P-Th-15
Integrating Innovation and Entrepreneurship into the REU Experience
D. Shreiber[1], S. Engelhardt[1], T. Maguire[1], and M. Yarmush[1]
[1]Rutgers, The State University of New Jersey, Piscataway, NJ

P-Th-16
Examining the Impact of a Peer-to-peer Mentoring Program Through the Lens of Social Capital Theory
J. Le Doux[1]
[1]Georgia Institute of Technology, Atlanta, GA

P-Th-17
Ph.D. Boot Camp: the Kickoff for Training Innovative Leaders in Biofabrication
K. Billiar[1], G. Gaudette[1], F. Hoy[1], M. Rolle[1], and T. Camesano[1]
[1]Worcester Polytechnic Institute, Worcester, MA

P-Th-18
Enhancing High School STEM Education Through Research-related Bioengineering Experiences
L. Tostanoski[1], A. Jones[1], and C. Jewell[1,2,3]
[1]University of Maryland, College Park, MD, [2]University of Maryland Medical School, Baltimore, MD, [3]Marlene and Stewart Greenebaum Cancer Center, Baltimore, MD

Track: Biomedical Engineering Education (BME)
Biomedical Education:
Innovative Learning Modules and Instructional Materials Posters

P-Th-19 DREAM TEAM & CENTER
Improving Peer-Reviewing of Reports Through Calibration and Direct Instructor Feedback
J. Linnes[1], N. Bajaj[1], A. Aboelzahab[1], A. Brightman[1], and A. Rundell[1]
[1]Purdue University, West Lafayette, IN

P-Th-20
Encouraging Curiosity, Connections, and the Creation of Value in a Materials/Biomaterials Sequence: Part II Biomaterials
S. Zustiak[1]
[1]Saint Louis University, St Louis, MO

P-Th-21
An Interactive Training Tool to Help Reduce Error Rate Associated with Shared Infusion Volume
K. Tsang[1,2], S. Pinkney[1], C. Colvin[1], and P. Trbovich[1,2]
[1]University Health Network, Toronto, ON, Canada, [2]University of Toronto, Toronto, ON, Canada

P-Th-22
Bringing Real World Expertise Into Class: An Industry Partnership To Teach Biomedical Design
L. Khuon[1,2], J. B. Zurn[3,4], G. Herrera[5,6], and K. Zurn[3,7]
[1]Drexel University, Philadelphia, PA, [2]University of Pennsylvania, Philadelphia, PA, [3]Villanova University, Villanova, PA, [4]Sunshine Labs, Longwood, FL, [5]Med Associates, Inc., St. Albans, VT, [6]Catamount Research & Development, Inc., St. Albans, VT, [7]Florida Research Instruments, Cocoa Beach, FL

P-Th-23
Engaging Students to Enrich their Learning through Developing Course Materials
M. Pool[1] and K. Gray[2]
[1]University of Illinois at Urbana Champaign, Urbana, IL, [2]West Virginia University Institute of Technology, Montgomery, WV

P-Th-24
The 'Good', the 'Bad', and the 'Ugly' Biostatistics for Bioengineering Students
Y. Kim[1]
[1]Purdue University, West Lafayette, IN

Track: Biomedical Engineering Education (BME)
Biomedical Education:
Laboratory Modules and Instructional Materials Posters

P-Th-25
Flipping the Lab: Introducing a Flipped Classroom Model Into a Laboratory Class
A. Aboelzahab[1] and T. Kinzer-Ursem[1]
[1]Purdue University, West Lafayette, IN

P-Th-26
Nanotechnology for Biomedical Engineers and STEM Majors: Bringing Multidisciplinary Nanotechnology into the Classroom
R. Perez-Castillejos[1]
[1]NJIT, Newark, NJ

P-Th-27
Educational Videos Help Improve Student Understanding in a Laboratory Course
R. Ramos[1], B. Ghosn[1], and C. Livingston[1]
[1]Rice University, Houston, TX

P-Th-28
Assessment of Student Value and Scientific Literacy in an Introductory Biomaterials Laboratory
C. Ankeny[1] and S. Stabenfeldt[1]
[1]Arizona State University, Tempe, AZ

P-Th-29
A Template for Multi-Disciplinary Team-Based Problem Solving, Design, and Assessment: Application in Biomedical Engineering
S. Zustiak[1], S. Sell[1], and G. Gaudette[2]
[1]Saint Louis University, St Louis, MO, [2]Worcester Polytechnic Institute, Worcester, MA

Track: Bioinformatics, Computational and Systems Biology
Computational Modeling and Systems Approaches:
Algorithms for Computational/Systems Biology Posters

P-Th-30
A Unified Sparse High-Dimensional Association Test for Quantitative Traits in Complex Relatedness
S. Cao[1], H. Qin1, A. Gossmann[1], H-W. Deng[1], and Y-P. Wang[1]
[1]Tulane University, New Orleans, LA

P-Th-31
Online Remote Monitoring of Heart Rate Variability
M. Thome[1], J. Salinet[1], R. Rodrigues[1], and D. Goroso[1]
[1]Mogi das Cruzes University, Mogi das Cruzes, Brazil

P-Th-32
Classifying Brain States Using Machine Learning Techniques
A. Rajan[1], S. Meyyappan[1], E. Opri[1], R. Sitaram[1], and M. Ding[1]
[1]University of Florida, Gainesville, FL

P-Th-33
NCLX Mitochondrial Exchanger Blocking: Simulation vs Experiment
E. T.N.T da Silva[1], D. Goroso[1], and R. Rodrigues[1]
[1]Mogi das Cruzes University, Mogi das Cruzes, Brazil

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-34
Assessing Granger Causality in Electrophysiology: Unipolar vs. Bipolar Signals
B. Nandi[1], A. Trongnetrpunya[1], D. Kang[1], B. Kocsis2, C. Schroeder3, and M. Ding[1]
[1]*University of Florida, Gainesville, FL,* [2]*Harvard Medical School, Boston, MA,* [3]*Nathan S. Kline Institute for Psychiatric Research, Orangeburg, NY*

P-Th-35
Use of Smartphone's Accelerometer to Estimate Physical Activity Energy Expenditure
M. Ishizaki[1], R. Rodrigues[1], and D. Goroso[1]
[1]*Mogi das Cruzes University, Mogi das Cruzes, Brazil*

P-Th-36
Nexperiment: User Friendly Model-based Design of Experiments Software
A. Sai[1], T. Mdluli[1], A. Rundell[1], and G. Buzzard[1]
[1]*Purdue University, West Lafayette, IN*

P-Th-37
Assessing Effects of Sequencing Depth on ChIP¬seq Quality and Peak Calling Performance
A. Lo[1], B. Phan[2], D. Walsten[2], R. Karchin[2], B. Maher[3], and A. Jaffe[3]
[1]*Johns Hopkins University, Holden, MA,* [2]*Johns Hopkins University, Baltimore, MD,* [3]*Lieber Institute for Brain Development, Baltimore, MD*

P-Th-38
Use of Existing CAD Models for Radiation Shielding Analysis
J. Barzilla[1], K. Lee[2], P. Wilson[3], A. Davis[3], and J. Zachman[3]
[1]*Lockheed Martin, Houston, TX,* [2]*NASA, Houston, TX,* [3]*University of Wisconsin, Madison, WI*

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Dynamics of Biological Systems Posters

P-Th-39
Integrative Modeling Identifies VEGFR1 as an Essential Regulator of VEGF-Induced Migration
J. Weddell[1] and P. Imoukhuede[1]
[1]*University of Illinois at Urbana-Champaign, Urbana, IL*

P-Th-40
A Crosstalk-Based Linear Filter Design in Biochemical Signal Transduction Pathways
M. Laddomada[1], D. Mahan[1], and M. Pierobon[2]
[1]*Texas A&M University, Texarkana, Texarkana, TX,* [2]*University of Nebraska-Lincoln, Lincoln, NE*

P-Th-41
A Quantitative Analysis of Natural Killer Cell Response to IL-15 Stimulation
A. Throm[1] and A. French[1]
[1]*Washington University in St. Louis, St. Louis, MO*

P-Th-42 DREAM TEAM & CENTER
Characterizing Chemotherapy Effects on Hematopoietic Stem Cell Differentiation
J. Sarker[1,2], S. Robertson[2], D. Umulis[1], R. Nelson[2], and A. Rundell[1]
[1]*Purdue University, West Lafayette, IN,* [2]*Indiana University School of Medicine, Indianapolis, IN*

P-Th-43
Protease Site-directed Mutagenesis Distinguishes Cannibalistic Interactions in Proteolytic Networks
M. Ferrall[1], M. Affer[2], and M. Platt[1]
[1]*Georgia Institute of Technology and Emory University, Atlanta, GA,* [2]*Georgia Institute of Technology, Atlanta, GA*

P-Th-44
Regulation of Integrin Activation in Neovascularization by Basement Membrane Proteins and Inhibitors
N. Bajaj[1], T-C. Wu[1], S. Voytik-Harbin[1], D. Umulis[1], and A. Rundell[1]
[1]*Purdue University, West Lafayette, IN*

P-Th-45
Spatiotemporal Kinetic Modeling of the Myocardin-Related Transcription Factor-A Regulatory Axis
B. Spar[1] and C. Nelson[1]
[1]*Princeton University, Princeton, NJ*

P-Th-46
Regulation of Cell Motility and Proliferation by Cellular Signaling: Role of STAT3
T. Islam[1], Z. Speth[1], K. Banerjee[1], and H. Resat[1]
[1]*Washington State University, Pullman, WA*

P-Th-47
Fluorescence Lifetime Mapping of NADH Reveals DNA Repair Activity in Live Cells
M. Murata[1], X. Kong[1], K. Yokomori[1], and M. Digman[1]
[1]*University of California, Irvine, Irvine, CA*

P-Th-48
Dynamic Indirect Measurement of the Daily Macronutrient Oxidation Rate, Changes of Fat and Fat Free Mass u/u
Z. Ori[1]
[1]*Duke University Health System, Durham, NC*

P-Th-49
Regulation of Oxidative Stress in Endothelial Cells
H. Patel[1], C. Presnell[1], and M. Kavdia[1]
[1]*Wayne State University, Detroit, MI*

P-Th-50
The Role of the Human Amygdaloid Complex in Fear Conditioning: A Functional Connectivity Analysis
S. Yin[1], Y. Liu[2], A. Keil[1], and M. Ding[1]
[1]*University of Florida, Gainesville, FL,* [2]*University of California, Davis, Davis, CA*

Track: Cancer Technologies

Computational Modeling and Systems Approaches:

Computation Modeling of Cancer Growth and Treatment Posters

P-Th-51
Parametric Analysis of Cancer Dynamics: An Evaluation of Environmental Contributing Factors
R. Abiri[1], I. Zeller[1], and X. Zhao[1]
[1]*The University of Tennessee, Knoxville, Knoxville, TN*

Track: Respiratory Bioengineering

Computational Modeling and Systems Approaches:

Computational Modeling of the Airway Posters

P-Th-52 DREAM TEAM & CENTER
3D Agent-based Models of Airway Remodeling to Investigate Treatment Courses for Asthma
H. Kaul[1], M. Burkitt[1], C. Newby[2], and R. Smallwood[1]
[1]*University of Sheffield, Sheffield, United Kingdom,* [2]*University of Leicester, Leicester, United Kingdom*

P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-53
A Computation Model of Airflow in the Main Airways of the Lung
P. Gamage[1] and H. Mansy[1]
[1]University of Central Florida, Orlando, FL

P-Th-54
Non-Stationary Analysis for Tracking Temporal Variations In Impedance During Oscillometry.
H. hanafi[1], G. Maksym[2], and K. El-Sankary[2]
[1]dalhousie university, halifax, NS, Canada, [2]Dalhousie University, halifax, NS, Canada

P-Th-55
A Complete CFD Model of Pharmaceutical Aerosol Deposition in the Lungs: Validations with In vivo Data
W. Longest[1], G. Tian[1], and M. Hindle[1]
[1]Virginia Commonwealth University, Richmond, VA

P-Th-56
A Statistical Mechanical Model of Spontaneous Airway Constriction
B. Suki[1], A. Chang[2], J. Pillow[2], and P. Noble[2]
[1]Boston University, Boston, MA, [2]University of Western Australia, Perth, Australia

P-Th-57
Experimental and Numerical Analysis of Micro-beads Velocity in a Flow Induced by Cilia Motion
M. Bottier[1], M. Peña Fernández[2], G. Pelle[2], E. Bequignon[2], D. Isabey[2], A. Coste[2], E. Escudier[3], M. Manolidis[4], J. B. Grotberg[4], J-F. Papon[2], B. Louis[2], and M. Filoche[5]
[1]Inserm U[955], Creteil, France, [2]Inserm U[955], Créteil, France, [3]Inserm U[933], Paris, France,[4]University of Michigan, Ann Arbor, MI, [5]Ecole Polytechnique, Palaiseau, France

P-Th-58
Increased Variability in Airway Wall Thickness Can Explain Ventilation Defects (VDefs) at Lower Levels of Airway Smooth Muscle Stimulation
T. Winkler[1] and J. G. Venegas[1]
[1]Massacusetts General Hospital and Harvard Medical School, Boston, MA

P-Th-59
Pressure and Velocity Relationships of Inspired Air into the Human Lung
P. Aghasafari[1], I. Bin M. Ibrahim[1], R. Arambakam[1], and R. Pidaparti[1]
[1]University of Georgia, Athens, GA

P-Th-60
A Novel Computational Fluid-particle Dynamics (CF-PD) Model for Multicomponent Droplet-vapor Aerosol Mixture Transport, Phase Change and Deposition in an Idealized Trachea-to-G1 Airway
Y. Feng[1] and C. Kleinstreuer[1]
[1]North Carolina State University, Raleigh, NC

Track: Bioinformatics, Computational and Systems Biology
Computational Modeling and Systems Approaches:
General Approaches Posters

P-Th-61
Optimizing Normalization Feature For Volumetric Brain Measurement
N. Soberon[1], M. Markey[1], and N. Verma[1]
[1]The University of Texas at Austin, Austin, TX

P-Th-62
Theta-Rhythmic Drive Between Medial Septum and Hippocampus in Slow Wave Sleep and Microarousal: A Granger Causality Analysis
D. Kang[1], M. Ding[1], I. Topchiy[2], L. Shifflett[2], and B. Kocsis[2]
[1]University of Florida, Gainesville, FL, [2]BIDMC, Harvard Medical School, Boston, MA

P-Th-63
High-Throughput Assessment Algorithm to Predict Skin Sensitization Using *In Vitro* Alternatives to Animal Testing
S. Lee[1], T. Greenstein[1], T. Maguire[1], R. Schloss[1], and M. Yarmush[1]
[1]Rutgers University, Piscataway, NJ

P-Th-64
Automatic Cell Selection Method for Pap Smear Test
Q. Miao[1], J. Derbas[2], A. Eid[1], H. Subramanian[1,2], and V. Backman[1,2]
[1]Northwestern University, Evanston, IL, [2]Nanocytomics LLC, Evanston, IL

P-Th-65
Protein Osmotic Pressure in the Presence of Sodium-based Salts at Moderate Ionic Strength
C. Hale[1], D. Ornelas[1], L. Chang[1], and V. Rodgers[1]
[1]University of California - Riverside, Riverside, CA

Track: Bioinformatics, Computational and Systems Biology
Computational Modeling and Systems Approaches:
Multiscale Modeling Posters

P-Th-66 **DREAM TEAM & CENTER**
Computational Human Fetal Growth Model of Hypoplastic Left Heart Syndrome: Reduced Ventricular Growth Due to Decreased Preload
S. Dewan[1], A. Krishnamurthy[1], R. Kerckhoffs[1], J. Omens[1], H. Sun[2], V. Nigam[1,2], and A. Mc Culloch[1]
[1]University of California at San Diego, La Jolla, CA, [2]Rady Children's Hospital at San Diego, San Diego, CA

P-Th-67
A Predictive Multiscale Model for Simulating Platelets Activation in Shear Flows
P. Zhang[1], C. Gao[1], N. Zhang[1], M. Slepian[2], Y. Deng[1], and D. Bluestein[1]
[1]Stony Brook University, Stony Brook, NY, [2]University of Arizona, Tucson, AZ

P-Th-68
Modeling of Neonatal Hemodynamics during PDA Closure
S. Soleymani[1,2], M. Khoo[1,3], S. Noori[2,3], and I. Seri[2,4]
[1]University of Southern California, Los Angeles, CA, [2]Children's Hospital Los Angeles, Los Angeles, CA, [3]Keck School of Medicine, USC, Los Angeles, CA, [4]Sidra Medical and Research Center, Doha, Qatar

P-Th-69
Mathematical Modeling of Laser Irradiation of Port Wine Stain Blood Vessels Containing Erythrocyte-Derived Particles Doped with Indocyanine Green
J. Burns[1], W. Jia[2], V. Sun[2], J. S. Nelson[2], and B. Anvari[1]
[1]University of California, Riverside, Riverside, CA, [2]University of California, Irvine, Irvine, CA

P-Th-70
Quantifying the Consistency of Self-assembly of Single Cardiomyocytes
N. Drew[1], D. Baldo[1], J. Core[1], M. Tagle Rodriguez[1], and A. Grosberg[1]
[1]University of California, Irvine, Irvine, CA

P-Th-71
Flexible Tails Regulate the Functions of β-Catenin
B. zhao[1] and B. xue[1]
[1]University of South Florida, Tampa, FL

POSTER SESSION **Th**

See page 97 for Poster floor plan

P-Th-92
Arrhenius Model of Thermal Damage during Laser Interstitial Thermal Therapy for Renal Cell Carcinoma
M. Ishahak[1], L. Fontaneda[1], S. Arechavala[1], N. Salas[1,2], and R. J. Leveillee[1,2]
[1]University of Miami, Coral Gables, FL, [2]Miller School of Medicine, Miami, FL

P-Th-93
Operational Consistency Of Medical Linear Accelerator Performance Parameters
C. Nguyen[1,2], C. M. Able[2], A. H. Baydush[2], S. Isom[2], and M. T. Munley[1,2]
[1]Virginia Tech - Wake Forest School of Biomedical Engineering and Sciences, Winston Salem, NC, [2]Wake Forest School of Medicine, Winston Salem, NC

P-Th-94
Design behind Improving Efficiency in Endotracheal Tube Changes
J. Mitchell[1], P. Brown[1], and M. Olympio[2]
[1]Virginia Tech - Wake Forest University, Winston-Salem, NC, [2]Wake Forest Baptist Health, Winston-Salem, NC

P-Th-95
Optimized Musculoskeletal Parameters For Predicting Multi-Joint Wrist And Hand Movement From Limited EMG Signals
D. Crouch[1,2] and H. Huang[1,2]
[1]North Carolina State University, Raleigh, NC, [2]University of North Carolina at Chapel Hill, Chapel Hill, NC

P-Th-96
Detecting Leader-Follower Relationship in EEG Hyperscanning
L. Wan[1], S. Dikker[2,3], D. Poeppel[2,4], and M. Ding[1]
[1]University of Florida, Gainesville, FL, [2]New York University, New York, NY, [3]Utrecht University, Utrecht, Netherlands, [4]Max Planck Institute, Frankfurt, Germany

P-Th-97
Analytical Solution for Time-Dependent Potentials in a Cylindrical Fiber
W. Neu[1]
[1]Duke University, Durham, NC

P-Th-98
A Conical Antenna for Stimulating Neurological Tissue
R. Petrella[1,2] and S. Xiao[1,2]
[1]Old Dominion University, Norfolk, VA, [2]Frank Reidy Center for Bioelectrics, Norfolk, VA

P-Th-99
Design of a Low-cost Wireless Near-infrared Spectroscopy System Using Embedded Linux
D. Dias[1] and N. Kashou[1]
[1]Wright State University, Dayton, OH

P-Th-100
Seizure Detection Using Peak Counting In A Fully Implantable Wireless Device For Rodents Seizure Detection Using Peak Counting In A Fully Implantable Wireless Device For Rodents
D. Pederson[1] and P. Irazoqui[1]
[1]Purdue University, West Lafayette, IN

P-Th-101
Assessment of Electrode Surface Area in Electrical Impedance Myography Study Using Finite Element Method
M. Ahad[1] and S. Baidya[1]
[1]Georgia Southern University, Statesboro, GA

P-Th-102 **DREAM TEAM & CENTER**
Identification of Deep Brain Stimulation Targets From a Cohort of Parkinson's Disease Patients
G. Duffley[1,2], D. Chen[3], K. Foote[3,4], M. Okun[3,4], and C. Butson[1,2]
[1]University of Utah, Salt Lake City, UT, [2]Scientific Computing and Imaging (SCI) Institute, Salt Lake City, UT, [3]University of Florida, Gainesville, FL, [4]Center for Movement Disorders and Neurorestoration, Gainesville, FL

P-Th-103
Development of Practical Silicone Ventricles for Testing Direct Mechanical Ventricular Actuation
T. Fischer[1], N. Loeber[1], L. Chia[1], B. Schmitt[1], Y. Zhou[1], D. Reynolds[1], and M. Anstadt[1]
[1]Wright State University, Dayton, OH

P-Th-104
Using Human Factors to Redesign a Laparoscopic Suturing Device for Female Surgeons
J. Baril[1], D. Peterson[2], K. Horton[3], and J. Malkowski[3]
[1]University of Connecticut, East Granby, CT, [2]Texas A&M Texarkana, Texarkana, TX,[3]Medtronic, New Haven, CT

P-Th-105
The Interaction Model Development and Simulation of Wireless Laparoscopic Camera and Abdominal Wall Tissue
R. Yazdanpanah Abdolmalaki[1], X. Liu[1], and J. Tan[1]
[1]University of Tennessee, knoxville, TN

P-Th-106
Design and Implementation of a Portable ECG Signal Transmission Prototype
S. Dehghanojamahalleh[1] and M. Kaya[1]
[1]Florida Institure of Technology, Melbourne, FL

P-Th-107
The Efficacy of a Novel Surgical Tool that Reduces Complications Associated with Spinal Revision Surgery
H. Huang[1], T. Catullo[1], S. Johannesson[1], B. Kim[1], E. Urias[1], E. Chiang[1], A. Subramanya[1], and T. Sun[1]
[1]Johns Hopkins University, Baltimore, MD

P-Th-108
Impact of Geometric Variation on Sealing Capability of a Medical Valve
R. He[1]
[1]Baxter International Inc., Round Lake, IL

POSTER SESSION **Th**

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Proteomics, Genomics, and Metabolomics Posters

P-Th-109
A Systems Biology Approach to Competitive Metabolism between Omega-3 and Omega-6 Fatty Acids in Inflammatory Macrophages
S. Gupta[1], Y. Kihara[1], M. Maurya[1], P. Norris[1], E. Dennis[1], and S. Subramaniam[1]
[1]University of California, San Diego, La Jolla, CA

P-Th-110
Evaluating the Impact of Sequencing Error Correction for RNA-seq Data
L. Tong[1,2], C. Yang[1,2,3], P-Y. Wu[1], and M. D. Wang[1,2]
[1]Georgia Institute of Technology, Atlanta, GA, [2]Emory University, Atlanta, GA, [3]Peking University, Beijing, China, People's Republic of

P-Th-111
Oxidative Stress Induced Senescence in Human Umbilical Vascular Endothelial Cells
S. Raghunandan[1]
[1]University of California, San Diego, La Jolla, CA

P-Th-112
Making Biological Sense of Important Genes in Breast Cancer and their Coordinated Behavior: Preliminary Results
C. Marrero[1]
[1]University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico

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Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Single-cell Measurements and Models Posters

P-Th-113

Single Cell Western Blotting to Study Stem Cell Heterogeneity

D. Spelke[1,2], A. Hughes[1,2], Z. Xu[1], C-C. Kang[1], E. Connelly[1], A. Herr[1], and D. Schaffer[1]

[1]University of California, Berkeley, Berkeley, CA, [2]University of California, San Francisco, San Francisco, CA

P-Th-114

Cell Deformation In A Cross-Channel: Integration Of Computational Modeling With DC Experiment

Z. Sheng[1], H. Lan[2], H. Munoz[3], D. Di Carlo[3], and D. Khismatullin[1]

[1]Tulane University, New Orleans, LA, [2]University of California - San Diego, San Diego, CA,[3]University of California - Los Angeles, Los Angeles, CA

POSTER SESSION **Th**

P-Th-115

Modeling the Mitochondrial Control of Shear-Induced Calcium Dynamics in Vascular Endothelial Cells

R. Buckalew[1], J. Parikh[2], C. Scheitlin[1], D. Terman[1], N. Tsoukias[2], and B. R. Alevriadou[1]

[1]The Ohio State University, Columbus, OH, [2]Florida International University, Miami, FL

P-Th-116

Laser Ionization/Desorption Droplet Delivery Mass Spectrometry for Single Cell Analysis

J. K. Lee[1,2], H. G. Nam[2,3], and R. Zare[1]

[1]Stanford University, Stanford, CA, [2]Institute for Basic Science, Daegu, Korea, Republic of,[3]DGIST, Daegu, Korea, Republic of

Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Systems Approaches to Therapy and Therapeutics Posters

P-Th-118

Early Changes in Innate Cytokine Networks Predict Response to Antiretroviral Therapy in HIV

K. Arnold[1], L. Gama[2], G. Szeto[1], D. Irvine[1], P. Hunt[3], D. Lauffenburger[1], and E. Kallas[4]

[1]Massachusetts Institute of Technology, Cambridge, MA, [2]The Johns Hopkins University, Baltimore, MD, [3]University of California, San Francisco, San Francisco, CA, [4]University of São Paulo, São Paulo, Brazil

P-Th-119

Conserved RTK-Intrinsic Signaling Consequences Result in Distinct Bypass Resistance Capacity

S. Manole[1] and A. Meyer[1]

[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-120

Rat and Human Metabolic Network Models for Comparative Analyses in Toxicology

E. Blais[1], K. Rawls[1], I. Li[1], and J. Papin[1]

[1]University of Virginia, Charlottesville, VA

P-Th-121

A Systems View of Hysteresis in the Development of Multidrug Resistance of *Pseudomonas aeruginosa*

P. Yen[1] and J. Papin[1]

[1]University of Virginia, Charlottesville, VA

P-Th-122

Multi-Scale Systems Pharmacology Analysis Of Combination Therapy And Drug Desistance In Tuberculosis

E. Pienaar[1], V. Dartois[2], D. Kirschner[3], and J. Linderman[1]

[1]University of Michigan, Ann Arbor, MI, [2]Public Health Research Institute and New Jersey Medical School, Newark, NJ, [3]University of Michigan Medical School, Ann Arbor, MI

P-Th-123

Systems Serology To Dissect The Polyclonal Nature Of Vaccine-Induced Humoral Immunity

M. Kumar[1], A. Chung[2], K. Arnold[1], L. Dunphy[1], G. Alter[3], and D. Lauffenburger[1]

[1]Massachusetts Institute of Technology, Cambridge, MA, [2]University of Melbourne, Melbourne, Australia, [3]Ragon Institute, Cambridge, MA

P-Th-124

Experimental and Computational Method Characterizes Non-genetic Drug Resistance Mechanisms

A. Claas[1], J. Downey[1], and D. Lauffenburger[1]

[1]Massachusetts Institute of Technology, Cambridge, MA

P-Th-125

Mathematical Model Reveals Increased Protease Following Inhibition Due to Cannibalistic Regulation

W. Shockey[1], C. Wilder[1], M. Ferrall[1], and M. Platt[1]

[1]Georgia Institute of Technology and Emory University, Atlanta, GA

P-Th-126

Targeting Mitochondrial Biogenesis to Overcome Intrinsic and Acquired Drug Resistance to MAPK Pathway Inhibitors

G. Zhang[1], L. Wu[1,2], D. T. Frederick[3], Z. Wei[4], Y. C. Chae[1], X. Xu[5], C. Krepler[1], G. Mills[6], D. C. Altieri[1], K. T. Flaherty[3], and M. Herlyn[1]

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P-Th-127

The Effect Of Halogenation Of Erythrosine B on Amyloid-Beta 40 Oligomer Aggregation and Neurotoxicity In Alzheimer's Disease Using Molecular Modeling

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Track: Bioinformatics, Computational and Systems Biology

Computational Modeling and Systems Approaches:

Theory and Practice of Synthetic Biology Posters

P-Th-128

Computer Capture of Systems of Engineered DNA Strands with Application to DNA Sequence Design

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P-Th-129

Real-Time Light-Driven Temporal Control Of Gene Expression And Protein Concentration In *S. cerevisiae*

J. Melendez[1], M. Patel[2], B. Oakes[3], P. Xu[4], and M. McClean[4,5]

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P-Th-130

Dynamic Regulation Of Toxic Synthetic Bacteria Prevents Learning In The Model Nematode *Caenorhabditis elegans*

O. Bracho[1], C. Manchery[1], E. Haskell[1], C. Blanar[1], and R. Smith[1]

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P = Poster Session
OP = Oral Presentation
= Reviewer Choice Award

P-Th-131
Spatial Disturbance As A Driver Of Extinction In Synthetic Cooperative Bacteria
C. Wilson[1], W. Driscoll[2], O. Eldakar[1], J. Lopez[1], and R. Smith[1]
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Track: Translational Biomedical Engineering
Devices and Sensors:
Biomedical Device Design in Translational Research Posters

P-Th-132
Design And Proof Of Concept For A Single Cell Electromagnetic Loading Device
A. Valdevit[1], E. Noonan[1], S. Ferrell[1], and P. Leopold[1]
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P-Th-133
A Simple Approach for Removal of Irreparably Damaged Cells from Stored Blood
H. Xia[1], B. Strachan[1], N. Piety[1], S. Gifford[1], and S. Shevkoplyas[1]
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P-Th-134
Pore Size Impacts Cell-Cell Communication and Scar Contraction in 3D-Printed Polyurethane Scaffolds
T. D. Ramchal[1], E. R. Lorden[2], Z. Wang[3], L. Bashirov[1], M. M. Ibrahim[1], E. Hammett[2], B. Klitzman[2], J. J. Yoo[3], H. Levinson[1], S. J. Lee[3], and K. W. Leong[2,4]
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P-Th-135
A Complete Blood Cell Count Biochip from a Drop of Blood
U. Hassan[1], B. Reddy[1], C. Yang[2], G. Damhorst[1], and R. Bashir[1]
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P-Th-136
Quantum Dot Based DNA Nanosensor For The Detection Of Mycobacterium Tuberculosis
M. Jepsen[1], C. Harmsen[1], O. Franch[1], M. Hede[2], B. R. Knudsen[1], and Y-P. Ho[1]
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P-Th-137
A Phase Plane Metric For Intracranial Pressure After Traumatic Brain Injury
M. Qadri[1], N. H. Kim[1], S. Danish[1], and W. Craelius[1]
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P-Th-138
The Foreign Body Immune Response to Implanted Materials is Dependent on Size and Shape in Rodents and Non-Human Primates
O. Veiseh[1], R. Langer[1], and D. Anderson[1]
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P-Th-139
The Sensitivity of Microfluidic Flow Assays to von Willebrand Factor Levels in Type I von Willebrand Disease Patients Compared to Clinical Assays
M. Lehmann[1], C. Ng[2], J. Di Paola[2], and K. Neeves[1,2]
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P-Th-140
Jacquard Weaving Of Scaled Up, Tissue-Replicating Biomaterials And Implants
J. Ng[1], R. Whan[1], and M. Knothe Tate[1]
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P-Th-141
The Application of BioHeat Perfusion Sensors To Quantify Pressure Ischemia Of Explanted Organs
T. O'Brien[1], A. Roghanizad[1], J. Robertson[1], and T. Diller[1]
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P-Th-142
Towards a Point-of-Care Blood Sensor to Quantify Multiple Traumatic Brain Injury Biomarkers
B. Haselwood[1], A. Lam[1], and J. La Belle[1,2]
[1]Arizona State University, Tempe, AZ, [2]Mayo Clinic Arizona, Scottsdale, AZ

P-Th-143
Novel, Remote Low Temperature Plasma Hybrid Device For Sterilization And Therapeutic Biomedical Uses
K. A. Morrison[1], O. Asanbe[1], E. Kierkels[1], Y. Toyoda[1], W. Landford[1], X. Dong[1], C. Golkowski[2], and J. A. Spector[1,2]
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P-Th-144
Posterior Vertebral Fixation: Screw-to-Screw Cross-Connection Concept Investigation
E. Mattucci[1], J. Jendrus[1], M. Angelucci[1], J. Neidert[1], J. Mauger[1], and J. Isaacs[1]
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P-Th-145
Development of a Plantar Pressure Postural Analysis & Biofeedback Suite for WMSD Corrective Therapy
N. Quintero[1], J. Helwig[1], K. Sverrisdottir[1], J. Ruiz[1], J. Merciez[1], S. Grom[1], L. Marts III[1], N. Sonnenfeld[1], A. Das[1], and E. Divo[1,2]
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Track: Translational Biomedical Engineering
Devices and Sensors:
Biomedical Products and Devices Posters

P-Th-146
Plasma Treatment of Dentin Surfaces for Improving Adhesive/Dentin Interface Bonding
Q. Yu[1]
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P-Th-147
Design of Microfabricated Sensor to Measure Lumbar Spinal Fusion
D. Munro[1], E. Tsai[1], A. Lingley[2], and M. Khbeis[2]
[1]University of Portland, Portland, OR, [2]University of Washington, Seattle, WA

P-Th-148
Use of Argon as a Tissue Fixation Preservative and RNA Stabilizing Agent
S. Joshi[1], J-Y. Chung[2], V. Rasanayagam[1], M. Sundar[1], and S. Hewitt[2]
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P-Th-149
Dissolution of Platinum Electrodes During Electrical Stimulation of Neural Tissue
D. Kumsa[1], P. Takmakov [2], and D. Bardot[3]
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P-Th-150
Personalized 3D Printed Bio-absorbable Drug-eluting Stent for the Treatment of Vascular Disease
S. Misra[1] and D. Pan[1]
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P-Th-151
Inductance Sensing To Detect Tissue Thickness Between Conducting Surfaces For Application In Surgical Instruments
A. Arun[1], B. Gaston[1], S. Chen[2], D. Kwiat[1], J. Imamura-Ching[1], R. Fetcher[1], H. Jiang[2], M. Harrison[1], and S. Roy[1]
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