA, [2]Johns Hopkins University, Baltimore, MD, [3]University of Central Lancashire, Lancashire, United Kingdom, [4]University of Strathclyde, Glasgow, United Kingdom, [5]The University of Nottingham, Nottingham, United Kingdom

Track: Devices: Nano to Micro - **PS-7A-10** - ***Biomems and Nanotech for Cellular Engineering***

PS-7A-10-177 **Sorting of Microtubules by Length Using Micro-grooves Fabricated on a Chip**
S. Sugita[1,2], T. Murase[1], N. Sakamoto[1], T. Ohashi[1,3], and M. Sato[1]
[1]Tohoku University, Sendai, Japan, [2]Present: Nagoya Institute of Technology, Nagoya, Japan, [3]Present: Hokkaido University, Sapporo, Japan

PS-7A-10-178 **A Microfabricated Insert for Precise Control over the Oxygen Concentration within the Boyden Chamber**
S. C. Oppegard[1], A. J. Blake[1], J. C. Williams[2], and D. T. Eddington[1]
[1]University of Illinois at Chicago, Chicago, IL, [2]University of Wisconsin - Madison, Madison, WI

PS-7A-10-179 **A High-throughput Microfluidic Platform for Separating Particles By Size**
G. Wang[1]
[1]Georgia Insititute of Technology, Atlanta, GA

PS-7A-10-180 **Addressable Micropatterning of Multiple Proteins and Cells with an Aqueous-processible Photoresist**
J-C. Choi[1], K. Song[1], M. Kim[1], H-R. Jung[1], and J. Doh[1]
[1]POSTECH, Pohang, Gyeongbuk, Korea, Republic of

PS-7A-10-181 **High-Throughput Screening Platform for the Simultaneous Chemical Stimulation and Optical Imaging of Dissociated Cells**
A. K. Au[1], W. C. Watt[1], D. R. Storm[1], and A. Folch[1]
[1]University of Washington, Seattle, WA

PS-7A-10-182 **Parallel Microfluidic Gradient Generator Array for Studying the Response of Individually Isolated Neurons to Biochemical Gradients**
N. Bhattacharjee[1], and A. Folch[1]
[1]University of Washington, Seattle, WA

PS-7A-10-183 **Development of a Physiologically Relevant *In Vitro* Model of the Blood-Brain Barrier**
J. D. Wang[1], N. Douville[1], S. Takayama[1], and M. E. El-Sayed[1]
[1]University of Michigan, Ann Arbor, MI

PS-7A-10-184 **Using an Organotypic Model for Simulating Axonal Strain during Traumatic Brain Injury Events**
J-P. Dolle[1], R. Schloss[1], and M. L. Yarmush[1]
[1]Rutgers University, Piscataway, NJ

PS-7A-10-185 **An Open-Surface Micro-Dispenser Valve for the Local Stimulation of Conventional Tissue Cultures**
C. G. Sip[1], and A. Folch[1]
[1]University of Washington, Seattle, WA

PS-7A-10-186 **A Microfluidic Device Using a Permeation-Based Pump for Bacterial Cell Entrapment, Alignment and Growth**
D. Kim[1], P. Cullen[2], P. Wiggins[2], and S. Fraden[1]
[1]Brandeis University, Waltham, MA, [2]MIT, Cambridge, MA

PS-7A-10-187 **A Mechanical Device for Long-Duration Immobilization and Microscopy of Cells and Small Organisms**
L. Jiang[1], J. B. Robertson[1], and C. Janetopoulos[1]
[1]Vanderbilt University, Nashville, TN

Track: Devices: Nano to Micro - **PS-7A-11** - ***Drug Delivery Technologies: Nano to Micro Devices***

PS-7A-11-188 **Biocompatibilty and Enhanced MRI Contrast Efficiency of Multistage Nanovector**
B. Godin[1], J. Ananta[2], R. Sethi[2], S. Ferrati[1], R. E. Serda[1], X. Liu[1], R. Krishnamurthy[3], R. Muthupillai[3], M. Ferrari[1,4], L. J. Wilson[2], and P. Decuzzi[1]
[1]The University of Texas Health Science Center- Houston, Houston, TX, [2]Rice University, Houston, TX, [3]St. Luke's Episcopal Hospital, Houston, TX, [4]MD Anderson Cancer Center, Houston, TX

PS-7A-11-189 **Colon Cancer Stem Cell Microarrays for Screening Signaling Pathway Inhibitors**
M. R. Carstens[1], A. Acharya[1], E. Huang[1], and B. G. Keselowsky[1]
[1]University of Florida, Gainesville, FL

PS-7A-11-190 **Stabilization of Trivalent Inactivated Polio Vaccine for Microneedle Vaccination**
W. C. Edens[1], N. Dybdahl-Sissoko[2], M. A. Pallansch[2], S. Oberste[2], and M. R. Prausnitz[1]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Centers for Disease Control and Prevention, Atlanta, GA

PS-7A-11-191 **Synthesis of Size-tunable Protein-gold Nanoparticle Aggregates**
A. Albanese[1], and W. C. Chan[1]
[1]University of Toronto, Toronto, Ontario, Canada

PS-7A-11-192 **Decreasing Biofilm Formation Through the Use of Magnetic Nanoparticles**
E. N. Taylor[1], and T. J. Webster[1]
[1]Brown University, Providence, RI

PS-7A-11-193 **Dual Growth Factor-Loaded PLGA Microparticles to Promote Angiogenesis in Dermal Sensor Environments**
J. R. Roberts[1], and M. McShane[1]
[1]Texas A&M University, College Station, TX

PS-7A-11-194 **Cavitational Forces in Cell Suspension: Application to Drug Delivery**
J. Lautz[1], G. Sankin[1], F. Yuan[1], and P. Zhong[1]
[1]Duke University, Durham, NC

PS-7A-11-195 **High Transition Temperature Hyperbranched and Dendritic pNIPAAm Synthesis for Targeted Drug Delivery**
K. Chang[1], L. A. Bergman[1], and L. J. Taite[1]
[1]Georgia Institute of Technology, Atlanta, GA

PS-7A-11-196 **Daily Liquid Antiretroviral Pouch for PMTCT in Resource-Constrained Settings**
C. Gamache[1], and R. Malkin[1]
[1]Duke University, Durham, NC

PS-7A-11-197 **Characterization of Nanoimprinted Shape-specific, Disease-responsive Drug Carriers**
M. E. Caldorera-Moore[1], M. Kang[1], V. Singh[1], Z. Moore[1], R. Agarwal[1], P. Jurney[1], R. Huang[1], S. Sreenivasan[1], L. Shi[1], and K. Roy[1]
[1]University of Texas at Austin, Austin, TX

PS-7A-11-198 **Thermally-responsive Polymer-nanoshells Composites for Controlled Drug Delivery**
L. Strong[1], S. Sershen[1], and J. West[1]
[1]Rice University, Houston, TX

PS-7A-11-199 **Polyvinyl Alcohol-coated Nanoparticles are Extensively Trapped in Fresh Human Mucus *Ex Vivo***
M. Yang[1], S. K. Lai[1], Y-Y. Wang[1], C. Happe[1], C. So[1], M. Zhang[1], and J. S. Hanes[1]
[1]The Johns Hopkins University, Baltimore, MD

PS-7A-11-200 **A Study of Drug Release from Homogeneous PLGA Microstructures**
K. S. Hansen[1]
[1]Purdue University, West Lafayette, IN

PS-7A-11-201 **Bioegradable Nanoparticles Decorated with Folate as a Targeted Anticancer Therapeutic**
A. J. Ditto[1], N. K. Robbishaw[1], M. J. Panzner[1], W. J. Youngs[1], and Y. H. Yun[1]
[1]University of Akron, Akron, OH

PS-7A-11-202 **Novel Photovoltaic Device-Based Drug Delivery System for Targeted Cancer Chemotherapy**
S. Ambure[1], D. Terreros[2], and T. Xu[1,2]
[1]University of Texas at El Paso, El Paso, TX, [2]Texas Tech University Health Sciences Center, El Paso, TX

PS-7A-11-203 **Kinetic Swelling Responses of Iron Oxide/Hydrogel Nanocomposites**
B. V. Slaughter[1]
[1]The University of Texas at Austin, Austin, TX

PS-7A-11-204 **Fabrication of PEGylated Double-Walled Nanospheres By Solvent Evaporation**
D. Y. Cho[1], L. D. Patel[1], and E. Mathiowitz[1]
[1]Brown University, Providence, RI

PS-7A-11-205 **Size Effects of Polymer-nanoparticles Systems in Magnetic Hyperthermia**
O. T. Mefford[1], S. L. Saville[1], B. Qi[1], and R. Wadhwa[1]
[1]Clemson University, Clemson, SC

Track: Neural Engineering - **PS-7A-12** - ***Brain-Computer Interfaces***

PS-7A-12-206 **Desflurane Anesthesia Reduces Extracellular Spike Transmission Probabilities in Rat Visual Cortex**
J. A. Vizuete[1], S. Pillay[2], B. J. McCallum[2], K. M. Ropella[1], and A. G. Hudetz[2]
[1]Marquette University, Milwaukee, WI, [2]Medical College of Wisconsin, Milwaukee, WI

PS-7A-12-207 **An Implantable Intracortical Neural Recording Microsystem with All-Optical Means for Both Transcutaneous Telemetry and Power Delivery**
S. Park[1], Y-K. Song[2], D. A. Borton[1], W. R. Patterson[1], M. Yin[1], J. Aceros[1], and A. V. Nurmikko[1]
[1]Brown University, Providence, RI, [2]Seoul National University, Suwon-si, Gyeonggi-do, Korea, Republic of

PS-7A-12-208 **An Integrated Low-power and Low-noise Preamplifier for a High-density Neural Recording Interface**
J. Kim[1], and H. C. Kim[1]
[1]UC Santa Cruz, Santa Cruz, CA

PS-7A-12-209 **Evaluation of a Neural Spike Sorting Package Implemented in MATLAB**
N. B. Langhals[1], K. A. Ludwig[1], and D. R. Kipke[1]
[1]University of Michigan, Ann Arbor, MI

PS-7A-12-210 **Development of a Custom Artificial Intelligence Model for Functional Upper Extremity Neuroprosthetic Control**
D. E. Nathan[1], and D. C. Jeutter[1]
[1]Marquette University, Milwaukee, WI

Track: Neural Engineering - **PS-7A-13** - ***Circuit Models of The Nervous System: Chips that Learn***

PS-7A-13-211 **Validation of Granger Causality using Unidirectional Neuronal Networks**
S. Alagapan[1], L. Pan[1], B. Wheeler[1], and T. Demarse[1]
[1]University of Florida, Gainesville, FL

PS-7A-14-212 **Real Time Detection of Malignant Breast Mammary Epithelial Cells Using Ultrasonic Spectral Analysis**
T. E. Doyle[1], H. Patel[1], J. B. Goodrich[1], S. Kwon[1], and B. J. Ambrose[1]
[1]Utah State University, Logan, UT

PS-7A-14-213 **The Effect of a Three Dimensional Environment on Stress Protein Expression and Thermal Cell Death Kinetics *In Vitro***
A. S. Song[1], and K. R. Diller[1]
[1]The University of Texas at Austin, Austin, TX

PS-7A-14-214 ***In Vitro* Models for High-throughput Molecular Analysis of Stromal-epithelial Interactions in Cancer**
S. Holton[1], M. Walsh[1], and R. Bhargava[1]
[1]University of Illinois, Urbana, IL

PS-7A-14-215 **Directing the Angiogenic Shift in Cancer Cells *In Vitro* using a Tissue Engineering Approach**
C. S. Szot[1], C. F. Buchanan[1], M. N. Rylander[1], and J. W. Freeman[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

PS-7A-14-216 **Gold Nanoparticles With Chitosan Coatings for Laser Ablation of Hepatocellular Carcinoma Cells**
G. Zhang[1], and A. M. Gobin[1]
[1]University of Louisville, Louisville, KY

PS-7A-14-217 **Regulation of Growth Factor-Dependent Tumor Cell Proliferation by Extracellular Matrix Mechanics**
T. A. Ulrich[1,2], V. Umesh[1], and S. Kumar[1,2]
[1]University of California, Berkeley, Berkeley, CA, [2]UCSF/UC Berkeley Joint Graduate Group in Bioengineering, Berkeley, CA

PS-7A-14-218 **Comparative Evaluation of Transitional Cell Carcinoma Treatments**
X. Zhang[1], and W. T. Godbey[1]
[1]Tulane University, New Orleans, LA

PS-7A-14-219 **Evaluation of CTC Transfection with Ab-Conjugated Nanoliposomes under Microvascular Flow Conditions**
R. Harouaka[1], C-Y. Chung[2], G. Robertson[2,3], and S. Zheng[1,2]
[1]The Pennsylvania State University, University Park, PA, [2]The Pennsylvania State University Cancer Institute, Hershey, PA, [3]The Pennsylvania State University College of Medicine, Hershey, PA

PS-7A-14-220 **Role of ß-catenin Gene Expression in Colon Cancer Cell Adhesion and Growth**
S. Agastin[1], and M. King[1]
[1]Cornell University, Ithaca, NY

PS-7A-14-221 **Nitric Oxide Synthases Regulate Mouse Collecting Lymphatic Vessel Contraction**
S. Liao[1], G. Cheng[1], L. L. Munn[1], D. Fukumura[1], R. K. Jain[1], and T. P. Padera[1]
[1]Massachusetts General Hospital, Boston, MA

PS-7A-14-222 **The Thermal Dose Concept and Quantitative Predictions of Thermal Damage**
J. A. Pearce[1]
[1]The University of Texas at Austin, Austin, TX

PS-7A-14-223 **Protease-Activated Quantum Dot Probes to Assess Invasiveness of Cancer Cells**
N. J. Rohani[1], H. Zhu[1], R. A. Drezek[1], V. L. Colvin[1], and J. L. West[1]
[1]Rice University, Houston, TX

PS-7A-14-224 **Naturally Derived Ivy Nanoparticles as an Alternative to Metal-based Nanoparticles for UV Protection in Cancer Prevention**
L. Xia[1], S. Lenaghan[1], M. Zhang[1], Z. Zhang[1], and Q. Li[1]
[1]University of Tennessee, Knoxville, TN

PS-7A-14-225 **Divergent Roles for CD44 and Carcinoembryonic Antigen in Colon Carcinoma Metastasis**
M. Dallas[1], G. Liu[2], S. Thomas[3], D. Huso[2], and K. Konstantopoulos[1]
[1]Johns Hopkins University, Baltimore, MD, [2]Johns Hopkins Medical Institutions, Baltimore, MD, [3]École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

PS-7A-14-226 **Poly(ethylene glycol) Based Hydrogels for Isolation of Metastatic Cues in a Cancer Metastasis Model**
J. E. Saik[1], B. J. Gill[2,3], D. L. Gibbons[4], J. M. Kurie[4], and J. L. West[2]
[1]Rice University, Houston, TX, [2]Rice University, Houston, TX, [3]Baylor College of Medicine, Houston, TX, [4]MD Anderson Cancer Center, Houston, TX

PS-7A-14-227 **Engineering 3D Microscale Niches for Studies of Oxygen-Dependent Tumor Angiogenesis**
S. S. Verbridge[1], N. Choi[1], Y. Zheng[1], D. Brooks[1], R. Williams[1], A. Stroock[1], and C. Fischbach[1]
[1]Cornell University, Ithaca, NY

PS-7A-14-228 **Treatment Planning of Irreversible Electroporation for Intracranial Disorders**
P. A. Garcia[1], J. H. Rossmeisl, Jr.[2], and R. V. Davalos[1]
[1]Virginia Tech - Wake Forest, Blacksburg, VA, [2]Virginia Tech, Blacksburg, VA

PS-7A-14-229 **Engineering Non-immunogenic Second Generation L-Asparaginase for Acute Lymphoblastic Leukemia Therapy**
J. Cantor[1], T. Yoo[1], E. Stone[1], and G. Georgiou[1]
[1]University of Texas at Austin, Austin, TX

PS-7A-14-230 **Using an Adaptive-predictive Model of Colorectal Cancer Development to Design Patient–specific Colonoscopy Follow-up Intervals**
E. A. Sherer[1], S. Ambedkar[2], S. Perng[2], Y. Yih[2], and T. F. Imperiale[1,3]
[1]Roudebush VAMC, Indianapolis, IN, [2]Purdue University, West Lafayette, IN, [3]Indiana University School of Medicine, Indianapolis, IN

PS-7A-14-231 **Physical and Thermal Properties of Functionalized Fe-Pt Magnetic Nanoparticles Used for Intracellular Cancer Treatment**
A. T. Shank[1], G. Kozlowski[1], I. E. Pavel[1], D. P. Wooley[1], A. O. Sheets[1], K. Weaver[1], and A. M. Berenguer[2]
[1]Wright State University, Dayton, OH, [2]University of Alicante, Alicante, Alicante, Spain

Track: Orthopedic and Rehabilitation Engineering - **PS-7A-15** - ***Musculoskeletal Cell Mechanotransduction***

PS-7A-15-232 ***In Vitro* Study of Confined and Unconfined Compression on Nucleus Pulposus Cells**
P. Wang[1,2], L. Yang[2], and A. H. Hsieh[1,3]
[1]University of Maryland, College Park, MD, [2]Chongqing University, Chongqing, Chongqing, China, People's Republic of, [3]University of Maryland, Baltimore, MD

Track: Orthopedic & Rehabilitation Engineering - **PS-7A-16** - ***Orthopaedic Applications of Noninvasive Assessment and Imaging***

PS-7A-16-233 **Method for Noninvasive Assessment of Joint Motion over Long Durations**
M. Qadri[1], E. Bernstein[1], and D. Peterson[1]
[1]University of Connecticut Health Center, Farmington, CT

PS-7A-16-234 **Intra-articular Delivery of an Interleukin-1 Antagonist Partly Reverses Altered Effects of Rat Knee Instability**
K. D. Allen[1], S. B. Adams[1], B. A. Mata[1], M. Gabr[1], P. Y. Hwang[1], and L. A. Setton[1]
[1]Duke University, Durham, NC

PS-7A-16-235 **Cortical and Compact Bone Models From Clinical CT: Methods for Cortical Thickness Reconstruction**
D. P. Moreno[1,2], D. L. Crouch[1,2], F. S. Gayzik[1,2], and J. D. Stitzel[1,2]
[1]Wake Forest University School of Medicine, Winston-Salem, NC, [2]Virginia Tech - Wake Forest University Center for Injury Biomechanics, Winston-Salem, NC

PS-7A-16-236 **The Influence of Tortuosity in Bone Ultrasonic Wave Propagation**
M. F. Souzanchi[1], L. Cardoso[1], and S. C. Cowin[1]
[1]City College of The City University of New York, New York, NY

Track: Respiratory Engineering - **PS-7A-17** - ***Acute Lung Injury from Cell to System***

PS-7A-17-237 **Protective Effects of Surfacant During Pulsatile Flow in a Biomimetic Airway**
H. W. Glindmeyer IV[1], and D. P. Gaver III[1]
[1]Tulane University, New Orleans, LA

PS-7A-17-238 **Inhibitory Effects of Albumin on Dynamic Surface Tension Characteristics of Pulmonary Surfactant**
B. D. Fowler[1], E. Yamaguchi[1], and D. P. Gaver[1]
[1]Tulane University, New Orleans, LA

PS-7A-17-239 **Alveolar Inflation Mechanics Following Elastase Degradation**
C. E. Perlman[1]
[1]Stevens Institute of Technology, Hoboken, NJ

PS-7A-17-240 **Quantitative Histology of Contused Lung Tissue with Comparison to Computed Tomography**
F. S. Gayzik[1,2], J. J. Hoth[1], and J. D. Stitzel[1,2]
[1]Wake Forest University School of Medicine, Winston-Salem, NC, [2]Virginia Tech - Wake Forest Center for Injury Biomechanics, Winston-Salem, NC

PS-7A-17-241 **Two Distinct Mechanisms of Polymer-enhanced Lung Surfactant Adsorption for ARDS**
I. C. Shieh[1], and J. A. Zasadzinski[1]
[1]University of California, Santa Barbara, CA

PS-7A-17-242 **The Correlation between Rib Fractures and Pulmonary Contusions**
B. Fry[1], E. S. Kim[2], W. Fry[1], and H. C. Gabler[2]
[1]Carilion Clinic, Roanoke, VA, [2]Virginia Tech, Blacksburg, VA

Track: Respiratory Engineering - **PS-7A-18** - ***Microfluidics and Tissue Engineering Constructs for the Lung***

PS-7A-18-243 **Micro-flow Visualization to Evaluate Effects of Lung Surfactant Surrounding a Semi-infinite Bubble**
E. Yamaguchi[1], B. J. Smith[1], B. D. Fowler[1], and D. P. Gaver[1]
[1]Tulane University, New Orleans, LA

PS-7A-18-244 **Design of a Device for Mechanical Stimulation of Tissue-Engineered Constructs**
J. Imsirovic[1], K. Vo[1], K. Derricks[2], C. Rich[2], M. Nugent[1,2], and B. Suki[1]
[1]Boston University, Boston, MA, [2]Boston University School of Medicine, Boston, MA

Track: Systems Biology, Bioinformatics and Computational Biology - **PS-7A-19** - ***Molecular and Cellular Design and Evolution***

PS-7A-19-245 **Computational Analysis of Lignin Biosynthesis in Transgenic Alfalfa: From Steady-State to Dynamics**
Y. Lee[1], and E. O. Voit[1]
[1]Georgia Institute of Technology, Atlanta, GA

PS-7A-19-246 ***In Vitro* Evolution of Streptavidin in the Presence of an Unnatural Amino Acid**
A. Singh[1]
[1]University of Texas at Austin, Austin, TX

Track: Systems Biology, Bioinformatics and Computational Biology - **PS-7A-20** - ***Systems Neuroscience***

PS-7A-20-247 **Implementation of an EMG-Based Measure of Rigidity in a PD Symptom Quantification System**
S. Askari[1], and D. Won[1]
[1]California State University Los Angeles, Los Angeles, CA

PS-7A-20-248 **Modeling *In Vivo* Metabolic Responses of Skeletal Muscle Fibers to Exercise**
Y. Li[1], N. Lai[1], J. Kirwan[2], and S. Gerald[1]
[1]Case Western Reserve University, Cleveland, OH, [2]Cleveland Clinic, Cleveland, OH

PS-7A-20-249 **Epileptic Seizure Detection System for Neural Implantable Device**
H. C. Kim[1], and J. S. Kim[1]
[1]University of California Santa Cruz, Santa Cruz, CA

PS-7A-20-250 **A Synaptic Model of Dopamine Dynamics in Parkinson's Disease, Schizophrenia, and Addiction**
Z. Qi[1,2], G. W. Miller[2], and E. O. Voit[1,2]
[1]GIT, Atlanta, GA, [2]Emory, Atlanta, GA

PS-7A-20-251 **Ankle Stiffness Control During Quiet Standing versus Active Sensory Feedback Control with Delay**
A. Mahboobin[1], M. Cenciarini[1], M. Redfern[1], and P. Loughlin[1]
[1]University of Pittsburgh, Pittsburgh, PA

PS-7A-20-252 **Computational Study of RF Effect of Mobile Phones and Its Biological Effect on Brain Cancer**
S. Gogineni[1], A. Nordquist[1], and Y. Feng[1]
[1]University of Texas at San Antonio, San Antonio, TX

PS-7A-20-253 **The Role of Cholesterol in Alzheimer's disease Pathogenesis: Preliminary Report**
C. Kyrtsos[1], and J. S. Baras[1]
[1]University of Maryland, College Park, MD

PS-7A-20-254 **Effects of a HIFU-Simulated Blast Pulse Train on a Simple Neural Model**
R. Abdul Wahab[1,2], M. Choi[2], V. Zderic[2], and M. R. Myers[3]
[1]US FDA, Silver Spring, MD, [2]George Washington University, Washington, DC, [3]US FDA, Silver Spring, MD

Track: Tissue Engineering - **PS-7A-21** - ***Cell Delivery and Cell-Based Therapeutics***

PS-7A-21-255 **Pathogen Mimetics to Better Understand the Kinetics of Phagocytosis in Non-phagocytic Cell Types**
C. Blanchette[1], P. Pacheco[2], Y. Woo[3], N. Shen[1], A. Hiddessen[1], and T. Sulchek[2]
[1]Lawrence Livermore National Lab, Livermore, CA, [2]Georgia Tech, Atlanta, GA, [3]Lawrence Berkeley National Lab, Berkeley, CA

PS-7A-21-256 **Ultra-Rapid Purification of Type I Collagen for Bioengineering Applications**
C. A. Pacak[1], J. M. Powers[1], and D. B. Cowan[1]
[1]Children's Hospital Boston and Harvard Medical School, Boston, MA

PS-7A-21-257 **Detecting Hypoxia in Encapsulated Cells: Characterization of a Fluorescent Hypoxia Detection System**
M. L. Skiles[1], J. Blanchette[1], R. Fancy[1], and N. Wilder[1]
[1]University of South Carolina, Columbia, SC

PS-7A-21-258 **Differentiation of Mouse Embryonic Stem Cells into Neuron-like or Schwann Cell-like Cells for Functional Repair of the Inner Ear**
P. Ramamurthy[1], T. Roth[1], F. Ebisu[1], and K. Barald[1]
[1]University of Michigan, Ann Arbor, MI

PS-7A-21-259 **13C NMR and Isotopomeric Analysis for Metabolic Studies of Cryopreserved Pancreatic Substitutes**
H. Ahmad[1,2], A. Lawson[1,2], N. Simpson[3], and A. Sambanis[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Georgia Tech/Emory Center for the Engineering of Living Tissues, Atlanta, GA, [3]University of Florida, Gainesville, FL

PS-7A-21-260 **The Use of Perfluorocarbons to Noninvasively Monitor the Microenvironment of Engineered Tissues**
F. Goh[1,2], R. Long[2,3], N. Simpson[4], and A. Sambanis[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Georgia Tech-Emory Center for the Engineering of Living Tissues, Atlanta, GA, [3]Emory University School of Medicine, Atlanta, GA, [4]University of Florida, Gainesville, FL

PS-7A-21-261 **Effect of Endothelial Cell and Osteoblast Co-culture Ratios on Angiogenesis and Mineralization**
A. R. Shah[1,2], J. C. Wenke[2], and C. M. Agrawal[1]
[1]University of Texas at San Antonio, San Antonio, TX, [2]US Army Institute of Surgical Research, San Antonio, TX

PS-7A-21-262 **Selective Cytotoxicity of Natural Killer Cell Line, KHYG-1 against Clonogenic Multiple Myeloma Cells**
B. E. Swift[1,2], and A. Keating[1,2]
[1]University of Toronto, Toronto, Ontario, Canada, [2]University Health Network, Toronto, Ontario, Canada

PS-7A-21-263 **Restoration of Skeletal Muscle Defects Using Dedifferentiated Fibroblasts and Fibrin Microthreads**
C. Malcuit[1,2], G. Pins[1], T. Dominko[1], and R. Page[1,2]
[1]Worcester Polytechnic Institute, Worcester, MA, [2]Cellthera, Inc, Southbridge, MA

PS-7A-21-264 **Derivation of Cardiac Progenitors from Induced Pluripotent Stem Cells for Cardiac tissue engineering**
S. Chakraborty[1], N. Christoforou[1], and K. Leong[1]
[1]Duke University, Durham, NC

Track: Tissue Engineering - **PS-7A-22** - ***Engineered Models of Tissue Disease***

PS-7A-22-265 **Tissue Engineering a Three-Dimensional Model of Osteoporosis with PTH and GIP**
R. S. Hayden[1], and D. L. Kaplan[1]
[1]Tufts University, Medford, MA

PS-7A-22-266 **FE Modeling of MRE**
M. Haghpanahi[1]
[1]Iran University of Science and Technology, Tehran, Tehran, Iran

PS-7A-22-267 **Modifications in the Pericellular Matrix Assembly of Chondrocytes Deficient in Collagen Type VI**
M. Baron[1], K. D. Allen[1], P. Bonaldo[2], F. Guilak[1], and L. A. Setton[1]
[1]Duke University, Durham, NC, [2]Universita degli Studi di Padova, Padova, Padova, Italy

PS-7A-22-268 **Investigating Glioblastoma Behavior in 3D Culture Using Hydrogel Biomaterials**
S. S. Rao[1], S. Bentil[1], J. DeJesus[1], J. Larison[1], R. Dupaix[1], A. Sarkar[1], and J. O. Winter[1]
[1]The Ohio State University, Columbus, OH

PS-7A-22-269 **Modeling of Brain White Matter under Blast Loading**
A. Sundaramurthy[1], and N. Chandra[1]
[1]University of Nebraska Lincoln, Lincoln, NE

PS-7A-22-270 **A Numerical and Experimental Study of Magnetic Fluid Hyperthermia Near a Blood Vessel with Pulsed Application of AC Magnetic Field**
M. Haghpanahi[1]
[1]Iran University of Science and Technology, Tehran, Tehran, Iran

PS-7A-22-271 **Varying Assay Geometry to Emulate Connective Tissue Planes in an *In Vitro* Model of Acupuncture**
D. I. Shreiber[1], M. Julias[1], and H. M. Buettner[1]
[1]Rutgers, the State University of New Jersey, Piscataway, NJ

PS-7A-22-272 **Evaluation Of Retinal Blood Flow And Vascular Structure In Early Stages Of Diabetic Retinopathy**
S. Benac[1], A. Appel[1], M. Guthrie[1], and J. J. Kang-Mieler[1]
[1]Illinois Institute of Technology, Chicago, IL

PS-7A-22-273 **Reverse of Myosin isoform conversion by insulin therapy in engineered heart tissue.**
H. Song[1], P. Zandstra[1], and M. Radisic[1]
[1]University of Toronto, Toronto, ON, Canada

PS-7A-22-274 **Apoptosis Resistance of Multicellular Spheroids in Three-Dimensional Polymeric Scaffolds**
J. W. Kim[1], W. J. Ho[1], and B. Wu[1]
[1]University of California Los Angeles, Los Angeles, CA

PS-7A-22-275 **Towards an *Ex Vivo* Model of Lesion Formation in Endometriosis**
N. Doyle[1,2], M. T. Beste[1,2], B. A. Joughin[1,3], D. A. Lauffenburger[1,2], K. B. Isaacson[2,4], and L. G. Griffith[1,2]
[1]Department for Biological Engineering, MA Institute of Technology, Cambridge, MA, [2]Center for Gynepathology Research, Massachusetts Institute of Technology, Cambridge, MA, [3]David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, Cambridge, MA, [4]Minimally Invasive Gynecologic Surgery Center, Newton-Wellesley Hospital, Newton, MA

Track: Tissue Engineering - **PS-7A-23** - ***Skin and Adipose Tissue Engineering***

PS-7A-23-276 **Effects of the Cellular Microenvironment on Adipocyte Metabolism**
N. Lai[1], and K. Lee[1]
[1]Tufts University, Medford, MA

PS-7A-23-277 **Effect of Dynamic Culture on 3D Co-Culture of Adipose Derived Stem Cells and Endothelial Cells on Silk Scaffolds for Sustained Soft Tissue Regeneration**
E. Bellas[1], B. Panilailitis[1], K. Marra[2], J. Rubin[2], J. J. Yoo[3], and D. L. Kaplan[1]
[1]Tufts University, Medford, MA, [2]University Of Pittsburgh, Pittsburgh, PA, [3]WFIRM, Winston-Salem, NC

PS-7A-23-278 **Determination of Diffusion Coefficients in Calcium Alginate Phantoms**
Z. Montgomery[1], R. Hood[1], and C. Rylander[1]
[1]Virginia Tech, Blacksburg, VA

PS-7A-23-279 **Development of a Vascularized Dermal Equivalent using Adipose Derived Stem Cells**
S. Natesan[1], G. Zhang[2], T. J. Walters[1], L. J. Suggs[3], and R. J. Christy[1]
[1]USAISR, Fort Sam Houston, TX, [2]University of Akron, Akron, OH, [3]University of Texas at Austin, Austin, TX

PS-7A-23-280 **Epidermal Differentiation Governs Engineered Skin Biomechanics**
G. C. Ebersole[1], P. M. Anderson[1], and H. M. Powell[1]
[1]Ohio State University, Columbus, OH

Track: Tissue Engineering - **PS-7A-24** - ***Tissue Engineered Models for Drug Discovery***

PS-7A-24-281 **A Tissue Scale, *In Vitro*, Combination Contractility and Electrophysiological Assay**
A. Grosberg[1,2], M. D. Brigham[1,2], and K. K. Parker[1,2]
[1]Disease Biophysics Group, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, MA

PS-7A-24-282 **Use of a Thermoresponsive Polymer to Fabricate Uniform Tumor Models**
J. A. Reed[1], J. P. Freyer[1], and H. E. Canavan[1]
[1]University of New Mexico, Albuquerque, NM

PS-7A-24-283 **3D *In Vitro* Liver Tissue Model System: HEPG2 Liver cells in 3D Alginate Hydrogels**
S-F. Lan[1], and B. Starly[2]
[1]University of Oklahoma, Norman, OK, [2]University of Oklahoma, Norman, OK

Track: Translational Biomedical Engineering - **PS-7A-25** - ***Islet generation/Transplantation: A Translational Perspective***

PS-7A-25-284 **Promoting Islet Engraftment using Locally Released S1P Pharmacological Modulators**
D. T. Bowers[1], S. Tanner[1], P. Chhabra[2], K. L. Brayman[2], and E. A. Botchwey[1]
[1]University of Virginia, Charlottesville, VA, [2]University of Virgina, Charlottesville, VA

PS-7A-25-285 **Evaluation of Macroporous Silicone Scaffolds for Islet Transplantation within an Alternative Site**
E. Pedraza[1], A-C. Brady[1], A. Pileggi[1], and C. L. Stabler[1]
[1]University of Miami, Miami, FL

PS-7A-25-286 **A Red Blood Cell Aggregometer using an Air-Pressure Driven Disaggregation Method**
J. Park[1], Y. Kang[1], M. Kim[1], and S. Yang[1]
[1]GIST, Gwangju, Jeonla, Korea, Republic of

PS-7A-25-287 **Improvement of Hematocrit Measurement Accuracy in a Microfluidic Impedance System**
M. Son[1], M. Kim[1], and S. Yang[1]
[1]GIST, Gwangju, Jeonnam, Korea, Republic of

PS-7A-25-288 **Synergistic Interaction between Stress Waves and Cavitation in Stone Comminution during Shock Wave Lithotripsy**
J. Lautz[1], S. Reiss[1], G. Sankin[1], W. N. Simmons[1], and P. Zhong[1]
[1]Duke University, Durham, NC

POSTER SESSION - 7B - 1:30PM - 5:00PM - Exhibit Hall 4

Track: Biomedical Engineering Education - **PS-7B-1** - ***Teaching Tools and Strategies***

PS-7B-1-1 **MU Biodesign & Innovation Program**
M. Jahnsen[1], P. Dale[1], and G. Scheller[1]
[1]University of Missouri, Columbia, MO

PS-7B-1-2 **Can Engineers Be Taught To Be Creative?**
J. Tranquillo[1]
[1]Bucknell University, Lewisburg, PA

PS-7B-1-3 **Fellowships in Research and Science Teaching (FIRST): A Unique Comprehensive Postdoctoral Experience**
S. E. Stabenfeldt[1], A. Eisen[2], and D. C. Eaton[2]
[1]Georgia Institute of Technology / Emory University, Atlanta, GA, [2]Emory University, Atlanta, GA

Track: Biomedical Imaging and Optics - **PS-7B-2** - ***Teaching Tools and Strategies***

PS-7B-2-4 **Multiple Materials Density Callibration of Subject-specific Jaw and Vertebrae Bones for Mechanical Behavior Prediction by FEM Modelling**
J. A. Ramos[1], A. Vargas[1], F. Alister[1], F. Sahli[1], and M. Campos[1]
[1]Pontificia Universidad Catolica de Chile, Santiago, RM, Chile

Track: Cardiovascular Engineering - **PS-7B-3** - ***In Vitro and Multi-scale Models of Cardiovascular Disease***

PS-7B-3-5 **Cyclic Stretch Induces Endothelial to Mesenchymal Transdifferentiation in Mitral Valve Endothelial Cells**
K. Balachandran[1,2], J. Wylie-Sears[3], J. Bischoff[3,4], E. Aikawa[4,5], R. A. Levine[4,6], and K. K. Parker[1,2]
[1]Disease Biophysics Group, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, MA, [3]Children's Hospital Boston, Boston, MA, [4]Harvard Medical School, Boston, MA, [5]Brigham and Women's Hospital, Boston, MA, [6]Massachusetts General Hospital, Boston, MA

PS-7B-3-6 **High Contrast MicroCT Imaging of Coronary Arteries with Vulnerable Plaque for Biomechanical Modeling**
A. A. Kelly[1], N. Maldonado[1], S. Chakraborti[1], Y. Vengrenyuk[2], L. Cardoso[1], and S. Weinbaum[1]
[1]City College of New York, New York, NY, [2]New York University, New York, NY

PS-7B-3-7 **Postprandial Triglyceride-Rich Lipoproteins Differentially Modulate Vascular Endothelial Cell Inflammatory Responses**
Y. I. Wang[1], J. Schulze[1], S. I. Simon[1], and A. G. Passerini[1]
[1]University of California, Davis, Davis, CA

Track: Cardiovascular Engineering - **PS-7B-4** - ***Microvasculature, Angiogenesis, and Capillary Patches***

PS-7B-4-8 **Highly Permeable Silicon Nanomembranes Promote Endothelial Vacuolization and Tube Formation**
B. J. Nehilla[1], N. Petukhov[2], and J. L. McGrath[1]
[1]University of Rochester, Rochester, NY, [2]Webster High School, Webster, NY

PS-7B-4-9 **Image-based Quantification of Vascular Network Development Within a Perfusion Circuit**
J. A. Rytlewski[1], L. Geuss[1], and L. J. Suggs[1]
[1]UT Austin, Austin, TX

PS-7B-4-10 **Fibronectin Polymerization and Actin Polarization Drive Vasculogenesis**
J. P. Califano[1], and C. A. Reinhart-King[1]
[1]Cornell University, Ithaca, NY

PS-7B-4-11 **Modeling the Angiogenic Response of the Neurovasculature in Ischemia**
R. Rekhi[1], A. Arevalos[1], J. Jung[1], B. Long[1], and A. A. Qutub[1]
[1]Rice University, Houston, TX

PS-7B-4-12 **Fibril Alignment Improves Microvasculature Formation by Human Blood Outgrowth Endothelial Cells in Fibrin Gel**
K. T. Morin[1], and R. T. Tranquillo[1]
[1]University of Minnesota, Minneapolis, MN

PS-7B-4-13 **Impact of Extracellular Matrix Stiffness on Angiogenic Patterning**
P-F. Lee[1], K. J. Bayless[1], and A. T. Yeh[1]
[1]Texas A&M University, College Station, TX

PS-7B-4-14 **Tissue Stiffness and Microvascularized Tissue Development**
A-C. LIN[1], and C. Miller[1]
[1]Saint Louis University, St Louis, MO

PS-7B-4-15 **Gradient Deposition of Growth Factors Via Electrospinning for Precise Spatiotemporal Angiogenic Therapies**
R. B. Montero[1], and F. M. Andreopoulos[1]
[1]University of Miami, Coral Gables, FL

PS-7B-4-16 **Modulation of NO Bioavailability by Red Blood Cells in Microcirculation**
P. Deonikar[1], and M. Kavdia[1]
[1]University of Arkansas, Fayetteville, AR

PS-7B-4-17 **Shear Stress Controls Capillary Sprouting in a Microfluidic Device**
J. W. Song[1], and L. L. Munn[1]
[1]Massachusetts General Hospital/Harvard Medical School, Charlestown, MA

PS-7B-4-18 **Bio-CAD for Tissue Scaffolding for Transplant Therapy of Congenital Hypoplasia of the Left Ventricle**
W. L. Mondy[1], J. G. Jacot[2,3], and C. Casteleyn[4]
[1]Baylor College of Medicine, Houston, TX, [2]Rice University, Houston, TX, [3]Texas Children's Hospital, Houston, TX, [4]Ghent University, Ghent, East Flanders, Belgium

PS-7B-4-19 **Diabetes-associated Endothelial Deficiency is Improved by Pro-angiogenic Microenvironment**
K. Nolan[1], H. Cho[1], A. Sheikh[1], S. Balaji[1], M. Blomer[1], and D. Narmoneva[1]
[1]University of Cincinnati, Cincinnati, OH

PS-7B-4-20 **Influence of Permeability on Shear Stress Distribution Along Capillary Sprouts**
W. Wang[1], P. C. Stapor[1], W. L. Murfee[1], and D. B. Khismatullin[1]
[1]Tulane University, New Orleans, LA

PS-7B-4-21 **Effect of Antiangiogenic Agents on Tumor Vasculature and Microenvironment in Orthotopic Tumor Models**
D. A. Lacorre[1], W. S. Kamoun[1], J. Y. Perentes[1], S. V. Kozin[1], E. di Tomaso[1], D. G. Duda[1], R. K. Jain[1], and L. L. Munn[1]
[1]Edwin L. Steele Laboratory, Massachusetts General Hospital, Boston, MA

PS-7B-4-22 **Novel Reducible L-Lysine Copolymers as a Nonviral Gene Carrier for Ischemic Heart Disease**
M. Ismail Nounou[1], S. Chung[1], K. Emmanouil[1], T. Pham[1], Z. Lu[1], B. McConnell[1], and M. Bikram[1]
[1]University of Houston, Houston, TX

PS-7B-4-23 **The Interplay of Cyclic Strain and Vascular Endothelial Growth Factor in rRgulating Angiogenesis**
J. Wilkins[1], A. Kubota[1], and Y-T. E. Shiu[1,2]
[1]Department of Bioengineering, University of Utah, Salt Lake City, UT, [2]Department of Medicine, University of Utah, Salt Lake City, UT

PS-7B-4-24 **A Mathematical Framework for Predicting Oxygen Transport and Vessel Remodeling in Tumors**
J. A. Tyrrell[1], W. S. Kamoun[2], and L. L. Munn[3]
[1]Thomson Reuters, New York, NY, [2]Massachusetts General Hospital, Boston, MA, [3]Harvard Medical School, Charlestown, MA

PS-7B-4-25 **A Bottom-Up Approach To Vascular Tissue Engineering**
S. Collins[1], and Y-J. Geng[1]
[1]UT Health Science Center-Houston, Houston, TX

Track: Cellular and Molecular Engineering - **PS-7B-5** - ***Cellular and Sub-cellular Imaging***

PS-7B-5-26 **CANCELED**

PS-7B-5-27 **Visualizing Calcium Signaling in Live Endothelial Cells Under Mechanical Vibration**
W. S. Nishitani[1], T. A. Saif[1], and Y. Wang[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

PS-7B-5-28 **Molecular Engineering and Live Cell Imaging**
Y. Wang[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL

PS-7B-5-29 **Deriving Volume-based Mass Profiles Using Confocal Microscopy and Time-lapse Dark Field Imaging**
L. Millet[1], K. Park[1], and R. Bashir[1]
[1]University of Illinois at Urbana Champaign, Urbana, IL

PS-7B-5-30 **Strategies to Modulate Calcium Signals and Induce Calcium Influx**
E. Pham[1], and K. Truong[1]
[1]University of Toronto, Toronto, Ontario, Canada

PS-7B-5-31 **Using X-ray Tomography to Get a Three-Dimensional Representation of Cell Growth in Scaffolds**
J. Carter[1], and C. Agrawal[1]
[1]University of Texas San Antonio, San Antonio, TX

PS-7B-5-32 **Quantitative Analysis of Glucocorticoid Receptor Sub-Cellular Movement in Sheared Endothelial Cells**
A. Nayebosadri[1], and J. Y. Ji[2]
[1]Purdue University, West Lafayette, IN, [2]Indiana University Purdue University Indianapolis, Indianapolis, IN

PS-7B-5-33 **Ligand Binding Effects on Lateral Diffusion of Host Cell Receptors at HIV-1 Virological Synapse**
R. Kalyana Sundaram[1], A. Bastian[1], G. Eng[2], K. McFadden[3], M. Contarino[3], I. M. Chaiken[3], and E. S. Papazoglou[1]
[1]Drexel University, Philadelphia, PA, [2]Duke University, Durham, NC, [3]Drexel University College of Medicine, Philadelphia, PA

PS-7B-5-34 **SIRT1 Inhibition Induces Oxidative Stress in Endothelial Cells**
D. T. Nguyen[1], and M. Kavdia[1]
[1]University of Arkansas, Fayetteville, AR

Track: Devices: Nano to Micro - **PS-7B-6** - ***Biosensors, Bio-Interfaces and Implantable Devices***

PS-7B-6-35 **Recharging Implanted Electronics With an Electric Field**
T. Jochum[1], Z. Abzug[1], and P. Wolf[1]
[1]Duke University, Durham, NC

PS-7B-6-36 **Imaging Analysis of Carbohydrate Microarray: ToF-SIMS, SPRi and Multivariate Analysis**
F. Cheng[1], K. Bolles[2], and D. M. Ratner[1]
[1]University of Washington, Seattle, WA, [2]Whitman College, Walla Walla, WA

PS-7B-6-37 **DNA Dehybridization Photolithography**
S. B. Rajewale[1], L. Huang[1], S-W. Tam-Chang[1], and N. G. Publicover[1]
[1]University of Nevada-Reno, Reno, NV

PS-7B-6-38 **Oxygen Sensitive Microwells**
E. Sinkala[1], and D. T. Eddington[1]
[1]University of Illinois at Chicago, Chicago, IL

PS-7B-6-39 **TNF Capture Dynamics within Hemoadsorption Beads Used to Treat Sepsis**
J. Kimmel[1,2], C. Lacko[3], R. Delude[1], and W. Federspiel[1,2]
[1]University of Pittsburgh, Pittsburgh, PA, [2]McGowan Institute for Regenerative Medicine, Pittsburgh, PA, [3]Carnegie Mellon University, Pittsburgh, PA

PS-7B-6-40 **Simulation of Label-free Biosensors With a Photonic Crystal Open Cavity**
S. Xiao[1], S. Hussain[1], R. Peterson[1], and J. Ye[1]
[1]UTSA, San Antonio, TX

PS-7B-6-41 **Photonic Crystal Biosensor Label-Free Imaging to Screen for Natural Products that are Cytotoxic to Pancreatic Cancer Cells**
S. George[1]
[1]University of Illinois at Urbana Champagin, Urbana, IL

PS-7B-6-42 **Label-Free Prehybridization Imaging of Printed DNA Microarrays for Spot Quality Analysis**
S. George[1]
[1]University of Illinois at Urbana Champagin, Urbana, IL

PS-7B-6-43 **Development of a Food Quality Monitor Based on Miniature Flexible pH Sensors**
W-D. Huang[1], S. Deb[1], Y. Seo[1], and J-C. Chiao[1]
[1]University of Texas at Arlington, Arlington, TX

PS-7B-6-44 **An Integrated Circuit for Wireless Load-Modulation Transponders**
Y-S. Seo[1], W-D. Huang[1], and J-C. Chiao[1]
[1]University of Texas at Arlington, Arlington, TX

PS-7B-6-45 **Novel Double Lumen Catheter for Delivery of Materials at the Tissue-implant Interface**
A. Peramo[1], and C. Marcelo[1]
[1]University of Michigan, Ann Arbor, MI

PS-7B-6-46 **Conducting Polymer Devices for Control of Cell Adhesion**
A. M. Wan[1], E. Ismailova[2], D. J. Brooks[1], C. K. Ober[1], D. Gourdon[1], C. Fischbach[1], and G. G. Malliaras[1,2]
[1]Cornell University, Ithaca, NY, [2]Ecole Nationale Supérieure des Mines de Saint-Etienne, Gardanne, France

PS-7B-6-47 **Single-Biomolecule Detection using Polymer-based Photonic Crystal Biosensors**
B. Hamza[1], Y. Liu[1], and J. Dawson[1]
[1]West Virginia University, Morgantown, WV

PS-7B-6-48 **Influence of Recognition Element Conformation and Conjugation Parameters on FET Protein Sensors**
T. R. Nicholson III[1,2], S. K. Gupta[1,2], P. Casal[1,2], X. Wen[1], H-H. Wu[1], W. Lu[1], L. Brillson[1], and S. C. Lee[1,2]
[1]The Ohio State University, Columbus, OH, [2]Dorothy Davis Heart and Lung Institute, Columbus, OH

PS-7B-6-49 **Detection of Picomolar Levels of Protein Analyte in Physiologic Buffer Using a Planar BioFET**
S. K. Gupta[1], X. Wen[1], P. Casal[1], M. Palacio[1], H. H. Wu[1], W. Lu[1], L. Brillson[1], B. Bhushan[1], and S. C. Lee[1]
[1]The Ohio State University, Columbus, OH

PS-7B-6-50 **Receptor Conjugation Strategies and FET Protein Sensor Performance**
P. Casal[1], S. K. Gupta[1], T. R. Nicholson III[1], X. R. Wen[1], M. L. Palacio[1], H. H. Wu[1], W. L. Lu[1], B. L. Bhushan[1], L. J. Brillson[1], and S. C. Lee[1]
[1]Ohio State University, Columbus, OH

PS-7B-6-51 **Tuning Adhesion Failure Strength For Tissue-Specific Applications**
N. Artzi[1,2], A. Zeiger[1], F. Boehning[3], A. B. Ramos[1,4], K. V. Vliet[1], and E. Edelman[1,2]
[1]MIT, Cambridge, MA, [2]Brigham and Women Hospital, Harvard Medical School, Boston, MA, [3]MIT, Concord, MA, [4]Institut Quiimic de Sarria, Barcelona, Spain, Spain

PS-7B-6-52 **Design of a tissue implantable lactate sensor for continuous *In Vivo* monitoring**
D. A. Baker[1]
[1]University of California, San Diego, La Jolla, CA

PS-7B-6-53 **Interferometric Imaging Biosensor for Single Pathogen Detection**
G. Daaboul[1]
[1]Boston University, Boston, MA

PS-7B-6-54 **A Novel Sensor for Continuous Glucose Monitoring**
J. V. Veetil[1], S. Jin[1], and K. Ye[1]
[1]University of Arkansas, Fayetteville, AR

PS-7B-6-55 **Encapsulation of a Con-A/Glycodendrimer Glucose Sensing Assay using Microporated Hydrogel Spheres**
B. M. Cummins[1], M. Pishko[1], E. Simanek[1], and G. Coté[1]
[1]Texas A&M University, College Station, TX

PS-7B-6-56 **Electrokinetic Sample Preparation for Electrochemical Assays: Towards Point-Of-Care Diagnosis of Urinary Tract Infections**
L. M. Sin[1], V. Gau[2], J. Liao[3], and P. Wong[1]
[1]University of Arizona, Tucson, AZ, [2]GeneFluidics Inc, Monterey Park, CA, [3]University of Stanford, Palo Alto, CA

PS-7B-6-57 **Effect of Protein-Affinity Ligands in Molecular Imprinting of Proteins in Thin Films of Hydrogel**
A. Avalos[1], and A. Nadarajah[1]
[1]University of Toledo, Toledo, OH

PS-7B-6-58 **Measuring Dynamic Properties of Round Window Membrane by Electromagnetic Force Stimulation**
D. Nakmali[1], X. Zhang[1], and R. Z. Gan[1]
[1]University of Oklahoma, Norman, OK

PS-7B-6-59 **Shape Memory Polymers with Silicon-Containing Segments**
D. Zhang[1], S. L. Prukop[1], M. L. Giese[1], and M. A. Grunlan[1]
[1]Texas A&M University, College Station, TX

PS-7B-6-60 **Impedimetric Characterization of Biomimetic Hydrogels Coated on Interdigitated Microsensor Electrode Arrays (IMEs)**
L. Yang[1], A. Guiseppi-Wilson[2], and A. Guiseppi-Elie[3]
[1]North Carolina Central University, Durham, NC, [2]ABTECH Scientific, Inc., Richmond, VA, [3]Clemson University, Clemson, SC

PS-7B-6-61 **Optical Biosensor based on Protein â€“ Nanoparticle Composite Biomaterials**
R. Majithia[1], J. A. Jamison[2], J. Patterson[2], S. E. Bondos[2], and K. E. Meissner[1]
[1]Texas A&M University, College Station, TX, [2]Texas A&M Health Science Center, College Station, TX

PS-7B-6-62 **Compact Interferometric Reflectance Imaging Biosensor**
A. Reddington[1], and R. Vedula[2]
[1]Boston University, Boston, MA, [2]Tuffs University, Boston, MA

PS-7B-6-63 **Multicolor Microcontact Printing of Proteins on Porous Silica for Patterned Immunoassay**
E. Ng[1], E. Blinka[1], K. Loeffler[1], Y. Hu[1], A. Gopal[1], K. Hoshino[1], X. Liu[2], M. Ferrari[2], and X. Zhang[1]
[1]University of Texas at Austin, Austin, TX, [2]University Health Science Center, Houston, TX

PS-7B-6-64 **A Phantom That Mimics Optical and Flow Properties of Liver for Developing a Perfusion Sensor**
T. J. King[1], T. J. Akl[1], R. Long[1], M. J. McShane[1], M. N. Ericson[2], M. Wilson[3,4], and G. L. Coté[1]
[1]Texas A&M University, College Station, TX, [2]Oak Ridge National Laboratory, Oak Ridge, TN, [3]University of Pittsburgh, Pittsburgh, PA, [4]VA Pittsburgh Healthcare System, Pittsburgh, PA

PS-7B-6-65 **Photonic Polymers for Chemical and Biological Sensing**
O. B. Ayyub[1], J. Sekowski[2], and P. Kofinas[1]
[1]University of Maryland, College Park, MD, [2]US Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD

PS-7B-6-66 **Effects of Nanoscale Topography and Charge on Endothelial Cell Spreading and Proliferation**
J. S. Silverstein[1], E. Paryavi[1], H. Aranda-Espinoza[1], B. J. Dair[2], and P. Kofinas[1]
[1]University of Maryland, College Park, MD, [2]Food and Drug Administration, Silver Spring, MD

PS-7B-6-67 **Miniature Biosensor for Detecting Hydrogen Peroxide Release from a Small Cell Population**
J. Yan[1], V. Perdosa[2], J. Enomoto[1], A. Simonian[2], and A. Revzin[1]
[1]Univeristy of California, Davis, Davis, CA, [2]Auburn University, Auburn, AL

PS-7B-6-68 **Response and Stability Optimization of Microsphere Glucose Sensors Utilizing Catalase and Nanofilms**
B. Collier[1], and M. J. McShane[1]
[1]Texas A&M University, College Station, TX

PS-7B-6-69 **Activity of Layer-by-Layer Immobilized Glutamate Oxidase**
S. M. Tangutooru[1], V. L. Kopparthy[1], H. T. Alshakhouri[1], M. A. DeCoster[1], and E. J. Guilbeau[1]
[1]Louisiana Tech University, Ruston, LA

PS-7B-6-70 **Microfluidic Devices to Monitor Single Cardiac Physiology Under Hypoxic Conditions**
I. A. Ges[1], and F. Baudenbacher[1]
[1]Vanderbilt University, Nashville, TN

PS-7B-6-71 **Optimizing Protein Recognitive Hydrogel Systems for Biosensor Applications**
D. Kryscio[1], and N. Peppas[1]
[1]The University of Texas at Austin, Austin, TX

PS-7B-6-72 **A Novel Cancer Therapeutic Device for Circulating Tumor Cell Elimination From Blood**
M. Zhou[1], R. Harouaka[1], and S. Zheng[1]
[1]Pennsylvania State University, University Park, PA

Track: Drug Delivery Systems - **PS-7B-7** - ***Targeted Drug Delivery***

PS-7B-7-73 **Design And *In Vitro* Performance Of A Novel Theranostic System**
S. Srinivasan[1], B. G. Vilentchouk[1], W. Driessen[2], B. Proneth[2], P. Decuzzi[3], W. Arap[2], R. Pasqualini[2], and M. Ferrari[1]
[1]University of Texas at Houston, Houston, TX, [2]MD Anderson Cancer Center, Houston, TX, [3]University of Magna Graecia Viale Europa - LOC, Germaneto Catanzaro, Italy

PS-7B-7-74 **Bioimpedance Tuning Electroporation for Optimizing Targeted Intradermal DNA Delivery**
J. Medrano[1], R. Connolly[1], J. I. Rey[1], A. Anderson[1], R. Gitlin[1], and M. Jaroszeski[1]
[1]University of South Florida, Tampa, FL

PS-7B-7-75 **EphrinA1-conjugated Liposomes for Targeted Delivery of Chemotherapeutic Agents to Glioblastoma Cells**
H. Cho[1], W. Lee[1], J. M. Saul[2], and Y. W. Lee[1]
[1]Virgina Tech-Wake Forest University, Blacksburg, VA, [2]Virgina Tech-Wake Forest University, Winston-Salem, NC

PS-7B-7-76 **Swellable Microparticles for Sustained Release Drug Delivery to The Lung Using Propellant Driven Metered Dose Inhalers**
P. Selvam[1], I. M. El-Sherbiny[1], and H. D. Smyth[1]
[1]University of Texas at Austin, Austin, TX

PS-7B-7-77 **Logic-Embedded Vectors for Intracellular Partitioning and Exocytosis of Nanoparticles**
R. E. Serda[1], A. Mack[1], A. Van de Ven[1], S. Ferrati[1], B. Godin[1], and M. Ferrari[1,2]
[1]UTHSC, Houston, TX, [2]MD Anderson Cancer Center, Houston, TX

PS-7B-7-78 **Multi-functional Hydrogel Nanocomposite for Drug Delivery Applications**
A. Qureshi[1], and D. Hayes[1]
[1]Louisiana State University and LSU Agricultural Center, Baton Rouge, LA

PS-7B-7-79 **Integrated and Multiplexed Fabrication of Micro and Nano Biodegradable Particles Using a Novel Electrospray Process**
B. Almeria[1], T. M. Fahmy[1], and A. Gomez[1]
[1]Yale University, New Haven, CT

PS-7B-7-80 **N-acetylgalactosamine Functionalized Dendrimers as Liver-Targeted Drug Carriers**
S. H. Medina[1], V. Tekumalla[1], M. Chevliakov[1], D. S. Shewach[1], W. D. Ensminger[1], and M. E. El-Sayed[1]
[1]University of Michigan, Ann Arbor, MI

PS-7B-7-81 **Use of the Angular Spectrum Approach for Estimating the 3-D Acoustic Field Transmitted Through Skull**
J. L. Raymond[1], S. M. Chrzanowski[1], C. K. Holland[1], and G. J. Shaw[1]
[1]University of Cincinnati, Cincinnati, OH

PS-7B-7-82 **Uptake and Clearance of Spherical Gold Nanoparticles in 3D Liver Mimics**
C. J. Detzel[1], and P. Rajagopalan[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

PS-7B-7-83 **Molecular Probes for Visualization of HIV Protease Inhibition**
H. Yao[1], J. V. Velichamthotu[1], K. Ye[1], and S. Jin[1]
[1]University of Arkansas, Fayetteville, AR

PS-7B-7-84 **Effect of Formulation Factors on Chitosan Particle Properties**
B. Koppolu[1], and D. A. Zaharoff[1]
[1]University of Arkansas, Fayetteville, AR

PS-7B-7-85 **Significance of Electrostatic Properties of M cells with Respect to Microparticle Uptake**
P. Jreij[1], T. Rajapaksa[1], D. Lo[1], and V. G. J. Rodgers[1]
[1]University of California, Riverside, CA

PS-7B-7-86 **Theranostic Nanoparticles for Cancer Diagnosis and Treatment**
A. Wadajkar[1,2], P. Rajan[1,2], Z. Bhavsar[1,2], B. Koppolu[1,2], Y. Zhang[1,2], W. Cui[2], L. Tang[1,2], J. Yang[1,2], and K. T. Nguyen[1,2]
[1]UT Arlington, Arlington, TX, [2]UT Southwestern Medical Center, Dallas, TX

PS-7B-7-87 **Electrostatic Contribution of Poly (Lactic-co-Glycolic) Acid Nanoparticles for Immunization of the Mucosal System**
K. M. Bennett[1], T. E. Rajapaksa[1], V. G. Rodgers[1], and D. D. Lo[1]
[1]University of California Riverside, Riverside, CA

PS-7B-7-88 **Triggering Drug Release from Temperature Sensitive Liposomes via Photothermal Heating of Hollow Gold Nanoshells**
N. Forbes[1], and J. Zasadzinski[1]
[1]University of California, Santa Barbara, Santa Barbara, CA

PS-7B-7-89 **Targeted Therapeutic Gene Delivery by Sonoporation in Inflammatory Bowel Disease**
J. L. Tlaxca[1], C. R. Anderson[2], J. J. Rychak[2], A. L. Klibanov[1], and M. B. Lawrence[1]
[1]University of Virginia, Charlottesville, VA, [2]Targeson, Inc, San Diego, CA

PS-7B-7-90 **Infusion-Pressure Transducer System to Determine Hydraulic Conductivity in Soft Tissues**
T. Nobrega[1], J. H. Kim[1], and M. Sarntinoranont[1]
[1]University of Florida, Gainesville, FL

PS-7B-7-91 **Effect of Plasticizers on the Properties of Drug Delivery Films**
C. L. Rabek[1], D. Puleo[1], and T. Dziubla[1]
[1]University of Kentucky, Lexington, KY

PS-7B-7-92 ***In Situ* Composite Hydrogel System for Treatment of Complex Wounds**
N. V. Aphale[1,2], H. Xu[1,2], D. Gyawali[1,2], A. Wadajkar[1,2], L. Tang[1,2], J. Yang[1,2], and K. Nguyen[1,2]
[1]University of Texas at Arlington, Arlington, TX, [2]University of Texas Southwestern Medical Center, Dallas, TX

PS-7B-7-93 **Aptamer-Functionalized Biomaterials for Pulsatile Proteins Release**
B. Soontornworajit[1], J. Zhou[1], and Y. Wang[1]
[1]University of Connecticut, Storrs, CT

PS-7B-7-94 **Size-dependent Biodistribution and Retention of Nanoparticles After Intravenous Administration in Mice**
W-Y. Liao[1], C-W. Tang[1], A. Tang[1], M-Y. Chang[2], and P. Hsieh[2]
[1]Institute of Clinical Medicine & Research Center of Clinical Medicine, Tainan, Taiwan, Tainan, Taiwan, Taiwan, [2]IInstitute of Biomedical Engineering, National Cheng Kung University, Tainan, Taiwan, Tainan, Taiwan, Taiwan

PS-7B-7-95 **Photochemical Sensitization of Liposomes for Controlled Drug Release**
R. T. Kozikowski[1], B. Weber[1], G. Hochhaus[1], and B. S. Sorg[1]
[1]University of Florida, Gainesville, FL

PS-7B-7-96 **Vascular Targeting of Multistage Vectors**
A. Mack[1], S. Ferrati[1], M. Ferrari[1,2], and R. Serda[1]
[1]University of Texas Health Science Center, Houston, TX, [2]Rice University, Houston, TX

PS-7B-7-97 **Cylindrical Micelles Targeted to B-cell Lymphomas**
B. Harris[1], and P. Dalhaimer[1]
[1]Univ. of Tennessee, Knoxville, TN

PS-7B-7-98 **Dynamic Dockng Method in Virtual Screening**
T. Yang[1]
[1]The University of Texas at Austin, Austin, TX

PS-7B-7-99 **Magnetic Multilayer Nanoparticles for Targeted and Controlled Drug Delivery and Skin Cancer Imaging**
Z. Bhavsar[1,2], B. Koppolu[1,2], A. Wadajkar[1,2], W. Cui[2], and K. T. Nguyen[1,2]
[1]UT Arlington, Arlington, TX, [2]UT Southwestern Medical Center, Dallas, TX

PS-7B-7-100 **Virus-Inspired Design Principles of Nanoparticles as Therapeutic Agents**
S. Zhang[1], H. Yuan[1], J. Li[2], and G. Bao[3]
[1]Penn State University, University Park, PA, [2]Univ. Pennsylvania, Philadelphia, PA, [3]Georgia Tech, Atlanta, GA

PS-7B-7-101 **Microsphere-based Delivery of Betamethasone to Differentiating Human Mesenchymal Stem Cells**
T. Richey[1], M. Smith[1], B. Thanoo[1], K. J. Penick[2], and J. F. Welter[2]
[1]Oakwood Laboratories, Oakwood, OH, [2]Case Western Reserve University, Cleveland, OH

PS-7B-7-102 **Cylinders vs. Spheres: Biofluid Shear Thinning in Driven Nanoparticle Transport**
J. A. Cribb[1], T. Meehan[2], S. M. Shah[3], K. Skinner[1], and R. Superfine[1]
[1]UNC - Chapel Hill, Chapel Hill, NC, [2]University of Queensland, St. Lucia, QLD, Australia, [3]University of Cambridge, Cambridge, England, United Kingdom

PS-7B-7-103 **Ultrasound-enabled Non-invasive Transdermal Transport of Liposomes as Drug Delivery Vehicles**
A. Nguyen[1], Y. Sunny[1], E. Papazoglou[1], and P. Lewin[1]
[1]Drexel University, Philadelphia, PA

PS-7B-7-104 **Potency Enhancement of gp120-targeted HIV-1 Entry Inhibitors Conjugated to Gold Nanoparticles.**
A. Rosemary Bastian[1], R. K. Sundaram[1], S. Rajagopal[1], K. McFadden[1], K. Kantharaju[1], E. Papazoglou[1], and I. Chaiken[1]
[1]Drexel University, Philadelphia, PA

PS-7B-7-105 **Antibody Presentation Localized to Lipid Microdomains for Enhanced Liposome Binding to Endothelium**
D. Almeda[1], and D. T. Auguste[1]
[1]Harvard University, Cambridge, MA

PS-7B-7-106 **Stealth-Targeted Liposomes for Invasive Mould Infections**
N. L. Chavan[1]
[1]University of Houston, Houston, TX

PS-7B-7-107 **Characterization of Nanoparticle Targeted Delivery in Microcirculation**
Y. Liu[1], J. Tan[1], and K. Ngyuen[1]
[1]University of Texas at Arlington, Arlington, TX

Track: Drug Delivery Systems - **PS-7B-8** - ***Translation Drug Delivery and Clinical Trials***

PS-7B-8-108 **Deep Sequencing Analysis of Clinical HIV Samples**
S. M. Willerth[1], H. Pedro[1], A. P. Arkin[1], and D. V. Schaffer[1]
[1]University of California-Berkeley, Berkeley, CA

PS-7B-8-109 **Improving Ethacrynic Acid Delivery Based on Cellular Pharmacokinetic and Pharmacodynamic Analyses**
F. Yuan[1], and C-W. Lin[1]
[1]Duke University, Durham, NC

PS-7B-8-110 **Development of Microspheres for Controlled Release of Thymosin β-4 in the Ischemic Myocardium**
J. E. Thatcher[1], K. Nguyen[2], Z. Schelly[2], I. Bock-Marquette[1], R. Eberhart[1], and J. M. DiMaio[1]
[1]UT Southwestern Medical Center, Dallas, TX, [2]University of Texas at Arlington, Arlington, TX

PS-7B-8-111 **Cell Type Specific Nano-Toxicology**
S. Ferrati[1], A. Mack[1], M. Ferrari[1,2], and R. Serda[1]
[1]University of Texas Health Science Center, Houston, TX, [2]Rice University, Houston, TX

PS-7B-8-112 **Confinement and Concentration Effects on Glucose Transport in Nanochannels**
A. Ziemys[1], A. Grattoni[1], D. Fine[1], F. Hussain[2], and M. Ferrari[1,3]
[1]The University of Texas Health Science Center - Houston, Houston, TX, [2]University of Houston, Houston, TX, [3]The University of Texas M. D. Anderson Cancer Center, Houston, TX

Track: Neural Engineering - **PS-7B-9**- ***Sensory Neural Prosthetics***

PS-7B-9-113 **Afferent Stimulation of Sacral Dermatomes Suppresses Urethral Reflexes After Chronic SCI**
J. L. McCoin[1,2], N. Bhadra[1,2], and K. J. Gustafson[1,2]
[1]Case Western Reserve University, Cleveland, OH, [2]Louis Stokes VA Medical Center, Cleveland, OH

PS-7B-9-114 **High Frequency Electric Stimulation of Retinal Neurons Elicits Physiological Signaling Patterns**
S. Fried[1,2], C. Cai[1,3], J. Rizzo[1,4], and Q. Ren[3]
[1]Boston VA Healthcare System, Boston, MA, [2]Mass General Hospital / Harvard Medical School, Boston, MA, [3]Shanghai Jiao-Tong University, Shanghai, Shanghai, China, People's Republic of, [4]Mass. Eye and Ear Infirmary, Boston, MA

PS-7B-9-115 **Selective Activation of Retinal Neurons with Sinusoidal Electric Stimulation**
D. K. Freeman [1,2], J. F. Rizzo III[1,3], and S. I. Fried[1,2]
[1]Boston VA Healthcare System, Boston, MA, [2]Massachusetts General Hospital, Harvard Medical School, Boston, MA, [3]Massachusetts Eye and Ear Infirmary, Harvard Medical Schol, Boston, MA

PS-7B-9-116 **Three-Dimensional 160-Site Microelectrode Array for Cochlear Nucleus Mapping Studies**
Sr. M-E. Merriam[1], S. Dehmel[1], O. Srivannavit[1], S. E. Shore[1], and K. D. Wise[1]
[1]University of Michigan, Ann Arbor, MI

PS-7B-9-117 **Ultra-High Photosensitivity Vertical Nanowire Arrays for Retinal Prosthesis**
M. L. Khraiche[1], G. Silva[1], G. Cauwenberghs[1], D. Wang[1], Y. Lo[1], and W. Freeman[2]
[1]UCSD, San Diego, CA, [2]Jacobs Retina Center, San Diego, CA

PS-7B-9-118 **Two Classes of Action Potentials are Initiated by Electric Stimulation of Retinal Ganglion Cells**
C. Cai[1,2], Q. Ren[2], and S. Fried[1,3]
[1]Mass General Hospital / Harvard Medical School, Boston, MA, [2]Shanghai Jiao-Tong University, Shanghai, Shanghai, China, People's Republic of, [3]Boston VA Healthcare System, Jamaica Plain, MA

PS-7B-9-119 **Activation of Inner-Ear Hair Cells and Afferent Neurons by Pulsed Infrared Radiation**
S. M. Rajguru[1], G. M. Dittami[2], R. D. Rabbitt[2,3], C-P. Richter[1,4], and S. M. Highstein[3]
[1]Northwestern University, Chicago, IL, [2]University of Utah, Salt lake City, UT, [3]Marine Biological Laboratory, Woods Hole, MA, [4]Northwestern University, Evanston, IL

PS-7B-9-120 **Effects of Stimulus Pulse Parameters on Eye Movement Responses to Stimulation Delivered by a Vestibular Prosthesis**
N. S. Davidovics[1], G. Y. Fridman[2], B. S. Chiang[1], and C. Della Santina[1]
[1]Johns Hopkins University, Baltimore, MD, [2]Johns Hopkins University, Pikesville, MD

Track: Neural Engineering - **PS-7B-10** - ***Translational Neural Engineering***

PS-7B-10-121 **Electromagnetic Interference on Intraoperative Neurophysiological Monitoring Signals**
A. Farajidavar[1], J. Seifert[1], J. Stearns[1], M. Romero[1], and J-C. Chiao[1]
[1]The University of Texas at Arlington, Arlington, TX

Track: New Frontiers in Bioengineering - **PS-7B-11** - ***Cell and Subcellular Mechanics***

PS-7B-11-122 **Suppressing Non-specific Interactions Between Solid Surfaces Used for Single-molecule Force Measurements**
S. Upadhyayula[1], S. Bishop[1], N. Johnson[1], T. Quinata[1], P. Nallagatla[1], S. Gupta[1], and V. Vullev[1]
[1]University of California, Riverside, Riverside, CA

PS-7B-11-123 **Compression Instrument for Meso-Scale Tissue Experiments (CITE)**
D. W. Evans[1,2], and J. L. Sparks[1,2]
[1]Virgina Tech - Wake Forest Center for Injury Biomechanics, Winston Salem, NC, [2]Virgina Tech - Wake Forest University School of Biomedical Engineering and Sciences, Winston Salem, NC

PS-7B-11-124 **Microparticle Motion Control by Microbeam Ultrasound: A Potential Single Cell Manipulator**
J. Lee[1], S-Y. Teh[2], A. Lee[2], H. Kim[1], C. Lee[1], and K. K. Shung[1]
[1]University of Southern California, Los Angeles, CA, [2]University of California at Irvine, Irvine, CA

PS-7B-11-125 **The Stress-State and Strain-Rate Dependency of Human Placenta Tissue**
B. Weed[1], A. Borazjani[1], S. Patnaik[1], R. Prabhu[1], M. Horstemeyer[1], L. Williams[1], and J. Liao[1]
[1]Mississippi State University, Mississippi State, MS

PS-7B-11-126 **Exploring Cellular Mechanotransduction, One Molecule at a Time**
M. R. Mofrad[1]
[1]University of California, Berkeley, Berkeley, CA

PS-7B-11-127 **Mechanical Modeling of Morphology and Morphogenetic Events in the Drosophila Eye**
S. Hilgenfeldt[1,2], I. M. Gemp[2], and R. A. Carthew[2]
[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]Northwestern University, Evanston, IL

PS-7B-11-128 **Modeling the Coherent and Autonomous Biomechanical Behavior of Cells Using an Agent-Based Approach**
N. I. Moldovan[1]
[1]Davis Heart and Lung Research Institute, The Ohio State University, Columbus, OH

PS-7B-11-129 ***In Situ* Force Mapping of Mammary Gland Transformation**
J. I. Lopez[1], and V. Weaver[1]
[1]UCSF, San Francisco, CA

PS-7B-11-130 **Inhibition of Hsp90 for Enhanced *In Vitro* Photothermal Ablation of Cancer Cells**
S. K. Shimp III[1], J. Whitney[1], B. Will[1], C. Zawaski[1], and M. N. Rylander[1]
[1]Virginia Tech, Blacksburg, VA

PS-7B-11-131 **Probing Mechanisms of Mechano-sensitive Differentiation in Mesenchymal Stem Cells**
A. W. Holle[1], N. S. Joshi[1], D. Vijayraghavan[1], and A. J. Engler[1]
[1]UC San Diego, La Jolla, CA

PS-7B-11-132 **Molecular Mechanics of Filamin: FLNA Repeats 16-17 Response to Applied Force**
H. Pezeshki[1], and M. R. Mofrad[1]
[1]University of California, Berkeley, Berkeley, CA

PS-7B-11-133 **Mechanosensitivity of Cardiac Cells and Its Implication on Myocardiac Infarction**
X. Tang[1], P. Bajaj[1], R. Bashir[1], and T. A. Saif[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

PS-7B-11-134 **Lamins & Granulopoiesis – How Altered Nuclear Mechanics Can Improve Passage Through Narrow Spaces**
A. Rowat[1], D. E. Jaalouk[2], D. A. Weitz[1], and J. Lammerding[2]
[1]Harvard University, Cambridge, MA, [2]Brigham and Women's Hospital/Harvard Medical School, Cambridge, MA

Track: Orthopedic and Rehabilitation Engineering - **PS-7B-12** - ***Orthopaedic Bioengineering***

PS-7B-12-135 **Developing Active Ankle Foot Orthosis by Using SMA Wires**
M. Bhadane[1], and M. Elahinia[1]
[1]University of Toledo, Toledo, OH

PS-7B-12-136 **Quantitative Analysis of an AFO Cut-Line Measurement Technique**
T. J. Warrick[1], S. Bielby[1], E. Skewes[2], R. Brooks[2], D. Benson[2], C. Dunning[1], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC, [2]Shriners Hospital of Greenville SC, Greenville, SC

PS-7B-12-137 **An FE Model for Stress Reduction at the Skin-Implant Interface of Osseointegrated Prostheses**
S. Yerneni[1,2], and T. A. Kuiken[1,2]
[1]Northwestern University, Evanston, IL, [2]Rehabilitation Institute of Chicago, Chicago, IL

PS-7B-12-138 **Characterization of Goat Adipose and Bone Marrow Derived Stem Cells For Orthopaedic Therapies**
D. B. Neidre[1], A. Sarathy[1], J. Treff[1], Z. Garza[2], A. Neidre[3], J. Poser[4], and R. P. Farrar[1]
[1]The University of Texas at Austin, Austin, TX, [2]The University of Texas Health Science Center at San Antonio, San Antonio, TX, [3]South Texas Orthopaedic and Spinal Surgery Associates, San Antonio, TX, [4]SpineSmith Partners LTD, Austin, TX

PS-7B-12-139 **Shear-Plane Motion in Unicondylar Knee Replacements with Change to Simulated Soft-Tissue Constraint**
J. B. Matheny[1], B. L. Roach[1], M. Spinelli[1], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC

PS-7B-12-140 **Comparative Analysis of Retrieved Genesis II UHMWPE Articulating Against OxZr vs. CoCr Femoral Components**
H. M. Cash[1], E. Alvarez[1], M. E. Elpers[1], M. E. Wabler[1], F. R. Voss[2], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC, [2]University of South Carolina, Columbia, SC

PS-7B-12-141 **Analysis and Damage Characterization of PS Total Knee Joint Replacement Posts**
E. E. Sloan[1], E. Alvarez[1], M. E. Elpers[1], H. M. Cash[1], M. E. Wabler[1], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC

PS-7B-12-142 **Modeling Variations in Varus-Valgus Laxity in the Healthy Knee Joint**
B. Morse[1], C. Clary[2], A. J. Cyr[3], P. D. Funkenbush[1], L. Maletsky[3], and A. L. Lerner[1]
[1]University of Rochester, Rochester, NY, [2]DePuy Orthopaedics, Warsaw, IN, [3]University of Kansas, Lawrence, KS

PS-7B-12-143 **Cervical Endplates are Affected by Incomplete Length of Annular Fibers: A Finite Analysis**
M. Hussain[1], R. E. Gay[2], and K-N. An[3]
[1]Logan University, Chesterfield, MO, [2]Mayo Clinic, Rochester, MN, [3]Mayo Clinics, Rochester, MN

PS-7B-12-144 **Inner Trabaecular Bone is More Affected Than Outer Cortical Bone Due to Incomplete Annular Fibers**
M. Hussain[1], R. E. Gay[2], and K-N. An[3]
[1]Logan University, Chesterfield, MO, [2]Mayo Clinic, Rochester, MN, [3]Mayo Clinics, Rochester, MN

PS-7B-12-145 **Evaluation of a Novel Battery-Powered Spinal Instrument**
S. Vadapalli[1], S. Summy[1], A. Mahajan[2], D. Woods[1], J. Bharadwaj[1], B. Steele[1], and E. Sahagun[1]
[1]Medtronic Spinal and Biologics, Memphis, TN, [2]The University of Akron, Akron, OH

PS-7B-12-146 **A Thermal Model for Bone Drilling with Application to Orthopaedic Surgery**
J. Lee[1], Y. Rabin[1], and B. Ozdoganlar[1]
[1]Carnegie Mellon University, Pittsburgh, PA

PS-7B-12-147 **Characterization of High Precision Experimental Model of Graded Bilateral Distraction Spinal Injury**
M. Romero[1], J. Stearns[1], B. Elmer[1], J. Seifert[1], and D. Sucato[2]
[1]University of Texas at Arlington, Arlington, TX, [2]Texas Scottish Rite Hospital for Children, Dallas, TX

Track: Orthopedic and Rehabilitation Engineering - **PS-7B-13** - ***Orthopaedic Biomaterials***

PS-7B-13-148 **Orthopedic Wear-debris-particulates Elicit a Size and Dose Dependent Response by RAW 264.7 Cells**
S. Saha[1], and M. Musib[1]
[1]SUNY Downstate Medical Center, Brooklyn, NY

PS-7B-13-149 **Active Functional Scaffold for Bone Regeneration**
D. S. Oh[1], J. Son[1], C. Bae[1,2], A. Mark[1], and S. Choi[1,3]
[1]The University of Texas at San Antonio, San Antonio, TX, [2]Chonnam National University, Gwangju, Gwangju, Korea, Republic of, [3]Chungbuk National University, Cheongju, Chungbuk, Korea, Republic of

PS-7B-13-150 **Damage Scoring and Surface Roughness Analysis to Assess Oxinium and Standard CoCr Femoral Component Scratching in Total Knee Replacements**
M. E. Wabler[1], E. Alvarez[1], M. E. Elpers[1], H. M. Cash[1], H. A. Demos[2], H. D. Schutte Jr.[2], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC, [2]Medical University of South Carolina, Charleston, SC

PS-7B-13-151 **The Incorporation of Organic Polymers Into Bone Cements Based on Glass Polyalkenoate Chemistry**
M. R. Towler[1], A. W. Wren[1], A. Coughlan[1], and N. M. Cummins[2]
[1]Alfred University, Alfred, NY, [2]University of Limerick, Limerick, Limerick, Ireland

PS-7B-13-152 **Microencapsulation of Cyanoacrylate for Development of Self-Healing Bone Cement**
A. B. Brochu[1], and W. M. Reichert[1]
[1]Duke University, Durham, NC

PS-7B-13-153 **Effects of Hydroxyapatite Coated Iron Oxide Nanoparticles on Osteoblast Functions**
N. L. Tran[1], and T. J. Webster[1]
[1]Brown University, Providence, RI

PS-7B-13-154 **Mechanical Characterization of Polydimethylsiloxane for Microsystems Applications**
J. Martin[1], S. Sripada[2], P. Sethu[2], and M. Saunders[1]
[1]University of Kentucky, Lexington, KY, [2]University of Louisville, Louisville, KY

PS-7B-13-155 **Comparative Analysis of Damage to Retrieved Femoral and Tibial NexGen PS Components**
M. E. Elpers[1], E. Alvarez[1], H. M. Cash[1], M. E. Wabler[1], B. Burnikel[2], J. Rodrigo[2], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC, [2]Greenville Hospital System/Steadman Hawkins Clinic of the Carolinas, Greenville, SC

PS-7B-13-156 **Histomorphometry of Varying Hydroxyapatite Scaffold Architectures *In Vivo***
B. M. Singleton[1], J. W. Hernandez[1], M. R. Appleford[1], J. Walker[2], T. Guda[2], M. Pilia[1], J-S. Son[1], D. S. Oh[1], J. L. Ong[1], and J. Wenke[2]
[1]University of Texas at San Antonio, San Antonio, TX, [2]US Army Institute of Surgical Research, San Antonio, TX

PS-7B-13-157 **Fatigue Resistant Surface Crosslinked UHMWPE for Total Joints**
E. Oral[1,2], S. L. Rowell[1], A. L. Neils[1], and O. K. Muratoglu[1,2]
[1]Massachusetts General Hospital, Boston, MA, [2]Harvard Medical School, Boston, MA

PS-7B-13-158 **Assessment of New Damage Scoring Methodology for Total Knee Replacement Retrieval Analysis**
E. Alvarez[1], M. E. Elpers[1], H. M. Cash[1], M. E. Wabler[1], and J. D. DesJardins[1]
[1]Clemson University, Clemson, SC

PS-7B-13-159 **Multi-release Model of Resorbable Bilayer Membranes for Bone Regeneration**
A. Satsangi[1,2], B. Xiao[1,2], and J. Ong[1]
[1]University of Texas at San Antonio, San Antonio, TX, [2]University of Texas Health Science Center at San Antonio, San Antonio, TX

PS-7B-13-160 **Coralline Calcium Phosphate Analysis for Bone Graft Applications**
B. E. Pollot[1], T. Guda[1,2], S. Oh[1], and J. Ong[1]
[1]University of Texas at San Antonio, San Antonio, TX, [2]Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC

PS-7B-13-161 **Effects of Curvature on Varying Silk Fibroin/Hydroxypatite on Stromal Cells *In Vitro***
M. Pilia[1,2], B. M. Singleton[1,2], S. M. Crumlett[1,2], and M. R. Appleford[1]
[1]University of Texas at San Antonio, San Antonio, TX, [2]University of Texas Health Science Center at San Antonio, San Antonio, TX

PS-7B-13-162 **BMP-2 - Bound Hydroxyapatite Implants**
S. Shiels[1], D. Oh[1], and J. L. Ong[1]
[1]University of Texas San Antonio, San Antonio, TX

Track: Orthopedic and Rehabilitation Engineering - **PS-7B-14** - ***Orthopaedic Cellular Engineering***

PS-7B-14-163 **AGEs Promote *In Vitro* Bone Resorption Activities of Human Cortical Bone**
D. Bhattacharya[1], X. N. Dong[1], X. Wang[1], Q. An[2], and J. Xu[2]
[1]University of Texas at San Antonio, San Antonio, TX, [2]University of Western Australia, perth, Western Australia, Australia

Track: Respiratory Engineering - **PS-7B-15** - ***Lung Computational Fluid Dynamics and Particle Deposition***

PS-7B-15-164 **Semi-infinite Gas Bubble Propagation in a 2D Channel with a Mucus Layer**
C-F. Tai[1], and J. B. Grotberg[1]
[1]University of Michigan, Ann Arbor, MI

PS-7B-15-165 **Oxygenation of Blood Flowing in a Porous-Walled Microchannel**
J. Wright[1], R. C. Eberhart[2], and C-J. Chuong[1]
[1]University of Texas at Arlington, Arlington, TX, [2]UT Southwestern Medical Ceter, Dallas, TX

PS-7B-15-166 **Large Eddy Simulations Of Turbulent Flow And Particle Transport In A Human Airway Model**
H. Radhakrishnan[1], and S. C. Kassinos[1]
[1]University of Cyprus, Nicosia, Nicosia, Cyprus

PS-7B-15-167 **A Computational Study of Surfactant Biophysical Interactions During Pulsatile Airway Reopening**
J. E. Pillert[1], H. Fujioka[1], D. Halpern[2], and D. P. Gaver[1]
[1]Tulane University, New Orleans, LA, [2]University of Alabama, Tuscaloosa, Alabama

PS-7B-15-168 **The Development of DSP Techniques to Estimate Stress Fields in Biological Two-phase Flows**
J. W. Thieman[1], B. J. Smith[1], and D. P. Gaver[1]
[1]Tulane University, New Orleans, LA

PS-7B-15-169 **Multiscale Modeling of the Rodent Respiratory System**
S. Kabilan[1], A. P. Kuprat[2], R. A. Corley[2], J. P. Carson[2], K. R. Minard[2], R. E. Jacob[2], M. P. Hlastala[1], and D. R. Einstein[2]
[1]University of Washington, Seattle, WA, [2]Pacific Northwest National Laboratory, Richland, WA

PS-7B-15-170 **Transient Displacement of a Gas Finger in a Channel Filled by a Bingham Fluid**
P. Zamankhan[1], S. Takayama[1], and J. Grotberg[1]
[1]University of Michigan, Ann Arbor, MI

PS-7B-15-171 **Flow and Particle Dispersion in Prototypical and Strain-driven CT-based Acinar Models**
H. Kumar[1], Y. Yin[1], D. Vasilescu[1,2], M. Tawhai[3], E. A. Hoffman[1], and C-L. Lin[1]
[1]The University of Iowa, Iowa city, Iowa, [2]Philipps University, Marburg, Germany, [3]The University of Auckland, Auckland, New Zealand

PS-7B-15-172 **Developing a MDCT-based Breathing Lung Model for CFD Simulation of Air Flow**
Y. Yin[1], J. Choi[1], E. A. Hoffman[1], and C-L. Lin[1]
[1]The University of Iowa, Iowa City, IA

PS-7B-15-173 **Multiscale Subject Specific Breathing Lung Simulation**
J. Choi[1], Y. Yin[1], M. H. Tawhai[2], E. A. Hoffman[1], and C-L. Lin[1]
[1]The University of Iowa, Iowa City, IA, [2]Bioengineering Institute, The University of Auckland, Auckland, New Zealand

Track: Respiratory Engineering - **PS-7B-16** - ***Mechanobiology in the Lung***

PS-7B-16-174 **Optimization of the Geometry of the Unrestrained Acoustic Plethysmograph**
J. Reynolds[1], and D. Frazer[1]
[1]NIOSH, Morgantown, WV

PS-7B-16-175 **Interpreting H of the Constant Phase Model in Terms of the**
D. Frazer[1], J. Reynolds[1], T. Goldsmith[1], M. Jackson[1], W. McKinney[1], and A. Afshari[1]
[1]NIOSH, Morgantown, WV

PS-7B-16-176 **The Effects of Mechanotransduction on Airway Smooth Muscle Protein Expression**
C. Miller[1]
[1]Saint Louis University, St Louis, MO

PS-7B-16-177 **Evaluation of Cellular Damage Near Bifurcations in a Model of Atelectrauma**
D. Martin[1], A-M. Jacob[1], and D. P. Gaver[1]
[1]Tulane University, New Orleans, LA

PS-7B-16-178 **Effects of Static Stretch on the Deterioration of Lung Parenchyma by Interstitial Collagenase**
E. Yi[1], E. Bartolak-Suki[1], S. Sato[1], T. Blute[1], and B. Suki[1]
[1]Boston University, Boston, MA

PS-7B-16-179 **Probing Softness of Parietal Pleural Surface by Atomic Force Microscopy**
J. Kim[1], J. P. Butler[1,2], and S. H. Loring[1]
[1]Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, [2]Harvard School of Public Health, Boston, MA

PS-7B-16-180 **Effects of Cyclic Stretch on Collagen Secretion and Integrin &[beta]1 in Cultured Mouse Fibroblasts**
E. Bartolak-Suki[1,2], R. Suki[1], and B. Suki[1]
[1]Boston University, Boston, MA, [2]Cellutraf Sci., Inc., Boston, MA

Track: Systems Biology, Bioinformatics and Computational Biology - **PS-7B-17** - ***Multiscale Modeling***

PS-7B-17-181 **Utility of Simple Algorithms in Heart Rate Signal Quality Assessments**
K. M. Lee[1], M. J. Buller[1], W. J. Tharion[1], J. Pisani[2], S. R. Gordon[2], and B. A. Beidleman[1]
[1]US Army Research Institute of Environmental Medicine, Natick, MA, [2]Hidalgo, Ltd, Swavesey, United Kingdom

PS-7B-17-182 **The Value of Biomedical Simulation Environments to Future Human Space Flight Missions**
L. Mulugeta[1], J. G. Myers[2], N. G. Skytland[3], and S. H. Platts[3]
[1]Universities Space Research Association, Houston, TX, [2]NASA - Glenn Research Center, Cleveland, OH, [3]NASA - Johnson Space Center, Houston, TX

PS-7B-17-183 **Multi-scale Modeling of Tumor Necrosis Factor-regulated Granuloma Formation in Tuberculosis**
M. Fallahi-Sichani[1], M. El-Kebir[2,3], S. Marino[2], D. E. Kirschner[2], and J. J. Linderman[1]
[1]University of Michigan, Ann Arbor, MI, [2]University of Michigan Medical School, Ann Arbor, MI, [3]VU University Amsterdam, Amsterdam, Netherlands

PS-7B-17-184 **3D Finite Element Modeling of Human Ear from Ear Canal to Cochlea in Otitis Media with Effusion**
R. Z. Gan[1], F. Yang[1], and X. Zhang[1]
[1]University of Oklahoma, Norman, OK

PS-7B-17-185 **Common Gene Network Motifs for Multistability and Cell Differentiation**
X. wang[1], and J. J. Collins[2]
[1]Arizona State University, Tempe, AZ, [2]Boston University, Boston, MA

PS-7B-17-186 **Biomechanical Modeling of Eye Trauma for Different Orbit Anthropometries**
A. A. Weaver[1,2], K. L. Loftis[1,2], S. M. Duma[1,3], and J. D. Stitzel[1,2]
[1]Virginia Tech-Wake Forest University Center for Injury Biomechanics, Winston-Salem, NC, [2]Wake Forest University School of Medicine, Winston-Salem, NC, [3]Virginia Polytechnic Institute and State University, Blacksburg, VA

PS-7B-17-187 **Evaluation of Different Projectiles in Matched Experimental Eye Impact Simulations**
A. A. Weaver[1,2], E. A. Kennedy[3], S. M. Duma[1,4], and J. D. Stitzel[1,2]
[1]Virginia Tech-Wake Forest University Center for Injury Biomechanics, Winston-Salem, NC, [2]Wake Forest University School of Medicine, Winston-Salem, NC, [3]Bucknell University, Lewisburg, PA, [4]Virginia Polytechnic Institute and State University, Blacksburg, VA

PS-7B-17-188 **Quantitative Analysis of Damage Evolution in Porcine Liver via Interruption Testing Approach**
J. Chen[1], B. Brazile[1], L. Priddy[1], M. Horstemeyer[1], L. Williams[1], and J. Liao[1]
[1]Mississippi State University, Mississippi State, MS

PS-7B-17-189 **Collagen Fiber Damage Assessed With Multiscale Mechanical Models**
E. A. Sander[1], M. F. Hadi[1], and V. H. Barocas[1]
[1]University of Minnesota, Minneapolis, MN

PS-7B-17-190 **High Rate Stress-strain Behavior: A Comparative Study of Brain, Liver, and Tendon**
J. Clemmer[1], J. Chen[1], J. Liao[1], L. Williams[1], L. Priddy[1], R. Prabhu[2], and M. Horstemeyer[1,2]
[1]Mississippi State University, Mississippi State University, MS, [2]Center for Advanced Vehicular Systems, Starkville, MS

PS-7B-17-191 **Humans Exploit Redundancy to Control Step Variability in Treadmill Walking**
J. B. Dingwell[1], J. John[2], and J. P. Cusumano[3]
[1]Universtiy of Texas, Austin, TX, [2]Penn State University, University Park, PA, [3]Pennsylvania State University, University Park, PA

PS-7B-17-192 **Rule-Based Simulation of Vein Graft Remodeling**
M. Hwang[1], S. A. Berceli[1,2], M. Garbey[3], and R. Tran-Son-Tay[1]
[1]University of Florida, Gainesville, FL, [2]Malcom Randall VAMC, Gainesville, FL, [3]University of Houston, Houston, TX

PS-7B-17-193 **Computational Analysis of Endothelial Dysfunction on Free Radical Transport in Microcirculation**
S. Kar[1], and M. Kavdia[1]
[1]University of Arkansas, Fayetteville, AR

PS-7B-17-194 **Predicting the Dynamics of Arbitrarily Shaped Mirco/Nanoparticles in a Capillary Flow**
M. D. de Tullio[1], G. Adriani[1], P. Decuzzi[2], P. De Palma[1], and G. Pascazio[1]
[1]Politecnico di Bari, Bari, Bari, Italy, [2]The University of Texas Medical School at Houston, Houston, TX

PS-7B-17-195 **Modeling Circadian Rhythms in Human Endotoxemia**
J. D. Scheff[1], S. E. Calvano[2], S. F. Lowry[2], and I. P. Androulakis[1]
[1]Rutgers University, Piscataway, NJ, [2]UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ

PS-7B-17-196 **Modeling of Bioheat Transfer in Human Kidney and Experimental Validation *In Vivo***
Y. Feng[1], D. Parekh[2], J. A. Long[1], R. Canty[1], and L. Davila[1]
[1]UTSA, San Antonio, TX, [2]UTHSCSA, San Antonio, TX

PS-7B-17-197 **New Tools for Multiscale Cell-to-Organ Modeling using Deformable 3D Atlases**
J. P. Carson[1], T. Ju[2], and I. A. Kakadiaris[3]
[1]Pacific Northwest National Lab, Richland, WA, [2]Washington University in St. Louis, St. Louis, MO, [3]University of Houston, Houston, TX

PS-7B-17-198 **Promoting Behavioral Rules to Agents in Modeling Angiogenesis**
B. Long[1], and A. Qutub[1]
[1]Rice University, Houston, TX

PS-7B-17-199 **Application of a Novel Soft Tissue Modulus Evaluation Assay to Breast Tumor Tissue**
S. Barnes[1], and M. Miga[1]
[1]Vanderbilt University, Nashville, TN

PS-7B-17-200 **Multi-scale Agent-based Modeling of Human Endotoxemia**
T. T. Nguyen[1], S. S. Calvano[2], S. F. Lowry[2], and I. P. Androulakis[1]
[1]Rutgers University, Piscataway, NJ, [2]UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ

PS-7B-17-201 **Multiscale Disease Model of Heart Failure and Renal Disease with Therapeutic Application in Drug R&D**
A. Sarkar[1], M. K. Hallow[1], A. Soubret[1], G. Helmlinger[1], R. Sarangapani[1], S. Ermakov[2], A. Lo[2], M. Rodrigo[2], J. Beh[2], H. D. Leon[2], and A. Georgieva[1]
[1]Novartis Pharmaceuticals, East Hanover, NJ, [2]Entelos Inc., Foster City, CA

PS-7B-17-202 **Combination of Top-Down and Bottom-Up Tumor Modeling Including Chemotherapeutic Drug Treatment**
B. M. Fox[1], R. A. Moffitt[1], and M. D. Wang[1]
[1]Georgia Institute of Technology, Atlanta, GA

Track: Systems Biology, Bioinformatics and Computational Biology - **PS-7B-18** - ***Signals and Networks in Cancer and Disease***

PS-7B-18-203 **Olive: A Software Tool for Identifying Fusion Transcripts in Cancer Using RNA-Seq**
C. Beitel[1], and J. Ma[1]
[1]University of Illinois at Urbana-Champaign, Urbana, IL

PS-7B-18-204 **Modeling the Kinetics of Hsp90 Inhibition to Reduce Immune Mediated Inflammation**
S. K. Shimp[1], E. M. Courtney[1], C. M. Reilly[2,3], and M. N. Rylander[1]
[1]Virginia Tech, Blacksburg, VA, [2]Virginia College of Osteopathic Medicine, Blacksburg, VA, [3]Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA

PS-7B-18-205 **Mathematical Model of Hematopoietic Stem Cell Differentiation after Transplantation**
S. M. Pearce[1], and A. E. Rundell[1]
[1]Purdue University, West Lafayette, IN

PS-7B-18-206 **Analysis of ErbB Inhibitor Sensitivity and ErbB Network Patterns in Epithelial Ovarian Cancer**
R. D. Prasasya[1], K. L. Pollock[1], and P. K. Kreeger[1]
[1]University of Wisconsin - Madison, Madison, WI

PS-7B-18-207 **Autonomic Function of Assessement in Patients with Kidney Failure Before and After Hemodialysis Using Kernel Method and Entrainment Techniwques**
A. K. Kamal[1]
[1]Tennesse Tech University, Cookeville, TN

PS-7B-18-208 **Short and Long-Term Changes in Circulatory protein and cytokine profiles Following Burn and CLP Treatments**
M. A. Orman[1], I. Androulakis[1], M. Ierapetritou[1], and F. Berthiaume[1]
[1]Rutgers University, Piscataway, NJ

PS-7B-18-209 **Gene Expression Profiling of Short- and Long-Term Changes in Rat Liver Following Burn Injury and CLP Treatment**
Q. Qian Yang[1], M. A. Orman[1], I. Androulakis[1], F. Berthiaume[1], and M. Ierapetritou[1]
[1]Rutgers University, Piscataway, NJ

PS-7B-18-210 **Phosphorylation of Alanine-Directed Substrates by MAP-Kinases: an Over-looked Specificity?**
T. S. Kaoud[1], M. A. Rainey[2], L. Liu[3], and K. N. Dalby[1]
[1]Division of Medicinal Chemistry, College of Pharmacy, University of Texas at Austin, TX, Austin, TX, [2]Graduate Program in Molecular Biology, University of Texas at Austin, Austin, TX, [3]Graduate Program in Biochemistry, University of Texas at Austin, Austin, TX

PS-7B-18-211 **Optimizing Alignment Algorithms to Quantify Cancer Signals in Next-Generation Sequencing Data**
J. H. Phan[1], J. Dale[1], C. F. Quo[1], R. M. Parry[1], T. H. Stokes[1], and M. D. Wang[1]
[1]Georgia Tech and Emory University, Atlanta, GA

PS-7B-18-212 **Computational Studies of the Effects of Interpersonal Variability on Cancer Drug Efficacy**
L. Chu[1], and F. Mac Gabhann[1]
[1]Johns Hopkins University, Baltimore, MD

PS-7B-18-213 **Modeling Insulin-mediated Growth Factor Signaling and Its Role in Diabetes**
A. Chakrabarti[1], S. Nayak[1], J. P. Lequieu[1], and J. D. Varner[1]
[1]Cornell University, Ithaca, NY

Track: Tissue Engineering - **PS-7B-19** - ***Neural Tissue Engineering***

PS-7B-19-214 **Neurite Growth in PEG-Fibronectin Conjugate Hydrogels**
W. Zhou[1,2], and R. K. Willits[1,2]
[1]Saint Louis University, St. Louis, MO, [2]University of Akron, Akron, OH

PS-7B-19-215 **Guidance of Dorsal Root Ganglion Neurites and Schwann Cells by Biomimetic Schwann Cell Topography**
J. A. Richardson[1], C. W. Rementer[1], and D. Hoffman-Kim[1]
[1]Brown University, Providence, RI

PS-7B-19-216 **Neural Tissue Engineering Scaffolds with Simultaneous Nanofibrous, Electrical, and Neurotrophic Cues**
C. A. Milroy[1], J. Y. Lee[1], and C. E. Schmidt[1]
[1]University of Texas, Austin, TX

PS-7B-19-217 **Neurite Growth in PEG Gels: Effect of Mechanical Stiffness and Laminin Concentration**
L. M. Marquardt[1], and R. K. Willits[1]
[1]Saint Louis University, St. Louis, MO

PS-7B-19-218 **Effect of Additives on Neurite Growth in Collagen Gels**
S. Sahu[1], K. E. Swindle-Reilly[1], and R. K. Willits[1]
[1]Saint Louis University, Saint Louis, MO

PS-7B-19-219 **Controlled Release of Neurotrophic Factors from Silk Films for Nerve Cell Function**
A. R. Nectow[1], E. M. Pritchard[1], and D. L. Kaplan[1]
[1]Tufts University, Medford, MA

PS-7B-19-220 **Alignment of Basal Lamina Protein Extract Nanofibers and Its Effect on Schwann Cell Orientation.**
B. J. Mundo[1,2], R. L. Miller[1,2], and P. J. VandeVord[1,2]
[1]Wayne State University, Detroit, MI, [2]John D. Dingell Veterans Affairs Medical Center, Detroit, MI

PS-7B-19-221 **A Novel Plant Derived Scaffold for Tissue Engineering and Regenerative Medicine**
S. Lenaghan[1], K. Serpersu[1], L. Xia[1], W. He[1], and M. Zhang[2]
[1]UTK, Knoxville, TN, [2]University of Tennessee, Knoxville, TN

PS-7B-19-222 **Directing Neurite Outgrowth with Coaxial Electrospun Nanofibers Incorporating Nerve Growth Factor Concentration Gradient**
.. Handarmin[1], and S. Chew[1]
[1]Nanyang Technological University, Singapore, Singapore, Singapore

PS-7B-19-223 **Long Term Evaluation of Axonal Guidance Conduits Implanted into the Completely Transected Adult Rat Spinal Cord**
A. Hurtado[1,2], J. M. Cregg[3], H. B. Wang[4], D. F. Wendell[1], J. W. McDonald[1,2], and R. J. Gilbert[3]
[1]Hugo W. Moser Research Institute at Kennedy Krieger, Baltimore, MD, [2]Johns Hopkins University, Baltimore, MD, [3]Michigan Technological University, Houghton, MI, [4]Syracuse University, Syracuse, NY

PS-7B-19-224 **Significant stimulation of Glioblastoma Multiforme derived Conditioned Medium on Neuronal Growth**
S. Vasudevan[1], N. Hall[1], and Y-T. Kim[1]
[1]University of Texas at Arlington, Arlington, TX

PS-7B-19-225 **Guiding Neuronal Cells in 3-Dimensions Using a Composite Scaffold System**
D. S. Hernandez[1], S. K. Seidlits[1], C. E. Schmidt[1], and J. B. Shear[1]
[1]The University of Texas at Austin, Austin, TX

PS-7B-19-226 **The Effect of Cell Viability on the Mechanical Properties of Acute Rat Brain Tissue Slices**
S. J. Lee[1], J. Sun[2], H. Xie[2], M. King[3], and M. Sarntinoranont[1]
[1]Department of Mechanical and Aerospace Engineering, Gainesville, FL, [2]Electrical and Computer Engineering, Gainesville, FL, [3]Pharmacology and Therapeutics, Gainesville, FL

PS-7B-19-227 **Tissue Engineered Microconduits for Targeted Restoration of Axonal Tracts**
D. Cullen[1], M. Tang-Schomer[1], V. E. Johnson[1], A. R. Patel[1], K. D. Browne[1], and D. H. Smith[1]
[1]University of Pennsylvania, Philadelphia, PA

Track: Tissue Engineering - **PS-7B-20** - ***Novel Biomaterials and Scaffolds***

PS-7B-20-228 **Development of a Transplantable Liver Graft Using Decellularized Liver Matrix**
B. Uygun[1], A. Soto-Gutierrez[2], H. Yagi[3], M-L. Izamis[1], M. Guzzardi[1], F. Berthiaume[1], Y. Nahmias[1], M. Yarmush[1], and K. Uygun[1]
[1]Massachusetts General Hospital, Harvard Medical School, Shriners Hospitals for Children, Boston, MA, [2]Children's Hospital of Pittsburgh, McGowan Institute for Regenerative Medicine and University of Pit, Pittsburgh, PA, [3]Keio University School of Medicine, Tokyo, Japan

PS-7B-20-229 **Engineering Compliant Polymeric Substrata for Myocardial Contractility**
C. LeBlon[1], and S. Jedlicka[1]
[1]Lehigh University, Bethlehem, PA

PS-7B-20-230 **Mechanical Properties and *In Vitro* Cytocompatibility of Nanocomposite Polymer Hydrogels**
P. Schexnailder[1], A. Gaharwar[1], C-J. Wu[1], and G. Schmidt[1]
[1]Purdue University, West Lafayette, IN

PS-7B-20-231 **Rotary Jet-Spinning: A Novel Technique of Nanofibrous Scaffold Fabrication**
M. R. Badrossamay[1,2], H. A. McIlwee[1,2], J. A. Goss[1,2], and K. K. Parker[1,2]
[1]Disease Biophysics Group, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, MA

PS-7B-20-232 **Chondroprogenitor Cells Differentiation on 3D DBM Scaffold**
S. Cai [1], K. Kuwahara[1], Z. Yang[1], and B. Han[1]
[1]University of Southern California, Los Angeles, CA

PS-7B-20-233 **Tunable Degradation in Protein/Synthetic Electrospun Composites**
J. Kluge[1], E. Gil[2], D. L. Kaplan[2], and R. L. Mauck[1]
[1]University of Pennsylvania, Philadelphia, PA, [2]Tufts University, Medford, MA

PS-7B-20-234 **Silk-Human Tropoelastin Blend Biomaterials**
X. HU[1], X. Wang[1], J. Rnjak[2], A. S. Weiss[2], and D. L. Kaplan[1]
[1]Tufts University, Medford, MA, [2]The University of Sydney, Sydney, NSW, Australia

PS-7B-20-235 **Influencing Elastin Production *In Vitro* Using an Elastin Mimetic Peptide**
D. Patel[1], R. Menon[1], and L. Taite[1]
[1]Georgia Institute of Technology, Atlanta, GA

PS-7B-20-236 **Fabrication of Functional Hydrogel Nano-structures for Biomolecule Conjugations**
R. T-S. Lam[1], J-W. Jang[1], P. L. Stiles[1], and S. R. Nettikadan[1]
[1]NanoInk, Inc., Skokie, IL

PS-7B-20-237 **Assessment of Using Laponite Cross-linked Poly(ethylene oxide) as Biomaterial for Bone Repair**
A. K. Gaharwar[1], P. J. Schexnailder[1], C-J. Wu[1], B. Kline[1], and G. Schmidt[1]
[1]Purdue University, West Lafayette, IN

PS-7B-20-238 **Predicting and Improving Gaseous Exchange in Composite Biomaterial Constructs**
J. C. White[1], W. L. Stoppel[1], S. C. Roberts[1], and S. R. Bhatia[1]
[1]University of Massachusetts Amherst, Amherst, MA

PS-7B-20-239 **Novel Methacrylated Gellan Gum Hydrogels with Tunable Mechanical Properties**
D. F. Coutinho[1,2], S. Sant[2,3], H. Shin[3,4], J. T. Oliveira[1,5], M. E. Gomes[1,5], N. Neves[1,5], A. Khademhosseini[2,3], and R. Reis[1,6]
[1]3Bs Research Group, Biomaterials Biodegradables and Biomimetics, Guimaraes, Portugal, [2]Harvard MIT Division of Health Sciences and Technology, Cambridge, MA, [3]Center for Biomedical Engineering, Department of Medicine, Brigham and Womens Hospital, Cambridge, MA, [4]Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, [5]IBB, Institute for Biotechnology and Bioengineering, PT Government Associated Laboratory, Braga, Portugal, [6]IBB Institute for Biotechnology and Bioengineering, PT Government Associated Laboratory, Braga, Portugal

PS-7B-20-240 **PC12 Behavior in Modular PEG Scaffolds: Effects of Stiffness and Protein Concentration**
R. A. Scott[1], and R. K. Willits[1]
[1]Saint Louis University, St. Louis, MO

PS-7B-20-241 **Novel Polyurethane/Carbon Nanofiber Composites for Bladder Cancer Applications**
M. Tsang[1], Y. W. Chun[1], and T. J. Webster[1]
[1]Brown University, Providence, RI

PS-7B-20-242 **Elastin Mimetic Hybrid Polymers as Conducive Scaffolds for Tissue Engineering**
S. E. Grieshaber[1], A. J. Farran[1], K. L. Kiick[1], and X. Jia[1]
[1]University of Delaware, Newark, DE

PS-7B-20-243 **Unique Electrochemically Synthesized Polypyrrole:poly(lactic-co-glycolic acid) Blends for Biomedical Applications**
L. Forciniti[1], N. K. Guimard[1], S. Lee[1], and C. E. Schmidt[1]
[1]The University of Texas at Austin, Austin, TX

PS-7B-20-244 **Biocompatible Detachable Polyelectrolyte Multilayer Films for Applications in Tissue Engineering**
A. L. Larkin[1], R. M. Davis[1], and P. Rajagopalan[1]
[1]Virginia Tech, Blacksburg, VA

PS-7B-20-245 **Development of Gold Nanoparticle Entrapped Polyethylene Terephthalate for Soft Tissue Repair**
O. E. Whelove[1], and S. A. Grant[1]
[1]University of Missouri, Columbia, MO

PS-7B-20-246 **Characterization of Salt Templated Hyaluronic Acid Hydrogels for Neural Wound Healing**
R. C. Thomas[1], and C. E. Schmidt[1]
[1]University of Texas at Austin, Austin, TX

PS-7B-20-247 **Use of PNIPAAm-PEG, an Injectable Scaffold for Spinal Cord Repair, in an *In Vivo* Rodent Model of Spinal Cord Injury**
L. Conova[1,2], J. Vernengo[3], Y. Jin[2], I. Fischer[2], B. Neuhuber[2], and A. Lowman[1]
[1]Drexel University, Philadelphia, PA, [2]Drexel University College of Medicine, Philadelphia, PA, [3]Rowan University, Glassboro, NJ

PS-7B-20-248 **Bile Acid and Cholesterol Metabolism in 3D Liver Mimics**
C. J. Detzel[1], Y. Kim[1], and P. Rajagopalan[1]
[1]Virginia Polytechnic Institute and State University, Blacksburg, VA

PS-7B-20-249 **Characterizing an Agarose-PEG Interpenetrating Network Hydrogel for Cartilage Tissue Engineering**
B. J. DeKosky[1], N. H. Dormer[1], G. C. Ingavle[1], M. S. Detamore[1], and S. H. Gehrke[1]
[1]University of Kansas, Lawrence, KS

PS-7B-20-250 **PDMSstar-PEG Hydrogel Scaffolds with Tunable Properties**
B. M. Bailey[1], K. Hui[1], and M. A. Grunlan[2]
[1]Texas A&M University, College Station, TX, [2]Texas A&M University, College Station, TX

PS-7B-20-251 **Mechanical and Structural Characteristics of Multi-Component Biopolymer Networks**
L. Hyland[1], M. Taraban[1], and Y. Yu[1]
[1]University of Maryland-College Park, College Park, MD

PS-7B-20-252 **Modular PEG Scaffolds: Examination of Microgel Fabrication Conditions and Scaffold Properties**
L. Vandiver[1], J. Stukel[1], and R. K. Willits[1,2]
[1]Saint Louis University, St. Louis, MO, [2]University of Akron, Akron, OH

PS-7B-20-253 **Double-Gelling Hydrogels for Endovascular Embolization of Aneurysms**
H. H. Bearat[1], C. Pauken[1], and B. L. Vernon[1]
[1]Arizona State University, Tempe, AZ

PS-7B-20-254 **Controlling Morphology of Blown Shape Memory Polyurethane Foams**
P. Singhal[1], T. S. Wilson[2], and D. J. Maitland[1]
[1]Texas A&M University, College Station, TX, [2]Lawrence Livermore National Laboratory, Livermore, CA

PS-7B-20-255 **Synthetic Substrates for the Study of the Impact of Material Mechanics on Cellular Functions**
A. T. Leonard[1], J. R. Funston[1], K. N. Cicotte[1,2], and E. L. Hedberg-Dirk[1]
[1]University of New Mexico, Albuquerque, NM, [2]Sandia National Laboratories, Albuquerque, NM

PS-7B-20-256 **Controlled Deposition of Electrospun Silk Fiber Meshes with Anisotrpoic Mechanical Properties**
R. R. Jose[1], R. Elia[1], and R. A. Peattie[1]
[1]Tufts University, Medford, MA

PS-7B-20-257 **Effects of Carbon Nanotube-Collagen Scaffolds on Cell Proliferation, Differentiation, and Inflammatory Response in Mesenchymal Stem Cells**
R. Baktur[1], and S. Kwon[1]
[1]Utah State University, Logan, UT

PS-7B-20-258 **Self-assembled Three-dimensional Conductive Scaffolds for Stimulated Cell Culture**
J-O. You[1], M. Rafat[1], G. Ye[1], and D. T. Auguste[1]
[1]Harvard University, Cambridge, MA

PS-7B-20-259 **Novel Bioactive Hydrogels for Aneurysm Treatment**
M. Rafat[1], and D. T. Auguste[1]
[1]Harvard University, Cambridge, MA

PS-7B-20-260 **A Plant (Chinese Yam) Derived Scaffold for Tissue Engineering**
L. Xia[1], S. Lenaghan[1], A. Wills[1], and M. Zhang[2]
[1]UTK, Knoxville, TN, [2]University of Tennessee, Knoxville, TN

PS-7B-20-261 **Development of an *In Vitro* Model for Studying Corneal Epithelial-Stromal Interactions**
W. M. Petroll[1], L. Ma[1], and D. M. Robertson[1]
[1]Southwestern Medical Center, Dallas, TX

PS-7B-20-262 **Engineered Matrix Mimetics Support Assembly of a Growth-Promoting Fibronectin Matrix**
D. C. Roy[1], and D. C. Hocking[1]
[1]University of Rochester, Rochester, NY

PS-7B-20-263 **Thermomechanical Characterization and Model Predictions of a Polyurethane Shape Memory Polymer**
B. L. Volk[1], D. C. Lagoudas[1], and D. J. Maitland[1]
[1]Texas A&M University, College Station, TX

PS-7B-20-264 **Selective improvement of TNF Capture in a Cytokine Hemoadsorption Device Using Immobilized anti-TNF**
M. V. DiLeo[1], and W. J. Federspiel[1]
[1]University of Pittsburgh, Pittsburgh, PA

PS-7B-20-265 **Micro-Computed Tomography Characterization of Shape Memory Polymer Foams**
J. N. Rodriguez[1], A. Muschenborn[1], F. J. Clubb[1], T. S. Wilson[2], and D. J. Maitland[1]
[1]Texas A&M University, College Station, TX, [2]Lawrence Livermore National Laboratory, Livermore, CA

PS-7B-20-266 **Keratin Biomaterials for Tissue Engineering and Regenerative Medicine Applications**
J. Rouse[1], and M. Van Dyke[1]
[1]Wake Forest University School of Medicine, Winston Salem, NC

PS-7B-20-267 **Water Absorption Influence on the Properties of Shape Memory Polymer**
Y-J. Yu[1], P. Singhal[1], T. S. Wilson[2], and D. J. Maitland[1]
[1]Texas A&M University, College Station, TX, [2]Lawrence Livermore National Laboratory, Livermore, CA

PS-7B-20-268 **Investigation of Polycaprolactone and Hydroxyapatite Whiskers Scaffold**
G. B. Camargo Cardoso[1], P. B. Rego[1], S. L. Ramos[1], C. A. Zavaglia[1], and A. F. Arruda[1]
[1]Unicamp, Campinas, São Paulo, Brazil

PS-7B-20-269 **Designing Fibrin Microthread-Based Scaffolds for Skeletal Muscle Regeneration**
J. Grasman[1,2], C. Malcuit[2,3], R. Page[1,3], T. Dominko[1,3], and G. Pins[1,2]
[1]Worcester Polytechnic Institute, Worcester, MA, [2]Bioengineering Institute, Worcester, MA, [3]CellThera Inc., Worcester, MA

PS-7B-20-270 **Preparation and Characterization of a Skeletal Muscle ECM Scaffold**
M. T. Wolf[1], K. A. Daly[1], and S. F. Badylak[1]
[1]University of Pittsburgh, Pittsburgh, PA

PS-7B-20-271 **Hybrid Biomaterials for Biomedical Applications**
E. Reategui[1], L. Kasinkas[1], and A. Aksan[1]
[1]University of Minnesota, Minneapolis, MN

PS-7B-20-272 **Redox-Initiated Crosslinking of Cellulosic Hydrogels for Soft Tissue Augmentation**
M. S. Gupta[1], E. S. Cooper[1], A. T. Reza[1], and S. B. Nicoll[1]
[1]The City College of New York, New York, NY

PS-7B-20-273 **Evaluation of Electrospun Scaffolds for the Expansion of Precursors of Insulin-producing Cells**
M. Palacio-Ochoa[1,2], D. Gallego-Perez[1], N. Higuita-Castro[1], J. Johnson[1], J. J. Lannutti[1], K. J. Gooch[1], and D. J. Hansford[1]
[1]The Ohio State University, Columbus, OH, [2]Antioquia School of Engineering, Envigado, Antioquia, Colombia

PS-7B-20-274 **Role of Ascorbic Acid in S-transnitrosation Reaction - A kinetic Analysis**
J. Gu[1], V. Muthuvijayan[2], and R. Lewis[3]
[1]Oklahoma State University, Stillwater, OK, [2]Johns Hopkins University, Baltimore, MD, [3]Brigham Young University, Provo, UT

PS-7B-20-275 **Photo-polymerizable Nitric Oxide-releasing Elastomers**
Y. Wang[1], and G. A. Ameer[1,2]
[1]Northwestern University, Evanston, IL, [2]Northwestern University, Chicago, IL

PS-7B-20-276 **Mimicking the Extracellular Matrix via Controlled Multiple Thickness Deposition of Electrospun Mats**
R. Elia[1], R. R. Jose[1], and R. A. Peattie[1]
[1]Tufts University, Medford, MA

PS-7B-20-277 **Bactericidal Effect of Iron Oxide Nanoparticles on *Staphylococcus aureus***
N. L. Tran[1], A. Mir[2], D. Mallik[2], A. Sinha[2], S. Nayar[2], and T. J. Webster[1]
[1]Brown University, Providence, RI, [2]National Metallurgical Laboratory, Jamshedpur, Jharkhand, India

PS-7B-20-278 **Engineering enabled Biomimetic Corneal Stroma**
S. Banda[1], and Y-T. Kim[1]
[1]University of Texas at Arlington, Arlington, TX

PS-7B-20-279 **Synthesis and Characterization of Crosslinked Urethane-doped Block Polyester Elastomers**
A. Kolasnikov[1], R. T. Tran[1], and J. Yang[1]
[1]The University of Texas at Arlington, Arlington, TX

PS-7B-20-280 **Design and Implementation of a Novel Nanofiber Dural Substitute**
M. R. MacEwan[1], J. Xie[1], W. Z. Ray[1], D. Siewe[1], and Y. Xia[1]
[1]Washington University, Saint Louis, MO

PS-7B-20-281 **Adjustment of Hydrogel Scaffold Properties to Induce Responses of Corneal Epithelial Cells**
L. Reis[1], and P. Sit[1]
[1]Louisiana Tech University, Ruston, LA

PS-7B-20-282 **Laser Microfabricated Poly(glycerol Sebacate) Scaffolds for Heart Valve Tissue Engineering**
N. Masoumi[1], A. Jean[1], A. Parkar[1], and G. C. Engelmayr[1]
[1]The Pennsylvania State University, University Park, PA

PS-7B-20-283 **Engineered Basal Lamina: Fabrication and Its Biomedical Applications**
S. Banda[1], S. Vasudevan[1], D. Tamuly[1], and Y-T. Kim[1]
[1]University of Texas at Arlington, Arlington, TX

PS-7B-20-284 **Studies on Silicon Stabilized Nano-sized alpha-Tricalcium Phosphate Based Cements**
P. Kumta[1], and A. Roy[1]
[1]University of Pittsburgh, Pittsburgh, PA

PS-7B-20-285 **The Role of Magnesium Substitution on the Properties and *In Vitro* Bioactivity of Brushite Cements**
P. Kumta[1], S. Singh[1], and A. Roy[1]
[1]University of Pittsburgh, Pittsburgh, PA

PS-7B-20-286 **Mechanical and Cellular Response to Biomineralization of Ovalbumin Scaffolds for Bone Tissue Engineering**
K. T. Sheets[1], and A. W. Morgan[1]
[1]Virginia Tech, Blacksburg, VA

PS-7B-20-287 **Structural Transition Induced by Mechanical Shear in a Novel Peptide-Amphiphile System**
K. Megley[1], W. Suh[1], and M. Tirrell[1]
[1]UC Berkeley, Berkeley, CA

PS-7B-20-288 **Tissue Density Culture in a GAG-based Microcapsules as a Foundation for Modular Tissue Engineering**
R. T. Annamalai[1], D. R. Armant[1], and H. W. Matthew[1]
[1]Wayne State University, Detroit, MI

PS-7B-20-289 **Vapor-Phase Nano-Textured Coating of Biocompatible Organic Films on Solid State Surfaces**
S. Vidyala[1], S. Goyal[2], Y-T. Kim[1], and S. M. Iqbal[1]
[1]University of Texas Arlington, Arlington, TX, [2]Life Technologies Corporation, Carlsbad, CA