

# Oral

## SESSIONS

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2022 ANNUAL MEETING

**BMES**  
BIOMEDICAL ENGINEERING SOCIETY



**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 005

Track: Biomaterials

**Session Title:****Session Chair(s):**Tracy Hookway  
Greg Hudalla**Abstract Title:** Low Temperature 3-D Printing of High Resolution Scaffolds using Natural Polymers**Presenter:** Derrick Dean**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing****Session Chair(s):**Tracy Hookway  
Greg Hudalla**Abstract Title:** 3D Printing of Tissue Adhesive Polymers**Presenter:** Sarah Wu**Principal Investigator:** N/A**Author(s):**Heejung Roh  
Hyunwoo Yuk  
Jingjing Wu**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing****Session Chair(s):**Tracy Hookway  
Greg Hudalla**Abstract Title:** Levitational 3-D Bioassembly and Density-Based Spatial Organization of Levitoids**Presenter:** Gozde Durmus**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing****Session Chair(s):**Tracy Hookway  
Greg Hudalla**Abstract Title:** Enabling the Extrusion Bioprinting of Granular Hydrogel Scaffolds with Preserved Microporosity, High Shape Fidelity, and Enhanced Cell Viability**Presenter:** Amir Sheikhi**Principal Investigator:** N/A**Author(s):**

Zaman Ataie

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing**

Session Chair(s):

Tracy Hookway  
Greg Hudalla**Abstract Title:** In Vivo Robotic Printing of Patient-Derived Materials for the Treatment of Traumatic Muscle Injuries**Presenter:** Jacob Quint**Principal Investigator:** N/A**Author(s):**Mohamadmahdi Samandari  
Evelyn Mollocana Lara  
Ali Tamayol**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery**

Session Chair(s):

Craig Duvall  
Jerzy Szablowski  
Qi Cai**Abstract Title:** Albumin-bound siRNA Therapeutics for Synergistic Targeting of KRAS and MCL-1 in Cholangiocarcinoma**Presenter:** Justin Lo**Principal Investigator:** N/A**Author(s):**

Ella Hoogenboezem

Lauren Babb  
MD Jashim Uddin  
Rebecca Cook  
Craig Duvall**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery**

Session Chair(s):

Craig Duvall  
Jerzy Szablowski  
Qi Cai**Abstract Title:** Translational ionizable lipid nanoparticle base editing platform for treatment of congenital brain disease**Presenter:** Rohan Palanki**Principal Investigator:** N/A**Author(s):**Rohan Palanki  
Sourav Bose  
Apeksha Dave  
Brandon White  
Kelsey Swingle  
Margaret Billingsley  
William Peranteau  
Michael Mitchell**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery**

Session Chair(s):

Craig Duvall  
Jerzy Szablowski  
Qi Cai

**Abstract Title:** Phosphatidylserine Lipid Nanoparticles Promote Systemic RNA Delivery to Secondary Lymphoid Organs

**Presenter:** Sijin Luozhong  
**Principal Investigator:** Shaoyi Jiang  
**Author(s):**  
 N/A

**Thursday, October 13**  
**8:00 AM - 9:30 AM**

**Session:** 1, **Room:** 007 B

**Track:** Drug Delivery

**Nucleic Acid Delivery**

**Session Chair(s):**  
 Craig Duvall  
 Jerzy Szablowski  
 Qi Cai

**Abstract Title:** Self-assembled Anti-miR-eluting Wound Dressings to Promote Angiogenesis in Diabetic Wounds

**Presenter:** Adam Berger  
**Principal Investigator:** Paula T Hammond  
**Author(s):**  
 N/A

**Thursday, October 13**  
**8:00 AM - 9:30 AM**

**Session:** 1, **Room:** 007 B

**Track:** Drug Delivery

**Nucleic Acid Delivery**

**Session Chair(s):**  
 Craig Duvall

Jerzy Szablowski  
 Qi Cai  
**Abstract Title:** Intratumoral Delivery of Immunomodulatory mRNA Polymeric Nanoparticles

**Presenter:** Sarah Neshat  
**Principal Investigator:** N/A  
**Author(s):**  
 Joshua Doloff  
 Jordan Green  
 Stephany Tzeng

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**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery**

Session Chair(s):

Craig Duvall  
Jerzy Szablowski  
Qi Cai

Abstract Title: Noninvasive Intersectional Gene Delivery to the Brain

Presenter: Manwal Harb

Principal Investigator: Jerzy Szablowski

Author(s):  
Jerzy Szablowski**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 214 A

Track: Nano and Micro Technologies

**Drug Delivery for Immunomodulation and Immunotherapy**

Session Chair(s):

Eden Tanner  
Stephanie Seidlits

Abstract Title: Bubble-Based Acoustic Propellers for Sustained Corticosteroid Delivery in the Bladder

Presenter: Wyatt Shields

Principal Investigator: N/A

Author(s):  
N/A**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 214 A

Track: Nano and Micro Technologies

**Bioinspired/Biomimetic Micro/Nano Devices and Systems**

Session Chair(s):

Eden Tanner  
Stephanie Seidlits

Abstract Title: Modeling Long-Range Connectivity Deficits in Neuropsychiatric Disorders using Cerebral Organoids

Presenter: Denise Robles

Principal Investigator: Jeffrey D. Zahn

Author(s):  
Denise Robles  
Zhiping Pang  
Jeffrey Zahn  
Andrew Boreland**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 214 A

Track: Nano and Micro Technologies

**Bioinspired/Biomimetic Micro/Nano Devices and Systems**

Session Chair(s):

Eden Tanner  
Stephanie Seidlits

Abstract Title: Injectable and Re-expandable Nanofiber Foams for Junctional Hemorrhage Control

Presenter: Jingwei Xie

Principal Investigator: N/A

Author(s):  
N/A

# Engineering the Future of Medicine

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**#1**  
graduate program  
in Biomedical  
Engineering

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Best Graduate Schools

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PhD: December 1, 2022  
MSE: December 31, 2022

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**JOHNS HOPKINS**  
BIOMEDICAL ENGINEERING

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 214 A

Track: Nano and Micro Technologies

**Bioinspired/Biomimetic Micro/Nano Devices and Systems**

Session Chair(s):

Eden Tanner

Stephanie Seidlits

Abstract Title: Cardiac Muscle-Cell-Based Coupled Bio-Oscillator Network for Vertex Coloring Problem

Presenter: Jiaying Ji

Principal Investigator: Pinar Zorlutuna

Author(s):

Jiaying Ji

Xiang Ren

Mohammad Khairul Bashar

Jorge Gomez

Nikhil Shukla

Pinar Zorlutuna

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 214 A

Track: Nano and Micro Technologies

**Bioinspired/Biomimetic Micro/Nano Devices and Systems**

Session Chair(s):

Eden Tanner

Stephanie Seidlits

Abstract Title: On-Demand Activation Of Wrinkled Protein Coatings With Tunable Topography for Biomedical Applications

Presenter: Elizabeth Oguntade

Principal Investigator: N/A

Author(s):

Elizabeth Oguntade

Helen Zha

James Henderson

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 214 A

Track: Nano and Micro Technologies

**Bioinspired/Biomimetic Micro/Nano Devices and Systems**

Session Chair(s):

Eden Tanner

Stephanie Seidlits

Abstract Title: Machine-Assisted Design of Bioactive Single-Chain Polymer Nanoparticles

Presenter: Rahul Upadhya

Principal Investigator: N/A

Author(s):

Rahul Upadhya

Matthew Tamasi

Elena Di Mare

N. Sanjeeva Murthy

Adam Gormley

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 1, Room: 006 A

Track: Tissue Engineering

**Musculoskeletal Tissue Engineering**

Session Chair(s):

Adetola Adesida

Cathal Kearney

Abstract Title: Engineering Scaffold-free Tissue Constructs via Modular Assembly, Cell-only Bioprinting and 4D Strategies

**Presenter:** Eben Alsberg  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Principal Investigator:** N/A  
**Author(s):**  
 Anne Yau  
 Yupeng Chen

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 006 A  
**Track:** Tissue Engineering

### Musculoskeletal Tissue Engineering

**Session Chair(s):**  
 Adetola Adesida  
 Cathal Kearney

**Abstract Title:** Human iPSC-derived Motor Neurons Improve the Functional Maturity of Engineered Muscle Bundles

**Presenter:** Stephanie Do  
**Principal Investigator:** Megan McCain  
**Author(s):**  
 Jeffrey Santoso  
 Finacy Jin  
 Megan McCain

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 006 A  
**Track:** Tissue Engineering

### Musculoskeletal Tissue Engineering

**Session Chair(s):**  
 Adetola Adesida  
 Cathal Kearney

**Abstract Title:** Enriched Therapeutic Exosomal mRNAs for Coupling of Angiogenesis and Osteogenesis in Bone Regeneration

**Presenter:** Yifan Ma  
**Principal Investigator:** Ly. James Lee  
**Author(s):**  
 N/A

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 006 A  
**Track:** Tissue Engineering

### Musculoskeletal Tissue Engineering

**Session Chair(s):**  
 Adetola Adesida  
 Cathal Kearney

**Abstract Title:** Response Surface Analysis of Janus Base Nano-Matrix Components for Growth Plate Repair

**Presenter:** Maxwell Landolina

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 214 B  
**Track:** Biomedical Engineering Education

**Session Chair(s):**  
 Anil Maybhate  
 Marcella Vaicik

**Abstract Title:** Culturally responsive practices in engineering: What does it mean and how to get started

**Presenter:** Joel Mejia  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 214 B**Track:** Biomedical Engineering Education**Mentorship****Session Chair(s):**Anil Maybhate  
Marcella Vaicik**Abstract Title:** Introducing Scientific Advocacy to Students in Early Research Careers**Presenter:** Maribel Vazquez**Principal Investigator:** Maribel Vazquez**Author(s):**

N/A

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 214 B**Track:** Biomedical Engineering Education**Diversity, Equity, and Inclusion****Session Chair(s):**Anil Maybhate  
Marcella Vaicik**Abstract Title:** Participating in Entrepreneurship Education Programs: A Study of the Experiences of Women Faculty with a BME Research Focus**Presenter:** Aida Lopez Ruiz**Principal Investigator:** Prateek Shekhar**Author(s):**Prateek Shekhar  
Jacqueline Handley  
Aileen Huang-Saad**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 214 B**Track:** Biomedical Engineering Education**Design and Curriculum****Session Chair(s):**Anil Maybhate  
Marcella Vaicik**Abstract Title:** Understanding the Impacts of Soft Robotics Curriculum on Students' Engineering Identity**Presenter:** Thomas Tran**Principal Investigator:** Holly Golecki**Author(s):**Holly Golecki  
Karin Jensen**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 214 B**Track:** Biomedical Engineering Education**Experiential Learning (Curricular and Co-Curricular)****Session Chair(s):**Anil Maybhate  
Marcella Vaicik**Abstract Title:** Teaching Empathy as a Skill for Rehabilitation Engineers**Presenter:** Eric Shearer**Principal Investigator:** N/A**Author(s):**

N/A

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 2, Room: 214 B

Track: Biomedical Engineering Education

### Experiential Learning (Curricular and Co-Curricular)

Session Chair(s):

Anil Maybhate

Marcella Vaicik

**Abstract Title:** Social-Emotional Competencies of Undergraduate Engineering Students With and Without Internships

**Presenter:** Isgard Hueck

**Principal Investigator:** Isgard Hueck

**Author(s):**

N/A

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 3, Room: 007 A

Track: Biomedical Imaging and Instrumentation

### Magnetic Resonance Imaging and Applications (MRI)

Session Chair(s):

Jonathan Dyke

Lin Jiang

**Abstract Title:** Initial Quantification of Cervical Microstructure by using Diffusion Basis Spectrum Imaging – a Magnetic Resonance Imaging-based Method

**Presenter:** Wenjie Wu

**Principal Investigator:** Yong Wang

**Author(s):**

Zhexian Sun

Hansong Gao

Sicheng Wang

Nga Yue Josephine Lau

Yiqi Lin

Yong Wang

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 3, Room: 007 A

Track: Biomedical Imaging and Instrumentation

### Magnetic Resonance Imaging and Applications (MRI)

Session Chair(s):

Jonathan Dyke

Lin Jiang

**Abstract Title:** Viability of MRI-derived Patient-Specific Cervical Spine Model for Degenerative Cervical Myelopathy

**Presenter:** Stephen Scripp

**Principal Investigator:** N/A

**Author(s):**

N/A

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 3, Room: 007 A

Track: Biomedical Imaging and Instrumentation

### Magnetic Resonance Imaging and Applications (MRI)

Session Chair(s):

Jonathan Dyke

Lin Jiang

**Abstract Title:** The Design and Validation of a Multi-Modality Lung Phantom

**Presenter:** Donald Bowen

**Principal Investigator:** N/A

**Author(s):**

Donald Bowen

Tyler Touchet

Duncan Maitland

Mary McDougall

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

### Magnetic Resonance Imaging and Applications (MRI)

**Session Chair(s):**

Jonathan Dyke

Lin Jiang

**Abstract Title:** Sodium NMR as an Early Biomarker for Duchenne Muscular Dystrophy

**Presenter:** Edith Valle

**Principal Investigator:** N/A

**Author(s):**

Travis Carrell

Peter Nghiem

Steven Wright

Mary McDougall

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

### Magnetic Resonance Imaging and Applications (MRI)

**Session Chair(s):**

Jonathan Dyke

Lin Jiang

**Abstract Title:** Aerobic Fitness Positively Affects Brain Stiffness in Healthy Older Adults

**Presenter:** Mary Kramer

**Principal Investigator:** Curtis L Johnson

**Author(s):**

Mary Kramer

Curtis Johnson

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 004

**Track:** Biomaterials

### Biomaterials

**Session Chair(s):**

Dispasha Sinha

Mary Beth Monroe

**Abstract Title:** Biomimetic Proteoglycans Mechanically Enhance the Microniche of Human Osteoarthritic Chondrocytes

**Presenter:** Colette Trouillot

**Principal Investigator:** N/A

**Author(s):**

Michele Marcolongo

Lin Han

Elizabeth Kahle

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 004

**Track:** Biomaterials

### Natural and Bioinspired Biomaterials

**Session Chair(s):**

Dispasha Sinha

Mary Beth Monroe

**Abstract Title:** Engineering transmembrane signal transduction in synthetic vesicles using two-component systems

**Presenter:** Justin Peruzzi  
**Principal Investigator:** N/A  
**Author(s):**  
 Neha Kamat

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
 Dispasha Sinha  
 Mary Beth Monroe

**Abstract Title:** Panthenol citrate-based thermoresponsive dressing accelerate closure and promotes tissue regeneration in diabetic wounds

**Presenter:** Huifeng Wang  
**Principal Investigator:** N/A  
**Author(s):**  
 Guillermo Ameer

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
 Dispasha Sinha  
 Mary Beth Monroe

**Abstract Title:** Host Remodeling Response in Phase II Clinical Adipose Matrix Implants Reveals Distinct Cell Types and Gene Expression Profiles Over Time

**Presenter:** Alexis Peña  
**Principal Investigator:** Jennifer Hartt Elisseff  
**Author(s):**  
 Jordan Garcia  
 Amy Anderson  
 Pathik Aravind  
 patrick byrne

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
 Dispasha Sinha  
 Mary Beth Monroe

**Abstract Title:** Ultra-high Modulus Hydrogels Mimicking Cartilage of the Human Body

**Presenter:** Connor Demott  
**Principal Investigator:** Melissa Grunlan  
**Author(s):**  
 McKenzie Jones  
 Caleb Chesney  
 Melissa Grunlan

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
 Dispasha Sinha  
 Mary Beth Monroe

**Abstract Title:** ATRA-PLG Microparticles Enhance Macrophage-Directed Myotube Formation

**Presenter:** Candice Cheung  
**Principal Investigator:** Michael Gower  
**Author(s):**  
Kidochukwu Atube  
Michael Gower

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 214 D

**Track:** Cancer Technologies

### Cancer Immunoengineering, Immunomodulation and Immunotherapy

**Session Chair(s):**  
Joshua Doloff  
LaDeidra Monet Roberts  
Gloria Kim

**Abstract Title:** CARPOOL: A library-based platform to rapidly identify next generation chimeric antigen receptors

**Presenter:** Khloe Gordon  
**Principal Investigator:** Michael Birnbaum  
**Author(s):**  
Khloe Gordon  
Michael Birnbaum

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 214 D

**Track:** Cancer Technologies

### Cancer Immunoengineering, Immunomodulation and Immunotherapy

**Session Chair(s):**  
Joshua Doloff  
LaDeidra Monet Roberts  
Gloria Kim

**Abstract Title:** APC-Mimetic Lipid Nanoparticles for Rapid mRNA-Based CAR T Cell Cancer Immunotherapy

**Presenter:** Ann Metzloff  
**Principal Investigator:** Michael J. Mitchell  
**Author(s):**  
Ann Metzloff  
Margaret Billingsley  
Alex Hamilton  
Michael Mitchell

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 214 D

**Track:** Cancer Technologies

### Cancer Immunoengineering, Immunomodulation and Immunotherapy

**Session Chair(s):**  
Joshua Doloff  
LaDeidra Monet Roberts  
Gloria Kim

**Abstract Title:** Polymeric Tri-Signal Artificial Antigen Presenting Cells to Mimic CD4+ T Cell Helped Dendritic Cells

**Presenter:** Sydnet Shannon  
**Principal Investigator:** N/A  
**Author(s):**  
Aksana Doss  
Ariel Isser  
Jordan Green  
Jonathan Schneck

## Thursday, October 13

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 214 D

**Track:** Cancer Technologies

**Cancer Immunoengineering, Immunomodulation and Immunotherapy**

**Session Chair(s):**  
 Joshua Doloff  
 LaDeidra Monet Roberts  
 Gloria Kim

**Abstract Title:** Reprogramming Brain Immunosurveillance with Biomaterials and Engineered Cytokines

**Presenter:** Anthony Tabet  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Cancer Immunoengineering, Immunomodulation and Immunotherapy**

**Session Chair(s):**  
 Joshua Doloff  
 LaDeidra Monet Roberts  
 Gloria Kim

**Abstract Title:** Hypoxia-driven Immuno-resistant Tumor Microenvironment in Ovarian Cancer

**Presenter:** Simona Plessova  
**Principal Investigator:** N/A  
**Author(s):**  
 Kristin Calar  
 Pilar de la Puente

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 214 D

**Track:** Cancer Technologies

Parag Chitnis, PhD Program Director  
[pchitnis@gmu.edu](mailto:pchitnis@gmu.edu)  
 Shani Ross, MS Program Director  
[sross20@gmu.edu](mailto:sross20@gmu.edu)



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 ⇒ Thesis  
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**Application Deadlines:**

PhD Program: December 1, 2022  
 MS Program: March 15, 2023



**PhD Research Concentrations:**

1. Biomaterials & Nanomedicine
2. Neurotechnology & Computational Neuroscience
3. Computational Biomedical Engineering
4. Biomedical Imaging & Devices

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 214 D**Track:** Cancer Technologies**Cancer Immunoengineering, Immunomodulation and Immunotherapy****Session Chair(s):**

Joshua Doloff

LaDeidra Monet Roberts

Gloria Kim

**Abstract Title:** Clonal Changes of T Cell Infiltration After Adenosine A2A Receptor Antagonist and  $\alpha$ PD-L1 Treatment**Presenter:** Maya Zhang**Principal Investigator:** N/A**Author(s):**

Maya Zhang

Worarat Chaisawangwong

Hanzhi Wang

Ariel Isser

Jonathan Schneck

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 216 AB**Track:** Cardiovascular Engineering**Heart Valve Structure, Function, and Disease****Session Chair(s):**

Rouzbeh Amini

Hoda Hatoum

**Abstract Title:** Engineering Emergent Heart Valve Pathogenesis at the Bench**Presenter:** Jonathan Butcher**Principal Investigator:** N/A**Author(s):** N/A**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 216 AB**Track:** Cardiovascular Engineering**Heart Valve Structure, Function, and Disease****Session Chair(s):**

Rouzbeh Amini

Hoda Hatoum

**Abstract Title:** H2O2 Induces Calcification In An In Vitro Model Of The Diseased Aortic Valve**Presenter:** Fatemeh Saleemizadehparizi**Principal Investigator:** N/A**Author(s):**

Fatemeh Saleemizadehparizi

Peter Huang

Mei-Hsiu Chen

Gretchen Mahler

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 216 AB**Track:** Cardiovascular Engineering**Heart Valve Structure, Function, and Disease****Session Chair(s):**

Rouzbeh Amini

Hoda Hatoum

**Abstract Title:** Post-TAVR Thrombogenicity in Bicuspid Aortic Valve (BAV): Patient-Specific Clinical Risk Assessment and its Mitigation using Device Design Optimization**Presenter:** Salwa Anam**Principal Investigator:** N/A**Author(s):**

Brandon Kovarovic

Danny Bluestein

Kyle Baylous

Rami Haj-Ali

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 216 AB

**Track:** Cardiovascular Engineering

### **Heart Valve Structure, Function, and Disease**

**Session Chair(s):**

Rouzbeh Amini

Hoda Hatoum

**Abstract Title:** Computational Modeling of Valve Biomechanics with Different Mitral Valve Prolapse Repair Techniques

**Presenter:** Gediminas Gaidulis

**Principal Investigator:** Muralidhar Padala

**Author(s):**

Muralidhar Padala

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 216 AB

**Track:** Cardiovascular Engineering

### **Heart Valve Structure, Function, and Disease**

**Session Chair(s):**

Rouzbeh Amini

Hoda Hatoum

**Abstract Title:** In Vitro Valve-on-Chip Platform to Assess Early Calcific Aortic Valve Disease Progression

**Presenter:** Kartik Balachandran

**Principal Investigator:** Kartik Balachandran

**Author(s):**

Ishita Tandon

Christine Shamblin

Alan Woessner

Lais Andrade Ferreira

Amanda Walls



#### **COLLABORATIVE APPROACH**

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**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 216 AB**Track:** Cardiovascular Engineering**Heart Valve Structure, Function, and Disease****Session Chair(s):**

Rouzbeh Amini

Hoda Hatoum

**Abstract Title:** Patient-Specific Modelling of MV Repair in Humans with Ischemic Mitral Regurgitation**Presenter:** Hao Liu**Principal Investigator:** N/A**Author(s):**

Natalie Simonian

Michael Sacks

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 8, **Room:** 206**Track:** Biomechanics**Cellular and Molecular Biomechanics: Mechanobiology****Session Chair(s):**

Katie Hixon

Nandan Nerurkar

Vasudha Shukla

**Abstract Title:** Biomechanical Strain May Cause Increased VEGFR-2 Activation and Angiogenesis**Presenter:** Bronte Miller**Principal Investigator:** Katie Hixon**Author(s):**

Bronte Miller

Allison Johnson

Bryan Mortimer

Joel Berry

Mary Kathryn Sewell-Loftin

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 8, **Room:** 206**Track:** Biomechanics**Cellular and Molecular Biomechanics: Mechanobiology****Session Chair(s):**

Katie Hixon

Nandan Nerurkar

Vasudha Shukla

**Abstract Title:** Don't Go Breaking My Heart – How Lamin Mutations Cause Heart Disease**Presenter:** Noam Zuela - Sopilniak**Principal Investigator:** N/A**Author(s):**

Jan Lammerding

**Thursday, October 13**

8:00 AM - 9:30 AM

**Session:** 8, **Room:** 206**Track:** Biomechanics**Cellular and Molecular Biomechanics: Mechanobiology****Session Chair(s):**

Katie Hixon

Nandan Nerurkar

Vasudha Shukla

**Abstract Title:** Deciphering CAR T Cell Biomechanics for Engineered Activation and Programed Immunotherapy**Presenter:** Rui Li**Principal Investigator:** Weiqiang Chen**Author(s):**

Chao Ma

Ngoc Luu

Weiqiang Chen

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 8, Room: 206

Track: Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

Session Chair(s):

Katie Hixon  
Nandan Nerurkar  
Vasudha Shukla

**Abstract Title:** P53 Activity Governs Cell Life and Death in Confinement

**Presenter:** Farnaz Hemmati  
**Principal Investigator:** N/A  
**Author(s):**  
Farnaz Hemmati  
Ayuba Akinpelu  
Farshad Amiri  
Panagiotis Mistriotis

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 8, Room: 206

Track: Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

Session Chair(s):

Katie Hixon  
Nandan Nerurkar  
Vasudha Shukla

**Abstract Title:** Vinculin Mediates Migration and Bioenergetics in Breast Cancer

**Presenter:** Emily Fabiano  
**Principal Investigator:** N/A  
**Author(s):**  
Brenton Hoffman  
Cynthia Reinhart-King

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 8, Room: 206

Track: Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

Session Chair(s):

Katie Hixon  
Nandan Nerurkar  
Vasudha Shukla

**Abstract Title:** The Biomechanics of Neurofibromatosis Type I-Associated Schwann Cell Spheroids and Sciatic Nerves

**Presenter:** Micah Rambo  
**Principal Investigator:** Kristen Mills  
**Author(s):**  
Kristen Mills

## Thursday, October 13

8:00 AM - 9:30 AM

Session: 10, Room: 006 B

Track: Tissue Engineering

### Stem Cells in Tissue Engineering and Disease Modeling

Session Chair(s):

Yi Hong  
Nehal Abu-Lail

**Abstract Title:** Precision Cut Lung Slices Towards Engineering An Ex Vivo Model of Early Pulmonary Fibrosis

**Presenter:** Donia Ahmed  
**Principal Investigator:** Claudia Loebel  
**Author(s):**  
Donia Ahmed  
Jingyi Xia  
Rachel Zemans  
Brendon Baker  
Claudia Loebel

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 10, Room: 006 B

Track: Tissue Engineering

**Stem Cells in Tissue Engineering and Disease Modeling**

Session Chair(s):

Yi Hong

Nehal Abu-Lail

**Abstract Title:** Flexion Promotes In Vitro hMSC Chondrogenesis and Hypertrophy in a Custom Bioreactor

Presenter: Harihara Baskaran

Principal Investigator: N/A

Author(s):

Bo Zhang

jim berilla

Rodrigo Somoza

Jean Welter

Peter Alexander

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 10, Room: 006 B

Track: Tissue Engineering

**Stem Cells in Tissue Engineering and Disease Modeling**

Session Chair(s):

Yi Hong

Nehal Abu-Lail

**Abstract Title:** Astronaut-on-a-Chip: Human Organs-On-Chip Platform for Assessing Extended Effects of Cosmic Radiation

Presenter: Daniel Tavakol

Principal Investigator: N/A

Author(s):

Gordana Vunjak-Novakovic

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 10, Room: 006 B

Track: Tissue Engineering

**Stem Cells in Tissue Engineering and Disease Modeling**

Session Chair(s):

Yi Hong

Nehal Abu-Lail

**Abstract Title:** Cardiac Tissue-Patch Interrelation: An Experimental and Numerical Study

Presenter: Gozde Basara

Principal Investigator: N/A

Author(s):

Gokhan Bahcecioglu

Xiang Ren

Pinar Zorlutuna

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 10, Room: 006 B

Track: Tissue Engineering

**Stem Cells in Tissue Engineering and Disease Modeling**

Session Chair(s):

Yi Hong

Nehal Abu-Lail

**Abstract Title:** Genetically Engineering Stem Cells to Model Glioblastoma in Brain Organoids

Presenter: Matthew Ishahak

Principal Investigator: N/A

Author(s):

Albert Kim

Jeffrey Millman

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 10, Room: 006 B

Track: Tissue Engineering

**Stem Cells in Tissue Engineering and Disease Modeling**

Session Chair(s):

Yi Hong

Nehal Abu-Lail

**Abstract Title:** Enthesis Engineering Using CRISPR-Modified ASCs on Anisotropic High-Density Collagen Scaffolds**Presenter:** Jacob Weston**Principal Investigator:** Robby D. Bowles**Author(s):**

Brooke Austin

Hunter Levis

Jared Zitnay

Brandon Lawrence

Robert Bowles

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 11, Room: 207

Track: Biomechanics

Session Chair(s):

Soham Ghosh

Rana Zakerzadeh

Jamasp Azamoosh

**Abstract Title:** Multiscale model of pregnancy-induced heart growth applied to postpartum recovery**Presenter:** Kyoko Yoshida**Principal Investigator:** N/A**Author(s):**

Molly Kaissar

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 11, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Soham Ghosh

Rana Zakerzadeh

Jamasp Azamoosh

**Abstract Title:** Spatiotemporal Activity of Mechanobiological-activated TGF- $\beta$  in the Synovial Joint**Presenter:** Sedat Dogru**Principal Investigator:** Michael Albro**Author(s):**

Michael Albro

Gabriela Alba

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 11, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Soham Ghosh

Rana Zakerzadeh

Jamasp Azamoosh

**Abstract Title:** Intersection of geometry, mechanics, and biology in intestinal anastomotic surgery**Presenter:** Nhung Nguyen**Principal Investigator:** N/A**Author(s):**

Brian Fleischer

Kameel Khabaz

Luka Pocivavsek

**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 11, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Soham Ghosh  
Rana Zakerzadeh  
Jamasp Azamoosh

Abstract Title: Towards a Multiscale Mechanical Model of Cell Adhesion Dynamics

Presenter: Andre Montes

Principal Investigator: Mohammad Mofrad

Author(s):  
Mohammad Mofrad  
Adrian Buganza Tepole**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 11, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Soham Ghosh  
Rana Zakerzadeh  
Jamasp Azamoosh

Abstract Title: Neural Network Finite Element Surrogate Model for High-speed Heart Valve Simulations

Presenter: Shruti Motiwale

Principal Investigator: Michael Sacks

Author(s):  
Shruti Motiwale  
Wenbo Zhang  
Michael Sacks**Thursday, October 13**

8:00 AM - 9:30 AM

Session: 11, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Soham Ghosh  
Rana Zakerzadeh  
Jamasp Azamoosh

Abstract Title: Generalizable Biomechanical Modeling of Tissue Deformation for Surgical Planning

Presenter: Nathan Lampen

Principal Investigator: N/A

Author(s):  
Daeseung Kim  
Xi Fang  
Xuanang Xu  
Han Deng  
Tianshu Kuang  
James Xia  
Pingkun Yan**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 1, Room: 213 AB

Track: Bioinformatics, Computational and Systems Biology

**Single-Cell Measurements and Models**

Session Chair(s):

Mark Uline  
Margaret Reuter

Abstract Title: Population Dynamics of the Epithelial to Mesenchymal Transition Elucidates the Timing and Distribution of Phenotypic Intratumoral Heterogeneity

**Presenter:** Annice Najafi  
**Principal Investigator:** Jason George  
**Author(s):**  
 Annice Najafi  
 Mohit Kumar Jolly  
 Jason George

## Thursday, October 13

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Analysis of Multi-Cellular Systems

**Session Chair(s):**  
 Mark Uline  
 Margaret Reuter

**Abstract Title:** Spatial Organization of the Intestine: Cells, Neighborhoods, and Tissue Units by Multiplexed Imaging

**Presenter:** John Hickey  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

## Thursday, October 13

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Analysis of Multi-Cellular Systems

**Session Chair(s):**  
 Mark Uline  
 Margaret Reuter

**Abstract Title:** Correlative Spatial Metabolomics And Protein In Situ Imaging In The Lung Tumor Microenvironment

**Presenter:** Thomas Hu  
**Principal Investigator:** N/A  
**Author(s):**  
 Mayar Allam  
 Shuangyi Cai  
 Ahmet Coskun

## Thursday, October 13

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Omics Data: Methods, Modeling and Analysis

**Session Chair(s):**  
 Mark Uline  
 Margaret Reuter

**Abstract Title:** Spatial Analysis of Cytotoxic T Lymphocyte Infiltration in Colorectal Tumors for Predicting Stage-independent Relapse and Death

**Presenter:** Shikhar Uttam  
**Principal Investigator:** Shikhar Uttam  
**Author(s):**  
 Benjamin Raymond  
 Douglas Hartman  
 Kanika Yadav

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Machine Learning for Biomedical Applications****Session Chair(s):**

Mark Uline

Margaret Reuter

**Abstract Title:** Three-Dimensional Dynamic Model of BMP Gradient Formation of the Early Zebrafish Embryonic Development through Neural Network Model-Based Acceleration**Presenter:** Linlin Li**Principal Investigator:** N/A**Author(s):**

David Umulis

Adrian Buganza Tepole

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**

Limei Tian

Tommy Roussel

**Abstract Title:** High-Throughput Manufacturing of Soft Wireless Bioelectronics for Healthcare Applications**Presenter:** Yun Soung Kim**Principal Investigator:** N/A**Author(s):**

Shinjae Kwon

Ira Soltis

Woon-Hong Yeo

Yun Soung Kim

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**

Limei Tian

Tommy Roussel

**Abstract Title:** A Slim, Powerless Microfluidic Patch-Pump for Insulin Delivery**Presenter:** Shuyu Zhang**Principal Investigator:** N/A**Author(s):**

Shuyu Zhang

Rafael Davalos

Anne Staples

Jenna Sims

Tyler Kwak

Ryan Zolovick

Isabelle Mehochko

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**

Limei Tian

Tommy Roussel

**Abstract Title:** Wearable Plasmonic Paper-based Microfluidics for Continuous Sweat Analysis**Presenter:** Heng Guo**Principal Investigator:** Limei Tian**Author(s):**

Heng Guo

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**Limei Tian  
Tommy Roussel**Abstract Title:** Shear Stresses on Skin Adhesive Wearables due to Lumbar Skin Strain during Flexion**Presenter:** Anton Bowden**Principal Investigator:** N/A**Author(s):**  
Andrew Gibbons  
Darian Emmett  
Ulrike Mitchell  
David Fullwood  
Anton Bowden**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**Limei Tian  
Tommy Roussel**Abstract Title:** A Wireless Wearable Fiber-free Optical Sensor for Simultaneous Measurements of Deep Tissue Blood Flow and Oxygenation**Presenter:** Xuhui Liu**Principal Investigator:** N/A**Author(s):**  
Xuhui Liu  
Samaneh Rabienia Haratbar**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**Limei Tian  
Tommy Roussel**Abstract Title:** Solid-State Electrically Driven Proprioceptive Artificial Muscles**Presenter:** Nour Dowedar**Principal Investigator:** N/A**Author(s):**  
Mihai Duduta**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 005**Track:** Biomaterials**3D Printing and Advanced Biomaterial Manufacturing****Session Chair(s):**

Gulden Camci-Unal

**Abstract Title:** Planning for growth- A 2yr degradation study of 3D printed polycaprolactone in a porcine model**Presenter:** Harsha Ramaraju**Principal Investigator:** N/A**Author(s):**  
Adam Verga  
Jeong Hun Park  
Scott Hollister

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing**Session Chair(s):  
Gulden Camci-UnalAbstract Title: 3D Bioprinted Collagen  
Microfluidics for Vascularization of Volumetric TissuePresenter: Daniel Shiwarski  
Principal Investigator: N/A  
Author(s):  
Andrew Hudson  
Joshua Tashman  
Adam Feinberg**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing**Session Chair(s):  
Gulden Camci-UnalAbstract Title: Template-Assisted Biofabrication of  
Three-Dimensional Vascularized TissuesPresenter: Elham Davoodi  
Principal Investigator: Ali Khademhosseini  
Author(s):  
Elham Davoodi  
Hossein Montazerian  
Masoud Zhianmanesh  
Ehsan Toyserkani  
Wei Gao  
Alireza Khademhosseini


University of  
Massachusetts  
Amherst BE REVOLUTIONARY™

The Department of Biomedical Engineering (<https://bme.umass.edu>) at UMass Amherst is seeking one junior faculty position at the rank of tenure-track **Assistant Professor** in the broad area of Biomedical Engineering in synergy with the overall department and campus teaching and research missions. The Department has outstanding research programs in the areas of Biomechanics, Biomaterials, and Bioinstrumentation. The department includes broad opportunities for collaboration within and outside of the department. The appointment is expected to begin September 1, 2023.

The successful candidate must have a PhD in Biomedical Engineering or related fields. The candidate must have the interest and ability to teach at both the undergraduate and graduate levels; supervise graduate students and postdoctoral fellows; contribute significantly to the advancement of science and engineering; develop a nationally recognized program of sponsored research; and have a commitment to diversity and inclusion.

As a campus with an increasingly diverse student body, we are looking for candidates who can operate effectively in a diverse faculty and student community, and who value collegiality, collaboration, achievement, and integrity. We encourage applications from women, minorities, and individuals with a commitment to mentor under-represented demographics within engineering. We are committed to helping all constituents reach their full potential, creating best-in-practice operations to support faculty scholarship and fostering excellence in student experiences inside and outside our department.

Applications will be considered until the position is filled; however, applications should be received by **December 15, 2022**, to ensure full consideration. Applicants should submit a file that includes: Cover Letter, Research Statement, Teaching Statement, Statement of Contribution to Diversity, Equity and Inclusion, Curriculum Vitae, and Contact Information for three professional references.

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**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing**

Session Chair(s):

Gulden Camci-Unal

**Abstract Title:** 3D-Printed Low-Profile and X-ray Visible Bioresorbable Vascular Scaffolds**Presenter:** Yonghui Ding**Principal Investigator:** N/A**Author(s):**

Yonghui Ding

Guillermo Ameer

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing**

Session Chair(s):

Gulden Camci-Unal

**Abstract Title:** A Portable Miniaturized Peptide Reactor for Facile Mini/Micro-scale synthesis.**Presenter:** Alexandra Griffith**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 005

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing**

Session Chair(s):

Gulden Camci-Unal

**Abstract Title:** Scalable Electrospinning Methods to Produce Uniform High Basis Weight Drug Eluting Biomaterials**Presenter:** My-Anh Doan**Principal Investigator:** Kim Woodrow**Author(s):**

Jamie Hernandez

My-Anh Doan

Hannah Vanbenschoten

Shin-Tian Chien

Kim Woodrow

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiac/Cardiovascular Regeneration and Stem Cells**

Session Chair(s):

Megan McCain

Kalpana Mandal

**Abstract Title:** Microfabricated Systems to Model Cardiac Tissue Pathophysiology and Regeneration**Presenter:** Megan McCain**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiac/Cardiovascular Regeneration and Stem Cells****Session Chair(s):**

Megan McCain

Kalpana Mandal

**Abstract Title:** Stem Cell-Derived Exosome Nebulization Therapy (SCENT) For Heart Repair**Presenter:** Junlang Li**Principal Investigator:** N/A**Author(s):**

shenghuan sun

Ke Cheng

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiac/Cardiovascular Regeneration and Stem Cells****Session Chair(s):**

Megan McCain

Kalpana Mandal

**Abstract Title:** Vascular Smooth Muscle Cell Phenotype Plasticity is Regulated by Heterogeneous Expression of an Alternatively Spliced lncRNA**Presenter:** Jaimie Mayner**Principal Investigator:** Adam Engler**Author(s):**

Evan Masutani

Elena Demeester

Pranjali Beri

Aditya Kumar

Valentina Lo Sardo

Adam Engler

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiac/Cardiovascular Regeneration and Stem Cells****Session Chair(s):**

Megan McCain

Kalpana Mandal

**Abstract Title:** Overexpression of KLF15, ESRRA, and HOPX Improves Stem Cell-Derived Cardiomyocyte Maturation**Presenter:** Aditya Kumar**Principal Investigator:** Prashant Mali**Author(s):**

Aditya Kumar

Starry He

Prashant Mali

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiac/Cardiovascular Regeneration and Stem Cells****Session Chair(s):**

Megan McCain

Kalpana Mandal

**Abstract Title:** Porous Microtube Scaffold for 3D Exosome Production and Implantable Paracrine Cell Therapy

**Presenter:** David J. Lundy  
**Principal Investigator:** N/A  
**Author(s):**  
 Andreas Czosseck  
 Max Chen  
 Helen Nguyen  
 Annette Meeson

**Thursday, October 13**  
 1:00 PM - 2:30 PM

**Session:** 2, **Room:** 216 AB

**Track:** Cardiovascular Engineering

**Session Chair(s):**  
 Megan McCain  
 Kalpana Mandal

**Abstract Title:** Differentiating iPSCs to Endothelial Cells via Endogenous Activation of Transcription Factor ETV2 with CRISPR-Cas9 Based activator

**Presenter:** Qiao Zhang  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Thursday, October 13**  
 1:00 PM - 2:30 PM

**Session:** 2, **Room:** 007 B

**Track:** Drug Delivery

### Nucleic Acid Delivery

**Session Chair(s):**  
 Cregg Duncan  
 Chien-Chi Lin  
 Alice Hsu

**Abstract Title:** Therapeutic Dual Imaging Nanoparticles for Treatment of Peripheral Arterial Disease

**Presenter:** Tam Nguyen  
**Principal Investigator:** Kytai T. Nguyen  
**Author(s):**  
 Vy Tran  
 Na Nguyen  
 Priyanka Iyer  
 Kytai Nguyen

**Thursday, October 13**  
 1:00 PM - 2:30 PM

**Session:** 2, **Room:** 007 B

**Track:** Drug Delivery

### Nucleic Acid Delivery

**Session Chair(s):**  
 Cregg Duncan  
 Chien-Chi Lin  
 Alice Hsu

**Abstract Title:** Quantitative Analysis of Naked DNA Delivered into Nucleus of Mammalian Cells by Electrotransfection

**Presenter:** Yifei Wang  
**Principal Investigator:** N/A  
**Author(s):**  
 Fan Yuan

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery****Session Chair(s):**Cregg Duncan  
Chien-Chi Lin  
Alice Hsu**Abstract Title:** Polymeric Nanoparticle-Mediated, Targeted In Situ mRNA Delivery and Stimulation of Primary T cells**Presenter:** Savannah Est-Witte**Principal Investigator:** Jordan Green**Author(s):**Savannah Est  
Sarah Yoseph  
Jawaun Harris  
Stephany Tzeng  
Jordan Green**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery****Session Chair(s):**Cregg Duncan  
Chien-Chi Lin  
Alice Hsu**Abstract Title:** Engineered Virus-like Extracellular Vesicle for Encapsulation and In Vivo Delivery of mRNA into The Brain**Presenter:** Wenchao Gu**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery****Session Chair(s):**Cregg Duncan  
Chien-Chi Lin  
Alice Hsu**Abstract Title:** Effect of mRNA-Carrying Lipid Nanoparticle Composition on NLRP3 Inflammasome Activation and mRNA Transfection Efficiency**Presenter:** James Forster**Principal Investigator:** Ashish A. Kulkarni**Author(s):**James Forster  
Dipika Nandi  
Ashish Kulkarni**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 006 A

Track: Tissue Engineering

Other / Non-specified

**Session Chair(s):**Jonathan Butcher  
Syam Nukavarapu**Abstract Title:** Using Basic Bone Biology to Inform the Design of Materials for Bone Tissue Engineering**Presenter:** Barbara Boyan**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 006 A

Track: Tissue Engineering

**Musculoskeletal Tissue Engineering****Session Chair(s):**Jonathan Butcher  
Syam Nukavarapu**Abstract Title:** Myotube-Laden Aligned Collagen Scaffolds Support Osteogenesis**Presenter:** Krista Habing**Principal Investigator:** N/A**Author(s):**Krista Habing  
Cynthia Alcazar  
Karina Nakayama**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 006 A

Track: Tissue Engineering

**Musculoskeletal Tissue Engineering****Session Chair(s):**Jonathan Butcher  
Syam Nukavarapu**Abstract Title:** Effect of Cyclic Stretch Varies Depending on Degree of Collagen Organization in Engineered Ligaments**Presenter:** Leia Troop**Principal Investigator:** N/A**Author(s):**

Jennifer Puetzer

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 006 A

Track: Tissue Engineering

**Musculoskeletal Tissue Engineering****Session Chair(s):**Jonathan Butcher  
Syam Nukavarapu**Abstract Title:** Role of Paracrine Signals in the Activity of a Triphasic Biomaterial for Rotator Cuff Repair**Presenter:** Kyle Timmer**Principal Investigator:** Brendan Harley**Author(s):**Kyle Timmer  
Megan Killian  
Brendan Harley**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 2, Room: 006 A

Track: Tissue Engineering

**Musculoskeletal Tissue Engineering****Session Chair(s):**Jonathan Butcher  
Syam Nukavarapu**Abstract Title:** Electroactive Gelatin Fibrous Scaffolds for Promoting Cell Migration, Growth, and Chondrogenesis**Presenter:** Yasaman Aghli**Principal Investigator:** Treena Arinzeh**Author(s):**

Treena Arinzeh

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 214 B**Track:** Biomedical Engineering Education**Session Chair(s):**

Michelle Zwernemann

Nehal Abu-Lail

**Abstract Title:** A Global Lens on Gender Parity of Engineering in Selected Predominantly Muslim Countries: What can the US Learn?**Presenter:** Megan Wilkerson**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 214 B**Track:** Biomedical Engineering Education**Diversity, Equity, and Inclusion****Session Chair(s):**

Michelle Zwernemann

Nehal Abu-Lail

**Abstract Title:** Creating a Framework for Teaching Healthcare Disparities across the Curriculum**Presenter:** Kellie Bushe**Principal Investigator:** N/A**Author(s):**

Kellie Bushe

Hope Soucy

Angela Incollingo Rodriguez

Kristen Billiar

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 214 B**Track:** Biomedical Engineering Education**Diversity, Equity, and Inclusion****Session Chair(s):**

Michelle Zwernemann

Nehal Abu-Lail

**Abstract Title:** Diversity, Equity, and Inclusion Content in Bioengineering Courses**Presenter:** Molly Mollica**Principal Investigator:** Alyssa Taylor**Author(s):**

Alyssa Taylor

Emily Olszewski

Ken Yasuhara

Casey Kiyohara

Danafe Matusalem

Alexander Ochs

Michael Regnier

Princess Imoukhuede

Wendy Thomas

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 214 B**Track:** Biomedical Engineering Education**Teaching, Learning, and Pedagogy****Session Chair(s):**

Michelle Zwernemann

Nehal Abu-Lail

**Abstract Title:** The use of infographics to teach students about health disparities in a physiology course**Presenter:** Shannon Baker**Principal Investigator:** Shannon Barker**Author(s):** N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 214 B**Track:** Biomedical Engineering Education**Diversity, Equity, and Inclusion****Session Chair(s):**Michelle Zwernemann  
Nehal Abu-Lail**Abstract Title:** Incorporating Public Exams into Required BME courses for equity and inclusion**Presenter:** Elizabeth Bucholz**Principal Investigator:** Elizabeth Bucholz**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 214 B**Track:** Biomedical Engineering Education**Diversity, Equity, and Inclusion****Session Chair(s):**Michelle Zwernemann  
Nehal Abu-Lail**Abstract Title:** Evaluating the Impact of Exposure to Scientific Role Models and Work-Based Microbadging on STEM Career Mindsets in Underrepresented Groups**Presenter:** Duncan Davis-Hall**Principal Investigator:** N/A**Author(s):**Duncan Davis-Hall  
Laura Farrelly  
Melissa Risteff  
Chelsea Magin**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Brian Aguado  
Samantha Zambuto**Abstract Title:** The Placenta Enigma: A Critical but Disposable Organ**Presenter:** Michelle Oyen**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Brian Aguado  
Samantha Zambuto**Abstract Title:** Neuropilin-1 Restores Angiogenic Potential of Preeclamptic Endothelial Colony-Forming Cells**Presenter:** Eva Hall**Principal Investigator:** Donny Hanjaya-Putra**Author(s):**Erin Neu  
Aziza Ziauddin  
Laura Alderfer  
Laura Haneline  
Donny Hanjaya-Putra

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Brian Aguado  
Samantha Zambuto**Abstract Title:** An Engineered Human Placental Tissue Model for High-throughput Chemical Screening**Presenter:** Regeant Panday**Principal Investigator:** Salman R. Khetani**Author(s):**Regeant Panday  
Dinithi Samarasekera  
Yong Pu  
Almudena Veiga-Lopez  
Salman Khetani**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Brian Aguado  
Samantha Zambuto**Abstract Title:** Ionizable Lipid Nanoparticles for In Vivo mRNA Delivery to the Placenta during Pregnancy**Presenter:** Kelsey Swingle**Principal Investigator:** Michael J. Mitchell**Author(s):**Kelsey Swingle  
Michael Mitchell**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Brian Aguado  
Samantha Zambuto**Abstract Title:** Drug Eluting Embolization Particles for Permanent Contraception**Presenter:** Hannah Vanbenschoten**Principal Investigator:** N/A**Author(s):**

Kim Woodrow

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 3, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Brian Aguado  
Samantha Zambuto**Abstract Title:** Sex-Specific Drug Screen in a Cardiac Fibroblast Signaling Network Model**Presenter:** Kelsey Watts**Principal Investigator:** N/A**Author(s):**Kelsey Watts  
Wesley Nichols  
William Richardson

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

### **Magnetic Resonance Imaging and Applications (MRI)**

**Session Chair(s):**

Walt Baxter

Kelsey Kubelick

**Abstract Title:** Hand-held MRI for Point-of-Care Diagnostics and Classroom Education

**Presenter:** Irene Kuang

**Principal Investigator:** N/A

**Author(s):**

Irene Kuang

Elfar Adalsteinsson

Jacob White

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

### **Magnetic Resonance Imaging and Applications (MRI)**

**Session Chair(s):**

Walt Baxter

Kelsey Kubelick

**Abstract Title:** Design of Quadrature MRI Coil for Calcium Susceptibility Imaging in Small Tissue Samples

**Presenter:** Jacob Degitz

**Principal Investigator:** Mary Preston McDougall

**Author(s):**

Jacob Degitz

Edith Valle

Steven Wright

Mary McDougall

University of  
Massachusetts  
Amherst **BE REVOLUTIONARY™**

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Applications will be considered until the position is filled; however, applications should be received by **January 1, 2023** to ensure full consideration. Applicants should submit a file that includes: Cover Letter, Research Statement, Teaching Statement, Statement of Contribution to Diversity, Equity and Inclusion, Curriculum Vitae, and Contact Information for three professional references.

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**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 4, Room: 007 A

**Track:** Biomedical Imaging and Instrumentation**Magnetic Resonance Imaging and Applications (MRI)****Session Chair(s):**

Walt Baxter

Kelsey Kubelick

**Abstract Title:** Towards Developing Sex-Specific Human Head Finite Element Model Based on Sex-Specific Brain Templates**Presenter:** Mohammadreza Ramzanpour**Principal Investigator:** N/A**Author(s):**

Marzieh Hajiaghamemar

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 4, Room: 007 A

**Track:** Biomedical Imaging and Instrumentation**Magnetic Resonance Imaging and Applications (MRI)****Session Chair(s):**

Walt Baxter

Kelsey Kubelick

**Abstract Title:** Relative Skull-to-Brain Motion Using MR Elastography Across Multiple Frequencies**Presenter:** Alexa Diano**Principal Investigator:** Curtis L Johnson**Author(s):**

Alexa Diano

Olivia Bailey

Grace McIlvain

Curtis Johnson

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 4, Room: 007 A

**Track:** Biomedical Imaging and Instrumentation**Magnetic Resonance Imaging and Applications (MRI)****Session Chair(s):**

Walt Baxter

Kelsey Kubelick

**Abstract Title:** Variability in the Analysis Burden for Evaluating Radiofrequency Induced Heating of Implanted Medical Devices**Presenter:** Andrew Dillon**Principal Investigator:** N/A**Author(s):**

Andrew Dillon

William Torres

Autumn Bullard

Jorge Ochoa

Ryan Siskey

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 5, Room: 214 A

**Track:** Nano and Micro Technologies**Session Chair(s):**

Abhinav Acharya

Isaac Adjei

**Abstract Title:** Design of Targeted Antimicrobial Macromolecules**Presenter:** Chris Alabi**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**Abhinav Acharya  
Isaac Adjei**Abstract Title:** Isolation of Hematopoietic Stem Cells Using a Novel Planer Gradient Magnetic System**Presenter:** Heather Blackwell**Principal Investigator:** N/A**Author(s):**Heather Blackwell  
Jon Dobson**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**Abhinav Acharya  
Isaac Adjei**Abstract Title:** Genome-scale CRISPR Knockout System to Explore Genome-mechanical Relationships in Metastatic Cells**Presenter:** Katherine Young**Principal Investigator:** N/A**Author(s):**Peter Shankles  
curtis dobrowolski  
James Dahlman  
Cynthia Reinhart-King  
Todd Sulchek**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**Abhinav Acharya  
Isaac Adjei**Abstract Title:** Nanoengineered T Cells for Ultrasound and Photoacoustic Image-Guided Cancer Chemo-Immunotherapy in Solid Malignancies**Presenter:** Jinhwan Kim**Principal Investigator:** N/A**Author(s):**Kelsey Kubelick  
Jeungyoon Lee  
Anamik Jhunjhunwala  
Stanislav Emelianov

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**

Abhinav Acharya

Isaac Adjei

**Abstract Title:** Dielectric Metasurface-based Nano-bio Interfaces for Biosensing and Cell Mechanobiology Studies**Presenter:** Haogang Cai**Principal Investigator:** N/A**Author(s):**

Taerin Chung

HAO WANG

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 004**Track:** Biomaterials**Session Chair(s):**

Jonathan Grasman

Mai Ngo

**Abstract Title:** Mechanobiology in Biomaterials – Building Better Microtissues**Presenter:** Mary Sewell-Lofton**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 004**Track:** Biomaterials**Biomaterials****Session Chair(s):**

Jonathan Grasman

Mai Ngo

**Abstract Title:** Impacts of Type V Collagen Insufficiency on Cutaneous Wound Healing and Scar Formation**Presenter:** Yuchen Liu**Principal Investigator:** N/A**Author(s):**

Chao Wang

Lin Han

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 004**Track:** Biomaterials**Biomaterials****Session Chair(s):**

Jonathan Grasman

Mai Ngo

**Abstract Title:** Lung-Mimetic Sealant to Rapidly Repair Pulmonary Air Leaks in Human-Sized Lungs**Presenter:** Meghan Pinezich**Principal Investigator:** Gordana Vunjak-Novakovic**Author(s):**

Gordana Vunjak-Novakovic

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 6, Room: 004

Track: Biomaterials

**Biomaterials**

Session Chair(s):

Jonathan Grasman  
Mai Ngo**Abstract Title:** Development and Optimization of Injectable, In Situ Crosslinking Chitosan-Genipin Hydrogels**Presenter:** Tyler Priddy-Arrington**Principal Investigator:** Mary E. Caldorera-Moore**Author(s):**Tyler Priddy-Arrington  
Sofia Urbina  
Mary Caldorera-Moore**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 6, Room: 004

Track: Biomaterials

**Biomaterials**

Session Chair(s):

Jonathan Grasman  
Mai Ngo**Abstract Title:** Uterine-Derived DECM Provides Enhanced Endometrial Regeneration, Receptivity, And Fertilization**Presenter:** Tugce Sen**Principal Investigator:** N/A**Author(s):**Dong-Woo Cho  
Jinah Jang  
Jungho Ahn  
Youn-Jung Kang**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 6, Room: 004

Track: Biomaterials

**Biomaterials**

Session Chair(s):

Jonathan Grasman  
Mai Ngo**Abstract Title:** Immune Response to Biomaterials in Mice is Sex-Dependent**Presenter:** Iais Carvalho**Principal Investigator:** N/A**Author(s):**Derek Avery  
Rene Olivares-Navarrete**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 7, Room: 214 D

Track: Cancer Technologies

**Cancer Immunoengineering, Immunomodulation and Immunotherapy**

Session Chair(s):

Shreya Raghavan  
Mehdi Nikkhah**Abstract Title:** Metabolic Labeling and Targeted Modulation of Dendritic Cells**Presenter:** Benjamin Hacker**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 7, Room: 214 D

Track: Cancer Technologies

**Cancer Immunoengineering, Immunomodulation and Immunotherapy**

Session Chair(s):

Shreya Raghavan  
Mehdi Nikkhah**Abstract Title:** In Situ PEGylation of CAR T Cells Alleviates Cytokine Release Syndrome and Neurotoxicity**Presenter:** Ningqiang Gong**Principal Investigator:** Michael Mitchell**Author(s):**

Michael Mitchell

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 7, Room: 214 D

Track: Cancer Technologies

**Metastasis, Dormancy & Treatment Response**

Session Chair(s):

Shreya Raghavan  
Mehdi Nikkhah**Abstract Title:** Immunologic regulation of dormancy in breast cancer stem cells**Presenter:** Grace Bushnell**Principal Investigator:** Max S Wicha**Author(s):**

Max Wicha

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 7, Room: 214 D

Track: Cancer Technologies

**Computational Modeling of Cancer**

Session Chair(s):

Shreya Raghavan  
Mehdi Nikkhah**Abstract Title:** Towards Fractionated Photoimmunotherapy to Leverage Tumor-Immune Dynamics**Presenter:** Mohammad Zahid**Principal Investigator:** Heiko Enderling**Author(s):**Matthew Waguespack  
Bryan Spring  
Heiko Enderling**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 7, Room: 214 D

Track: Cancer Technologies

**Circulating Biomarkers: CTCs, Extracellular Vesicles and DNA**

Session Chair(s):

Shreya Raghavan  
Mehdi Nikkhah**Abstract Title:** Small Extracellular Vesicle Biomarker Signatures – Role in Guiding Immune Checkpoint Immunotherapy**Presenter:** Samel Walker**Principal Investigator:** N/A**Author(s):**Samuel Walker  
James McGrath  
Jonathan Flax

## Thursday, October 13

1:00 PM - 2:30 PM

Session: 7, Room: 214 D

Track: Cancer Technologies

### Cancer Immunoengineering, Immunomodulation and Immunotherapy

Session Chair(s):

Shreya Raghavan  
Mehdi Nikkhah

**Abstract Title:** An Effective Targeted  
Immunotherapy for Non-Small Cell Lung Carcinoma

**Presenter:** Tanmoy Saha

**Principal Investigator:** N/A

**Author(s):**

N/A

## Thursday, October 13

1:00 PM - 2:30 PM

Session: 9, Room: 206

Track: Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

Session Chair(s):

Elizabeth Blaber  
Anwasha Sarkar  
Susan Leggett

**Abstract Title:** Role of Chromatin  
Mechanics and Architecture in  
Monolayer Cell Migration

**Presenter:** Samantha Kaonis

**Principal Investigator:** Soham Ghosh

**Author(s):**

Brady Hine

Samantha Kaonis

Eric Havenhill

Soham Ghosh

## Thursday, October 13

1:00 PM - 2:30 PM

Session: 9, Room: 206

Track: Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

Session Chair(s):

Elizabeth Blaber  
Anwasha Sarkar  
Susan Leggett



THE OHIO STATE UNIVERSITY  
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**Abstract Title:** Age-associated Cytoskeletal Stiffening and Piezo1 Signaling Promote Impaired Mechanosensation in Vascular Smooth Muscle Cells

**Presenter:** Ngoc Luu

**Principal Investigator:** N/A

**Author(s):**

Ngoc Luu

Weiqiang Chen

Seojin Park

Rui Li

Lunan Liu

Mahad Noor

Apratim Bajpai

## Thursday, October 13

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 206

**Track:** Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

**Session Chair(s):**

Elizabeth Blaber

Anwasha Sarkar

Susan Leggett

**Abstract Title:** Functional Consequences of Lipid Droplet-Based Cytoskeletal Disruption in Macrophages

**Presenter:** Michael Tobin

**Principal Investigator:** Dennis Discher

**Author(s):**

Michael Tobin

Dennis Discher

## Thursday, October 13

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 206

**Track:** Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

**Session Chair(s):**

Elizabeth Blaber

Anwasha Sarkar

Susan Leggett

**Abstract Title:** Applying Ultrasound to Mechanically Sensitize Prostate Cancer Cells to TRAIL-Mediated Apoptosis

**Presenter:** Abigail Fabiano

**Principal Investigator:** N/A

**Author(s):**

Abigail Fabiano

Malachy Newman

Charles Caskey

Michael King

## Thursday, October 13

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 206

**Track:** Biomechanics

### Cellular and Molecular Biomechanics: Mechanobiology

**Session Chair(s):**

Elizabeth Blaber

Anwasha Sarkar

Susan Leggett

**Abstract Title:** Frequency Distributions of Mechanically Coupled Cardiac Tissues

**Presenter:** William Drennan

**Principal Investigator:** N/A

**Author(s):**

M Taher Saif

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 9, Room: 206

Track: Biomechanics

**Cellular and Molecular Biomechanics:  
Mechanobiology****Session Chair(s):**Elizabeth Blaber  
Anwasha Sarkar  
Susan Leggett**Abstract Title:** Skeletal Impacts of Dual in vivo  
Compressive Axial Tibial and Ulnar loading**Presenter:** Olivia Reul**Principal Investigator:** Joseph Wallace**Author(s):**

Joseph Wallace

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 11, Room: 006 B

Track: Tissue Engineering

**Neural and Neurovascular Tissue  
Engineering****Session Chair(s):**Ryan Gilbert  
Xiaojun Yu**Abstract Title:** Biodegradable, Piezoelectric Gelatin  
Scaffolds for Schwann-cell Mediated Axon Growth**Presenter:** Scott Stratton**Principal Investigator:** N/A**Author(s):**Treena Arinzeh  
Yelena Presman**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 11, Room: 006 B

Track: Tissue Engineering

**Neural and Neurovascular Tissue  
Engineering****Session Chair(s):**Ryan Gilbert  
Xiaojun Yu**Abstract Title:** Characterization of Size Tunable  
Three-dimensional Micropatterned Channels in  
Hydrogels using Magnetic Templating**Presenter:** Victor Rivera-Llabres**Principal Investigator:** Carlos M. Rinaldi-Ramos**Author(s):**Victor Rivera-Llabres  
Kara Gentry  
Mary Kasper  
Matthew Po  
Christine Schmidt  
Carlos Rinaldi-Ramos**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 11, Room: 006 B

Track: Tissue Engineering

**Neural and Neurovascular Tissue  
Engineering****Session Chair(s):**Ryan Gilbert  
Xiaojun Yu**Abstract Title:** Drug Delivery Approaches for the  
Injured Spinal Cord: A Focus on Poly(pro-drug)  
Approaches and Delivery Vehicles for Interleukins**Presenter:** Ryan Gilbert**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 11, **Room:** 006 B**Track:** Tissue Engineering**Neural and Neurovascular Tissue Engineering****Session Chair(s):**Ryan Gilbert  
Xiaojun Yu**Abstract Title:** Generating A Perfusable Vascularized Brain Organoid Model Using Microfluidics And Photodegradable Polymer Scaffolds**Presenter:** Erin LaMontagne**Principal Investigator:** Adam J Engler**Author(s):**Erin LaMontagne  
Laura Macdougall  
Fabio Papes  
Evan Teng  
Jaimie Mayner  
Bryan Sutherland  
Kristi Anseth  
April Kloxin  
Alysson Muotri  
Adam Engler**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 11, **Room:** 006 B**Track:** Tissue Engineering**Neural and Neurovascular Tissue Engineering****Session Chair(s):**Ryan Gilbert  
Xiaojun Yu**Abstract Title:** Development of an iPSC-Based Blood-Brain Barrier-on-Chip for Traumatic Brain Injury Modeling**Presenter:** Kartik Balachandran**Principal Investigator:** Kartik Balachandran**Author(s):**Lais Andrade Ferreira  
Amanda Walls  
Joshua Dixon**Thursday, October 13**

1:00 PM - 2:30 PM

**Session:** 11, **Room:** 006 B**Track:** Tissue Engineering**Neural and Neurovascular Tissue Engineering****Session Chair(s):**Ryan Gilbert  
Xiaojun Yu**Abstract Title:** Development of a 3D Neurovascular Unit for In Vitro Modeling of Neuropathologies**Presenter:** Brian O'Grady**Principal Investigator:** Ethan Lippmann**Author(s):**

Ethan Lippmann

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 12, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics****Session Chair(s):**Marzieh Hajiaghamemar  
Tanvir Faisal  
Lai Fan**Abstract Title:** Phantom-less QCT-Based FEA Fracture Risk Thresholds Correlate to Phantom-based Outcomes**Presenter:** Maria Prado**Principal Investigator:** N/A**Author(s):**

Maria Prado

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 12, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics****Session Chair(s):**Marzieh Hajiaghamemar  
Tanvir Faisal  
Lai Fan**Abstract Title:** A Radiofrequency Ablation Simulation: Development of a Novel Animal Model of Osteochondritis Dissecans**Presenter:** Boyuan Liu**Principal Investigator:** Virginia Ferguson**Author(s):**Virginia Ferguson  
Kristine Fischenich**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 12, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics****Session Chair(s):**Marzieh Hajiaghamemar  
Tanvir Faisal  
Lai Fan**Abstract Title:** The Effect of Posture on Rib Cage Morphology**Presenter:** Andrea Robinson**Principal Investigator:** F. Scott Gayzik**Author(s):**Jazmine Aira  
Francis Gayzik**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 12, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics****Session Chair(s):**Marzieh Hajiaghamemar  
Tanvir Faisal  
Lai Fan**Abstract Title:** Muscle Compensation Strategies Differ by Sex During a Loaded Dynamic Task with a Rotator Cuff Tear**Presenter:** Zoe Moore**Principal Investigator:** N/A**Author(s):**Sujata Khandare  
Joshua Pataky  
Meghan Vidt

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 12, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Marzieh Hajiaghamemar

Tanvir Faisal

Lai Fan

**Abstract Title:** Domain Aggregation and Associated Pore Growth in Lipid Membranes**Presenter:** Yue Liu**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

1:00 PM - 2:30 PM

Session: 12, Room: 207

Track: Biomechanics

**Computational and Multiscale Modeling in Biomechanics**

Session Chair(s):

Marzieh Hajiaghamemar

Tanvir Faisal

Lai Fan

**Abstract Title:** Automated Biomechanical Analysis Tool For IVUS-Based Patient-Specific Atherosclerotic Arteries**Presenter:** Jeremy Warren**Principal Investigator:** Heather N. Hayenga**Author(s):**

Jeremy Warren

John Yoo

Stefano Leonardi

Federico Bernardoni

Brandon Boren

Heather Hayenga

Clark Meyer



**N** Northeastern University  
College of Engineering  
Bioengineering

**AT THE INTERFACE OF ENGINEERING AND MEDICINE**

Northeastern University's Bioengineering Program provides a broad-based, interdisciplinary engineering curriculum that offers a rigorous yet flexible education. The Department of Bioengineering has a robust Bachelors, Masters and PhD Program. The goal of the curriculum in Bioengineering is to provide students with a broad understanding of the quantitative analysis of biological systems and a deep expertise in an area of engineering of their choice.

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- Devices, Imaging, Instrumentation and Signal Processing
- Molecular, Cell and Tissue Engineering
- Systems, Synthetic and Computational Bioengineering

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 1, Room: 216 AB

Track: Cardiovascular Engineering

**Angiogenesis and Engineered Vascularization**

Session Chair(s):

Jeff Wolchok

Esak Lee

**Abstract Title:** Engineering the next generation of cardiovascular tissue models**Presenter:** Chris Chen**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 1, Room: 216 AB

Track: Cardiovascular Engineering

**Angiogenesis and Engineered Vascularization**

Session Chair(s):

Jeff Wolchok

Esak Lee

**Abstract Title:** Improved Murine Hindlimb Ischemia Model to Assess Vascular Regeneration in Peripheral Artery Disease**Presenter:** Nancy Rivera Bolaños**Principal Investigator:** Bin Jiang**Author(s):**

Nancy Rivera Bolaños

Sara Alharbi

Guillermo Ameer

Bin Jiang

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 1, Room: 216 AB

Track: Cardiovascular Engineering

**Angiogenesis and Engineered Vascularization**

Session Chair(s):

Jeff Wolchok

Esak Lee

**Abstract Title:** Direct Endothelial Cell-Pericyte Contact Is Required For VEGFR2 Downregulation And 3D Vessel Stabilization**Presenter:** Ying Yu Lin**Principal Investigator:** Sharon Gerecht**Author(s):**

Bria Macklin

Sharon Gerecht

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 1, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Tissue Engineering**

Session Chair(s):

Jeff Wolchok

Esak Lee

**Abstract Title:** Capture of Circulating Monocytes for Vascular Regeneration**Presenter:** Bitra Nasiri**Principal Investigator:** Stylianos Andreadis**Author(s):**

Tai Yi

yulun wu

Randall Smith

Christopher BUndergraduateer

Stelios Andreadis

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 1, Room: 216 AB

Track: Cardiovascular Engineering

**Angiogenesis and Engineered Vascularization**

Session Chair(s):

Jeff Wolchok

Esak Lee

Abstract Title: Engineering Vasculogenesis Via Synthetic Regulation of Paracrine Signaling

Presenter: Mai Ngo

Principal Investigator: Christopher Chen

Author(s):

Mai Ngo

Ahmad Khalil

Christopher Chen

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 1, Room: 008 A

Track: Cellular and Molecular Bioengineering

Session Chair(s):

Monica Burdick

Kara McCloskey

Abstract Title: Engineered placental-derived mesenchymal stem/stromal cells for the treatment of central nervous system disorders

Presenter: Aijun Wang

Principal Investigator: N/A

Author(s):

N/A

**OUR RESEARCH CHANGES LIVES**

The University of Georgia School of Chemical, Materials and Biomedical Engineering has never been more committed to serving our state, nation, and world. Through investments in talented faculty and state-of-the-art facilities, we've doubled down on our search for solutions that result in healthier people, a more secure future, and stronger communities around the world.

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School of Chemical, Materials  
and Biomedical Engineering

College of Engineering

UNIVERSITY OF GEORGIA

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Monica Burdick

Kara McCloskey

**Abstract Title:** Single-cell Multiomic Profiling Identifies Novel Regulators of Stem Cell Derived  $\beta$ -cell Differentiation and Maturation**Presenter:** Punn Augsornworawat**Principal Investigator:** N/A**Author(s):**

Jeffrey Millman

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Reprogramming/Directed Differentiation in Stem Cell Engineering****Session Chair(s):**

Monica Burdick

Kara McCloskey

**Abstract Title:** Effects of gRNA Sequence-Based Lineage Tracking on Maturity of hiPSC-Derived Cardiomyocytes**Presenter:** Sogu Sohn**Principal Investigator:** Janet Zoldan**Author(s):**

Janet Zoldan

Amy Brock

Katelyn Dockery

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Monica Burdick

Kara McCloskey

**Abstract Title:** Early Arteriovenous Patterning in Vascular Model Plexus Comprised of Endothelial Cells and Mural Cells Co-differentiated in 3D from Human Pluripotent Stem Cells**Presenter:** Shravani Kakarla**Principal Investigator:** N/A**Author(s):**

Guohao Dai

Alexander Grath

Max Winkelman

Taylor Dorsey

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Monica Burdick

Kara McCloskey

**Abstract Title:** Mechanical Conditioning Rejuvenates Mesenchymal Stem Cells from Aged Patients**Presenter:** Miles Massida**Principal Investigator:** N/A**Author(s):**

Aaron Baker

Aiden Sices

Andrei Demkov

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Monica Burdick  
Kara McCloskey**Abstract Title:** Engineering Liver Extracellular Matrix Nanofibers to Functionally Mature iPSC-derived Liver Cells**Presenter:** Yang Yuan**Principal Investigator:** Salman R Khetani**Author(s):**Jennifer Liu  
Salman Khetani  
Matt Kipper  
Liszt Madruga**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Alexandra Rutz  
Megan McCain**Abstract Title:** In vitro Microfluidic Modeling of Angiogenesis under Endometriotic Conditions**Presenter:** Isabelle Chikanovsky**Principal Investigator:** David Vorp**Author(s):**Isabelle Chickanosky  
Ioannis Zervantonakis  
David Vorp**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Alexandra Rutz  
Megan McCain**Abstract Title:** Computational Model of Endometrial Growth in Health and Disease**Presenter:** Wangui Mbugiro**Principal Investigator:** Feilim Mac Gabhann**Author(s):**Wangui Mbuguiro  
Juan Gnecco  
Linda Griffith  
Feilm MacGabhann**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 212 B**Track:** Women's Health

Sex-related Differences in Chronic Diseases

**Session Chair(s):**Alexandra Rutz  
Megan McCain**Abstract Title:** Sex Differences in Aortic Valve Leaflet Collagen Composition and Alignment Detected using Polarized Light Microscopy**Presenter:** Taia Baddour**Principal Investigator:** Brian Aguado**Author(s):**Samantha Bordy  
Lisa Poulidakos  
Brian Aguado

## Thursday, October 13

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 212 B

**Track:** Women's Health

**Session Chair(s):**

Alexandra Rutz

Megan McCain

**Abstract Title:** Oxytocin-Induced Calcium Transients in Engineered Human Uterine Muscle Tissue Depend on Matrix Stiffness and Cell Alignment

**Presenter:** Antonina Maxey

**Principal Investigator:** Megan McCain

**Author(s):**

Megan McCain

Jaya Travis

**Presenter:** Joscelyn Mejias

**Principal Investigator:** N/A

**Author(s):**

Helen Nguyen

Malak El Sabeih

Sadia Afrin

Christopner Cherry

Anna Ruta

Katlin Stivers

Kavita Krishnan

Natalie Rutkowski

Maria Browne

Md Islam

Mostafa Borahay

James Segars

Jennifer Elisseff

## Thursday, October 13

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 212 B

**Track:** Women's Health

**Session Chair(s):**

Alexandra Rutz

Megan McCain

**Abstract Title:** Immune-Senescence Communication Networks in Uterine Leiomyomas



## BIOMEDICAL ENGINEERING



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**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 1, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Alexandra Rutz  
Megan McCain**Abstract Title:** a novel breast implant encouraging tissue adherence and implant stability without a textured surface**Presenter:** Hector Martinez**Principal Investigator:** N/A**Author(s):**Hector Salazar Martinez  
Luke Proveromo  
Sabrina Shih  
Xue Dong  
Carly Askinas  
Jason Spector**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Analysis of Cell Signaling****Session Chair(s):**Mary Staehle  
Rupa Bhowmick**Abstract Title:** TGF $\beta$  Ligand Discrimination and Signaling are Rewired by TGFBR3 Coreceptor**Presenter:** Wisam Fares**Principal Investigator:** Kevin Janes**Author(s):**

Kevin Janes

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Analysis of Cell Signaling****Session Chair(s):**Mary Staehle  
Rupa Bhowmick**Abstract Title:** Probing the Interplay of Transcription Factor Localization and Binding Affinity in Gene Induction**Presenter:** Kieran Sweeney**Principal Investigator:** Megan N. McClean**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Single-Cell Measurements and Models****Session Chair(s):**Mary Staehle  
Rupa Bhowmick**Abstract Title:** AP-1 Transcription Factor Network Explains Diverse Patterns of Cellular Plasticity in Melanoma**Presenter:** Natacha Comandante Lou**Principal Investigator:** N/A**Author(s):**Douglas Baumann  
Mohammad Fallahi-Sichani

## Thursday, October 13

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Analysis of Cell Signaling

**Session Chair(s):**

Mary Staehle

Rupa Bhowmick

**Abstract Title:** A Computational Model of Stability and Trafficking of VEGFR1, VEGFR2, and NRP1 in Endothelial Cells

**Presenter:** Sarvenaz Sarabipour

**Principal Investigator:** N/A

**Author(s):**

Kaitlyn Quigley

Anita Kovacs-Kasa

Karina Kinghorn

Brian Annex

Victoria Bautch

Feilim Mac Gabhann

## Thursday, October 13

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Analysis of Cell Signaling

**Session Chair(s):**

Mary Staehle

Rupa Bhowmick

**Abstract Title:** Velocity Transcends Position on the Breast Cancer Quiescence-Proliferation Energy Landscape

**Presenter:** Harish Venkatachalapathy

**Principal Investigator:** N/A

**Author(s):**

Harish Venkatachalapathy

Cole Brzakala

Eric Batchelor

Samira Azarin

Casim Sarkar

## Thursday, October 13

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Theory and Practice of Synthetic Biology

**Session Chair(s):**

Mary Staehle

Rupa Bhowmick

**Abstract Title:** Tunable Electronic Control of Gene Expression in E. coli Via Plant-Derived Phenolic Compounds

**Presenter:** Fauziah Zakaria

**Principal Investigator:** William Bentley

**Author(s):**

William Bentley

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 2, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Wearable Sensors and Devices****Session Chair(s):**Marissa Gray  
David Myers**Abstract Title:** A soft, wearable stethoscope for automated disease diagnoses with continuous, real-time auscultation**Presenter:** Sung Hoon Lee**Principal Investigator:** N/A**Author(s):**  
N/A**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 2, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Wearable Sensors and Devices****Session Chair(s):**Marissa Gray  
David Myers**Abstract Title:** Moldable and Transferrable Conductive Nanocomposites for Epidermal Electronics**Presenter:** Myeong Namkoong**Principal Investigator:** Limei Tian**Author(s):**  
N/A**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 2, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Wearable Sensors and Devices****Session Chair(s):**Marissa Gray  
David Myers**Abstract Title:** At-Home Wireless Monitoring of Acute Hemodynamic Disturbances to Detect Sleep Apnea and Sleep Stages Via a Soft Sternal Patch**Presenter:** Nathan Zavanelli**Principal Investigator:** Woonhong Yeo**Author(s):**  
Woon-Hong Yeo**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 2, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Wearable Sensors and Devices****Session Chair(s):**Marissa Gray  
David Myers**Abstract Title:** Monitoring Anxiety in Real Time During Radiotherapy: A Pilot Study with Healthy Subjects**Presenter:** Marissa Gray**Principal Investigator:** N/A**Author(s):**  
Melinda Li  
Yuchen Hua  
Imran Chowdhury  
Reshma Munbodh

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**Marissa Gray  
David Myers**Abstract Title:** Multi-Wavelength Wrist Wearable Device for Physiological Sensing**Presenter:** Kimberly Branan**Principal Investigator:** N/A**Author(s):**Chin-To Hsiao  
Gerard Cote**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 2, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**Marissa Gray  
David Myers**Abstract Title:** Conductive Membrane Mitigation of Redox-Active Interferents for Electrochemical Amperometric Sensors**Presenter:** Sreelakshmy Suresh**Principal Investigator:** Jason Heikenfeld**Author(s):**Madeleine Debrosse  
Jason Heikenfeld  
Aleksandar Karajic**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 006 A**Track:** Tissue Engineering**Gene and Drug Delivery to Engineered Tissues****Session Chair(s):**Nikki Farnsworth  
Daniel Alge**Abstract Title:** MAPing Principles and Applications to Endogenous repair**Presenter:** Tatiana Segura**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 006 A**Track:** Tissue Engineering

Gene and Drug Delivery to Engineered Tissues

**Session Chair(s):**Nikki Farnsworth  
Daniel Alge**Abstract Title:** Vasculogenic Designer Extracellular Vesicles for Regenerative Medicine Applications**Presenter:** Maria Angelica Rincon-Benavides**Principal Investigator:** N/A**Author(s):**Natalia Higuera-Castro  
Daniel Gallego-Perez  
Ana Salazar Puerta  
Diego Alzate Correa  
Natalia Mendonca  
Tatiana Cuellar-Gaviria  
Lilibeth Ortega Pineda

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 3, Room: 006 A

Track: Tissue Engineering

**Gene and Drug Delivery to Engineered Tissues**

Session Chair(s):

Nikki Farnsworth

Daniel Alge

**Abstract Title:** Multifunctional Peptide-Conjugated Polyplex Micelles for Efficient miRNA218 Delivery and Accelerated Osteogenesis

**Presenter:** Qian Li**Principal Investigator:** N/A**Author(s):**

Qian Li

Xiaohua Liu

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 3, Room: 006 A

Track: Tissue Engineering

**Gastrointestinal Stem Cell and Tissue Engineering**

Session Chair(s):

Nikki Farnsworth

Daniel Alge

**Abstract Title:** Disruption of Enteric Neuroimmune function and Physiology in Gulf War Illness

**Presenter:** Claudia Collier**Principal Investigator:** Shreya Raghavan**Author(s):**

Steven Foncerrada

Sufiyan Sabir

Shreya Raghavan

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-U.S. News and World Report, 2023

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**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 006 A**Track:** Tissue Engineering**Gastrointestinal Stem Cell and Tissue Engineering****Session Chair(s):**

Nikki Farnsworth

Daniel Alge

**Abstract Title:** An Engineered Gut-Liver Platform Utilizing Primary Human Hepatocyte and Intestinal Cells**Presenter:** Dinithi Samarasekera**Principal Investigator:** Salman Khetani**Author(s):**

Dinithi Samarasekera

Salman Khetani

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 006 A**Track:** Tissue Engineering**Gastrointestinal Stem Cell and Tissue Engineering****Session Chair(s):**

Nikki Farnsworth

Daniel Alge

**Abstract Title:** Transmission of Nutrient Sensation from Intestinal Epithelium to Enteric Neurons in a Chip**Presenter:** Jessica Snyder**Principal Investigator:** N/A**Author(s):**

Jessica Thompson

Ryan Koppes

Abigail Koppes

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 4, **Room:** 214 B**Track:** Biomedical Engineering Education**Session Chair(s):**

Elizabeth Logsdon

Kunal Mitra

**Abstract Title:** Problem-based learning impacts students' reported learning and confidence**Presenter:** Ann Saterbak**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 4, **Room:** 214 B**Track:** Biomedical Engineering Education**Session Chair(s):**

Elizabeth Logsdon

Kunal Mitra

**Abstract Title:** Impact of Lab Experiences on Student Knowledge and Confidence**Presenter:** Natsuki Furukawa**Principal Investigator:** Eileen Haase**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 4, **Room:** 214 B**Track:** Biomedical Engineering Education**Experiential Learning (Curricular and Co-Curricular)****Session Chair(s):**

Elizabeth Logsdon

Kunal Mitra

**Abstract Title:** An Affordable, Accessible Microfluidic Classroom Activity for Student Mastery of Microscale Concepts**Presenter:** Pirscilla Delgado**Principal Investigator:** David R. Myers**Author(s):**

Cecilia Luna

Anjana Dissanayaka

Oluwamayokun Oshinowo

Sara Schley

Todd Fernandez

David Myers

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 4, **Room:** 214 B**Track:** Biomedical Engineering Education**Teaching, Learning, and Pedagogy****Session Chair(s):**

Elizabeth Logsdon

Kunal Mitra

**Abstract Title:** Exploration of VR as an Instructional Method in a Remote Laboratory**Presenter:** Megan Wilkerson**Principal Investigator:** N/A**Author(s):**

Megan Wilkerson

Vitali Maldonado

Srikanth Sivaraman

Raj Rao

Mostafa Elsaadany

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 4, **Room:** 214 B**Track:** Biomedical Engineering Education**Diversity, Equity, and Inclusion****Session Chair(s):**

Elizabeth Logsdon

Kunal Mitra

**Abstract Title:** Implementing and Growing a BME Research Skills Course for Incarcerated Students**Presenter:** Zain Clapacs**Principal Investigator:** N/A**Author(s):**

Zain Clapacs

Sydney Neal

Daniel Palmer

**Thursday, October 13**

3:30 PM - 5:00 PM

**Session:** 4, **Room:** 214 B**Track:** Biomedical Engineering Education**Teaching, Learning, and Pedagogy****Session Chair(s):**

Elizabeth Logsdon

Kunal Mitra

**Abstract Title:** Themed Problem-Based Learning Enhances Student Learning in a Bioinstrumentation Class**Presenter:** Xianglong Wang**Principal Investigator:** Xianglong Wang**Author(s):**

David Lin

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 6, **Room:** 214 A**Track:** Nano and Micro Technologies**Session Chair(s):**

Brittany Taylor

Marissa Elizabeth Wechsler

**Abstract Title:** Building the bridge between design and function of peptide-based materials**Presenter:** Handan Acar**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 6, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**

Brittany Taylor

Marissa Elizabeth Wechsler

**Abstract Title:** Biogenesis and function of extracellular vesicles derived from astrocytes treated with docosahexaenoic acid and arachidonic acid**Presenter:** Xue Geng**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 6, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**

Brittany Taylor

Marissa Elizabeth Wechsler

**Abstract Title:** Direct Reprogramming of Skin Fibroblast to Brown Adipose Tissue Mediated by Tissue Nanotransfection.**Presenter:** Devleena Das**Principal Investigator:** N/A**Author(s):**

Devleena Das

Erin Goebel

Kavya Dathathreya

Neil Ott

Silvia Duarte-Sanmiguel

Daniel Gallego-Perez

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 6, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**

Brittany Taylor

Marissa Elizabeth Wechsler

**Abstract Title:** Impedance Analysis for Porous Substrate Electroporation**Presenter:** Justin Brooks**Principal Investigator:** Ruiguo Yang**Author(s):**

Ruiguo Yang

Ikhlaas Mungloo

Tyler Heiman

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 6, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**

Brittany Taylor

Marissa Elizabeth Wechsler

**Abstract Title:** Lymph node depots provide durable, antigen-specific protection against disease while preserving healthy immunity in a mouse model of Multiple sclerosis

**Presenter:** Senta Kapnick**Principal Investigator:** N/A**Author(s):**

Emily Gosselin

Shannon Tsai

Robert Oakes

Haleigh Eppler

Alexis Yanes

Christopher Jewell

Senta Kapnick

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 7, Room: 004

Track: Biomaterials

**Session Chair(s):**

Solomon Mensah

**Abstract Title:** Defined ECM hydrogels to direct muscle growth and neuronal repair

**Presenter:** Jon Grasman**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 7, Room: 004

Track: Biomaterials

**Biomaterials****Session Chair(s):**

Solomon Mensah

**Abstract Title:** Design and Computational Analysis of CCL2-Sequestering Anti-Inflammatory Hydrogels

**Presenter:** Erika Davidoff**Principal Investigator:** Jay C. Sy**Author(s):**

Jay Sy

Vivek Kumar

Kakyung Kim

Zain Siddiqui

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 7, Room: 004

Track: Biomaterials

**Biomaterials****Session Chair(s):**

Solomon Mensah

**Abstract Title:** Therapeutic Potential of Exosome-Loaded Hydrogels as Cell-Free Approach for the Treatment of Hyperglycemic Wound Healing

**Presenter:** Gargi Ghosh**Principal Investigator:** N/A**Author(s):**

Rittika Somadder

Lina Faraj

**Thursday, October 13**

**3:30 PM - 5:00 PM**

**Session:** 7, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
Solomon Mensah

**Abstract Title:** Spatiotemporal Control of Growth Factor Release using Two-Photon Spectroscopy

**Presenter:** Bryce Larsen  
**Principal Investigator:** Janet Zoldan  
**Author(s):**  
sara faulkner  
Janet Zoldan

**Thursday, October 13**

**3:30 PM - 5:00 PM**

**Session:** 7, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
Solomon Mensah

**Abstract Title:** Bone ECM-derived Macroporous Scaffolds for Immunomodulation and Cranial Bone Regeneration

**Presenter:** Cassandra Villicana  
**Principal Investigator:** N/A  
**Author(s):**  
Ni Su  
Xinming Tong  
Fan Yang

**Thursday, October 13**

**3:30 PM - 5:00 PM**

**Session:** 7, **Room:** 004

**Track:** Biomaterials

**Biomaterials**

**Session Chair(s):**  
Solomon Mensah

**Abstract Title:** Inflammatory and Immune Cell Response to Orthopedic Biomaterials In vitro and In vivo

**Presenter:** Derek Avery  
**Principal Investigator:** Rene Olivares-Navarrete  
**Author(s):**  
lais carvalho  
Rene Olivares-Navarrete

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**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 8, Room: 214 D

Track: Cancer Technologies

**Session Chair(s):**Marjan Rafat  
Francisca Acosta**Abstract Title:** Reverse Engineering of Tumor Heterogeneity Reveals Clonal Cooperation in Breast Cancer Progression**Presenter:** Susan Leggett**Principal Investigator:** N/A**Author(s):**Susan Leggett  
Molly Brennan  
Joe Tien  
Celeste Nelson**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 8, Room: 214 D

Track: Cancer Technologies

**Tumor Microenvironment****Session Chair(s):**Marjan Rafat  
Francisca Acosta**Abstract Title:** Aged Breast Matrix Bound Vesicles Promote Breast Cancer Invasiveness**Presenter:** Jun Yang**Principal Investigator:** Pinar Zorlutuna**Author(s):**Gokhan Bahcecioglu  
Pinar Zorlutuna**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 8, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Erica Pratt  
Mahsa Dabagh**Abstract Title:** Dynamically Crosslinked PEG Hydrogels Reveal a Critical Role of Viscoelasticity in Modulating Glioblastoma Fates and Drug Responses in 3D**Presenter:** Sauradeep Sinha**Principal Investigator:** Fan Yang**Author(s):**Manish Ayushman  
Xinming Tong  
Fan Yang**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 8, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Marjan Rafat  
Francisca Acosta**Abstract Title:** Macrophage Infiltration Following Normal Tissue Radiation Drives Triple Negative Breast Cancer Invasion via IL-6 Signaling**Presenter:** Benjamin Hacker**Principal Investigator:** N/A**Author(s):**Erica Lin  
Dana Herman  
Alyssa Questell  
Rebecca Hedges  
Marjan Rafat

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 8, Room: 214 D

Track: Cancer Technologies

**Metastasis, Dormancy & Treatment Response****Session Chair(s):**

Marjan Rafat

Francisca Acosta

**Abstract Title:** Multivariate Model of an Engineered Niche Delineates Metastatic Potential of Breast Cancer**Presenter:** Sophia Orbach**Principal Investigator:** N/A**Author(s):**

Christian DeVuall

Elizabeth Bealer

Lonnie Shea

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 206

Track: Biomechanics

**Session Chair(s):**

Nicholas Ferrell

Ruogang Zhao

Hannah Song

**Abstract Title:** Glycocalyx Role in Anti-Oxidant and -Inflammatory Endothelium Mechano-Response**Presenter:** Eno Ebong**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 206

Track: Biomechanics

**Cellular and Molecular Biomechanics: Mechanobiology****Session Chair(s):**

Nicholas Ferrell

Ruogang Zhao

Hannah Song

**Abstract Title:** Exercise-Based Countermeasures for Mitigating Disuse-Induced Tissue Degeneration**Presenter:** Angela Kubik**Principal Investigator:** Elizabeth Blaber**Author(s):**

Noah Allen

Meghana Pendyala

Margareth Cheng-Campbell

Cassandra Juran

Elizabeth Blaber

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 206

Track: Biomechanics

**Cellular and Molecular Biomechanics: Mechanobiology****Session Chair(s):**

Nicholas Ferrell

Ruogang Zhao

Hannah Song

**Abstract Title:** Molecular Control of Forces Driving Morphogenesis of the Avian Foregut**Presenter:** Olivia Powell**Principal Investigator:** Nandan Nerurkar**Author(s):**

Vanshika Sriram

Nandan Nerurkar

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 206

Track: Biomechanics

**Cellular and Molecular Biomechanics:  
Mechanobiology****Session Chair(s):**Nicholas Ferrell  
Ruogang Zhao  
Hannah Song**Abstract Title:** AFM Characterization of the Phenotype and Biomechanics of Human Chondrocytes during Articular Cartilage Development in Monolayer Cultures over Time**Presenter:** Nehal Abu-Lail**Principal Investigator:** Nehal Abu-Lail**Author(s):**Lindsey Attebery  
Abraham Rodriguez  
robert stannert**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 206

Track: Biomechanics

**Cellular and Molecular Biomechanics:  
Mechanobiology****Session Chair(s):**Nicholas Ferrell  
Ruogang Zhao  
Hannah Song**Abstract Title:** Simulated Microgravity Enhances Adipocyte Maturation and Glucose Uptake via Increased Cortical Actin Remodeling**Presenter:** Michael Struss**Principal Investigator:** Evangelia Bellas**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 206

Track: Biomechanics

**Cellular and Molecular Biomechanics:  
Mechanobiology****Session Chair(s):**Nicholas Ferrell  
Ruogang Zhao  
Hannah Song**Abstract Title:** Cytoskeletal Structure and Force of Single Platelets on key Blood Proteins**Presenter:** Molly Mollica**Principal Investigator:** Nathan Sniadecki, Wendy Thomas**Author(s):**Wendy Thomas  
Nathan Sniadecki**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 10, Room: 007 A

Track: Biomedical Imaging and Instrumentation

**Imaging Tissue, Organs, and  
Physiological Systems****Session Chair(s):**Mahsa Dabagh  
Wilson Poon  
Liangliang Hao**Abstract Title:** Graphene Enabled Optical Control of Drosophila Melanogaster Cardiac Function**Presenter:** Abby Matt**Principal Investigator:** N/A**Author(s):**Hongwu Liang  
Elena Gracheva  
Fei Wang  
Xinyuan Zhang  
Chao Zhou

**Thursday, October 13**

**3:30 PM - 5:00 PM**

**Session:** 10, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

**Imaging Tissue, Organs, and Physiological Systems**

**Session Chair(s):**

Mahsa Dabagh  
Wilson Poon  
Liangliang Hao

**Abstract Title:** Vaccine adjuvant-loaded microneedles target and activate innate inflammatory cells in skin

**Presenter:** Alexis Yanes

**Principal Investigator:** Christopher Jewell

**Author(s):**

Robert Oakes  
Christopher Jewell

**Thursday, October 13**

**3:30 PM - 5:00 PM**

**Session:** 10, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

**Nuclear Medicine Imaging (PET/SPECT)**

**Session Chair(s):**

Mahsa Dabagh  
Wilson Poon  
Liangliang Hao

**Abstract Title:** PET Imaging Of Active Invasive Fungal Infections With D-[5-11C]-Glutamine

**Presenter:** Cynthia Co

**Principal Investigator:** N/A

**Author(s):**

Liping Tang

**Thursday, October 13**

**3:30 PM - 5:00 PM**

**Session:** 10, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

**Imaging Tissue, Organs, and Physiological Systems**

**Session Chair(s):**

Mahsa Dabagh  
Wilson Poon  
Liangliang Hao

**Abstract Title:** In Vivo Longitudinal Monitoring of Stem Cell Viability with a Caspase-3-Responsive Nanosensor

**Presenter:** Jinhwan Kim

**Principal Investigator:** N/A

**Author(s):**

Anamik Jhunjunwala  
Kelsey Kubelick  
Stanislav Emelianov



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**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 10, **Room:** 007 A**Track:** Biomedical Imaging and Instrumentation**Session Chair(s):**Mahsa Dabagh  
Wilson Poon  
Liangliang Hao**Abstract Title:** Understand the Impact of Moderate Alcohol Intake on Non-verbal Agreement Expressions in Cohabiting Couples**Presenter:** Yu Zhiwei**Principal Investigator:** Hadi Nia**Author(s):**Cory Crane  
linlin chen  
Zhi Zheng**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 10, **Room:** 007 A**Track:** Biomedical Imaging and Instrumentation**Session Chair(s):**Mahsa Dabagh  
Wilson Poon  
Liangliang Hao**Abstract Title:** Structural and Functional Brain Changes Between Youth Football and Non-Contact Sport Controls**Presenter:** Natalie Bell**Principal Investigator:** Elizabeth M. Davenport**Author(s):**Natalie Bell  
Fang Yu  
Yin Xi  
Jillian Urban  
Christopher WhitlowJoel Stitzel  
Joseph Maldjian  
Elizabeth Davenport**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 11, **Room:** 005**Track:** Biomaterials**Session Chair(s):**Teja Guda  
Sajeesh Thampi**Abstract Title:** Delivering Therapeutic Drugs to Stem and Cancer Cells**Presenter:** Donny Hanjaya-Putra**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 11, **Room:** 005**Track:** Biomaterials**Drug Delivering Biomaterials****Session Chair(s):**Teja Guda  
Sajeesh Thampi**Abstract Title:** Bionanomatrix gel application to improve arteriovenous fistula maturation for dialysis patients**Presenter:** Patrick Hwang**Principal Investigator:** N/A**Author(s):**Maheshika Somarathna  
Benjamin Estep  
Jennifer Sherwood  
Brigitta Brott  
Timmy Lee  
Ho-Wook Jun

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 11, **Room:** 005**Track:** Biomaterials**Drug Delivering Biomaterials****Session Chair(s):**Teja Guda  
Sajeesh Thampi**Abstract Title:** Designer Extracellular Vesicles Modulate Pro-Neuronal Cell Responses and Improve Intracranial Retention**Presenter:** Lilibeth Ortega Pineda  
**Principal Investigator:** Natalia Higueta-Castro**Author(s):**Lilibeth Ortega Pineda  
Ana Salazar Puerta  
Maria Angelica Rincon Benavides  
Diego Alzate Correa  
Ellie Guilfoyle  
Silvia Duarte-Sanmiguel  
Daniel Dodd  
William Lawrence  
Jordan Moore  
Natalia Higueta-Castro  
Daniel Gallego-Perez**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 11, **Room:** 005**Track:** Biomaterials**Drug Delivering Biomaterials****Session Chair(s):**Teja Guda  
Sajeesh Thampi**Abstract Title:** Ingestible, Gastric In Situ Tough Hydrogels for Protection of Sensitive Therapeutics**Presenter:** Gary Liu**Principal Investigator:** N/A**Author(s):**Gary Liu  
Matthew Pickett  
Robert Langer  
Giovanni Traverso**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 11, **Room:** 005**Track:** Biomaterials**Drug Delivering Biomaterials****Session Chair(s):**Teja Guda  
Sajeesh Thampi**Abstract Title:** Oral Delivery of High Isoelectric Point Therapeutic Proteins Using pH-responsive Nanoscale Complexation Hydrogels**Presenter:** Fabiola Chapa Villarreal  
**Principal Investigator:** Nicholas A. Peppas**Author(s):**Fabiola Chapa Villarreal  
Heidi Oldenkamp  
Nicholas Peppas

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 12, Room: 006 B

Track: Tissue Engineering

**Developmental Biology and Morphogenesis of Engineered Tissues**

Session Chair(s):

Cheng Ke  
Catherine Whittington**Abstract Title:** Modular HA-Hydrogels to Generate Lymphatic Networks for Tissue Engineering Applications**Presenter:** Laura Alderfer**Principal Investigator:** Donny Hanjaya-Putra**Author(s):**  
Donny Hanjaya-Putra**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 12, Room: 006 B

Track: Tissue Engineering

**Developmental Biology and Morphogenesis of Engineered Tissues**

Session Chair(s):

Cheng Ke  
Catherine Whittington**Abstract Title:** Understanding the Mechanics of Human Somitogenesis through In Vitro and Theoretical Models**Presenter:** Yue Liu**Principal Investigator:** N/A**Author(s):**  
Yue Liu  
Jianping Fu**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 12, Room: 006 B

Track: Tissue Engineering

**Developmental Biology and Morphogenesis of Engineered Tissues**

Session Chair(s):

Cheng Ke  
Catherine Whittington**Abstract Title:** Size-Driven Mesoderm-Endoderm Lineage Divergence in Engineered Cardiac Organoids**Presenter:** Zhen Ma**Principal Investigator:** N/A**Author(s):**  
N/A**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 12, Room: 006 B

Track: Tissue Engineering

**Developmental Biology and Morphogenesis of Engineered Tissues**

Session Chair(s):

Cheng Ke  
Catherine Whittington**Abstract Title:** Extracellular Matrix and Cell Developmental Age Influence Cardiac Fibroblast Phenotype in the Context of Cardiac Tissue Engineering**Presenter:** Lauren Black**Principal Investigator:** N/A**Author(s):**  
Luke Perreault  
Matthew Watson  
Mark Daley  
Lauren Black

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 12, **Room:** 006 B**Track:** Tissue Engineering**Developmental Biology and Morphogenesis of Engineered Tissues****Session Chair(s):**

Cheng Ke

Catherine Whittington

**Abstract Title:** Interpreting Geometric Rules of Early Kidney Formation for Synthetic Morphogenesis**Presenter:** Alex Hughes**Principal Investigator:** Alex J. Hughes**Author(s):**

John Viola

Alex Hughes

Melissa Rupert

Nathan Cai

AnAndrewdrew Goldste

Neil Lin

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 14, **Room:** 207**Track:** Biomechanics**Session Chair(s):**

Sapun Parekh

Venkat Maruthamuthu

Kalpana Mandal

**Abstract Title:** Decorin Plays a Crucial Role in Regulating Cartilage Extracellular Matrix Formation and Degradation**Presenter:** Lin Han**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 12, **Room:** 006 B**Track:** Tissue Engineering**Developmental Biology and Morphogenesis of Engineered Tissues****Session Chair(s):**

Cheng Ke

Catherine Whittington

**Abstract Title:** Flow Culture Reveals Hypoxia-Masked Phenotype and Drug Response in Prostate Cancer Spheroids**Presenter:** Marie Payne**Principal Investigator:** N/A**Author(s):**

Sara Imboden

Brandon Lee

**Thursday, October 13****3:30 PM - 5:00 PM****Session:** 14, **Room:** 207**Track:** Biomechanics

Matrix Effects in Mechanobiology

**Session Chair(s):**

Sapun Parekh

Venkat Maruthamuthu

Kalpana Mandal

**Abstract Title:** Biomechanics-Informed Model for Basement Membrane Biotransport**Presenter:** Matthew Reilly**Principal Investigator:** N/A**Author(s):**

N/A

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 14, Room: 207

Track: Biomechanics

**Matrix Effects in Mechanobiology****Session Chair(s):**

Sapun Parekh  
Venkat Maruthamuthu  
Kalpana Mandal

**Abstract Title:** Type V Collagen Regulates the Progenitor Cell Fate and Matrix Establishment in TMJ Condylar Cartilage

**Presenter:** Abdulaziz Alanazi  
**Principal Investigator:** Lin Han  
**Author(s):**  
Prashant Chandrasekaran  
Bryan Kwok  
Chao Wang  
Nathaniel Dymant  
Lin Han  
Robert Mauck

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 14, Room: 207

Track: Biomechanics

**Matrix Effects in Mechanobiology****Session Chair(s):**

Sapun Parekh  
Venkat Maruthamuthu  
Kalpana Mandal

**Abstract Title:** Atomic Force Microscopy for Pericellular Matrix Analysis of Single Cell Primary Human Chondrocytes

**Presenter:** Jacob Fredrickson  
**Principal Investigator:** Connie B. Chang  
**Author(s):**  
Priyanka Brahmachary  
Ronald June  
Connie Chang  
Lewis Cox

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 14, Room: 207

Track: Biomechanics

**Matrix Effects in Mechanobiology****Session Chair(s):**

Sapun Parekh  
Venkat Maruthamuthu  
Kalpana Mandal

**Abstract Title:** Fibronectin Sensitizes Activation of Contractility, YAP, and NF- $\kappa$ B in Intervertebral Disc Cells

**Presenter:** Ananya Naha  
**Principal Investigator:** Tristan Driscoll  
**Author(s):**  
Tristan Driscoll

**Thursday, October 13**

3:30 PM - 5:00 PM

Session: 14, Room: 207

Track: Biomechanics

**Matrix Effects in Mechanobiology****Session Chair(s):**

Sapun Parekh  
Venkat Maruthamuthu  
Kalpana Mandal

**Abstract Title:** Fiber Network Density Controls the Activation of Cancer-Associated Fibroblasts on 3D Matrix

**Presenter:** Somayadineshraj Devarasou

**Principal Investigator:** Jennifer Hyunjong Shin

**Author(s):**

Minwoo Kang

Tae Yoon Kwon

Youngbin Cho

Jennifer Shin

Jacopo Ferruzzi

Jun Liao

Aditya Raghunandan

**Abstract Title:** Assessment of pediatric stroke risk through patient-specific modeling

**Presenter:** Hossain Shaolie

**Principal Investigator:** Shaolie Samira Hossain

**Author(s):**

N/A

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 206

**Track:** Biomechanics

### Biofluid Mechanics (Summer Undergraduate)

**Session Chair(s):**

Jacopo Ferruzzi

Jun Liao

Aditya Raghunandan

**Abstract Title:** Estimation of External Tissue Support Parameters from Fluid-Structure Interaction Models via 4D Ultrasound

**Presenter:** Craig Goergen

**Principal Investigator:** N/A

**Author(s):**

N/A

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 206

**Track:** Biomechanics

### Biofluid Mechanics

**Session Chair(s):**

Jacopo Ferruzzi

Jun Liao

Aditya Raghunandan

**Abstract Title:** Targeted Delivery of Chemotherapeutic Particles to Small Airways via Inhalation Therapy

**Presenter:** Rashed Islam

**Principal Investigator:** Yu Feng

**Author(s):**

Mohammad Rashedul Islam

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 206

**Track:** Biomechanics

### Biofluid Mechanics

**Session Chair(s):**

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 206

Track: Biomechanics

**Biofluid Mechanics****Session Chair(s):**

Jacopo Ferruzzi  
Jun Liao  
Aditya Raghunandan

**Abstract Title:** Biomimetic Exposure Modules Improve Accuracy of Particle Deposition in a Machine Puffing System

**Presenter:** Emma Sarles**Principal Investigator:** Edward C. Hensel

**Author(s):**  
Edward Hensel  
Risa Robinson

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 206

Track: Biomechanics

**Biofluid Mechanics****Session Chair(s):**

Jacopo Ferruzzi  
Jun Liao  
Aditya Raghunandan

**Abstract Title:** Flow of Cerebrospinal Fluid via Cervical Lymph Vessels is Reduced in Aged Mice

**Presenter:** Aditya Raghunandan**Principal Investigator:** Douglas Kelley

**Author(s):**  
Ting Du  
Virginia Pla-Requena  
Douglas Kelley

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 206

Track: Biomechanics

**Biofluid Mechanics****Session Chair(s):**

Jacopo Ferruzzi  
Jun Liao  
Aditya Raghunandan

**Abstract Title:** A Quantitative Study of Surfactant Delivery in 3D Bioengineered Lung Airways Model

**Presenter:** Hannah Combs**Principal Investigator:** Hossein Tavana

**Author(s):**  
Hannah Combs  
Hossein Tavana  
Jacob Heiss  
Taylor Shark

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 B

Track: Biomedical Engineering Education

**Session Chair(s):**

Youseph Yazdi  
Charles Patrick

**Abstract Title:** The JHU-CBID model for Team-Based BME Design Education

**Presenter:** Youseph Yazdi**Principal Investigator:** N/A

**Author(s):**  
N/A

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 B

**Track:** Biomedical Engineering Education

K-12 Outreach

**Session Chair(s):**

Youseph Yazdi

Charles Patrick

**Abstract Title:** Ignite: Scaffolded, Place-Based Human-Centered Design to Promote Global Citizenship in Engineering**Presenter:** Megan Madonna**Principal Investigator:** N/A**Author(s):**

Kimberly Breen

David Knudsen

Gabriela Asturias

Ann Saterbak

Nirmala Ramanujam

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 B

**Track:** Biomedical Engineering Education**Experiential Learning (Curricular and Co-Curricular)****Session Chair(s):**

Youseph Yazdi

Charles Patrick

**Abstract Title:** Team-Based Combined with Project-Based Learning to Introduce Design and Use of Assistive Technology**Presenter:** Justin Huber**Principal Investigator:** Babak Bazrgari**Author(s):**

Justin Huber

Christina Bard

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 B

**Track:** Biomedical Engineering Education**Design and Curriculum****Session Chair(s):**

Youseph Yazdi

Charles Patrick

**Abstract Title:** The Design of a Biomechanics SOLIDWORKS Simulation Toolkit for Early Career Skill Development**Presenter:** Mary Sallah Jia**Principal Investigator:** N/A**Author(s):**

Mary Jia

Jordan Crosby

Raj Rao

Mostafa Elsaadany

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 B

**Track:** Biomedical Engineering Education**Industry and Biomedical Engineering****Session Chair(s):**

Youseph Yazdi

Charles Patrick

**Abstract Title:** Modeling Career Paths in Biomedical Quality Engineering**Presenter:** Deepthi Suresh**Principal Investigator:** Paul Jensen**Author(s):**

Deepthi Suresh

Annamarie Lunkes

Paul Jensen

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 B**Track:** Biomedical Engineering Education**Experiential Learning (Curricular and Co-Curricular)****Session Chair(s):**Youseph Yazdi  
Charles Patrick**Abstract Title:** Understanding the Medical Device Lifecycle: Assessing the Impact of Co-curricular Immersion Program**Presenter:** Colin Drummond**Principal Investigator:** N/A**Author(s):**Anish Reddy  
Jennifer Sieg  
Shyam Sunder Polaconda  
Matthew Williams  
Colin Drummond**Friday, October 14**

8:00 AM - 9:30 PM

**Session:** 1, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Photoacoustic Imaging (PA)****Session Chair(s):**Jing Yong Ye  
Wei-Chiang Lin**Abstract Title:** A Novel Approach to Developing Liposomal J-Aggregates of Indocyanine Green for Photoacoustic Imaging**Presenter:** Noah Stern**Principal Investigator:** N/A**Author(s):**

Tyrone Porter

**Friday, October 14**

8:00 AM - 9:30 PM

**Session:** 1, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Photoacoustic Imaging (PA)****Session Chair(s):**Jing Yong Ye  
Wei-Chiang Lin**Abstract Title:** Hybrid Photoacoustic-Ultrasound Breast Imaging System in An Upright Position**Presenter:** Huijuan Zhang**Principal Investigator:** N/A**Author(s):**Emily Zheng  
Yanda Cheng  
Jun Xia**Friday, October 14**

8:00 AM - 9:30 PM

**Session:** 1, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Photoacoustic Imaging (PA)****Session Chair(s):**Jing Yong Ye  
Wei-Chiang Lin**Abstract Title:** Ultrasound, Photoacoustic, and Magnetic Resonance Image-guided Magnetic Delivery of Nanoparticle-engineered T cells to Improve Cellular Immunotherapies**Presenter:** Kelsey Kubelick**Principal Investigator:** Stanislav Emelianov**Author(s):**Kelsey Kubelick  
Myeongsoo Kim  
Jinhwan Kim  
Stanislav Emelianov

**Friday, October 14**

8:00 AM - 9:30 PM

Session: 1, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Photoacoustic Imaging (PA)****Session Chair(s):**Jing Yong Ye  
Wei-Chiang Lin**Abstract Title:** Fast Iterative Reconstruction for Photoacoustic Tomography**Presenter:** Ko-Tsung Hsu**Principal Investigator:** N/A**Author(s):**Steven Guan  
Parag Chitnis**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 D

Track: Cancer Technologies

**Cancer Cell Motility and Migration****Session Chair(s):**Alexander Buffone  
Haelin Jang**Abstract Title:** Contraction of the rear cortex aids in nuclear transit during confined migration through generation of intracellular pressure in the cell posterior**Presenter:** Jan Lammerding**Principal Investigator:** Jan Lammerding**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 PM

Session: 1, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Photoacoustic Imaging (PA)****Session Chair(s):**Jing Yong Ye  
Wei-Chiang Lin**Abstract Title:** Designer Molecular Contrast Agent of Indocyanine Green Dye J-aggregates for in vivo Photoacoustic Imaging**Presenter:** Singh Shrishti**Principal Investigator:** N/A**Author(s):**GIOVANNI GIAMMANCO  
Chih-Hsiang Hu  
Joshua Bush  
Leandro Soto Cordova  
Dylan Lawrence  
Jeffrey Moran  
Parag Chitnis  
Remi Veneziano**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 D

Track: Cancer Technologies

**Cancer Cell Motility and Migration****Session Chair(s):**Alexander Buffone  
Haelin Jang**Abstract Title:** Intrinsic and Extrinsic Mechanisms Regulate GBM Adhesion and Invasion**Presenter:** Miranda Barraza**Principal Investigator:** N/A**Author(s):**Afsheen Banisadr  
Frank Furnari  
Adam Engler

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 D**Track:** Cancer Technologies**Cancer Cell Motility and Migration****Session Chair(s):**

Alexander Buffone

Haelin Jang

**Abstract Title:** Investigating the Effects of a High Fat Diet on Triple Negative Breast Cancer Invasion**Presenter:** Diamon Mensah**Principal Investigator:** N/A**Author(s):**

Sydney Conner

Madeleine Oudin

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 D**Track:** Cancer Technologies**Cancer Cell Motility and Migration****Session Chair(s):**

Alexander Buffone

Haelin Jang

**Abstract Title:** Actin Loading Counterintuitively Enhances Cell Motility and Metastasis in Response to Fluid Viscosity**Presenter:** Kaustav Bera**Principal Investigator:** N/A**Author(s):**

Kaustav Bera

Alexander Kiepas

Brent Ifemembi

Konstantin Stoletov

Yizeng Li

Colin Paul

ANINDYA Sen

Se Jong Lee

Panagiotis Mistriotis

Kandice Tanner

Sean Sun

Konstantinos Konstantopoulos

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 D**Track:** Cancer Technologies**Metastasis, Dormancy & Treatment Response****Session Chair(s):**

Alexander Buffone

Haelin Jang

**Abstract Title:** Adhesion Strength of Disseminating Tumor Cells Predicts Severity of Metastatic Disease**Presenter:** Adam Engler**Principal Investigator:** N/A**Author(s):**

Katherine Birmingham

Benjamin Yeoman

Pranjali Beri

Isabelle Williams

Aditya Kumar

Parag Katira

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 C**Track:** Neural Engineering

Other / Non-specified

**Session Chair(s):**

Courtney Dumont

Nisha Iyer

**Abstract Title:** Neuronal Cell Death and Behavioral Deficits following Exposure to Repeated Low Level Blast Traumatic Brain Injury

**Presenter:** Tulika Das

**Principal Investigator:** N/A

**Author(s):**

Tulika Das

Bryan Pfister

Arun Reddy Ravula

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 C

**Track:** Neural Engineering

### Neural Disease and Injury: Modeling and Therapeutics

**Session Chair(s):**

Courtney Dumont

Nisha Iyer

**Abstract Title:** Suramin Remediate AD-Like Pathology in Sporadic AD-Derived Forebrain Neurons

**Presenter:** Robert Cuilbrk

**Principal Investigator:** N/A

**Author(s):**

Daniel Yeisley

Fatir Qureshi

Juergen Hahn

Mariah Hahn

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 C

**Track:** Neural Engineering

### Neural Disease and Injury: Modeling and Therapeutics

**Session Chair(s):**

Courtney Dumont

Nisha Iyer

**Abstract Title:** RhoA/ROCK Signaling Pathway Involved in Oligomeric A $\beta$  and Tau-Induced Inflammatory Response and Subcellular Mechanical Alterations of Cerebral Endothelial Cells

**Presenter:** Faruk Hossen

**Principal Investigator:** N/A

**Author(s):**

James Lee

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 1, **Room:** 214 C

**Track:** Neural Engineering

### Neural Disease and Injury: Modeling and Therapeutics

**Session Chair(s):**

Courtney Dumont

Nisha Iyer

**Abstract Title:** Glia-driven Neuro-regeneration After TBI in a Bioengineered 3D Human Brain-like Tissue Model

**Presenter:** Marly Coe

**Principal Investigator:** David Kaplan

**Author(s):**

Sydni Rosenfeld

Volha Liaudanskaya

David Kaplan

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 C

Track: Neural Engineering

**Neural Disease and Injury: Modeling and Therapeutics****Session Chair(s):**

Courtney Dumont

Nisha Iyer

**Abstract Title:** Modeling antisense oligonucleotide therapy in MECP2 duplication syndrome human iPSC-derived neurons**Presenter:** Samir Bajikar**Principal Investigator:** N/A**Author(s):**

Huda Zoghbi

paymaan Jafar-nejad

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 1, Room: 214 C

Track: Neural Engineering

**Neural Disease and Injury: Modeling and Therapeutics****Session Chair(s):**

Courtney Dumont

Nisha Iyer

**Abstract Title:** Enteric Neurons Uptake Preformed Fibrils With Mixed Functional Response in Parkinson's Disease Model**Presenter:** Adam Bindas**Principal Investigator:** Abigail Koppes**Author(s):**

Kyla Nichols

Ryan Brady

Nicole Roth

Abigail Koppes

Ryan Koppes

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 2, Room: 008 A

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**

Eric Darling

Francisca M. Acosta

**Abstract Title:** Mechanobiology: Building the Future**Presenter:** Chris Chen**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 2, Room: 008 A

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**

Eric Darling

Francisca M. Acosta

**Abstract Title:** Substrate Stiffness Modulates Fibronectin Matrix Microarchitecture and Migration in Wounds**Presenter:** Jennifer Patten**Principal Investigator:** Karin Wang**Author(s):**

Jennifer Patten

Jacob Bonadio

Michael Kegel

Karin Wang

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Eric Darling  
Francisca M. Acosta**Abstract Title:** Conductive Electrospun Polymer Platforms for Stem Cell-Derived Cardiomyocyte Maturation**Presenter:** Gisselle Gonzalez**Principal Investigator:** N/A**Author(s):**Aileena Nelson  
Alex Whitehead  
Erin LaMontagne  
Ritwik Vatsyayan  
Shadi Dayeh  
Adam Engler**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Eric Darling  
Francisca M. Acosta**Abstract Title:** Modeling Eccentric Cell Remodeling of Gene-Edited hiPSC-Derived Cardiomyocytes Micropatterned on an Active Shape-Changing Biomaterial Substrate**Presenter:** Zhen Ma**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 212 B**Track:** Women's Health**Reproductive Health Technologies****Session Chair(s):**Raffaella De Vita  
Kyoko Yoshida**Abstract Title:** Development of a Uterosacral Ligament Suspension (USLS) Rat Model**Presenter:** Beverly Miller**Principal Investigator:** N/A**Author(s):**MONIQUE VAUGHAN  
Steven Caliari**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Raffaella De Vita  
Kyoko Yoshida**Abstract Title:** Effects of Fluid Shear Stress on Syncytialization of Trophoblast Cells in a Placenta-on-a-Chip**Presenter:** Nicole Hashemi**Principal Investigator:** N/A**Author(s):**

Nima Alimoradi

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Raffaella De Vita  
Kyoko Yoshida**Abstract Title:** Reduced Order Modeling and Machine Learning Techniques to Describe Vaginal Tissue Tearing**Presenter:** William Snyder**Principal Investigator:** Raffaella De Vita**Author(s):**Alex Santiago-Anaya  
Traian LLiescu  
Justin Krometis  
Raffaella Devita**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Raffaella De Vita  
Kyoko Yoshida**Abstract Title:** Liquid Crystal Elastomer Based Dynamic Device for Urethral Support: Potential Treatment for Stress Urinary Incontinence**Presenter:** Seelay Tasmim**Principal Investigator:** N/A**Author(s):**Seelay tasmim  
Zuha Yousuf  
Farial Rahman  
Philippe Zimmern  
Mario Romero Ortega  
Taylor Ware**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 2, **Room:** 212 B**Track:** Women's Health**Session Chair(s):**Raffaella De Vita  
Kyoko Yoshida**Abstract Title:** The Effects of Stiffness and Cyclic Strain on Uterine Fibroids**Presenter:** Stacey Schutte**Principal Investigator:** Stacey C. Schutte**Author(s):**Andreja Zupan  
Rachel Warwar**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Alexandra Rutz  
Ming Yao**Abstract Title:** A Click Chemistry Amplified Nanopore Assay for Ultrasensitive p24 Quantification in HIV Patients**Presenter:** Chang Liu**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 210A

**Track:** Device Technologies and Biomedical Robotics**Implantable Sensors and Devices****Session Chair(s):**

Alexandra Rutz

Ming Yao

**Abstract Title:** The surface topography of silicone breast implants mediates the foreign body response in mice, rabbits, and humans**Presenter:** Joshua Doloff**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 210A

**Track:** Device Technologies and Biomedical Robotics**Implantable Sensors and Devices****Session Chair(s):**

Alexandra Rutz

Ming Yao

**Abstract Title:** Reduced Foreign Body Response to Subcutaneous Implant in Regenerative Spiny Mice (Acomys)**Presenter:** Janak Gaire**Principal Investigator:** Chelsey Simmons**Author(s):**

Michele Dill

Valentina Supper

Chelsey Simmons

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 210A

**Track:** Device Technologies and Biomedical Robotics**Implantable Sensors and Devices****Session Chair(s):**

Alexandra Rutz

Ming Yao

**Abstract Title:** Preclinical Benchtop Testing of a New Strain Sensor Embedded Coronary Stent**Presenter:** Youngjae Chun**Principal Investigator:** Youngjae Chun**Author(s):**

Youngjae Chun

Moataz Elsisy

Robert Herbert

Woon-Hong Yeo

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 210A

**Track:** Device Technologies and Biomedical Robotics**Biosensors****Session Chair(s):**

Alexandra Rutz

Ming Yao

**Abstract Title:** Toward the Development of Microsized D-serine Sensor in vivo by Engineered D-amino acid oxidase**Presenter:** Allison Boyer**Principal Investigator:** N/A**Author(s):**

Mika Hatada

Thy Le

Junko Shimazaki

Koji Sode

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 210A**Track:** Device Technologies and Biomedical Robotics**Implantable Sensors and Devices****Session Chair(s):**

Alexandra Rutz

Ming Yao

**Abstract Title:** Soft Implantable Aptamer-Graphene Microtransistors for Multiplexed Monitoring of Neurochemicals**Presenter:** Guangfu Wu**Principal Investigator:** N/A**Author(s):**

Guangfu Wu

Zan Gao

Yang Song

Yi Zhang

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 007 B**Track:** Drug Delivery**Nucleic Acid Delivery****Session Chair(s):**

Donald Griffin

Tatiana Segura

Uday Chintapula

**Abstract Title:** Controlled Release of siRNA from Cationic Nanogels for An Oral Delivery Platform to Reduce Aberrant Inflammation in Autoimmune Diseases**Presenter:** Olivia Lanier**Principal Investigator:** N/A**Author(s):**

Aaliyah Shodeinde

Abielle D'Andrea

Nicholas Peppas

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 007 B**Track:** Drug Delivery**Nucleic Acid Delivery****Session Chair(s):**

Donald Griffin

Tatiana Segura

Uday Chintapula

**Abstract Title:** Photocontrolled Core-Shell-Shell Nanoparticles Carrying Synthetic miRNA-34a Mimics Cause Apoptosis of TE10 Esophageal Cancer Cells In Vitro & Inflammation and Regression of Esophageal Squamous Cell Carcinomas In Vivo**Presenter:** Muhammad Raisul Abedin**Principal Investigator:** Daniel Hayes**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 007 B**Track:** Drug Delivery**Nucleic Acid Delivery****Session Chair(s):**

Donald Griffin

Tatiana Segura

Uday Chintapula

**Abstract Title:** mRNA Delivery to Antigen-Presenting Cells with Lipophilic, Biodegradable Poly-( $\beta$ -amino ester)s**Presenter:** Tiarra Warren**Principal Investigator:** N/A**Author(s):**

Stephany Tzeng

Jordan Green

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 007 B

Track: Drug Delivery

**Nucleic Acid Delivery****Session Chair(s):**

Donald Griffin

Tatiana Segura

Uday Chintapula

**Abstract Title:** Optimizing Nonviral CRISPR Epigenome Editing in Human Mesenchymal Stem Cells**Presenter:** Andrew Hamann**Principal Investigator:** N/A**Author(s):**

Angela Pannier

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy****Session Chair(s):**

Donald Griffin

Tatiana Segura

Uday Chintapula

**Abstract Title:** Ionizable Lipid Nanoparticles with Integrated Immune Checkpoint Blockade for mRNA CAR T Cell Engineering**Presenter:** A.G. Hamilton**Principal Investigator:** Michael Mitchell**Author(s):**

Alex Hamilton

Michael Mitchell

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy****Session Chair(s):**

Donald Griffin

Tatiana Segura

Uday Chintapula

**Abstract Title:** Local Genetic Reprogramming of Melanoma Cells for Systemic Cancer Immunotherapy**Presenter:** Stephany Tzeng**Principal Investigator:** N/A**Author(s):**

Jordan Green

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 3, Room: 214 A

Track: Nano and Micro Technologies

**Session Chair(s):**

Megan McCain

Daniel Gallego-Perez

**Abstract Title:** Engineering Human Tissue Surrogates for Toxicology, Disease Modeling, and Regenerative Medicine**Presenter:** Salman Khetani**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**

Megan McCain

Daniel Gallego-Perez

**Abstract Title:** ISF-dependent AQP4 Expression Directs Protein Aggregation in Microfluidic Glymphatics System**Presenter:** Aria Henderson**Principal Investigator:** N/A**Author(s):**

Chris Brunkhorst

CHI-YONG EOM

Nozomi Nishimura

Esak Lee

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**

Megan McCain

Daniel Gallego-Perez

**Abstract Title:** Humanized Ventilator-on-a-Chip To Monitor Barrier Recovery Following Ventilator Induced Lung Injury**Presenter:** Basia Gabela-Zuniga**Principal Investigator:** Samir Ghadiali**Author(s):**

Basia Gabela-Zuniga

Vasudha Shukla

Natalia Higueta-Castro

Joshua Englert

Samir Ghadiali

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**

Megan McCain

Daniel Gallego-Perez

**Abstract Title:** Evaluation of TEER as a Readout of Kidney Injury in a High-Throughput Kidney-on-a-Chip**Presenter:** Erin Shaughnessey**Principal Investigator:** N/A**Author(s):**

Samuel Kann

Hesham Azizgolshani

Joseph Charest

Else Vedula

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**

Megan McCain

Daniel Gallego-Perez

**Abstract Title:** Gut-on-a-chip with Microbiota for the Study of Intestine-Nanoparticle Interactions

**Presenter:** Sanat Dash

**Principal Investigator:** Gretchen Mahler

**Author(s):**

Claudia Marques

Gretchen Mahler

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

**Session Chair(s):**

Patrick Boyle

Justin Pritchard

**Abstract Title:** Lost in Translation: Wearables for Pediatric Care

**Presenter:** Colin Drummond

**Principal Investigator:** N/A

**Author(s):**

N/A

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Machine Learning for Biomedical Applications

**Session Chair(s):**

Patrick Boyle

Justin Pritchard

**Abstract Title:** Leveraging Data from Commercial Wearable Devices to Improve Diagnostic Testing Allocation in Resource-Limited Settings

**Presenter:** Md Mobashir Hasan Shandhi

**Principal Investigator:** N/A

**Author(s):**

Peter Cho

Ali Roghanizad

Karnika Singh

Will Wang

Dana Pasquale

Jessilyn Dunn

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Machine Learning for Biomedical Applications

**Session Chair(s):**

Patrick Boyle

Justin Pritchard

**Abstract Title:** Machine Learning on a Robotic Platform for the Design of Protein-Polymer Hybrids

**Presenter:** Matthew Tamasi

**Principal Investigator:** Adam J. Gormley

**Author(s):**

Matthew Tamasi

Shashank Kosuri

Rahul Upadhy

N. Sanjeeva Murthy

Adam Gormley

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Machine Learning for Biomedical Applications****Session Chair(s):**Patrick Boyle  
Justin Pritchard**Abstract Title:** Deep Neural Network to Predict Fracture at Different Loading Directions**Presenter:** Tanvir Faisal**Principal Investigator:** Tanvir Rahman Faisal**Author(s):**Rabina Awal  
Ayodeji Adeyemo  
Sarah Doll  
Tanvir Faisal**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Machine Learning for Biomedical Applications****Session Chair(s):**Patrick Boyle  
Justin Pritchard**Abstract Title:** A machine learning method to estimate relaxation velocity from calcium kinetics in cardiomyocytes**Presenter:** Rana Raza Mehdi**Principal Investigator:** N/A**Author(s):**Mohit kumar  
Sakthivel Sadayappan  
Reza Avaz**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 006 A**Track:** Tissue Engineering**3D Bioprinting and Patterning of Tissues****Session Chair(s):**Shike Zhang  
Pranav Soman**Abstract Title:** Advanced 3D/4D Bioprinting for Complex Tissue Regeneration**Presenter:** Lijie Zhang**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 006 A**Track:** Tissue Engineering**3D Bioprinting and Patterning of Tissues****Session Chair(s):**Shike Zhang  
Pranav Soman**Abstract Title:** Fabrication of 3D Capillary Networks via Sacrificial Thermoresponsive Microfiber Templates**Presenter:** John Rector**Principal Investigator:** Leon Bellan**Author(s):**Lucas McBride  
Callie Weber  
Shannon Faley  
Leon Bellan

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 4, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Shike Zhang  
Pranav Soman**Abstract Title:** Ultrasound-Controlled Cellular Manipulation in 3D-Bioprinted Tissue Constructs**Presenter:** Mary Lowrey**Principal Investigator:** N/A**Author(s):**Holly Day  
Anthony Tahayeri  
Katherine Huynh  
LUIZ BERTASSONI  
Carolyn Schutt Ibsen**Friday, October 14**

8:00 AM - 9:30 AM

Session: 4, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Shike Zhang  
Pranav Soman**Abstract Title:** A Biofabricated Conduit Structure to Reconstitute Lymphatic Valve Formation in 3D**Presenter:** Renhao Lu**Principal Investigator:** N/A**Author(s):**

Esak Lee

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 4, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Shike Zhang  
Pranav Soman**Abstract Title:** Pigmented and Micro-Vascularized Bioprinted Skin in the Treatment of Full Thickness Wounds**Presenter:** Kelsey Willson**Principal Investigator:** Shay Soker**Author(s):**Anastasiya Gorkun  
Naresh Mahajan  
Adam Jorgensen  
Cara Clouse  
Shay Soker  
Anthony Atala**Friday, October 14**

8:00 AM - 9:30 AM

Session: 5, Room: 216 AB

Track: Cardiovascular Engineering

**Single-Cell Measurements and Models**

Session Chair(s):

Renita Horton  
Donny Hanjaya Putra**Abstract Title:** Mechanosensing in the Vasculature**Presenter:** Bhama Ramkhelawon**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**Renita Horton  
Donny Hanjaya Putra**Abstract Title:** Micropatterned Cocultures of iPSC-derived Atrial Cardiomyocytes and Fibroblasts for Disease Modeling**Presenter:** Grace Brown**Principal Investigator:** Salman Khetani**Author(s):**Yong Duk Han  
Grace Brown  
Olivia Ly  
Dawood Darbar  
Salman Khetani**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**Renita Horton  
Donny Hanjaya Putra**Abstract Title:** Electroconductive Hydrogel Scaffolds to Enhance Maturation of Human iPSC-derived Cardiac Tissues**Presenter:** Hamid Esmacili**Principal Investigator:** Hamid Esmacili**Author(s):**Alejandra Patino  
Mehdi Nikkhah**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**Renita Horton  
Donny Hanjaya Putra**Abstract Title:** Self-Organization of Stem Cell Derived Cardiac Cells Within Heterotypic Microtissues**Presenter:** Kirk Butler**Principal Investigator:** N/A**Author(s):**SA Ahmed  
Natalie Weiss  
Justin Jablonski  
Tracy Hookway**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**Renita Horton  
Donny Hanjaya Putra**Abstract Title:** Microengineering Isogenic Cardiac Organoids from hiPSC-Derived Cells Under Starvation Regime**Presenter:** Alejandra Patino**Principal Investigator:** N/A**Author(s):**

Mehdi Nikkhah

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 8, Room: 004

Track: Biomaterials

**Session Chair(s):**Rebecca A Wachs  
Ali Salifu**Abstract Title:** Directing Neurovascular Responses in the Treatment of Musculoskeletal Injuries**Presenter:** Warren Grayson**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 8, Room: 004

Track: Biomaterials

**Biomaterials****Session Chair(s):**Rebecca A Wachs  
Ali Salifu**Abstract Title:** Orthopaedic Biomaterials Generate Differential T Cell Responses In Vitro and In Vivo**Presenter:** Derek Avery**Principal Investigator:** Rene Olivares-Navarrete**Author(s):**

lais carvalho

Rene Olivares-Navarrete

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 8, Room: 004

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Rebecca A Wachs  
Ali Salifu**Abstract Title:** Cell Membrane-coated Microribbon Scaffolds Elicit Regenerative Immune Responses and Enhance Endogenous Cranial Bone Regeneration in vivo**Presenter:** Ni Su**Principal Investigator:** N/A**Author(s):**

Ni Su

Cassandra Villicana

Peyton Freeman

Danial Barati

Fan Yang

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 8, Room: 004

Track: Biomaterials

**Advances in Biomaterials Integration with Chips and Devices****Session Chair(s):**Rebecca A Wachs  
Ali Salifu**Abstract Title:** Tissue-Interfacing Actuating Adhesive Prevents Muscle Atrophy through Mechanical Stimulation**Presenter:** Sungmin Nam**Principal Investigator:** N/A**Author(s):**

Bo Ri Seo

Alexander Najibi

Stephanie McNamara

David Mooney

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 8, Room: 004

Track: Biomaterials

**Biomaterials****Session Chair(s):**Rebecca A Wachs  
Ali Salifu**Abstract Title:** Creation of Fibrin Scaffolds with Directional Porosity for Regeneration of Vascularized Skeletal Muscle**Presenter:** Bryanna Samolyk**Principal Investigator:** George Pins and Catherine Whittington**Author(s):**  
Catherine Whittington  
George Pins**Friday, October 14**

8:00 AM - 9:30 AM

Session: 9, Room: 007 A

Track: Biomedical Imaging and Instrumentation

**Deep Learning and Artificial Intelligence in Microstructural Imaging****Session Chair(s):**

Roche de Guzman

**Abstract Title:** Elasticity Imaging Using Physics-informed Neural Networks: Spatial Discovery of Young's Modulus and Poisson's Ratio**Presenter:** Ali Kamali**Principal Investigator:** N/A**Author(s):**  
Mohammad Sarabian  
Kaveh Laksari**Friday, October 14**

8:00 AM - 9:30 AM

Session: 9, Room: 007 A

Track: Biomedical Imaging and Instrumentation

**Magnetic Resonance Imaging and Applications (MRI)****Session Chair(s):**

Roche de Guzman

**Abstract Title:** Deep Transfer Learning of Permeability Changes in Brain Metastasis Post Whole Brain Radiotherapy**Presenter:** Chad Arledge**Principal Investigator:** Dawen Zhao**Author(s):**  
Chad Arledge  
William Crowe  
YANG LIU  
Lulu Wang  
Dawen Zhao**Friday, October 14**

8:00 AM - 9:30 AM

Session: 9, Room: 007 A

Track: Biomedical Imaging and Instrumentation

**X-ray and Computed Tomographic Imaging (CT)****Session Chair(s):**

Roche de Guzman

**Abstract Title:** The UF/MSK Computational Phantom Library for Biomedical Engineering: Adult Males and Females

**Presenter:** Yitian Wang  
**Principal Investigator:** N/A  
**Author(s):**  
 Yitian Wang  
 Laura Dinwiddie  
 Robert Dawson  
 Jared Baggett  
 Wyatt Smither  
 Cameron Kofler  
 Lukas Carter  
 Adam Kesner  
 Wesley Bolch

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 9, **Room:** 007 A

**Track:** Biomedical Imaging and Instrumentation

### Deep Learning and Artificial Intelligence in Microstructural Imaging

**Session Chair(s):**  
 Roche de Guzman

**Abstract Title:** Deep Learning Enables Non-invasive, Biopsy-free Virtual Histology of Skin Using Reflectance Confocal Microscopy

**Presenter:** Jingxi Li  
**Principal Investigator:** N/A  
**Author(s):**  
 Jason Garfinkel  
 Xiaoran Zhang  
 Di Wu  
 Yijie Zhang  
 Kevin de Haan  
 Hongda Wang  
 Tairan Liu  
 Bijie Bai  
 Yair Rivenson  
 Philip Scumpia  
 Aydogan Ozcan

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 12, **Room:** 005

**Track:** Biomaterials

**Session Chair(s):**  
 Perla Ayala  
 Uday Chintapula

**Abstract Title:** Anthracycline Binding to and Release from Chondroitin Sulfate-Methacrylate Hydrogels for Cancer Treatment

**Presenter:** Jeannine Coburn  
**Principal Investigator:** N/A  
**Author(s):**  
 Katelyn Mistretta

## Friday, October 14

8:00 AM - 9:30 AM

**Session:** 12, **Room:** 005

**Track:** Biomaterials

### Drug Delivering Biomaterials

**Session Chair(s):**  
 Perla Ayala  
 Uday Chintapula

**Abstract Title:** ROS-responsive, glycopolymeric nanoparticles for enhanced drug delivery to macrophages

**Presenter:** Oluwaseyi Shofolawe-Bakare  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 12, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials****Session Chair(s):**Perla Ayala  
Uday Chintapula**Abstract Title:** ROS-Scavenging Manganese Dioxide Nanoparticles Mitigate Inflammatory Signaling by Macrophages**Presenter:** Tiffany Conklin**Principal Investigator:** N/A**Author(s):**Shreedevi Kumar  
Blanka Sharma**Friday, October 14**

8:00 AM - 9:30 AM

Session: 12, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials****Session Chair(s):**Perla Ayala  
Uday Chintapula**Abstract Title:** Immuno-liposomes for targeted delivery of senolytics for the treatment of osteoarthritis**Presenter:** Sushant Prajapati**Principal Investigator:** N/A**Author(s):**Sushant Prajapati  
Ramkumar T. Annamalai  
Cale Jacobs**Friday, October 14**

8:00 AM - 9:30 AM

Session: 12, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials****Session Chair(s):**Perla Ayala  
Uday Chintapula**Abstract Title:** The role of surface curvature in controlling drug release from novel nucleic acid nanoparticles**Presenter:** Ashleigh Jankowski**Principal Investigator:** N/A**Author(s):**Ashleigh Jankowski  
Robert Mosley  
Mark Byrne**Friday, October 14**

8:00 AM - 9:30 AM

Session: 12, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials****Session Chair(s):**Perla Ayala  
Uday Chintapula**Abstract Title:** Neuroprotective And Radical Scavenging Effects Of Biodegradable Polyprocuremin On Cortical Neurons**Presenter:** Adelle Hamilton**Principal Investigator:** N/A**Author(s):**Adelle Hamilton  
Ruiwen Chen  
Jessica Funnell  
Ryan Gilbert  
Edmund Palermo

**Friday, October 14**

8:00 AM - 9:30 AM

Session: 13, Room: 207

Track: Biomechanics

**Human Performance/Sports  
Biomechanics****Session Chair(s):**Sarah Breen  
Morteza Seidi  
Axel Moore**Abstract Title:** Determining BrIC from Wearable  
Sensors in High School Female Lacrosse**Presenter:** Zoie Mink**Principal Investigator:** John D. Desjardins**Author(s):**Mirel Ajdaroski  
Breana Cappuccilli  
Amanda Esquivel**Friday, October 14**

8:00 AM - 9:30 AM

Session: 13, Room: 207

Track: Biomechanics

**Human Performance/Sports  
Biomechanics****Session Chair(s):**Sarah Breen  
Morteza Seidi  
Axel Moore**Abstract Title:** Characterizing Exposure to Head  
Acceleration Events in Youth Football Using an  
Instrumented Mouthpiece**Presenter:** Madison Marks**Principal Investigator:** N/A**Author(s):**Madison Marks  
Ty Holcomb  
Nicholas Pritchard  
Logan Miller  
Mark Espeland  
Christopher Miles  
Joel Stitzel  
Jillian Urban**Friday, October 14**

8:00 AM - 9:30 AM

Session: 13, Room: 207

Track: Biomechanics

**Human Performance/Sports  
Biomechanics****Session Chair(s):**Sarah Breen  
Morteza Seidi  
Axel Moore**Abstract Title:** An Evaluation of Football Facemask  
for Position Specific Efficacy**Presenter:** Adam Smith**Principal Investigator:** N/A**Author(s):**John DesJardins  
Gregory Batt  
William Ferriell

**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 13, **Room:** 207**Track:** Biomechanics**Human Performance/Sports  
Biomechanics****Session Chair(s):**Sarah Breen  
Morteza Seidi  
Axel Moore**Abstract Title:** Frequency and Severity of Head Impact Exposures in High School American Football Are Position Specific**Presenter:** Morteza Seidi**Principal Investigator:** Marzieh Hajiaghamemar**Author(s):**Morteza Seidi  
James Wallace  
Sammy Elashy**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 13, **Room:** 207**Track:** Biomechanics**Human Performance/Sports  
Biomechanics****Session Chair(s):**Sarah Breen  
Morteza Seidi  
Axel Moore**Abstract Title:** Comparing Kinematics of OpenSim Multi-Segment Foot Models During Low- and High-Demand Tasks**Presenter:** Karley Baringer  
**Principal Investigator:** N/A**Author(s):**Karley Baringer  
Chloe Baratta  
Christopher Reb  
Jennifer Nichols**Friday, October 14**

8:00 AM - 9:30 AM

**Session:** 13, **Room:** 207**Track:** Biomechanics**Human Performance/Sports  
Biomechanics****Session Chair(s):**Sarah Breen  
Morteza Seidi  
Axel Moore**Abstract Title:** Characterizing the effect of hormonal state of pre-menopausal women on muscle response to downhill walking**Presenter:** Luis Rodriguez**Principal Investigator:** Yasin Y. Dhaher**Author(s):**Kristen Santiago  
Subaryani Soedirdjo  
Yasin Dhaher

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 A

**Track:** Global Health Technologies

### Automated technologies for use in developing countries

**Session Chair(s):**

Kelsey Kubelick  
Christine M. O'Brien  
Solomon Mensah

**Abstract Title:** Multimodal Colposcopy for Cervical Cancer Diagnosis in Low- and Middle-Income Countries

**Presenter:** Yajur Maker

**Principal Investigator:** N/A

**Author(s):**

Jackson Coole  
David Brenes  
Júlio Cesar Resende  
Márcio Antoniazzi  
Bruno Fonseca  
Yajur Maker  
Karen Cristina Souza  
Alex Kortum  
Imran Vohra  
Jennifer Carns  
Richard Schwarz  
Regis Kreitchmann  
Mila P. Salcedo  
Nirmala Ramanujam  
Kathleen Schmeler  
Rebecca Richards-Kortum

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 A

**Track:** Global Health Technologies

**Session Chair(s):**

Kelsey Kubelick  
Christine M. O'Brien  
Solomon Mensah

**Abstract Title:** An RPA Primer Screening Method for Lateral Flow Capture of hrHPV Tailed Amplicons

**Presenter:** Maria Barra

**Principal Investigator:** Rebecca Richards-Kortum

**Author(s):**

Megan Chang  
Maria Barra  
Rebecca Richards-Kortum

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 A

**Track:** Global Health Technologies

**Session Chair(s):**

Kelsey Kubelick  
Christine M. O'Brien  
Solomon Mensah

**Abstract Title:** Evaluation of a Low-Cost Ostomy Bag For Use in Low-Resource Settings

**Presenter:** Abby Chapin

**Principal Investigator:** N/A

**Author(s):**

Abby Chapin  
Meaghan Bond  
Elizabeth Asma  
Megan Heenan  
Grant Belton  
Philip Kortum  
Kathleen Schmeler  
Peter Kingham  
Maria Oden  
Rebecca Richards-Kortum

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 1, Room: 212 A

**Track:** Global Health Technologies**Session Chair(s):**

Kelsey Kubelick  
Christine M. O'Brien  
Solomon Mensah

**Abstract Title:** Multicompartment, Topical Drug Release System for Synergistic Healing of Dermal Ulcers Caused by Cutaneous Leishmaniasis

**Presenter:** Rebecca Byler**Principal Investigator:** N/A**Author(s):**

Rebecca Byler  
Tiffany Tseng  
Yaqing Huang  
Themis Kyriakides

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 1, Room: 212 A

**Track:** Global Health Technologies**Session Chair(s):**

Kelsey Kubelick  
Christine M. O'Brien  
Solomon Mensah

**Abstract Title:** Lung Biopsy Tract Sealing Efficacy Utilizing Shape Memory Polymer Foams

**Presenter:** Brinson Braeden**Principal Investigator:** N/A**Author(s):**

Tyler Touchet  
Duncan Maitland  
Sayyeda Hasan  
Achu Geetha Byju  
Landon Nash

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 1, Room: 212 A

**Track:** Global Health Technologies**International collaborations on infectious disease****Session Chair(s):**

Kelsey Kubelick  
Christine M. O'Brien  
Solomon Mensah

**Abstract Title:** Scalable Paper-based Lateral Flow Immunoassay for HPV Protein Detection

**Presenter:** Lucy Teclé**Principal Investigator:** N/A**Author(s):**

Lindsay Wright  
Jacqueline Linnes

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 1, Room: 214 B

**Track:** Orthopedic and Rehabilitation Engineering**Articular Cartilage, Meniscus and Joints****Session Chair(s):**

Riccardo Gottardi  
Li-Hsin Han  
Rebecca Irwin (postdoc), Erika Cyphert (postdoc)

**Abstract Title:** Cartilage Articulation Immediately Following Impact Injury Mitigates Chondrocyte Death in-vitro

**Presenter:** Caroline Thompsom**Principal Investigator:** Lawrence Bonassar**Author(s):**

Lawrence Bonassar

**Friday, October 14****1:00 PM - 2:30 PM****Session:** 1, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering**Articular Cartilage, Meniscus and Joints****Session Chair(s):**

Riccardo Gottardi

Li-Hsin Han

Rebecca Irwin (postdoc), Erika Cyphert (postdoc)

**Abstract Title:** Bio adhesive for Glenoid Labrum Repair Through Induced Host Progenitor Cell Responses**Presenter:** Cynthia Co**Principal Investigator:** Liping Tang**Author(s):**

Tam Nguyen

Bhavya Vaish

Samira Izuagbe

Liping Tang

Meghan Kupratis

Atia Rahman

Elise Corbin

David Burris

Christopher Price

**Friday, October 14****1:00 PM - 2:30 PM****Session:** 1, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering**Articular Cartilage, Meniscus and Joints****Session Chair(s):**

Riccardo Gottardi

Li-Hsin Han

Rebecca Irwin (postdoc), Erika Cyphert (postdoc)

**Abstract Title:** Aged Human Meniscal Cells Produce Hierarchical Collagen Fibers Similar to Neonatal Cells In Vitro**Presenter:** Austin Gouldin**Principal Investigator:** N/A**Author(s):**

Jennifer Puetzer

**Friday, October 14****1:00 PM - 2:30 PM****Session:** 1, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering**Articular Cartilage, Meniscus and Joints****Session Chair(s):**

Riccardo Gottardi

Li-Hsin Han

Rebecca Irwin (postdoc), Erika Cyphert (postdoc)

**Abstract Title:** Enzymatic Digestion of Cartilage Does Not Inhibit Articulation-Mediated Lubrication Recovery**Presenter:** Meghan Kupratis**Principal Investigator:** N/A**Author(s):****Friday, October 14****1:00 PM - 2:30 PM****Session:** 1, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering**Articular Cartilage, Meniscus and Joints****Session Chair(s):**

Riccardo Gottardi

Li-Hsin Han

Rebecca Irwin (postdoc), Erika Cyphert (postdoc)

**Abstract Title:** Maintenance of Tribological Rehydration and Lubrication Recovery by Compromised Synovial Fluids

**Presenter:** Shamimur Akanda

**Principal Investigator:** N/A

**Author(s):**

Shamimur Akanda

Khushboo Suman

Norman Wagner

David Burris

Christopher Price

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 214 B

**Track:** Orthopedic and Rehabilitation Engineering

### Articular Cartilage, Meniscus and Joints

**Session Chair(s):**

Riccardo Gottardi

Li-Hsin Han

Rebecca Irwin (postdoc), Erika Cyphert (postdoc)

**Abstract Title:** Independent and Synergistic Effects of Interstitial Hydration and Synovial Fluid on Cartilage Lubrication

**Presenter:** Emily Lambeth

**Principal Investigator:** N/A

**Author(s):**

Meghan Kupratis

David Burris

Christopher Price

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 006 B

**Track:** Biomedical Imaging and Instrumentation

### Photoacoustic Imaging (PA)

**Session Chair(s):**

Michael Richards

Lin Jiang

**Abstract Title:** Evaluation of Drug Loaded Nanodroplets in a Placental Model

**Presenter:** Ajay Raman

**Principal Investigator:** N/A

**Author(s):**

Ajay Raman

Ava St. Clair

Kenneth Swan

Carolyn Bayer

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 006 B

**Track:** Biomedical Imaging and Instrumentation

### Photoacoustic Imaging (PA)

**Session Chair(s):**

Michael Richards

Lin Jiang

**Abstract Title:** Acoustic Resoluiton Photoacoustic Doppler Flowmetry for Post Treatment Patient Rectal Cancer Blood Perfusion Evaluation

**Presenter:** Sitai Kou

**Principal Investigator:** Quing Zhu

**Author(s):**

Xiandong Leng

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Contrast-Enhanced Ultrasound and Therapeutic Ultrasound (US)**

Session Chair(s):

Michael Richards

Lin Jiang

**Abstract Title:** Artificial Intelligence and Heterogeneity Index for Finding the Term of Ultrasound Fetal Lung Images**Presenter:** Francesca Filiberti**Principal Investigator:** N/A**Author(s):**

Sleiman Ghorayeb

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 D

Track: Cancer Technologies

**Imaging Strategies in Cancer Detection, Diagnosis, and Prognosis**

Session Chair(s):

Jan Lammerding

Hadi Nia

**Abstract Title:** Biomimetic Plasmonic Nanostars with Enhanced Surface-Enhanced Raman Scattering and Photoacoustic Imaging Features for Ultrasensitive Image-Guided Surgery**Presenter:** Indrajit Srivastava**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 D

Track: Cancer Technologies

**Metastasis, Dormancy & Treatment Response**

Session Chair(s):

Jan Lammerding

Hadi Nia

**Abstract Title:** Nanoparticle-mediated SMARCE1 Knockdown and Combined Treatment Monitoring for Ovarian Cancer**Presenter:** Liangliang Hao**Principal Investigator:** N/A**Author(s):**

Natalie Boehnke

Santiago Correa

Sangeeta Bhatia

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 D

Track: Cancer Technologies

**Imaging Strategies in Cancer Detection, Diagnosis, and Prognosis**

Session Chair(s):

Jan Lammerding

Hadi Nia

**Abstract Title:** Detection of Cholangiocarcinoma in Mice with Protease Activity Probes**Presenter:** Cathy Wang**Principal Investigator:** N/A**Author(s):**

Jesse Kirkpatrick

Cathy Wang

Pinzhu Huang

Yury Popov

Sangeeta Bhatia

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 D

Track: Cancer Technologies

**Imaging Strategies in Cancer Detection, Diagnosis, and Prognosis**

Session Chair(s):

Jan Lammerding  
Hadi Nia**Abstract Title:** Characterization of RAGE-Targeted Peptide Tracers for Multimodal Molecular Imaging of Breast Cancer**Presenter:** Michael Nelappana**Principal Investigator:** N/A**Author(s):**Michael Nelappana  
Wawrzyniec Dobrucki  
Marcin Wozniak  
Erik Nelson  
Iwona Dobrucki  
Andrzej Czerwinski  
Natalia Krawczynska  
Leopold Pinot**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 D

Track: Cancer Technologies

**Imaging Strategies in Cancer Detection, Diagnosis, and Prognosis**

Session Chair(s):

Jan Lammerding  
Hadi Nia**Abstract Title:** High-Content Hyperspectral SRS (h2SRS) Imaging Reveals Cancer Metabolic Network Alternation Under Chemotherapy**Presenter:** Yuying Tan**Principal Investigator:** Ji-Xin Cheng**Author(s):**Haonan Lin  
Ji-Xin Cheng**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 D

Track: Cancer Technologies

**Circulating Biomarkers: CTCs, Extracellular Vesicles and DNA**

Session Chair(s):

Jan Lammerding  
Hadi Nia**Abstract Title:** Levitational Ranking Cytometry for Biomarker-Free Sorting of Rare Cells, Cell Clusters and Extracellular Vesicles**Presenter:** Gozde Durmus**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 2, Room: 214 C

Track: Neural Engineering

**Neural Device Interfaces**

Session Chair(s):

Gabriela Romero  
Tim Burns**Abstract Title:** Evidence for The Role of Neural Variability in Non-Biomimetic Brain-Machine Interface Learning

**Presenter:** Hannah Stealey  
**Principal Investigator:** N/A  
**Author(s):**  
 Yi Zhao  
 Hung-Yun Lu  
 Enrique Contreras Hernandez  
 Samantha Santacruz

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 2, **Room:** 214 C

**Track:** Neural Engineering

### Neural Device Interfaces

**Session Chair(s):**  
 Gabriela Romero  
 Tim Burns

**Abstract Title:** Bioelectronic System for In Vivo Recordings of the Enteric Nervous System

**Presenter:** Alexander Boys  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 2, **Room:** 214 C

**Track:** Neural Engineering

### Neural Device Interfaces

**Session Chair(s):**  
 Gabriela Romero  
 Tim Burns

**Abstract Title:** Electrochemical Evaluation of Segmented Titanium Nitride Electrodes for Optimized Stimulation

**Presenter:** Pedro Emanuel Rocha-Flores  
**Principal Investigator:** N/A  
**Author(s):**

Pedro Emanuel Rocha-Flores  
 Alexandra Joshi-Imre  
 Stuart Cogan  
 Walter Voit

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 2, **Room:** 214 C

**Track:** Neural Engineering

### Neural Device Interfaces

**Session Chair(s):**  
 Gabriela Romero  
 Tim Burns

**Abstract Title:** Self-rectifying Magnetolectric Nonlinear Metamaterials Enable Remote Neuromodulation with Precise Timing

**Presenter:** Josh Chen  
**Principal Investigator:** N/A  
**Author(s):**  
 Josh Chen  
 Gauri Bhawe  
 FATIMA ALRASHDAN  
 Abdeali Dhuliyawalla  
 Jacob Robinson

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 2, **Room:** 214 C

**Track:** Neural Engineering

### Neural Device Interfaces

**Session Chair(s):**  
 Gabriela Romero  
 Tim Burns

**Abstract Title:** A Novel Carbon Fiber Electrode Array for Deep Brain Recording and Stimulation

**Presenter:** Megan Baker  
**Principal Investigator:** N/A  
**Author(s):**  
 Samantha Santacruz

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 2, **Room:** 214 C**Track:** Neural Engineering**Neural Device Interfaces****Session Chair(s):**Gabriela Romero  
Tim Burns**Abstract Title:** Development of a Generic Multi-Shank Parylene Microelectrode Array for in vivo Recording from Rodent Brain**Presenter:** Huijing Xu**Principal Investigator:** Dong Song**Author(s):**Kee Scholten  
Zhouxiao Lu  
Wenxuan Jiang  
Ellis Meng  
Dong Song**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Chang Liu  
Yixiang Deng**Abstract Title:** 3D Printed Conducting Polymers as Bioelectronic Scaffolds**Presenter:** Alexandra Rutz**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Biosensors****Session Chair(s):**Chang Liu  
Yixiang Deng**Abstract Title:** An Integrated Optogenetic and Bioelectronic Platform for Regulating Cardiomyocyte Function**Presenter:** Brian Timko**Principal Investigator:** Brian P. Timko**Author(s):**Olurotimi Bolonduro  
Zijing Chen  
Emmanuel (Manolis) Tzanakakis**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Biosensors****Session Chair(s):**Chang Liu  
Yixiang Deng**Abstract Title:** Flexible and Transparent Microelectrodes and Interconnects for Multi-functional Bio-interfacing**Presenter:** Zhiyuan Chen**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Biosensors****Session Chair(s):**

Chang Liu

Yixiang Deng

**Abstract Title:** Printed Ultrastable Bioplasmonic Microarrays for Point-of-Need Biosensing**Presenter:** Heng Guo**Principal Investigator:** Limei Tian**Author(s):**

Heng Guo

**Biosensors****Session Chair(s):**

Chang Liu

Yixiang Deng

**Abstract Title:** Polyvinyl Alcohol/ Single-walled Carbon Nanotube Nanocomposite-Based Optical Sensor for Nitric Oxide Monitoring**Presenter:** Omer Sadak**Principal Investigator:** Nicole Iverson**Author(s):**

Nicole Iverson

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy****Session Chair(s):**

Ramkumar Annamalai

Gregory Hudalla

**Abstract Title:** Anti-Siglec-6 Poly(propylene sulfone) Nanoparticles as a Platform for Treating Mast Cell Diseases**Presenter:** Clayton Rische**Principal Investigator:** N/A**Author(s):**

Clayton Rische

Rebecca Krier

Yun Cao

Ariel Helms Thames

Evan Burleigh

Fanfan Du

Jeremy O'Sullivan

Bruce Bochner

Evan Scott

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Implantable Sensors and Devices****Session Chair(s):**

Chang Liu

Yixiang Deng

**Abstract Title:** Advances in Smart Orthopedic Implants with Diagnostic Capabilities**Presenter:** Amir Alavi**Principal Investigator:** N/A**Author(s):**

shantanu chakrabartty

Yashar Aucie

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy**

Session Chair(s):

Ramkumar Annamalai

Gregory Hudalla

**Abstract Title:** Anchorage of Interleukin-12 to Layer-by-Layer Nanoparticles Enhances Ovarian Cancer Immunotherapy

**Presenter:** Ivan Pires**Principal Investigator:** Paula T. Hammond**Author(s):**

Ivan Pires

Gil Covarrubias

Sean Smith

Apoorv Shanker

Victoria Gomerding

Antonio Barberio

Darrell Irvine

Paula Hammond

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy**

Session Chair(s):

Ramkumar Annamalai

Gregory Hudalla

**Abstract Title:** Engineering the modularity of an alpaca-derived single domain antibody fragment that targets Class II MHC to induce antigen-specific tolerance

**Presenter:** Novalia Pishesha**Principal Investigator:** Novalia Pishesha**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy**

Session Chair(s):

Ramkumar Annamalai

Gregory Hudalla

**Abstract Title:** Dexamethasone Loaded PLGA-Microparticles Intracellularly Induce an Anti-Fibrotic, Anti-Inflammatory Macrophage Phenotype for Cell Therapy Applications

**Presenter:** Tina Tylek**Principal Investigator:** Kara Spiller**Author(s):**

Kara Spiller

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 007 B

Track: Drug Delivery

**Drug Delivery for Immunomodulation and Immunotherapy**

Session Chair(s):

Ramkumar Annamalai

Gregory Hudalla

**Abstract Title:** Cellular Backpacks for Immuno-modulation of Central Nervous System Inflammation

**Presenter:** Neha Kapate

**Principal Investigator:** Samir Mitragotri

**Author(s):**

Neha Kapate

Ninad Kumbhojkar

Supriya Prakash

Li-Wen Wang

Michael Dunne

Charles Park

Samir Mitragotri

**Abstract Title:** Breast Tumor-on-Chip Model Reveals how Spatiotemporal Heterogeneity Impacts Tumor Growth, Invasion, and the Escape of Cancer Cells

**Presenter:** Susan Leggett

**Principal Investigator:** N/A

**Author(s):**

Susan Leggett

Molly Brennan

Sophia Martinez

Joe Tien

Celeste Nelson

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 007 B

**Track:** Drug Delivery

### Nucleic Acid Delivery

**Session Chair(s):**

Ramkumar Annamalai

Gregory Hudalla

**Abstract Title:** PACE Polyplexes for Encapsulation and Delivery of Gene Editing Materials

**Presenter:** Laiba Akhtar

**Principal Investigator:** N/A

**Author(s):**

Alexandra Suberi

William Saltzman

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 214 A

**Track:** Nano and Micro Technologies

**Session Chair(s):**

David Myers

Enrique Valera

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 214 A

**Track:** Nano and Micro Technologies

### Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems

**Session Chair(s):**

David Myers

Enrique Valera

**Abstract Title:** Developing an In Vitro Model for the Study of Biomechanical Cues in the Breast Tumor Microenvironment

**Presenter:** Corinne Leonard

**Principal Investigator:** Priscilla Y. Hwang

**Author(s):**

Jessanne Lichtenberg

Priscilla Hwang

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**David Myers  
Enrique Valera**Abstract Title:** Enhanced Cell Polarity and Hepatitis B Viral Infection in a Microfluidic and Micropatterned Co-culture Model of the Human Liver**Presenter:** Yang Yuan**Principal Investigator:** Salman R Khetani**Author(s):**Yong Duk Han  
Salman Khetani**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Tools for Precision Medicine****Session Chair(s):**David Myers  
Enrique Valera**Abstract Title:** A Microfluidics-Enabled Analysis Framework for Precision Screening of 3-Drug Combination Therapies**Presenter:** Dan Zhang**Principal Investigator:** N/A**Author(s):**Dan Zhang  
Evelyn Williams  
Wilbur Lam  
Melissa Kemp**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**David Myers  
Enrique Valera**Abstract Title:** Rapid and Parallelized Antimicrobial Susceptibility Testing using Drop-based Microfluidic Barcoding**Presenter:** Carter Hoffman**Principal Investigator:** Connie B. Chang**Author(s):**

Connie Chang

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 4, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**David Myers  
Enrique Valera

**Abstract Title:** Surface Patterned Omniphobic Tiles (SPOTs) for Evaluating Antibiotic Pairs on Bacterial Growth

**Presenter:** Jon Albo  
**Principal Investigator:** Nate Cira  
**Author(s):**  
 Jon Albo  
 Samira Shiri  
 Mohsin Qazi  
 Shenghao Tan  
 Arnold Chen  
 Nate Cira

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 5, **Room:** 207

**Track:** Biomechanics

**Cancer Mechanobiology**

**Session Chair(s):**  
 Priscilla Hwang  
 Hadi Nia  
 Hamza Atcha

**Abstract Title:** Changes in CD44 Expression and Drug Resistance with Mechanical Presentation of Hyaluronan

**Presenter:** Mary Kathryn Sewell-Loftin  
**Principal Investigator:** Mary Kathryn Sewell-Loftin  
**Author(s):**  
 Maranda Tidwell  
 Gillian Huskin  
 Allyson Criswell  
 Mary Kathryn Sewell-Loftin

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 5, **Room:** 207

**Track:** Biomechanics

**Cancer Mechanobiology**

**Session Chair(s):**  
 Priscilla Hwang  
 Hadi Nia  
 Hamza Atcha

**Abstract Title:** Microenvironmental Stiffness Induces Metabolic Reprogramming in Glioblastoma

**Presenter:** Alireza Sohrabi  
**Principal Investigator:** N/A  
**Author(s):**  
 Austin Lefebvre  
 Michelle Digman  
 Stephanie Seidlits

**Friday, October 14**  
**1:00 PM - 2:30 PM**

**Session:** 5, **Room:** 207

**Track:** Biomechanics

**Cancer Mechanobiology**

**Session Chair(s):**  
 Priscilla Hwang  
 Hadi Nia  
 Hamza Atcha

**Abstract Title:** Mesenchymal Phenotype in Migratory Cancer Cell Subpopulations Enhance Fluid Shear Stress Resistance

**Presenter:** Ismael Ortiz  
**Principal Investigator:** Cynthia Reinhart-King  
**Author(s):**  
 Joshua Greenlee  
 Paul Taufalele  
 Samantha Schwager  
 Jenna Mosier  
 Michael King  
 Cynthia Reinhart-King

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 207

Track: Biomechanics

**Cancer Mechanobiology****Session Chair(s):**

Priscilla Hwang  
Hadi Nia  
Hamza Atcha

**Abstract Title:** Prostate Tumor Cell Metastatic Potential Drive Responsiveness to Matrix Composition and Stiffness.

**Presenter:** Kevin Homsy**Principal Investigator:** N/A**Author(s):**

Carole Luthold  
Kevin Homsy  
Nadia Boufaied  
Martial Millet  
Enola Bollmann  
Tarek Hallal  
Ajinkya Ghagre  
Allen Ehrlicher  
David Labbé  
Francois Bordeleau

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 207

Track: Biomechanics

**Cancer Mechanobiology****Session Chair(s):**

Priscilla Hwang  
Hadi Nia  
Hamza Atcha

**Abstract Title:** Influence of Extracellular Matrix Stiffness on Tumor Cell Extravasation via Cell Mechanical Memory

**Presenter:** Elena Cambria**Principal Investigator:** N/A**Author(s):**

Elena Cambria  
Giovanni Offeddu  
Sarah Shelton  
Marie Floryan  
Mark Coughlin  
Mouhita Humayun  
Roger Kamm

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 207

Track: Biomechanics

**Cancer Mechanobiology****Session Chair(s):**

Priscilla Hwang  
Hadi Nia  
Hamza Atcha

**Abstract Title:** Impact of Distinct E-cadherin Variants on Tensional Homeostasis of Gastric Cancer Cells

**Presenter:** Katie Bunde**Principal Investigator:** N/A**Author(s):**

Han Xu  
Katie Bunde  
Michael Smith  
Dimitrije Stamenovic

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Akhilesh Gaharwar

Ruogang Zhao

**Abstract Title:** Functional FRESH 3D Bioprinted Aligned Muscle Sheets**Presenter:** Brian Coffin**Principal Investigator:** N/A**Author(s):**

Samuel Moss

Adam Feinberg

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Akhilesh Gaharwar

Ruogang Zhao

**Abstract Title:** 3D Bioprinting Highly Elastic PEG-PCL-DA Hydrogel with Tunable Biodegradability**Presenter:** Wenhan Lee**Principal Investigator:** N/A**Author(s):**

Yi Hong

Huikang Fu

Guohao Dai

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Akhilesh Gaharwar

Ruogang Zhao

**Abstract Title:** In Vivo Printing of Microengineered Scaffolds Combined With Exercise Therapy for VML Treatment**Presenter:** Mohamadmahdi Samandari**Principal Investigator:** N/A**Author(s):**

Mohamadmahdi Samandari

Yori Endo

Mehran Karvar

Azadeh Mostafavi

Jacob Quint

Indranil Sinha

Ali Tamayol

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 5, Room: 006 A

Track: Tissue Engineering

**3D Bioprinting and Patterning of Tissues**

Session Chair(s):

Akhilesh Gaharwar

Ruogang Zhao

**Abstract Title:** 3D Bioprinting of biomimetic flexible blood vessels with iPS cell-laden multilayers**Presenter:** Sung Yun Hann**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 006 A**Track:** Tissue Engineering**3D Bioprinting and Patterning of Tissues****Session Chair(s):**Akhilesh Gaharwar  
Ruogang Zhao**Abstract Title:** Hydrogel Assisted Double Molding of High-Resolution 3D Prints Reveals a Link between Prestress and Sodium Channel Function in iPSC Derived Micro-Heart Muscle Arrays**Presenter:** Nathaniel Huebsch**Principal Investigator:** Nathaniel Huebsch**Author(s):**Daniel Simmons  
David Schuftan  
Jingxuan Guo  
Nathaniel Huebsch**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 006 A**Track:** Tissue Engineering**3D Bioprinting and Patterning of Tissues****Session Chair(s):**Akhilesh Gaharwar  
Ruogang Zhao**Abstract Title:** In Vitro Maturation And In Vivo Stability Of Bioprinted Human Nasal Cartilage**Presenter:** Xiaoyi Lan**Principal Investigator:** Adetola Adesida**Author(s):**Adetola Adesida  
Melanie KunzeEsra Erkut  
Yaman Boluk  
Aillette Mulet-Sierra  
Margaret Vyhlidal  
Yan Liang**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 206**Track:** Biomechanics**Cardiovascular Biomechanics****Session Chair(s):**Luke Timmins  
Valerie Tutwiler  
Sourav Patnaik**Abstract Title:** A mathematical model of the maternal hemodynamics and vascular growth and remodeling in early- and late-preeclampsia across gestation**Presenter:** Rudolph Gleason**Principal Investigator:** N/A**Author(s):**

Farbod Sedaghati

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 206**Track:** Biomechanics**Cardiovascular Biomechanics****Session Chair(s):**Luke Timmins  
Valerie Tutwiler  
Sourav Patnaik

**Abstract Title:** The Right Ventricle in Pulmonary Hypertension: A Histomechanical Study in Sheep

**Presenter:** Manuel Rausch

**Principal Investigator:** Manuel K Rausch

**Author(s):**

Matthew Bersi

Sotirios Kakaletsis

Tomasz Timek

Marcin Malinowski

Gabriella Sugerman

Tomasz Jazwicz

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 206

**Track:** Biomechanics

### Cardiovascular Biomechanics

**Session Chair(s):**

Luke Timmins

Valerie Tutwiler

Sourav Patnaik

**Abstract Title:** Compensatory Remodeling of The Aorta in Marfan Syndrome Protects Against Lethal Rupture During A BAPN Challenge

**Presenter:** Dar Weiss

**Principal Investigator:** Jay Humphrey

**Author(s):**

Bruno Rego

Jay Humphrey

David Li

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 206

**Track:** Biomechanics

### Cardiovascular Biomechanics

**Session Chair(s):**

Luke Timmins

Valerie Tutwiler

Sourav Patnaik

**Abstract Title:** Variations In Solute Mass Transport In A Fibulin4 Mutation Mouse Model of Thoracic Aortic Aneurysm

**Presenter:** Christie Crandall

**Principal Investigator:** Jessica Wagenseil

**Author(s):**

Jessica Wagenseil

Carmen Halabi

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 206

**Track:** Biomechanics

### Cardiovascular Biomechanics

**Session Chair(s):**

Luke Timmins

Valerie Tutwiler

Sourav Patnaik

**Abstract Title:** Regional Surface Area Strain From 4D Cardiac Magnetic Resonance Correlates with Fibrotic Dysfunction in Duchenne Muscular Dystrophy Associated Cardiomyopathy

**Presenter:** Conner Earl

**Principal Investigator:** N/A

**Author(s):**

Craig Goergen

Jonathan Soslow

Larry Markham

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 206**Track:** Biomechanics**Cardiovascular Biomechanics****Session Chair(s):**

Luke Timmins  
 Valerie Tutwiler  
 Sourav Patnaik

**Abstract Title:** Histomechanical Comparison of Elastomuscular Artery Freezing Strategies for Transportation and Storage

**Presenter:** Colton Kostelnik**Principal Investigator:** John F. Eberth

**Author(s):**  
 N/A

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**

Brian Aguado  
 Mykel Green

**Abstract Title:** A stable parylene-based conformal coating suppresses thrombosis and neointimal hyperplasia on implantable vascular devices

**Presenter:** Dake Hao**Principal Investigator:** Dake Hao

**Author(s):**  
 DAKE HAO  
 Ruiwu Liu  
 Christopher Pivetti  
 Junichiro Sageshima

Mimmie Kwong  
 Nataliya Bahatyrevich  
 Diana Farmer  
 Misty Humphries  
 Alyssa Panitch  
 Aijun Wang

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**

Brian Aguado  
 Mykel Green

**Abstract Title:** Reduced Graphene Oxide Doped Biodegradable Polyurethane Nanofibers for Muscle Cell Culture

**Presenter:** Alan Taylor**Principal Investigator:** Yi Hong

**Author(s):**  
 Alan Taylor  
 Jiazhu Xu  
 Huikang Fu  
 Lia Molina Cortez  
 Sara McMahan  
 Jun Liao  
 Yi Hong

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Tissue Engineering****Session Chair(s):**

Brian Aguado  
 Mykel Green

**Abstract Title:** Precision-porous Scaffolds Enhance Endothelialization for In Situ Tissue Engineered Artery in Sheep

**Presenter:** Le Zhen  
**Principal Investigator:** N/A  
**Author(s):**  
 Buddy Ratner

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 216 AB

**Track:** Cardiovascular Engineering

### Cardiovascular Tissue Engineering

**Session Chair(s):**  
 Brian Aguado  
 Mykel Green

**Abstract Title:** Sodium Nitroprusside (SNP)-Induced Elastic Matrix Regeneration for Wall Repair in Abdominal Aortic Aneurysms (AAAs)

**Presenter:** Suraj Bastola  
**Principal Investigator:** N/A  
**Author(s):**  
 Suraj Bastola  
 Anand Ramamurthi

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 216 AB

**Track:** Cardiovascular Engineering

### Cardiovascular Tissue Engineering

**Session Chair(s):**  
 Brian Aguado  
 Mykel Green

**Abstract Title:** Designing Nanoparticles for Effective Trans-Endothelial Transport in the Aortic Aneurysm Wall

**Presenter:** Jimmy Yau  
**Principal Investigator:** N/A  
**Author(s):**  
 Anand Ramamurthi  
 Jimmy Yau

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 216 AB

**Track:** Cardiovascular Engineering

### Cardiovascular Tissue Engineering

**Session Chair(s):**  
 Brian Aguado  
 Mykel Green

**Abstract Title:** Preserve and Vascularize Cardiac Extracellular Matrix after Acute Myocardial Infarction

**Presenter:** Hong Niu  
**Principal Investigator:** N/A  
**Author(s):**  
 Ya Guan  
 Jianjun Guan  
 Yu Dang  
 Zhongting Liu

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Multiscale Computation Modeling****Session Chair(s):**

Mohammad Fallahi-Sichani

Roberto Alonso Matilla

**Abstract Title:** Multiscale Modeling and Simulation of Endothelial to Mesenchymal Transformation (EndMT) in Calcific Aortic Valve Disease.**Presenter:** Javid Azimi Boulali**Principal Investigator:** N/A**Author(s):**

Gretchen Mahler

Bruce Murray

Peter Huang

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Multiscale Computation Modeling****Session Chair(s):**

Mohammad Fallahi-Sichani

Roberto Alonso Matilla

**Abstract Title:** Hybrid, Multiscale Modeling of Signaling-Induced Pattern Formation in Multicell Spheroids**Presenter:** Nikita Sivakumar**Principal Investigator:** Shayn Peirce-Cottler**Author(s):**

Shayn Peirce

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Multiscale Computation Modeling****Session Chair(s):**

Mohammad Fallahi-Sichani

Roberto Alonso Matilla

**Abstract Title:** Computational Systems Pharmacology of Antibody-Drug Conjugates**Presenter:** Inez Lam**Principal Investigator:** N/A**Author(s):**

Venkatesh Pilla Reddy

Rosalin Arends

Feilim Mac Gabhann

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Multiscale Computation Modeling****Session Chair(s):**

Mohammad Fallahi-Sichani

Roberto Alonso Matilla

**Abstract Title:** A Parallel Multiscale Model for Thrombus Growth Under Flow**Presenter:** Kaushik Shankar**Principal Investigator:** N/A**Author(s):**

Talid Sinno

Scott Diamond

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 213 AB

**Track:** Bioinformatics, Computational and Systems Biology**Multiscale Computation Modeling****Session Chair(s):**Mohammad Fallahi-Sichani  
Roberto Alonso Matilla**Abstract Title:** A Multiscale Computational Tool to Simulate the Impact of Lung Recruitment/De-recruitment During Mechanical Ventilation**Presenter:** Haoran Ma**Principal Investigator:** N/A**Author(s):**Donald Gaver  
Hideki Fujioka  
David Halpern**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 213 AB

**Track:** Bioinformatics, Computational and Systems Biology**Analysis of Multi-Cellular Systems****Session Chair(s):**Mohammad Fallahi-Sichani  
Roberto Alonso Matilla**Abstract Title:** Using Agent-Based Modeling to Analyze the Effects of Nitric Oxide on Skeletal Muscle Regeneration**Presenter:** Autumn Routt**Principal Investigator:** N/A**Author(s):**Megan Haase  
Silvia Blemker**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 007 A

**Track:** Drug Delivery**Delivery Systems for Proteins and Vaccines****Session Chair(s):**Cathal Kearney  
Chien-Chi Lin  
Victor Mori**Abstract Title:** Self-assembly of multiple TLRs on microneedles for rational vaccine design and delivery**Presenter:** Camilla Edwards**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 007 A

**Track:** Drug Delivery**Delivery Systems for Proteins and Vaccines****Session Chair(s):**Cathal Kearney  
Chien-Chi Lin  
Victor Mori**Abstract Title:** Antioxidant-Immobilized Backpack-Carrying Monocytes for Treating Traumatic Brain Injury**Presenter:** Rick Liao**Principal Investigator:** Samir Mitragotri**Author(s):**Rick Liao  
Li-Wen Wang  
Samir Mitragotri

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines****Session Chair(s):**

Cathal Kearney

Chien-Chi Lin

Victor Mori

**Abstract Title:** Electrophoresis-Based Approach for Characterizing Polyamidoamine Dendrimer-Protein Complexes**Presenter:** Simone Douglas-Green**Principal Investigator:** Simone Andrea Douglas-Green**Author(s):**

Juan Aleman

Paula Hammond

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines****Session Chair(s):**

Cathal Kearney

Chien-Chi Lin

Victor Mori

**Abstract Title:** CRISPR-Cas9 Ribonucleoprotein Nanocapsule Produces Efficient in vivo Neuronal Genome Editing in the Mouse Brain**Presenter:** Yuyuan Wang**Principal Investigator:** Shaoqin Sarah Gong**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines****Session Chair(s):**

Cathal Kearney

Chien-Chi Lin

Victor Mori

**Abstract Title:** Noncompetitive Receptor-Targeted Liposome Delivery to Plasmacytoid Dendritic Cells**Presenter:** Zain Clapacs**Principal Investigator:** N/A**Author(s):**

Zain Clapacs

Mina Maksimos

Darren Kim

Kareem Azab

Jai Rudra

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 7, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines****Session Chair(s):**

Cathal Kearney

Chien-Chi Lin

Victor Mori

**Abstract Title:** A Scalable Biodegradable Microparticle Platform for the Release of Biologics**Presenter:** Tyler Graf

**Principal Investigator:** Kevin McHugh

**Author(s):**

Tyler Graf

Sherry Yue Qiu

ERIN EULIANO

Dhruv Varshney

Mei-Li Laracuent

Pujita Munnangi

Brett Pogostin

Kevin McHugh

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 008 A

**Track:** Cellular and Molecular Bioengineering

**Session Chair(s):**

Pilar de la Puente

Zhen Ma

**Abstract Title:** Engineering 3D Models of Human Tissue

**Presenter:** Steve George

**Principal Investigator:** N/A

**Author(s):**

N/A

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 008 A

**Track:** Cellular and Molecular Bioengineering

### Cell Migration

**Session Chair(s):**

Pilar de la Puente

Zhen Ma

**Abstract Title:** Identifying Neutrophil Phenotypes in Sepsis Patients with Organ-On-Chip and Proteomic Analysis

**Presenter:** Qingliang Yang

**Principal Investigator:** N/A

**Author(s):**

Qingliang Yang

Mohammad Kiani

Jordan Langston

## Friday, October 14

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 008 A

**Track:** Cellular and Molecular Bioengineering

### Cell Migration

**Session Chair(s):**

Pilar de la Puente

Zhen Ma

**Abstract Title:** A 3D In Vitro Model to Predict Posterior Capsule Opacification Potential of Intraocular Lens

**Presenter:** Samira Izuagbe

**Principal Investigator:** N/A

**Author(s):**

Joyita Roy

Liping Tang

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 008 A**Track: Cellular and Molecular Bioengineering****Session Chair(s):**Pilar de la Puente  
Zhen Ma**Abstract Title:** A Xenopus embryo assay for decoding the communication of injury states between tissues & individuals**Presenter:** Megan Sperry**Principal Investigator:** N/A**Author(s):**Megan Sperry  
Patrick McMillen  
Michelle Yue  
Manuel Martinez  
Donald Ingber  
Michael Levin**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Pilar de la Puente  
Zhen Ma**Abstract Title:** Bioengineered Immune Organoids to Study Aged B Cell Epigenetics**Presenter:** Secil Demir**Principal Investigator:** Ankur Singh**Author(s):**

Ankur Singh

**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 9, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Pilar de la Puente  
Zhen Ma**Abstract Title:** Characterization of Fibroblastic Reticular Cells Cultured in 2D and 3D Conditions as Compared to Freshly Isolated Cells Via Single Cell RNA Sequencing**Presenter:** Zachary Wilkes**Principal Investigator:** Alice Tomei**Author(s):**Flavia Zisi Tegou  
Leonor Teles**Friday, October 14**

1:00 PM - 2:30 PM

**Session:** 13, **Room:** 005**Track:** Biomaterials**Drug Delivering Biomaterials****Session Chair(s):**

Donny Hanjaya-Putra

**Abstract Title:** Physical Properties and Biocompatibility of Dexamethasone-loaded Biodegradable Implants Made with Poly(ethylene brassylate-co-dioxanone) [poly(EB-co-DO)]**Presenter:** Christy Zheng**Principal Investigator:** William Mark Saltzman**Author(s):**Jinal Pothupitiya  
Gina Buzzelli  
Fan Yang  
William Saltzman

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 13, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials**

Session Chair(s):

Donny Hanjaya-Putra

**Abstract Title:** Nanosilicate Hydrogel Composites for Sustained Protein Delivery**Presenter:** Samuel Stealey**Principal Investigator:** Silviya Petrova Zustiak**Author(s):**

Akhilesh Gaharwar

Silviya Zustiak

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 13, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials**

Session Chair(s):

Donny Hanjaya-Putra

**Abstract Title:** Uricase Functionalized Hydrogel for the Localized Treatment of Gout**Presenter:** Madeline Fuchs**Principal Investigator:** N/A**Author(s):**

Benjamin Keselowsky

Gregory Hudalla

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 13, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials**

Session Chair(s):

Donny Hanjaya-Putra

**Abstract Title:** Targeting Distinct Immunomodulatory Pathways for Tolerance in Type 1 Diabetes**Presenter:** Sean Carey**Principal Investigator:** Christopher Jewell**Author(s):**

Joshua Gammon

Christopher Jewell

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 13, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials**

Session Chair(s):

Donny Hanjaya-Putra

**Abstract Title:** Biomaterial-Targeted Precision Nanoparticle Delivery to the Injured Spinal Cord**Presenter:** Courtney Dumont**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 13, Room: 005

Track: Biomaterials

**Drug Delivering Biomaterials**

Session Chair(s):

Donny Hanjaya-Putra

**Abstract Title:** Controlled Formation and Therapeutic Validation of Noncovalent Bioactive Nanocarrier Coronas

Presenter: Fanfan Du

Principal Investigator: N/A

Author(s):

Evan Scott

Fanfan Du

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 16, Room: 004

Track: Biomaterials

Session Chair(s):

Alex Buffone

**Abstract Title:** Amphiphilic Silicones to Mitigate Lens Epithelial Cell Growth on Intraocular Lenses

Presenter: Jackson Pickett

Principal Investigator: Alec Marmo

Author(s):

Alec Marmo

J Jesus Rodriguez Cruz

Lucas Lott

Melissa Grunlan

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 16, Room: 004

Track: Biomaterials

Session Chair(s):

Alex Buffone

**Abstract Title:** The Gut Microbiota Regulates Acute Foreign Body Reaction after Biomaterial Implantation

Presenter: Patrick Hsieh

Principal Investigator: N/A

Author(s):

Sheng-Lun Chen

David J. Lundy

**Friday, October 14**

1:00 PM - 2:30 PM

Session: 16, Room: 004

Track: Biomaterials

Session Chair(s):

Alex Buffone

**Abstract Title:** Tissue Adhesive Hemostatic Microneedle Arrays for Rapid Hemorrhage Treatment

Presenter: Reihaneh Haghniaz

Principal Investigator: Ali Khademhosseini

Author(s):

N/A

**Friday, October 14****1:00 PM - 2:30 PM****Session:** 16, **Room:** 004**Track:** Biomaterials**Session Chair(s):**

Alex Buffone

**Abstract Title:** In-vitro Cytotoxicity and Cellular Metabolism Assessment of Polymethyl Methacrylate (PMMA) in 2D and 3D Cell Models.**Presenter:** Luisa Barraza Vergara**Principal Investigator:** N/A**Author(s):**

Madeline Torres-Lugo

Maribella Domenech

Wandaliz Torres-Garcia

**Friday, October 14****1:00 PM - 2:30 PM****Session:** 16, **Room:** 004**Track:** Biomaterials**Session Chair(s):**

Alex Buffone

**Abstract Title:** Impact of Dental Cement on Early Osseointegration: A Preliminary Study in Lewis Rats**Presenter:** Bhuvana Lakkasetter Chandrashekar**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14****1:00 PM - 2:30 PM****Session:** 16, **Room:** 004**Track:** Biomaterials**Drug Delivering Biomaterials****Session Chair(s):**

Alex Buffone

**Abstract Title:** Phthalocyanine and Naphthalocyanine Loaded Micelles for Photoacoustic Image-Guided Surgery and Photothermal Therapy**Presenter:** Ahmad Amirshaghghi**Principal Investigator:** Andrew Tsourkas**Author(s):**

Yiran Tian

Ahmad Amirshaghghi

zhiliang cheng

Karthik Sundaram

Andrew Tsourkas

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 207**Track:** Biomechanics**Biomechanics in Cell and Tissue Engineering****Session Chair(s):**

Lee Murfee

Ting-Yuan Tu

Katie Young

**Abstract Title:** A Novel Approach for Mapping Collagen Mechanics at the Cellular Scale Using Magnetic Microparticles**Presenter:** Adil Khan**Principal Investigator:** Jacopo Ferruzzi**Author(s):**

Adil Khan

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 207

Track: Biomechanics

**Biomechanics in Cell and Tissue Engineering**

Session Chair(s):

Lee Murfee  
Ting-Yuan Tu  
Katie Young**Abstract Title:** Ultraviolet Light induced degradation of Full thickness Human Skin**Presenter:** Abraham Ittycheri**Principal Investigator:** N/A**Author(s):**  
N/A**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 207

Track: Biomechanics

**Biomechanics in Cell and Tissue Engineering**

Session Chair(s):

Lee Murfee  
Ting-Yuan Tu  
Katie Young**Abstract Title:** Computational Model of Cellular Micro-biaxial Stretching Elucidates the Role of Cytoskeletal Structure in Mechanics and Mechano-adaptation of Vascular Smooth Muscle Cells**Presenter:** Ryan Mahutga**Principal Investigator:** N/A**Author(s):**  
Patrick Alford**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 207

Track: Biomechanics

**Biomechanics in Cell and Tissue Engineering**

Session Chair(s):

Lee Murfee  
Ting-Yuan Tu  
Katie Young**Abstract Title:** Development of a Phenotypic Screening Technique to Identify New Therapeutics for Kidney Disease**Presenter:** Amanda Barreto**Principal Investigator:** Samira Musah**Author(s):**  
Amanda Barreto  
Morgan Burt  
Samira Musah**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 207

Track: Biomechanics

**Biomechanics in Cell and Tissue Engineering**

Session Chair(s):

Lee Murfee  
Ting-Yuan Tu  
Katie Young**Abstract Title:** In situ, non-optical mechanical stiffness of cellular monolayers in microfluidic devices for disease modeling**Presenter:** Charles Dhong**Principal Investigator:** Charles Dhong**Author(s):**  
N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 207

Track: Biomechanics

**Biomechanics in Cell and Tissue Engineering****Session Chair(s):**Lee Murfee  
Ting-Yuan Tu  
Katie Young**Abstract Title:** Mechanical Characterization of Zebrafish Somitogenesis Using Light Microscopy-based Elastography**Presenter:** Yuji Tomizawa**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 212 A

Track: Global Health Technologies

**International collaborations on chronic disease****Session Chair(s):**Jiayu Liao  
Scott Berry  
Marina Sala de Medeiros**Abstract Title:** Accelerating the Impact of Technology and Innovation for Global Cervical Cancer Prevention**Presenter:** Nimmi Ramanujam**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 212 A

Track: Global Health Technologies

**Automated technologies for use in developing countries****Session Chair(s):**Jiayu Liao  
Scott Berry  
Marina Sala de Medeiros**Abstract Title:** An Open-Source and Cost-Effective Point of Care System for Sputum Smear Detection of Mycobacterium Tuberculosis**Presenter:** Matthew Glucksberg**Principal Investigator:** Matthew Glucksberg**Author(s):**Peter Kouassi  
Isaac Tenga  
Shani Katz  
Mamoudou Maiga  
Matthew Glucksberg**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 212 A

Track: Global Health Technologies

**Nanotechnologies for Global Health Technologies and Systems****Session Chair(s):**Jiayu Liao  
Scott Berry  
Marina Sala de Medeiros

**Abstract Title:** Development of sensitive miRNA-based assays for the direct detection of Thoracic Aortic Aneurysm using Surface-enhanced Raman Spectroscopy

**Presenter:** Angela Michelle San Juan  
**Principal Investigator:** Samuel Mabbott  
**Author(s):**  
 Samuel Mabbott  
 Angela Michelle San Juan  
 Suhash Chavva

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 2, **Room:** 212 A

**Track:** Global Health Technologies

### Nanotechnologies for Global Health Technologies and Systems

**Session Chair(s):**  
 Jiayu Liao  
 Scott Berry  
 Marina Sala de Medeiros

**Abstract Title:** Enzymatically Signal Enhanced Lateral Flow Assay Test for HIV using p24

**Presenter:** Pankti Thakkar  
**Principal Investigator:** Jacqueline Linnes  
**Author(s):**  
 Aiswarya A Ramanujam  
 Jacqueline Linnes

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 2, **Room:** 212 A

**Track:** Global Health Technologies

**Session Chair(s):**  
 Jiayu Liao  
 Scott Berry  
 Marina Sala de Medeiros

**Abstract Title:** Towards a Point-of-Care Sickle Cell Diagnostic using Isothermal Amplification and Lateral Flow Readout

**Presenter:** Alexis Wilkinson  
**Principal Investigator:** Rebecca Richards-Kortum  
**Author(s):**  
 Megan Chang  
 Alexis Wilkinson  
 Rebecca Richards-Kortum

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 2, **Room:** 212 A

**Track:** Global Health Technologies

**Session Chair(s):**  
 Jiayu Liao  
 Scott Berry  
 Marina Sala de Medeiros

**Abstract Title:** SickLED: Affordable, Point-of-Care, Sickle Cell Anemia Lateral Flow Screening Device

**Presenter:** Anjali Shah  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 2, **Room:** 214 A

**Track:** Nano and Micro Technologies

**Session Chair(s):**  
 Santiago Correa  
 David Myers

**Abstract Title:** Calibrating Immunometabolism to Treat Diseases using Metabolite-based Micro/Nano Particle

**Presenter:** Abhinav Acharya  
**Principal Investigator:** N/A  
**Author(s):**  
 N/A

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 214 A**Track:** Nano and Micro Technologies**Bioinspired/Biomimetic Micro/Nano Devices and Systems****Session Chair(s):**Santiago Correa  
David Myers**Abstract Title:** Evaluation of Commensal E. coli Outer Membrane Vesicles as Bioactive Vehicles for Oral Gene Delivery**Presenter:** Kari Heck**Principal Investigator:** N/A**Author(s):**Angela Pannier  
Amanda Ramer-Tait**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 214 A**Track:** Nano and Micro Technologies**Other / Non-specified (Implantable systems, flexible/wearable systems, 3D printing/bioprinting, tools to study and manipulate the microbiome, courses and training approaches, etc.)****Session Chair(s):**Santiago Correa  
David Myers**Abstract Title:** Chromatin Reprogramming via Contact Guidance-Induced Nuclear Deformation Promotes Bone Regeneration**Presenter:** Xinlong Wang**Principal Investigator:** Xinlong Wang**Author(s):**Bin Jiang  
Vadim Backman  
Guillermo Ameer**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**Santiago Correa  
David Myers**Abstract Title:** Biomimetic Assay Reveals Anti-Metastatic Potential of Novel Compound by Non-Apoptotic Cancer-Killing**Presenter:** Indira Sigdel**Principal Investigator:** Yuan Tang**Author(s):**Awurama Ofori - Kwafo  
Robert Heizelman  
Yuan Tang

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 214 A

**Track:** Nano and Micro Technologies**Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems****Session Chair(s):**Santiago Correa  
David Myers**Abstract Title:** Biomimetic human lung alveolus chip to study nanotoxicity**Presenter:** Kun Man**Principal Investigator:** N/A**Author(s):**Jiafeng Liu  
Brian Meckes  
Yong Yang**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 214 A

**Track:** Nano and Micro Technologies**Micro/Nano Tools for Precision Medicine****Session Chair(s):**Santiago Correa  
David Myers**Abstract Title:** Non-Viral Delivery of CRISPR/Cas9 Ribonucleoprotein for the Treatment of Osteoarthritis**Presenter:** Morgan Struthers**Principal Investigator:** N/A**Author(s):**Morgan Struthers  
Isom Kelly  
Ronald Fletcher  
Richard d'Arcy  
Jonathan Brunger  
Craig Duvall**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 212 B

**Track:** Technologies for Emerging Infectious Diseases**Session Chair(s):**Kevin McHugh  
Gregg Duncan**Abstract Title:** Mucin biomaterials for local therapeutic delivery**Presenter:** Gregg Duncan**Principal Investigator:** N/A**Author(s):**Sydney Yang  
Taj Yeruva**Friday, October 14**

3:30 PM - 5:00 PM

Session: 2, Room: 212 B

**Track:** Technologies for Emerging Infectious Diseases**Drug Delivery (vaccines, novel ways to deliver antivirals)****Session Chair(s):**Kevin McHugh  
Gregg Duncan**Abstract Title:** Elucidating Design Principles for Engineering Cell-Derived Vesicles to Inhibit SARS-CoV-2 Infection**Presenter:** Taylor Gunnels**Principal Investigator:** Neha Kamat and Joshua Leonard**Author(s):**Taylor Gunnels  
Devin Stranford  
Roxana Mitrut  
Neha Kamat  
Joshua Leonard

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Drug Delivery (vaccines, novel ways to deliver antivirals)****Session Chair(s):**

Kevin McHugh

Gregg Duncan

**Abstract Title:** Development Of Nanoparticles For The Treatment Of SARS-COV-2 Infections**Presenter:** Uday Chintapula**Principal Investigator:** N/A**Author(s):**

Biswas Neupane

Priyanka Iyer

Shazeed-Ul Karim

Trinh Nguyen

Amie Kieu

Fengwei Bai

Kytai Nguyen

**Author(s):**

Shrey Shah

Robert Oakes

Senta Kapnick

Christopher Jewell

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Drug Delivery (vaccines, novel ways to deliver antivirals)****Session Chair(s):**

Kevin McHugh

Gregg Duncan

**Abstract Title:** Neutralization of SARS-CoV-2 by Stripping the Spikes Using Engineered Liposomes**Presenter:** Zhenjiang Zhang**Principal Investigator:** Michael R King**Author(s):**

Michael King

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Session Chair(s):**

Kevin McHugh

Gregg Duncan

**Abstract Title:** Lipid saturation and cholesterol impact liposome interaction with fungal and mammalian cells**Presenter:** Veronica LaMastro**Principal Investigator:** Anita Shukla**Author(s):**

Peter Gonzalez

Kayla Campbell

Anita Shukla

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 2, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Drug Delivery (vaccines, novel ways to deliver antivirals)****Session Chair(s):**

Kevin McHugh

Gregg Duncan

**Abstract Title:** Mechanical and immune profiling of microneedle matrices**Presenter:** Shrey Shah**Principal Investigator:** N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Keyue Shen  
Madeleine Oudin  
Elyahb Kwizera**Abstract Title:** Studying Interactions between Immune Cells and Cancer Cells Using Novel Engineered Approaches**Presenter:** Haelin Jang**Principal Investigator:** Hae Lin Jang & Tanmoy Saha will present together Need Tanmoy email**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 D

Track: Cancer Technologies

**Session Chair(s):**Keyue Shen  
Madeleine Oudin  
Elyahb Kwizera**Abstract Title:** Engineering a 3D model of bone metastasis of breast cancer**Presenter:** Prasiddha Guragain**Principal Investigator:** Hossein Tavana**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Keyue Shen  
Madeleine Oudin  
Elyahb Kwizera**Abstract Title:** Engineered Bone Marrow: An Ex Vivo Biomaterial to Interrogate Primary Osteosarcoma Tumorigenesis**Presenter:** Katherine Griffin**Principal Investigator:** J. Kent Leach**Author(s):**Steven Thorpe  
R. Lor Randall  
Kent Leach**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Keyue Shen  
Madeleine Oudin  
Elyahb Kwizera

**Abstract Title:** Matrix demineralization promotes breast cancer metastasis by altering the bone microenvironment

**Presenter:** MattheW Whitman

**Principal Investigator:** Claudia Fischbach

**Author(s):**

Matthew Whitman

Madhav Mantri

Siyoung Choi

Lara Estroff

Iwijn De Vlaminc

Claudia Fischbach

## Friday, October 14

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 214 D

**Track:** Cancer Technologies

### Metastasis, Dormancy & Treatment Response

**Session Chair(s):**

Keyue Shen

Madeleine Oudin

Elyahb Kwizera

**Abstract Title:** Doxorubicin Reduces Bone Matrix Formation by Altering Mesenchymal Stromal Cell Phenotype

**Presenter:** Shola Karimu

**Principal Investigator:** Claudia Fischbach

**Author(s):**

Adrian Shimpi

Nicole Sempertegui

Claudia Fischbach

## Friday, October 14

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 214 D

**Track:** Cancer Technologies

### Tumor Microenvironment

**Session Chair(s):**

Keyue Shen

Madeleine Oudin

Elyahb Kwizera

**Abstract Title:** Hypoxia reducing nanoparticles decreases immunosuppression and improves the survival of bone metastases bearing mice

**Presenter:** David Murphy

**Principal Investigator:** Isaac Adjei

**Author(s):**

Isaac Adjei

## Friday, October 14

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 008 A

**Track:** Cellular and Molecular Bioengineering

**Session Chair(s):**

Geeta Mehta

Shreya Raghavan

**Abstract Title:** Engineering high grade serous cancer from the fallopian tube

**Presenter:** Joanna Burdette

**Principal Investigator:** N/A

**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Geeta Mehta  
Shreya Raghavan**Abstract Title:** Circulating Non-hematopoietic Cells  
Orchestrate Tissue Fibrosis After Injury**Presenter:** Kellen Chen**Principal Investigator:** Geoffrey Gurtner**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Geeta Mehta  
Shreya Raghavan**Abstract Title:** The Effect of Topography and  
Growth Factors on Corneal Wound Healing**Presenter:** Divya Subramanian**Principal Investigator:** David Schmidtke**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Geeta Mehta  
Shreya Raghavan**Abstract Title:** Microfluidic Device to Quantify  
Neutrophil Migratory Decision-Making in Septic  
Patients**Presenter:** Hossein Razmi Bagtash**Principal Investigator:** N/A**Author(s):**Caroline Jones  
Brittany Boribong**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 3, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Geeta Mehta  
Shreya Raghavan**Abstract Title:** Mucin Glycans Shape the  
Composition and Function of Complex Microbial  
Communities**Presenter:** Chloe Wu**Principal Investigator:** Katharina Ribbeck**Author(s):**Chole Wu  
Gerado Carcamo-Oyarce  
Katharina Ribbeck

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 3, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Geeta Mehta

Shreya Raghavan

**Abstract Title:** Gut commensals associated with IBD degrade components of human extracellular matrix**Presenter:** Ana Maria Porras**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 3, **Room:** 214 C**Track:** Neural Engineering

Neuromodulation: Brain and Spinal Cord Stimulation

**Session Chair(s):**

Jit Muthuswamy

George McConnell

**Abstract Title:** Oscillation Phase-Specific Modulation of Cortical Excitability Using Closed-Loop TMS**Presenter:** Zachary Haigh**Principal Investigator:** Alexander Opitz**Author(s):**

Miles Wischnewski

Sina Shirinpour

Alexander Opitz

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 3, **Room:** 214 C**Track:** Neural Engineering

Neuromodulation: Brain and Spinal Cord Stimulation

**Session Chair(s):**

Jit Muthuswamy

George McConnell

**Abstract Title:** Revealing the Mechanisms of Neuromodulation using Functional Ultrasound Imaging**Presenter:** Agyeman Kofi**Principal Investigator:** Vasileios Christopoulos**Author(s):**

Kofi Agyeman

Darrin Lee

Vasileios Christopoulos

Charles Liu

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 3, **Room:** 214 C**Track:** Neural Engineering

Neuromodulation: Brain and Spinal Cord Stimulation

**Session Chair(s):**

Jit Muthuswamy

George McConnell

**Abstract Title:** TRPV1-Mediated Sonogenetics and Functional PET for Non-Invasive Neural Circuit Mapping**Presenter:** Charlotte Weixel**Principal Investigator:** Hong Chen**Author(s):**

Yaoheng Yang

Hong Chen

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 C

Track: Neural Engineering

Neuromodulation: Peripheral Nerve Stimulation

Session Chair(s):

Jit Muthuswamy

George McConnell

**Abstract Title:** Restored Plantar Sensation in Lower-Limb Amputees Improves Gait Symmetry and Perception

Presenter: Daekyoo Kim

Principal Investigator: Ronald Triolo

Author(s):

Ronald Triolo

Hamid Charkhkar

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 C

Track: Neural Engineering

Neuromodulation: Brain and Spinal Cord Stimulation

Session Chair(s):

Jit Muthuswamy

George McConnell

**Abstract Title:** Elucidating Mechanotransduction in Magnetomechanical Neuromodulation

Presenter: Amanda Gomez

Principal Investigator: Gabriela Romero

Author(s):

Gabriela Romero

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 C

Track: Neural Engineering

**Neuromodulation: Brain and Spinal Cord Stimulation**

Session Chair(s):

Jit Muthuswamy

George McConnell

**Abstract Title:** Chronic Biomarker Identification Of Tic Onset In Centromedian Thalamus For Closed Loop Deep Brain Stimulation In Tourette Syndrome

Presenter: Julieth Gomez

Principal Investigator: N/A

Author(s):

Julieth Gomez

Aysegul Gunduz

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

Session Chair(s):

Robin Queen

Hugo Giambini

**Abstract Title:** Recent Advances in Computational Modeling in Pediatric Spine Deformity Diagnosis and Treatment

Presenter: Sriram Balasubramanian

Principal Investigator: N/A

Author(s):

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Spine and Intervertebral Disc****Session Chair(s):**Robin Queen  
Hugo Giambini**Abstract Title:** Prediction of Curve Correction in Adolescent Idiopathic Scoliosis Patients After Anterior Vertebral Body Tethering Surgery Using Machine Learning**Presenter:** Ausilah Alfraihat**Principal Investigator:** Sriram Balasubramanian**Author(s):**Amer Samdani  
Sriram Balasubramanian**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Spine and Intervertebral Disc****Session Chair(s):**Robin Queen  
Hugo Giambini**Abstract Title:** Cadaveric Testing of a XRay Visible Interbody Spacer Indicating Biomechanical Load (X-VISIBL)**Presenter:** John DesJardins**Principal Investigator:** N/A**Author(s):**Nathan Carrington  
Vito Lore  
Jeffrey Anker  
John DesJardins**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Spine and Intervertebral Disc****Session Chair(s):**Robin Queen  
Hugo Giambini**Abstract Title:** Disc and Nucleus Pulposus Asymmetry in a Porcine Model of Mechanically Induced Scoliosis**Presenter:** Axel Moore**Principal Investigator:** N/A**Author(s):**Axel Moore  
Dione Holder  
Tong Chu  
Harrah Newman  
Benjamin Sinder  
Patrick Cahill  
Thomas Schaer  
Dawn Elliott**Friday, October 14**

3:30 PM - 5:00 PM

Session: 3, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Spine and Intervertebral Disc****Session Chair(s):**Robin Queen  
Hugo Giambini**Abstract Title:** Validation Of A Multi-Planar Complex Spine Mechanics Testing Protocol**Presenter:** Emma Coltoff**Principal Investigator:** Philip J. Brown**Author(s):**

Philip Brown

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 5, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Wearable Sensors and Devices****Session Chair(s):**Gongchen Sun  
Ziqian Zeng**Abstract Title:** Smart Bioelectronic Pacifier for Real-time Continuous Monitoring of Salivary Electrolytes**Presenter:** Hyo Ryoung Lim**Principal Investigator:** N/A**Author(s):**

Woon-Hong Yeo

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 5, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Point of Care / Mobile Devices****Session Chair(s):**Gongchen Sun  
Ziqian Zeng**Abstract Title:** Neural Network-enabled Quantitative Particle Agglutination Assay Using Lens-free Microscopy**Presenter:** Hyou Arm Joung**Principal Investigator:** N/A**Author(s):**Yi Luo  
Aydogan Ozcan**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 5, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Point of Care / Mobile Devices****Session Chair(s):**Gongchen Sun  
Ziqian Zeng**Abstract Title:** Rapid, Low-Cost Fabrication of Tape-Based, Inkjet-Printed Multiplexed Protein Detection Biosensors**Presenter:** Kruthika Kikkeri**Principal Investigator:** N/A**Author(s):**

Joel Voldman

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 5, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Point of Care / Mobile Devices****Session Chair(s):**Gongchen Sun  
Ziqian Zeng**Abstract Title:** High-plex Immuno-serological Assays and Devices for Monitoring COVID-19 Infection and Vaccine Response in Patients with Hematological Malignancies**Presenter:** Dongjoo Kim**Principal Investigator:** N/A**Author(s):**Rong Fan  
Zhiliang Bai

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 5, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Point of Care / Mobile Devices****Session Chair(s):**Gongchen Sun  
Ziqian Zeng**Abstract Title:** Characterization of Pump Configurations Within Novel Organ Preservation Devices**Presenter:** Sophia Salazar**Principal Investigator:** R. Lyle Hood**Author(s):**Jose Gonzalez  
David Di Rocco  
Anis Khalil  
Mariana Garcia  
Jessica Oseghale  
Daniel Portillo  
Lyle Hood**Friday, October 14****3:30 PM - 5:00 PM****Session:** 5, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Point of Care / Mobile Devices****Session Chair(s):**Gongchen Sun  
Ziqian Zeng**Abstract Title:** Towards Safer and More Efficient Treatment of Bipolar Disorder: A Point-Of-Care Diagnostic Device**Presenter:** Farbod Amirghasemi**Principal Investigator:** N/A**Author(s):**Ruitong Chen  
Kara Ushijima  
Nika Shroff  
Sina Khazaei Nejad  
Maral Mousavi**Friday, October 14****3:30 PM - 5:00 PM****Session:** 5, **Room:** 007 B**Track:** Drug Delivery**Drug Delivery for Immunomodulation and Immunotherapy****Session Chair(s):**Courtney Dumont  
Yaoying Wu  
Erika Cyphert**Abstract Title:** Engineering Nanoparticle surface chemistry to maximize lymph node delivery via lymphatic vessels**Presenter:** Jacob McCright**Principal Investigator:** Katharina Maisel**Author(s):**Jenny Yarmovsky  
Katharina Maisel**Friday, October 14****3:30 PM - 5:00 PM****Session:** 5, **Room:** 007 B**Track:** Drug Delivery**Drug Delivery for Immunomodulation and Immunotherapy****Session Chair(s):**Courtney Dumont  
Yaoying Wu  
Erika Cyphert

**Abstract Title:** Enhancing Cancer Immunotherapy via Backpacks on Natural Killer Cells

**Presenter:** Supriya Prakash  
**Principal Investigator:** Samir Mitragotri  
**Author(s):**  
 Supriya Prakash  
 Ninad Kumbhojkar  
 Neha Kapate  
 Andrew Lu  
 Li-Wen Wang  
 Samir Mitragotri

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 5, **Room:** 007 B

**Track:** Drug Delivery

### **Drug Delivery for Immunomodulation and Immunotherapy**

**Session Chair(s):**  
 Courtney Dumont  
 Yaoying Wu  
 Erika Cyphert

**Abstract Title:** Engaging Both the Innate and Adaptive Immune System Against High-Grade Serous Ovarian Cancer

**Presenter:** Gil Covarrubias  
**Principal Investigator:** Paula T. Hammond  
**Author(s):**  
 Gil Covarrubias  
 Ivan Pires  
 Victoria Gomerding  
 Darrell Irvine  
 Paula Hammond

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 5, **Room:** 007 B

**Track:** Drug Delivery

### **Drug Delivery for Immunomodulation and Immunotherapy**

**Session Chair(s):**  
 Courtney Dumont  
 Yaoying Wu  
 Erika Cyphert

**Abstract Title:** Driving Antigen-specific Tolerance through Combinatorial Co-delivery of Activating and Regulatory Cues

**Presenter:** Yuan Rui  
**Principal Investigator:** N/A  
**Author(s):**  
 Yuan Rui  
 Senta Kapnick  
 Alexis Yanes  
 Christopher Jewell

**Friday, October 14**  
**3:30 PM - 5:00 PM**

**Session:** 5, **Room:** 007 B

**Track:** Drug Delivery

### **Drug Delivery for Immunomodulation and Immunotherapy**

**Session Chair(s):**  
 Courtney Dumont  
 Yaoying Wu  
 Erika Cyphert

**Abstract Title:** Flash Nanoprecipitation for the Scalable Production of STING-Activating Nanoparticles

**Presenter:** Hayden Pagendarm

**Principal Investigator:** John T. Wilson

**Author(s):**

Payton Stone

Jessalyn Baljon

Lucinda Pastora

John Wilson

## Friday, October 14

3:30 PM - 5:00 PM

**Session:** 5, **Room:** 007 B

**Track:** Drug Delivery

### Drug Delivery for Immunomodulation and Immunotherapy

**Session Chair(s):**

Courtney Dumont

Yaoying Wu

Erika Cyphert

**Abstract Title:** Injectable, Self-Healing Chitosan Hydrogel for Localized Therapeutic Delivery

**Presenter:** Siena Mantooth

**Principal Investigator:** David Zaharoff

**Author(s):**

David Zaharoff

## Friday, October 14

3:30 PM - 5:00 PM

**Session:** 7, **Room:** 206

**Track:** Biomechanics

**Session Chair(s):**

Colleen Witzenburg

Guohao Dai

Ishita Tandon

**Abstract Title:** Off the Cuff: The Need for User-Friendly Alternatives for Blood Pressure Monitoring and Management

**Presenter:** Steven Steinhubl

**Principal Investigator:** N/A

**Author(s):**

N/A

## Friday, October 14

3:30 PM - 5:00 PM

**Session:** 7, **Room:** 206

**Track:** Biomechanics

### Cardiovascular Biomechanics

**Session Chair(s):**

Colleen Witzenburg

Guohao Dai

Ishita Tandon

**Abstract Title:** Fracture Mechanics of Human Blood Clots: Fibrin(ogen) Concentration is a Critical Determinant of Clot Toughness

**Presenter:** Ranjini KadabaRamanujam

**Principal Investigator:** Valerie Tutwiler

**Author(s):**

Konstantinos Garyfallogiannis

Rustem Litvinov

John Weisel

John Bassani

Prashant Purohit

Valerie Tutwiler

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 7, Room: 206

Track: Biomechanics

**Cardiovascular Biomechanics****Session Chair(s):**

Colleen Witzenburg  
Guohao Dai  
Ishita Tandon

**Abstract Title:** Longitudinal MRA to Quantify Arterial Remodeling in Sickle Cell/Cathepsin K Null Transgenic Mice

**Presenter:** Liana Hatoum**Principal Investigator:** Manu Platt**Author(s):**

Victor Omojola  
Hannah Song  
Manu Platt

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 7, Room: 206

Track: Biomechanics

**Cardiovascular Biomechanics****Session Chair(s):**

Colleen Witzenburg  
Guohao Dai  
Ishita Tandon

**Abstract Title:** Application of the Unified-Fiber-Distribution (UFD) Model to Carotid Artery of Mice with Genetic Modification (Fibulin-5 Gene Knockout)

**Presenter:** Hai Dong**Principal Investigator:** Rudolph Gleason**Author(s):**

Minliang Liu  
Rudolph Gleason

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 7, Room: 206

Track: Biomechanics

**Cardiovascular Biomechanics****Session Chair(s):**

Colleen Witzenburg  
Guohao Dai  
Ishita Tandon

**Abstract Title:** Surface Area Strain from 4D Ultrasound Predicts Myocardial Infarct Size in Murine Models of Ischemic Injury

**Presenter:** Karthik Annamalai**Principal Investigator:** N/A**Author(s):**

Conner Earl  
Arvin Soepriatna  
Craig Goergen

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 7, Room: 206

Track: Biomechanics

**Cardiovascular Biomechanics****Session Chair(s):**

Colleen Witzenburg  
Guohao Dai  
Ishita Tandon

**Abstract Title:** Cerebral Aneurysm Prognosis Classifier: Development of an Artificial Intelligence Tool to Estimate Patient-Specific Risk of Rupture

**Presenter:** Pete Gueldner**Principal Investigator:** Pete Howard Gueldner**Author(s):**

Timothy Chung  
Cyrus Darvish  
Dooman Arefan  
Bradley Gross  
David Vorp

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 8, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Precision and Predictive Medicine****Session Chair(s):**

Kyoko Yoshida

Meghan Sperry

**Abstract Title:** Assessing the Role of Inter-personal Variability in Vaginal Microbiome Stability and Dysbiosis**Presenter:** Christina Lee**Principal Investigator:** Kelly Arnold**Author(s):**

Michael France

Jacques Ravel

Kelly Arnold

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 8, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Precision and Predictive Medicine****Session Chair(s):**

Kyoko Yoshida

Meghan Sperry

**Abstract Title:** A network-based approach to identify expression modules underlying rejection in pediatric liver transplantation**Presenter:** Jishnu Das**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 8, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Precision and Predictive Medicine****Session Chair(s):**

Kyoko Yoshida

Meghan Sperry

**Abstract Title:** Potential biomarkers of response to CCR5Δ32 HSCT in HIV-1**Presenter:** Jason Chang**Principal Investigator:** Feilim Mac Gabhann**Author(s):**

Feilim Mac Gabhann

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 8, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Precision and Predictive Medicine****Session Chair(s):**

Kyoko Yoshida

Meghan Sperry

**Abstract Title:** In-Vivo Metabolic Flux Analysis of Glioblastoma Identifies Altered Metabolic Pathways for Precision Treatment**Presenter:** Anjali Mittal**Principal Investigator:** Deepak Nagrath**Author(s):**

Anjali Mittal

Andrew Scott

Abhinav Achreja

Daniel Wahl

Deepak Nagrath

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 8, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Machine Learning for Biomedical Applications****Session Chair(s):**Kyoko Yoshida  
Meghan Sperry**Abstract Title:** Predicting the Fate of Influenza A Virus in the Mucus Barrier**Presenter:** Logan Kaler**Principal Investigator:** N/A**Author(s):**Logan Kaler  
Katherine Joyner  
Gregg Duncan**Friday, October 14****3:30 PM - 5:00 PM****Session:** 8, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Session Chair(s):**Kyoko Yoshida  
Meghan Sperry**Abstract Title:** Systematic analysis uncovers SYK dependency in NF1-LoF melanoma cells**Presenter:** Abecunas Cara**Principal Investigator:** N/A**Author(s):**Douglas Baumann  
Judith Leopold  
Mohammad Fallahi-Sichani  
Christy McGregorCara Abecunas  
Chris Whitehead  
Elizabeth Ziemke**Friday, October 14****3:30 PM - 5:00 PM****Session:** 8, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**Patrick Boyle  
Hatice Ceylan Koydemir  
Patrick Lin**Abstract Title:** Determining Metabolism Shift of Mitochondria Transfer using Phasor Approach Fluorescence Lifetime Imaging Microscopy**Presenter:** Huang Yukai**Principal Investigator:** N/A**Author(s):**

Michelle Digman

**Friday, October 14****3:30 PM - 5:00 PM****Session:** 8, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Imaging Cells, Molecules, and Genome****Session Chair(s):**Patrick Boyle  
Hatice Ceylan Koydemir  
Patrick Lin**Abstract Title:** Autofluorescence Lifetime Imaging of Metabolic Changes with Mouse T Cell Activation**Presenter:** Angelica Lopez**Principal Investigator:** N/A**Author(s):**Alexa Heaton  
Melissa Skala

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Imaging Cells, Molecules, and Genome****Session Chair(s):**Patrick Boyle  
Hatice Ceylan Koydemir  
Patrick Lin**Abstract Title:** Assessing extracellular matrix orientation on breast cancer cell metabolism via nonlinear microscopy**Presenter:** Madison Pickett**Principal Investigator:** Sapun H Parekh**Author(s):**Madison Pickett  
Sapun Parekh  
Tim Yeh**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Imaging Cells, Molecules, and Genome****Session Chair(s):**Patrick Boyle  
Hatice Ceylan Koydemir  
Patrick Lin**Abstract Title:** Longitudinal Quantification Of Metabolic Changes Of Tumor Associated Macrophages During Activation**Presenter:** Shelby Bess**Principal Investigator:** N/A**Author(s):**Matthew Igoe  
Timothy Muldoon**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines****Session Chair(s):**Roberto Rivera  
Andrew Hamann  
Karem Pinto**Abstract Title:** A Low-immunogenic Genetically-fusible Zwitterionic Polypeptide**Presenter:** Patrick McMullen**Principal Investigator:** Shaoyi Jiang**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines****Session Chair(s):**Roberto Rivera  
Andrew Hamann  
Karem Pinto**Abstract Title:** In Vivo Targeted Delivery of Nucleic Acids and CRISPR Genome Editors Enabled by GSH-Responsive Silica Nanoparticles**Presenter:** Shaoqin Sarah Gong**Principal Investigator:** N/A**Author(s):**Yuyuan Wang  
Ruosen Xie

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines**

Session Chair(s):

Roberto Rivera  
Andrew Hamann  
Karem Pinto**Abstract Title:** Comparative Assessment of Poly(I:C) Delivery Strategies to Tune its Adjuvanticity**Presenter:** Apoorv Shanker**Principal Investigator:** N/A**Author(s):**  
N/A**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines**

Session Chair(s):

Roberto Rivera  
Andrew Hamann  
Karem Pinto**Abstract Title:** Assembly of Therapeutic Nanoparticles Using Cell-Free Integration of Viral Membrane Proteins**Presenter:** Vivian Hu**Principal Investigator:** N/A**Author(s):**  
Neha Kamat**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines**

Session Chair(s):

Roberto Rivera  
Andrew Hamann  
Karem Pinto**Abstract Title:** DNA Origami with Ultrahigh Payload Capacity as an Effective Vaccine Delivery Platform**Presenter:** Niksa Roki**Principal Investigator:** Carlos Ernesto Castro**Author(s):**  
Niksa Roki  
Christopher Lucas**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 007 A

Track: Drug Delivery

**Delivery Systems for Proteins and Vaccines**

Session Chair(s):

Roberto Rivera  
Andrew Hamann  
Karem Pinto**Abstract Title:** pH-Responsive Polymer Nanoparticles for Efficient Delivery of Cas9 Ribonucleoprotein With or Without Donor DNA**Presenter:** Ruosen Xie**Principal Investigator:** Shaoqin Sarah Gong**Author(s):**  
N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 006 A

Track: Tissue Engineering

**Session Chair(s):**Monica Moya  
JP McQuilling**Abstract Title:** Strategies for vascularization of engineered tissues**Presenter:** Eric Brey**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 006 A

Track: Tissue Engineering

**Engineering Replacement Tissues****Session Chair(s):**Monica Moya  
JP McQuilling**Abstract Title:** Expansion of Hematopoietic Stem Cells on Engineered Human Liver Cultures for Regenerative Medicine**Presenter:** Grace Brown**Principal Investigator:** Salman Khetani**Author(s):**Grace Brown  
Na Yoon Paik  
Ashlin Michell  
Thilinie Bandara  
Kostandin Pajcini  
Salman Khetani**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 006 A

Track: Tissue Engineering

**Engineering Replacement Tissues****Session Chair(s):**Monica Moya  
JP McQuilling**Abstract Title:** Development of an Innervated, PVDF-TrFE Scaffold for Skin Tissue Engineering**Presenter:** Jennifer Westphal**Principal Investigator:** N/A**Author(s):**Zachary Mularczyk  
Leyla Esfandiari  
Stacey Schutte  
Greg Harris**Friday, October 14**

3:30 PM - 5:00 PM

Session: 8, Room: 006 A

Track: Tissue Engineering

**Engineering Replacement Tissues****Session Chair(s):**Monica Moya  
JP McQuilling**Abstract Title:** A Decellularized Cartilage Biomaterials Approach to Pediatric Laryngotracheal Reconstruction**Presenter:** Riccardo Gottardi**Principal Investigator:** Riccardo Gottardi**Author(s):**Paul Gehret  
Soheila Ali Akbari Ghavimi  
Alexandra Dumas  
Ian Jacobs  
Riccardo Gottardi

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 8, **Room:** 006 A**Track:** Tissue Engineering**Engineering Replacement Tissues****Session Chair(s):**Monica Moya  
JP McQuilling**Abstract Title:** Static Stretch Improves Mechanical Properties and Maturation of Tissue Engineered Heart Valves**Presenter:** Benjamin Albert**Principal Investigator:** N/A**Author(s):**Benjamin Albert  
Gaetano Scuderi  
Kathleen Clifford  
Ludia Cho  
Coral Wang  
Daniel Cheung  
Jonathan Butcher**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 14, **Room:** 005**Track:** Biomaterials**Session Chair(s):**Timothy O-Shea  
Symone Alexander**Abstract Title:** Bioinspired Design of Biopolymer Microthreads and Composite Scaffolds**Presenter:** George Pins**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 14, **Room:** 005**Track:** Biomaterials**Session Chair(s):**Timothy O-Shea  
Symone Alexander**Abstract Title:** Microgels from food waste: tuning the microstructure of cellulose for absorption in the GI tract**Presenter:** Symone Alexander - Auburn**Principal Investigator:** N/A**Author(s):**

N/A

**Friday, October 14**

3:30 PM - 5:00 PM

**Session:** 14, **Room:** 005**Track:** Biomaterials**Natural and Bioinspired Biomaterials****Session Chair(s):**Timothy O-Shea  
Symone Alexander**Abstract Title:** Probing Synergistic Effect of Substrate Stiffness and Profibrotic Soluble Cues on Macrophage Response**Presenter:** Kartik Bomb**Principal Investigator:** N/A**Author(s):**Catherine Fromen  
April Kloxin

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 14, Room: 005

Track: Biomaterials

**Session Chair(s):**Timothy O-Shea  
Symone Alexander**Abstract Title:** Fighting Fibrin with Fibrin: Fibrin Based Nanoparticle Incorporation into S. aureus Biofilms**Presenter:** Grant Scull**Principal Investigator:** N/A**Author(s):**Adrian Aligwekwe  
Drew Koch  
Kimberly Nellenbach  
Jennifer Sollinger  
Jessica Gilbertie  
Lauren Schnabel  
Ashley Brown**Friday, October 14**

3:30 PM - 5:00 PM

Session: 14, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Timothy O-Shea  
Symone Alexander**Abstract Title:** Hydrogels for “On-Demand” 3D Biophysical Regulation**Presenter:** Dimitris Ntekoumes**Principal Investigator:** N/A**Author(s):**Sharon Gerecht  
Rahel Schnellmann**Friday, October 14**

3:30 PM - 5:00 PM

Session: 14, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Timothy O-Shea  
Symone Alexander**Abstract Title:** Engineering A Two-Component Systemic Hemostat For The Treatment Of Internal Bleeding**Presenter:** Celestine Hong**Principal Investigator:** Paula T. Hammond**Author(s):**Yanpu He  
Porter Bowen  
Angela Belcher  
Bradley Olsen  
Paula Hammond**Friday, October 14**

3:30 PM - 5:00 PM

Session: 17, Room: 004

Track: Biomaterials

**Session Chair(s):**

Karin Wang

**Abstract Title:** Peptide Combinations Support Endothelial Colony Forming Cells Dynamic Adhesion**Presenter:** Yuan Tian**Principal Investigator:** Elizabeth Lipke**Author(s):**Yuan Tian  
Wen Seeto  
Elizabeth Lipke

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 17, Room: 004

Track: Biomaterials

**Biomaterials for Immunoengineering**

Session Chair(s):

Karin Wang

**Abstract Title:** Epitope-Dependent Optimization of Supramolecular Sublingual Vaccines for HIV and Gonorrhea

Presenter: Emily Roe

Principal Investigator: N/A

Author(s):

Helena Freire Haddad

Gavin Foley

Joel Collier

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 17, Room: 004

Track: Biomaterials

**Biomaterials for Immunoengineering**

Session Chair(s):

Karin Wang

**Abstract Title:** Modularity of a Dual-Sized Microparticle System Tunes Efficacy in Mouse Model of Multiple Sclerosis

Presenter: Alexander Kwiatkowski

Principal Investigator: Benjamin Keselowsky

Author(s):

Alexander Kwiatkowski

Eric Helm

Theodore Drashansky

Jonathan Cho

Dorina Avram

Benjamin Keselowsky

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 17, Room: 004

Track: Biomaterials

**Drug Delivering Biomaterials**

Session Chair(s):

Karin Wang

**Abstract Title:** Hemin-Coated Hydrophobic Drug Nanoclusters for Chemotherapeutic Therapy

Presenter: Ahmad Amirshaghaghi

Principal Investigator: Andrew Tsourkas

Author(s):

Kailin Feng

Ahmad Amirshaghaghi

Eunsoo Yoo

zhiliang cheng

Andrew Tsourkas

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 17, Room: 004

Track: Biomaterials

Session Chair(s):

Karin Wang

**Abstract Title:** Cellular Hydrogel Backpacks as a Novel Contrast Agent

Presenter: Li-Wen Wang

Principal Investigator: Samir Mitragotri

Author(s):

Li-Wen Wang

Yongsheng Gao

Neha Kapate

Rick Liao

Tao Sun

Samir Mitragotri

**Friday, October 14**

3:30 PM - 5:00 PM

Session: 17, Room: 004

Track: Biomaterials

**Natural and Bioinspired Biomaterials**

Session Chair(s):

Karin Wang

**Abstract Title:** Development of Apoptotic-inspired Particles for Targeting and Modulating Macrophage Inflammation

**Presenter:** Kidochukwu Atube**Principal Investigator:** Michael Gower**Author(s):**

Candice Cheung

Kidochukwu Atube

Michael Gower

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury**

Session Chair(s):

Sriram Balasubramanian

Zac Dooley

Erica Bell

**Abstract Title:** Peak Impact Force Asymmetry is Greater in Healthy Older Adults

**Presenter:** Theresa Libera**Principal Investigator:** Robin Queen**Author(s):**

Jill Streamer

Robin Queen

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury**

Session Chair(s):

Sriram Balasubramanian

Zac Dooley

Erica Bell

**Abstract Title:** An Electrophysiological Technique for the Diagnosis of TON in a Small Animal Model

**Presenter:** Annie Ryan**Principal Investigator:** N/A**Author(s):**

Annie Ryan

Julie Racine

Matthew Reilly

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury**

Session Chair(s):

Sriram Balasubramanian

Zac Dooley

Erica Bell

**Abstract Title:** Lower Dentition Position Influences Instrumented Mouthguard Measurement Error

**Presenter:** Ryan Gellner**Principal Investigator:** N/A**Author(s):**

Ryan Gellner

Taylor Geiman

Caitlyn Jung

Steven Rowson

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**

Sriram Balasubramanian  
Zac Dooley  
Erica Bell

**Abstract Title:** Gait Variability and Symmetry After Spinal Cord Injury

**Presenter:** Gabrielle Labrozzi

**Principal Investigator:** N/A

**Author(s):**

Harshita Kumar  
Holly Warner  
Nathan Makowski  
Musa Audu  
Ronald Triolo

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**

Sriram Balasubramanian  
Zac Dooley  
Erica Bell

**Abstract Title:** Total Ankle Arthroplasty Improves Gait Symmetry

**Presenter:** Robyn Hansen

**Principal Investigator:** N/A

**Author(s):**

Hassan-Galaydh Farah  
Sara Arena  
Robin Queen

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**

Sriram Balasubramanian  
Zac Dooley  
Erica Bell

**Abstract Title:** Comparison of a Dynamic Ankle Orthosis with a Clinical Walking Boot on Tibial Compressive Force Reduction During Treadmill Walking

**Presenter:** Denis DiAngelo

**Principal Investigator:** Denis J. DiAngelo

**Author(s):**

Perri Johnson  
Max Paquette

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Biomechanics****Session Chair(s):**

Manuel Rausch  
Colleen Witzenburg

**Abstract Title:** The Next Frontier in Cardiovascular Engineering: Race-Based Health Disparities

**Presenter:** Naomi Chesler

**Principal Investigator:** N/A

**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Devices****Session Chair(s):**Manuel Rausch  
Colleen Witzenburg**Abstract Title:** Role of Left Ventricular Assist Device on Interventricular Interactions for Patients with Heart Failure**Presenter:** Lei Fan**Principal Investigator:** N/A**Author(s):**Lei Fan  
Jenny Choy  
Ghassan Kassab  
Daniel Burkhoff  
Lik Chuan Lee**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Biomechanics****Session Chair(s):**Manuel Rausch  
Colleen Witzenburg**Abstract Title:** Self-Adaptive Gel-Point Patch for Myocardial Infarction Treatment**Presenter:** Yue Liu**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Biomechanics****Session Chair(s):**Manuel Rausch  
Colleen Witzenburg**Abstract Title:** Geometry of Aortic Morphogenesis**Presenter:** Luka Pocivavsek**Principal Investigator:** Luka Pocivavsek**Author(s):**

Kameel Khabaz

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiac Electrophysiology****Session Chair(s):**Manuel Rausch  
Colleen Witzenburg**Abstract Title:** In-silico Risk Assessment of Cardiac Conduction Abnormality Associated with Transcatheter Aortic Valve Replacement (TAVR) Using an Electro-Mechanically Coupled Beating Heart Model**Presenter:** Symon Reza**Principal Investigator:** N/A**Author(s):**Brandon Kovarovic  
Danny Bluestein

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Session Chair(s):**Melikan Tanyeri  
Jiahe Li**Abstract Title:** Engineering Bacillus subtilis as a versatile and stable platform for production of nanobodies**Presenter:** Jiahe Li**Principal Investigator:** N/A**Author(s):**  
Mengdi Yang**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Session Chair(s):**Melikan Tanyeri  
Jiahe Li**Abstract Title:** Piezoelectric Nanofiber Membrane for Reusable, Stable and Highly Functional Face Mask Filter with Long-Term Biodegradability**Presenter:** Thinh Tat Vinh Le**Principal Investigator:** Thanh Duc Nguyen**Author(s):**  
Thanh Nguyen**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Rapid Detection****Session Chair(s):**Melikan Tanyeri  
Jiahe Li**Abstract Title:** Multiplexed Point-of-care Vertical Flow Assay for Lyme Disease Diagnosis**Presenter:** Rajesh Ghosh**Principal Investigator:** Dino Di Carlo**Author(s):**Rajesh Ghosh  
Hyou-Arm Joung  
Artem Goncharov  
Barath Palanisamy  
Katarina Pejcinovic  
Nicole Krockenberger  
Elizabeth Horn  
Paul Arnaboldi  
Omai Garner  
Aydogan Ozcan  
Dino Di Carlo**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 3, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Rapid Detection****Session Chair(s):**Melikan Tanyeri  
Jiahe Li**Abstract Title:** Chain LAMP: Development of Highly Multiplexed LAMP Assay for HIV Viral Load Testing**Presenter:** Shane Gilligan-Steinberg**Principal Investigator:** Shane Gilligan-Steinberg**Author(s):**Shane Gilligan-Steinberg      Joanne Stekler  
Enos Kline                              Paul Drain  
Qin Wang                                James Lai  
Ian Hull                                    Barry Lutz  
Nuttada Panpradist

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 212 B

**Track:** Technologies for Emerging Infectious Diseases**Rapid Detection****Session Chair(s):**Melikan Tanyeri  
Jiahe Li**Abstract Title:** Combining 2D And 3D Nanomaterials for The Development of a Biosensing Platform for The Rapid Diagnosis of Sepsis**Presenter:** Maha Alafeef**Principal Investigator:** Dipanjan Pan**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 3, Room: 212 B

**Track:** Technologies for Emerging Infectious Diseases**Technology Advancements (3D Printing, Devices, etc.)****Session Chair(s):**Melikan Tanyeri  
Jiahe Li**Abstract Title:** Bacteria-Responsive Shape Memory Polymers to Enhance Biofilm Surveillance, Prevention, and Treatment**Presenter:** Mary Monroe**Principal Investigator:** N/A**Author(s):**Maryam Ramezani  
Avery Gunderson**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 D

**Track:** Cancer Technologies**Tumor Microenvironment****Session Chair(s):**Amir Miri  
Silviya Zustiak**Abstract Title:** Investigating the Role of Obesity-Dependent Changes in the Mammary ECM on TNBC Invasion using Decellularized ECM Scaffolds**Presenter:** Sydney Connor**Principal Investigator:** Madeleine Oudin**Author(s):**Diamond Mensah  
Madeleine Oudin**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 D

**Track:** Cancer Technologies**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Amir Miri  
Silviya Zustiak**Abstract Title:** Cancer cell-stromal fibroblast crosstalk in 3D tumor models on a novel biomechanical sensor promotes matrix stiffening, YAP activation and invasion**Presenter:** Bashar Emon**Principal Investigator:** N/A**Author(s):**MD SADDAM HOSSAIN JOY  
M Taher Saif

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 214 D**Track:** Cancer Technologies**Tumor Microenvironment****Session Chair(s):**Amir Miri  
Silviya Zustiak**Abstract Title:** Sensory nerves enhance triple-negative breast cancer invasion and metastasis via the axon guidance molecule PlexinB3**Presenter:** Madeleine Oudin**Principal Investigator:** N/A**Author(s):**  
Will Le**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 214 D**Track:** Cancer Technologies**Tumor Microenvironment****Session Chair(s):**Amir Miri  
Silviya Zustiak**Abstract Title:** Engineered Tumor-Stroma Models to Study New Roles of Hyaluronic Acid in Breast Cancer Invasion**Presenter:** Brittany Schutrum**Principal Investigator:** Claudia Fischbach**Author(s):**  
Brittany Schutrum  
Adrian Shimpi  
Matthew Tan  
Lu LingDaniel Rivera  
Chris Schaffer  
Nozomi Nishimura  
Matthew Paszek  
Claudia Fischbach**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 214 D**Track:** Cancer Technologies**Tumor Microenvironment****Session Chair(s):**Amir Miri  
Silviya Zustiak**Abstract Title:** Diabetic Hyperglycemia Promotes Primary Tumor Progression through Glycation-Mediated ECM Stiffening**Presenter:** Wenjun Wang**Principal Investigator:** N/A**Author(s):**  
Wenjun Wang  
Lauren Hapach  
Lauren Griggs  
Kyra Smart  
Yusheng Wu  
Paul Taufalele  
Matthew Rowe  
Christopher Johnson  
Nicholas Ferrell  
ambra pozzi  
Cynthia Reinhart-King

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Amir Miri  
Silviya Zustiak**Abstract Title:** Patient Cell-Derived Colorectal Tumor Organoids for Precision Cancer Medicine**Presenter:** Astha Lamichhane**Principal Investigator:** Hossein Tavana**Author(s):**

Hossein Tavana

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 007 B

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**Priscilla Hwang  
Keyue Shen**Abstract Title:** T cell sensing of mechanotopography**Presenter:** Lance Kam**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 007 B

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**Priscilla Hwang  
Keyue Shen**Abstract Title:** Controlling the Kinetics of RNA-based Vaccines with Small Molecule Drugs**Presenter:** Parisa Yousefpour**Principal Investigator:** Darrell Irvine**Author(s):**

Darrell Irvine

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 007 B

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**Priscilla Hwang  
Keyue Shen**Abstract Title:** Electrostatic Affinity within Immunotherapies Controls their Self-Assembly and Regulatory Function**Presenter:** Robert Oaks**Principal Investigator:** N/A**Author(s):**Robert Oaks  
Eugene Fromchuk  
Senta Kapnick  
Marian Ackrn-Farmmer  
Christopher Jewell

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Priscilla Hwang  
Keyue Shen**Abstract Title:** Profiling and Manipulating Adaptive Immunity Using Synthetic Virology**Presenter:** Michael Birnbaum**Principal Investigator:** Michael Birnbaum**Author(s):**Connor Dobson  
Michael Birnbaum**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Priscilla Hwang  
Keyue Shen**Abstract Title:** Induction of Neoantigens Renders Cold Tumors Susceptible to Immune Checkpoint Inhibitors**Presenter:** Lisa Volpatti**Principal Investigator:** Jeff Hubbell**Author(s):**

Jeffery Hubbell

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Molecular and Cellular ImmunoEngineering****Session Chair(s):**Priscilla Hwang  
Keyue Shen**Abstract Title:** Focused Ultrasound-mediated Mechanogenetics for Immunotherapy**Presenter:** Chi Woo Yoon**Principal Investigator:** Yingxiao Wang**Author(s):**Linshan Zhu  
Yingxiao Wang**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 214 C**Track:** Neural Engineering**Neural Stem/Progenitor Cell Engineering****Session Chair(s):**Maribel Vazquez  
Nicolas Muzzio**Abstract Title:** Elucidating Human Spinal Cord Diversity with Stem Cells and Single Cell RNA-Sequencing**Presenter:** Nisha Iyer**Principal Investigator:** N/A**Author(s):**

Randolph Ashton

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 C

Track: Neural Engineering

**Glial Cell Engineering**

Session Chair(s):

Maribel Vazquez

Nicolas Muzzio

**Abstract Title:** Glycopolymer Hydrogels for Regulation of CNS Tissue Responses**Presenter:** Eric Dubois**Principal Investigator:** N/A**Author(s):**

Eric DuBois

Timothy O'Shea

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 C

Track: Neural Engineering

**Neural Stem/Progenitor Cell Engineering**

Session Chair(s):

Maribel Vazquez

Nicolas Muzzio

**Abstract Title:** Single-cell RNA sequencing analysis reveals Gsx1 induced neurogenesis in the injured spinal cord**Presenter:** Zachary Finkel**Principal Investigator:** Li Cai**Author(s):**

Li Cai

Brianna Rodriguez

Hani Alostaz

Mridul Dalmia

Mohammed Hussain

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 C

Track: Neural Engineering

**Neural Stem/Progenitor Cell Engineering**

Session Chair(s):

Maribel Vazquez

Nicolas Muzzio

**Abstract Title:** Bioengineered Brain Microvascular Networks Enhance Neural Progenitor Cell Neurogenesis**Presenter:** Max Winkelman**Principal Investigator:** N/A**Author(s):**

Guohao Dai

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 4, Room: 214 C

Track: Neural Engineering

**Glial Cell Engineering**

Session Chair(s):

Maribel Vazquez

Nicolas Muzzio

**Abstract Title:** Contribution of Müller Glia to The Permeability and Integrity of The Inner Blood Retinal Barrier**Presenter:** Juan Pena-Cavela**Principal Investigator:** N/A**Author(s):**

Maribel Vazquez

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 4, **Room:** 214 C**Track:** Neural Engineering**Neuro-regenerative Engineering****Session Chair(s):**

Maribel Vazquez

Nicolas Muzzio

**Abstract Title:** Injectable Hyaluronic Acid-based Hydrogel for Peripheral Nerve Injury and Chronic Neuropathic Pain Treatment**Presenter:** Bin Duan**Principal Investigator:** N/A**Author(s):**

Yunfan Kong

Wen Shi

Dongze Zhang

Xiping Jiang

Mitchell Kuss

Yulong Li

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Session Chair(s):**

Nina Lauharatanahirun

Scott Leighow

**Abstract Title:** Emerging roles for omics in health decisions**Presenter:** Amina Qutub**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**

Nina Lauharatanahirun

Scott Leighow

**Abstract Title:** Haplotype-Resolved Methylation Patterns in Collaborative Cross Mice**Presenter:** Adam Davidovich**Principal Investigator:** Andrew Feinberg**Author(s):**

Adam Davidovich

Kasper Hansen

Sandeep Kambhampati

David Threadgill

Andrew Feinberg

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**

Nina Lauharatanahirun

Scott Leighow

**Abstract Title:** GlycoPAT2: An advanced algorithm for large-scale analysis of the human glycoproteome**Presenter:** Sriram Neelamegham**Principal Investigator:** N/A**Author(s):**

Kai Cheng

Sriram Neelamegham

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 5, Room: 213 AB

**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**

Nina Lauharatanahirun

Scott Leighow

**Abstract Title:** Essential Regression: A generalizable framework for inferring causal latent factors from multi-omic datasets**Presenter:** Jishnu Das**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 5, Room: 006 B

**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Karissa Tilbury

Lin Jiang

Rohil Jain

**Abstract Title:** Low-cost Wearable Fluorescence Eye Loupes for Intraoperative Identification of Brain Tumor Margin**Presenter:** Mehrana Mohtasebi**Principal Investigator:** N/A**Author(s):**

Mehrana Mohtasebi

Chong Huang

Jaimie Hixson

Xuhui Liu

Samaneh Rabiencia Haratbar

Faraneh Fathi

Siavash Mazdeyasna

Lei Chen

Thomas Pittman

Guoqiang Yu

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 5, Room: 006 B

**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Karissa Tilbury

Lin Jiang

Rohil Jain

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 5, Room: 213 AB

**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**

Nina Lauharatanahirun

Scott Leighow

**Abstract Title:** Systematic Assessment of MHC-I Loss and Integrity Across DNA and RNA Specific Tools**Presenter:** Rohil Ahuja**Principal Investigator:** N/A**Author(s):**

Rohil Ahuja

Andrea Castro

Hannah Carter

**Abstract Title:** Towards Understanding the Biomechanical World of Hydra via SPIM-Flow

**Presenter:** Siavash Ahrar

**Principal Investigator:** N/A

**Author(s):**

Per Niklas Hedde

Erika Gomez

Robert Steele

siavash ahrar

## Saturday, October 15

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 006 B

**Track:** Biomedical Imaging and Instrumentation

### Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)

**Session Chair(s):**

Karissa Tilbury

Lin Jiang

Rohil Jain

**Abstract Title:** Rapid AST by Wide-field Mid-infrared Photothermal Imaging of Protein Synthesis

**Presenter:** Zhongyue Guo

**Principal Investigator:** Ji-Xin Cheng

**Author(s):**

Zhongyue Guo

Yeran Bai

MENG ZHANG

Lu Lan

Ji-Xin Cheng

## Saturday, October 15

8:00 AM - 9:30 AM

**Session:** 5, **Room:** 006 B

**Track:** Biomedical Imaging and Instrumentation

### Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)

**Session Chair(s):**

Karissa Tilbury

Lin Jiang

Rohil Jain

**Abstract Title:** Dark-Field Based Diffuse Reflectance Spectroscopy for non-contact Tissue Characterization

**Presenter:** Madison Korfhage

**Principal Investigator:** N/A

**Author(s):**

Caigang Zhu

## Saturday, October 15

8:00 AM - 9:30 AM

**Session:** 6, **Room:** 008 A

**Track:** Cellular and Molecular Bioengineering

**Session Chair(s):**

Felipe Quiroz

Elizabeth A. Blaber

**Abstract Title:** Computational Design of an Interleukin-4 Mimetic to Investigate Immune biology

**Presenter:** Zachary Bernstein

**Principal Investigator:** Jamie Spangler

**Author(s):**

Hulin Yang

Jamie Spangler

## Saturday, October 15

8:00 AM - 9:30 AM

Session: 6, Room: 008 A

Track: Cellular and Molecular Bioengineering

### Session Chair(s):

Felipe Quiroz  
Elizabeth A. Blaber

**Abstract Title:** Fragile X Syndrome Driven Cellular Dysfunction in Stem Cell Derived Neurons

**Presenter:** Daniel Yeisley

**Principal Investigator:** N/A

**Author(s):**

Daneil Yeisley  
Robert Culibrk  
Mariah Hahn

## Saturday, October 15

8:00 AM - 9:30 AM

Session: 6, Room: 008 A

Track: Cellular and Molecular Bioengineering

### Session Chair(s):

Felipe Quiroz  
Elizabeth A. Blaber

**Abstract Title:** Engineering an Orthogonal PDGF Ligand-Receptor Pair for Osteogenic Differentiation of Stem Cells

**Presenter:** Kevin Peitz

**Principal Investigator:** N/A

**Author(s):**

Kevin Pietz  
Elissa Leonard  
Ameya Harmalkar  
Monika Kizerwetter  
Allison Horenberg  
Warren Grayson  
Jeffrey Gray  
Jamie Spangler

## Saturday, October 15

8:00 AM - 9:30 AM

Session: 6, Room: 008 A

Track: Cellular and Molecular Bioengineering

### Session Chair(s):

Felipe Quiroz  
Elizabeth A. Blaber

**Abstract Title:** Glutamine Metabolism is linked to Mitochondrial Dysfunction in Senescent Stem Cells

**Presenter:** Debanik Choudhary

**Principal Investigator:** Stelios Andreadis

**Author(s):**

Debanik Choudhury  
Na Rong  
Nika Rajabian  
Ramkumar Thiyagarajan  
Georgios Tseropoulos  
Pihu Mehrotra  
Yulun Wu Izuagie  
Ikhapoh Kenneth  
Seldeen Bruce  
Troen Stelios  
Andreadis

## Saturday, October 15

8:00 AM - 9:30 AM

Session: 6, Room: 007 A

Track: Drug Delivery

### Cancer Drug Delivery

#### Session Chair(s):

Teja Guda  
Ian Schneider  
Meg McFetridge

**Abstract Title:** Synthesis of iRGD Functionalized Dual Delivery Nanoscale Devices for Pancreatic Cancer Treatment

**Presenter:** Brianna White

**Principal Investigator:** Surya Mallapragada

**Author(s):**

Brianna White

Susheel Kumar Nethi

Sirpu Natesh Nagabhishek

Surya Mallapragada

satyanarayana Rachagani

**Saturday, October 15**

**8:00 AM - 9:30 AM**

**Session:** 6, **Room:** 007 A

**Track:** Drug Delivery

### Cancer Drug Delivery

**Session Chair(s):**

Teja Guda

Ian Schneider

Meg McFetridge

**Abstract Title:** Local Treatment with Doxorubicin-Loaded Hydrogel for Medulloblastoma Tumor Control

**Presenter:** Elizabeth Barker

**Principal Investigator:** Elizabeth Barker

**Author(s):**

Jenny Patel

Alissa Hendricks

Elizabeth Barker

**Saturday, October 15**

**8:00 AM - 9:30 AM**

**Session:** 6, **Room:** 007 A

**Track:** Drug Delivery

### Cancer Drug Delivery

**Session Chair(s):**

Teja Guda

Ian Schneider

Meg McFetridge

**Abstract Title:** Patient-Derived Lung Adenocarcinoma Organoid in Fibrin Gel Towards 3D High Throughput Culture and Therapeutic Screening

**Presenter:** Xiaochen Qin

**Principal Investigator:** N/A

**Author(s):**

Yuyuan Zhou

Yaling Liu

**Saturday, October 15**

**8:00 AM - 9:30 AM**

**Session:** 6, **Room:** 007 A

**Track:** Drug Delivery

### Cancer Drug Delivery

**Session Chair(s):**

Teja Guda

Ian Schneider

Meg McFetridge

**Abstract Title:** Cancer Targeted Chemotherapy via HER-2 Based Chimeric Antigen Receptor (CAR) Engineered T-Cell Membrane Coated Polymeric Nanoparticles

**Presenter:** Harish Ramachandramoorthy

**Principal Investigator:** Kytai Nguyen

**Author(s):**

Serkan Yaman

Manoj Kumar Sabnani

Priyanka Iyer

Uday Chintapula

Tam Nguyen

Tanviben Kotadia

Kytai Nguyen

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 007 A

Track: Drug Delivery

**Cancer Drug Delivery****Session Chair(s):**Teja Guda  
Ian Schneider  
Meg McFetridge**Abstract Title:** Nanoscale Vesicles Derived from Engineered Cell Membranes for Tissue-Specific Drug Delivery**Presenter:** Zhenjiang Zhang**Principal Investigator:** Michael R King**Author(s):**

Michael King

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 007 A

Track: Drug Delivery

**Cancer Drug Delivery****Session Chair(s):**Teja Guda  
Ian Schneider  
Meg McFetridge**Abstract Title:** Ultrahigh Drug-Loaded Micelles for the Treatment of a Triple-Negative Breast Cancer**Presenter:** Richard d'Arcy**Principal Investigator:** N/A**Author(s):**Patrick Gerber  
Rebecca Cook  
Craig Duvall**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 006 A

Track: Tissue Engineering

**Organ-on-Chip for Regenerative Medicine****Session Chair(s):**Kunal Mitra  
Anne-Laure Papa**Abstract Title:** Mural Cell Signaling in Perfusable Vasculature**Presenter:** Jose Zamora**Principal Investigator:** Kara E. McCloskey**Author(s):**

Kara McCloskey

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 006 A

Track: Tissue Engineering

**Organ-on-Chip for Regenerative Medicine****Session Chair(s):**Kunal Mitra  
Anne-Laure Papa**Abstract Title:** A Physiologically Relevant Nasal Airway-on-Chip Platform to Study Remodeling of the Respiratory Mucosa**Presenter:** Kartik Balachandran**Principal Investigator:** Kartik Balachandran**Author(s):**Amanda Walls  
Lais Andrade Ferreira

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 006 A

Track: Tissue Engineering

**Organ-on-Chip for Regenerative Medicine**

Session Chair(s):

Kunal Mitra

Anne-Laure Papa

**Abstract Title:** Testing Novel Senotherapeutics using an Atherosclerosis Tissue-Engineered Blood Vessel Model

Presenter: Zixie Liang

Principal Investigator: N/A

Author(s):

George Truskey

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 006 A

Track: Tissue Engineering

**Organ-on-Chip for Regenerative Medicine**

Session Chair(s):

Kunal Mitra

Anne-Laure Papa

**Abstract Title:** Multiplexed MPS Platform for Stem-cell Derived Pancreatic Islet  $\beta$  Cells

Presenter: Ishan Goswami

Principal Investigator: Kevin E. Healy

Author(s):

Kevin Healy

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 006 A

Track: Tissue Engineering

**Organ-on-Chip for Regenerative Medicine**

Session Chair(s):

Kunal Mitra

Anne-Laure Papa

**Abstract Title:** Machine learned vascularized networks improve predictive power of microphysiological systems

Presenter: Abhishek Jain

Principal Investigator: N/A

Author(s):

James Tronolone

Tanmay Mathur

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 6, Room: 006 A

Track: Tissue Engineering

**Organ-on-Chip for Regenerative Medicine**

Session Chair(s):

Kunal Mitra

Anne-Laure Papa

**Abstract Title:** Modeling macrophage-regulated pulmonary fibrosis with engineered membranous lung microtissues

Presenter: Ruogang Zhao

Principal Investigator: N/A

Author(s):

Ying Xu

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Enrique Valera  
Xufeng**Abstract Title:** Soft Wearable Biosensors for Physiological Monitoring**Presenter:** Limei Tian**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Assistive Technology****Session Chair(s):**Enrique Valera  
Xufeng**Abstract Title:** Materials Chemistry Approaches for Human Touch and Next Generation Tactile Aids**Presenter:** Charles Dhong**Principal Investigator:** Charles Dhong**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Assistive Technology****Session Chair(s):**Enrique Valera  
Xufeng**Abstract Title:** Smart Textile Array Device for Assistive and Augmented Communication**Presenter:** Nicole Urban**Principal Investigator:** N/A**Author(s):**Nicole Urban  
Jeffrey Tagen  
Adam Hartman  
Koryn Russell  
samantha Candela  
Johanna Wunder  
Mike Dattolo**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Assistive Technology****Session Chair(s):**Enrique Valera  
Xufeng**Abstract Title:** Non-Disruptive Manipulation of Cells and Chemicals within Live Cultures via Addressable Microfluidics**Presenter:** Anh Tong**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Assistive Technology****Session Chair(s):**Enrique Valera  
Xufeng**Abstract Title:** Warfarin Dose Optimization with CURATE.AI – A Retrospective Data Analysis**Presenter:** Wen Jeit Lester Tan**Principal Investigator:** Dean Ho**Author(s):**Wen Jeit Lester Tan  
Tiffany Gan  
Mathias Egermark  
Anh Truong  
Kirthika Senthil Kumar  
Shi-Bei Tan  
Sarah Tang  
Agata Blasiak  
Dean Ho**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Neural Devices and Electronics****Session Chair(s):**Enrique Valera  
Xufeng**Abstract Title:** Wireless, Battery-Free Push-Pull Microsystem for Membrane-Free Neurochemical Sampling in Freely Moving Animals**Presenter:** Guangfu Wu**Principal Investigator:** N/A**Author(s):**Guangfu Wu  
Yi Zhang**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 214 A**Track:** Nano and Micro Technologies**Session Chair(s):**Tayloria Adams  
Marian Ackun-Farmmer**Abstract Title:** Engineering Biomedical Nano- and Micro-devices using Synthetic Biology Approaches**Presenter:** Cheemeng Tan**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**Tayloria Adams  
Marian Ackun-Farmmer**Abstract Title:** Three-Dimensional Super-Resolution Microscopy for Visualizing Nanoparticle Localization Within Cells**Presenter:** Vinit Sheth**Principal Investigator:** N/A**Author(s):**

Stefan Wilhelm

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 214 A**Track:** Nano and Micro Technologies**Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology****Session Chair(s):**Tayloria Adams  
Marian Ackun-Farmmer**Abstract Title:** Polyvalent DNA-functionalized Nanoparticles for Enhanced Nanoparticle-Cell Interactions**Presenter:** Brandon Davis**Principal Investigator:** Yong Wang**Author(s):**Brandon Davis  
Kyungsene Lee  
Xuelin Wang  
Yong Wang**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 214 A**Track:** Nano and Micro Technologies**In Situ Tissue Regeneration via Micro/Nano Engineered Technologies****Session Chair(s):**Tayloria Adams  
Marian Ackun-Farmmer**Abstract Title:** Engineered extracellular vesicles with high collagen-binding affinity present superior in situ retention and therapeutic efficacy in tissue repair**Presenter:** Dake Hao**Principal Investigator:** N/A**Author(s):**DAKE HAO  
Hengyue Song  
Jianing Chen  
Randy Carney  
Ping Zhou  
Kent Leach  
Diana Farmer  
Alyssa Panitch  
Aijun Wang**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 214 A**Track:** Nano and Micro Technologies**Bioinspired/Biomimetic Micro/Nano Devices and Systems****Session Chair(s):**Tayloria Adams  
Marian Ackun-Farmmer**Abstract Title:** Magnetic Microrobots that Demonstrate Liquid-Gel Penetration for Local Biomolecule Delivery**Presenter:** Haley Fuller**Principal Investigator:** N/A**Author(s):**

Warren Ruder

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 7, **Room:** 214 A**Track:** Nano and Micro Technologies

**Other / Non-specified (Implantable systems, flexible/wearable systems, 3D printing/bioprinting, tools to study and manipulate the microbiome, courses and training approaches, etc.)**

**Session Chair(s):**

Tayloria Adams

Marian Ackun-Farmmer

**Abstract Title:** Using Nanopillar Electrode Arrays to Perform Engineered Tasks for Studying Cellular Function

**Presenter:** Shivani Shukla**Principal Investigator:** N/A**Author(s):**

Zeinab JahedMotlagh

Dhivya Pushpa Meganathan

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 9, **Room:** 004**Track:** Biomaterials**Session Chair(s):**

Nehal Abu-Lail

Ryan Gilbert

**Abstract Title:** A dynamic tissue microenvironment for modeling fibrotic disease progression

**Presenter:** Catherine Whittington**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 9, **Room:** 004**Track:** Biomaterials**Biomaterials Scaffolds****Session Chair(s):**

Nehal Abu-Lail

Ryan Gilbert

**Abstract Title:** Extracellular Matrix Coated Porous Silk Spun Catheters To Support Muscle Cell Growth

**Presenter:** Sophia Theodossiou**Principal Investigator:** N/A**Author(s):**

Sophia Theodossiou

Brooke Smiley

David Kaplan

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 9, **Room:** 004**Track:** Biomaterials**Biomaterials Scaffolds****Session Chair(s):**

Nehal Abu-Lail

Ryan Gilbert

**Abstract Title:** Development of Tissue-Safe, Shape Memory Polymer Scaffolds for Biomedical Applications

**Presenter:** Courteney Roberts**Principal Investigator:** N/A**Author(s):**

Sarah Beck

Melissa Grunlan

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 9, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds**

Session Chair(s):

Nehal Abu-Lail  
Ryan Gilbert**Abstract Title:** Adaptable Sliding Hydrogels with Dynamic Crosslinks Enhance Cell-Based Cartilage Regeneration in 3D**Presenter:** Sarah Jones**Principal Investigator:** N/A**Author(s):**Xinming Tong  
Fan Yang  
Manish Ayushman**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 9, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds**

Session Chair(s):

Nehal Abu-Lail  
Ryan Gilbert**Abstract Title:** Decellularized Cartilage for Pediatric Tympanoplasty in an in vivo rat model**Presenter:** Gautham Nair**Principal Investigator:** Riccardo Gottardi**Author(s):**Paul Gehret  
Riccardo Gottardi**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 9, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds**

Session Chair(s):

Nehal Abu-Lail  
Ryan Gilbert**Abstract Title:** Development of Oxidatively Responsive Scaffolds in Diabetic Bone Grafting Applications**Presenter:** Tyler Touchet**Principal Investigator:** N/A**Author(s):**Madeleine Horelica  
Duncan Maitland**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials**

Session Chair(s):

Abby Koppes  
Mary Caldorera-Moore**Abstract Title:** Engineering Antioxidant and Oxygen-Releasing Lignin Composites to Accelerate Wound Healing**Presenter:** Jangwook Jung**Principal Investigator:** Jangwook Jung**Author(s):**

swathi balaji

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Abby Koppes  
Mary Caldorera-Moore**Abstract Title:** Choline Carboxylic Acid-Based Ionic Liquids as Biocompatible Antimicrobial Agents**Presenter:** Claylee Chism**Principal Investigator:** Eden E. L. Tanner**Author(s):**Samuel Plash  
Daniel Zuckerman  
Gaya Dasanayake  
Susan Pedigo  
Eden Tanner**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Abby Koppes  
Mary Caldorera-Moore**Abstract Title:** Self-Healing Hyaluronic Acid to Mitigate the Progression of Post-Traumatic Osteoarthritis**Presenter:** Anna Gilpin**Principal Investigator:** N/A**Author(s):**Anna Gilpin  
JIAUL HOQUE  
MORIKA Williams  
Shyni Varghese**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Abby Koppes  
Mary Caldorera-Moore**Abstract Title:** Characterizing Stimuli-Responsive Nanocomposite Hydrogels for use in Programmable Materials**Presenter:** Mary Kelly**Principal Investigator:** Neha Kamat**Author(s):**Mary Kelly  
Margrethe Boyd  
Timothy Vu  
Tyler Heyl  
Muzhou Wang  
Neha Kamat**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Abby Koppes  
Mary Caldorera-Moore**Abstract Title:** Modular Self-Assembling Biomaterials as Synthetic Microbiome Organoids**Presenter:** Michael Miller**Principal Investigator:** Scott H. Medina**Author(s):**

Scott Medina

**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 005

Track: Biomaterials

**Natural and Bioinspired Biomaterials****Session Chair(s):**Abby Koppes  
Mary Caldorera-Moore**Abstract Title:** Impact of Freezing on Properties of Gel-Spun Silk Porous Catheters**Presenter:** Brooke Smiley**Principal Investigator:** David L. Kaplan**Author(s):**Brooke Smiley  
Sophia Theodossiou  
David Kaplan**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 207

Track: Biomechanics

**Mechanics of the Respiratory System****Session Chair(s):**Hugo Giambini  
Walt Baxter  
Manoj Myneni**Abstract Title:** Infectious ARDS Agents: Effect on Epithelial Cell Mechanics and VILI Response**Presenter:** Vasudha Shukla**Principal Investigator:** Samir Ghadiali**Author(s):**Basia Gabela-Zuniga  
Joshua Englert  
Samir Ghadiali**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 207

Track: Biomechanics

**Mechanics of the Respiratory System****Session Chair(s):**Hugo Giambini  
Walt Baxter  
Manoj Myneni**Abstract Title:** Multiscale and Real-Time Vascular Dynamics in the Lung Parenchyma Probed via a Crystal Ribcage**Presenter:** Gabrielle Grifno**Principal Investigator:** N/A**Author(s):**Hadi Nia  
Bela Suki**Saturday, October 15**

8:00 AM - 9:30 AM

Session: 15, Room: 207

Track: Biomechanics

**Mechanics of the Respiratory System****Session Chair(s):**Hugo Giambini  
Walt Baxter  
Manoj Myneni**Abstract Title:** Mitochondrial Response of Type II Alveolar Epithelial Cells to Cough-induced Stretch**Presenter:** Bela Suki**Principal Investigator:** Bela Suki**Author(s):**Jae Hun Kim  
Yuqing Deng  
Joseph Hall  
Hadi Nia  
Elizabeth Bartolak-Suki  
Ramaswamy Krishnan

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 15, **Room:** 207**Track:** Biomechanics

Mechanics of the Respiratory System

**Session Chair(s):**

Hugo Giambini

Walt Baxter

Manoj Myneni

**Abstract Title:** Mechanical Properties of Enzymatically Digested Bovine Lung Collagen Fibers**Presenter:** Yuqing Deng**Principal Investigator:** N/A**Author(s):**

Yuqing Deng

Jacob Herrmann

Minh Nguyen

Michael Smith

Elizabeth Bartolak-Suki

Bela Suki

**Saturday, October 15**

8:00 AM - 9:30 AM

**Session:** 15, **Room:** 207**Track:** Biomechanics

Mechanics of the Respiratory System

**Session Chair(s):**

Hugo Giambini

Walt Baxter

Manoj Myneni

**Abstract Title:** A computational-biophysical model of the lung to investigate the effect of surfactant on lung function**Presenter:** Sunder Neelakantan**Principal Investigator:** N/A**Author(s):**

Sunder Neelakantan

Bradford Smith

Reza Avaz

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 A**Track:** Biomanufacturing**Session Chair(s):**

Ke Cheng

Roland Kaunas

**Abstract Title:** Engineering Microphysiological Cardiovascular Tissue Models**Presenter:** Tracy Hookway**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 A**Track:** Biomanufacturing**Cellular Biomanufacturing****Session Chair(s):**

Ke Cheng

Roland Kaunas

**Abstract Title:** Scale Up of ihMSC Expansion on Degradable GelMA Microcarriers in Vertical Wheel Bioreactors**Presenter:** Berkley White**Principal Investigator:** Roland Kaunas**Author(s):**

Berkley White

Robert Rogers

Carl Gregory

Roland Kaunas

## Saturday, October 15

1:00 PM - 2:30 PM

Session: 1, Room: 212 A

Track: Biomanufacturing

### Bioprocess Monitoring and In-Line Sensing

Session Chair(s):

Ke Cheng  
Roland Kaunas

**Abstract Title:** Volumetric Microscopy for Quantitative Analysis of Microcarrier-based Stem Cell Cultures

**Presenter:** Oscar Benavides

**Principal Investigator:** Kristen Maitland

**Author(s):**

Holly Gibbs  
Berkley White  
Roland Kaunas  
Carl Gregory  
Kristen Maitland

## Saturday, October 15

1:00 PM - 2:30 PM

Session: 1, Room: 212 A

Track: Biomanufacturing

### Molecular Biomanufacturing

Session Chair(s):

Ke Cheng  
Roland Kaunas

**Abstract Title:** Scale Up of Mastocytoma Cells for Heparin Production in Bioreactors

**Presenter:** Runia Roy

**Principal Investigator:** Susan Sharfstein

**Author(s):**

Runia Roy  
Ehsan Mahdinia  
Susan Sharfstein

Mihyun Choi

Bryan Thacker

Charles Glass

## Saturday, October 15 1:00 PM - 2:30 PM

Session: 1, Room: 212 A

Track: Biomanufacturing

### Bioprocess Monitoring and In-Line Sensing

Session Chair(s):

Ke Cheng  
Roland Kaunas

**Abstract Title:** In-Flow Single-Cell Impedance Spectroscopy And Electroporation Using A Microscale Aperture

**Presenter:** Josiah Rudge

**Principal Investigator:** Ke Cheng

**Author(s):**

Josiah Rudge  
Aniruddh Sarkar

## Saturday, October 15

1:00 PM - 2:30 PM

Session: 1, Room: 212 B

Track: Technologies for Emerging Infectious Diseases

### Systems Biology of Infectious Disease

Session Chair(s):

Aniruddh Sarkar  
Zhenjiang Zhang

**Abstract Title:** Antibodies targeting conserved non-canonical antigens and endemic coronaviruses associate with favorable outcomes in severe COVID-19

**Presenter:** Jishnu Das

**Principal Investigator:** N/A

**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Rapid Detection****Session Chair(s):**Aniruddh Sarkar  
Zhenjiang Zhang**Abstract Title:** Repurposing SARS-CoV-2 Surveillance Programs for Other Infectious Diseases on a University Campus**Presenter:** Kylie King**Principal Investigator:** N/A**Author(s):**Kylie King  
Rachel Ham  
Isaac Lee  
Samantha Gmitro  
Congyue Peng  
Delphine Dean**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Rapid Detection****Session Chair(s):**Aniruddh Sarkar  
Zhenjiang Zhang**Abstract Title:** A Multiplexed and High-Throughput Method for Point-of-Care Biosensing of COVID-19 Vaccine Efficacy**Presenter:** Neda Rafat**Principal Investigator:** Aniruddh Sarkar**Author(s):**Neda Rafat  
Dhruti Trivedi  
Lee Brewer  
Balazs Kaszala  
Hanhao Zhang  
Aniruddh Sarkar**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Rapid Detection****Session Chair(s):**Aniruddh Sarkar  
Zhenjiang Zhang**Abstract Title:** Engineered CRISPR/Cas systems as point-of-care diagnostics**Presenter:** Piyush Jain**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 1, **Room:** 212 B**Track:** Technologies for Emerging Infectious Diseases**Systems Biology of Infectious Disease****Session Chair(s):**Aniruddh Sarkar  
Zhenjiang Zhang**Abstract Title:** Role for N-glycans and chaperone proteins in SARS-CoV-2 Spike maturation and viral infectivity**Presenter:** Qi Yang**Principal Investigator:** N/A**Author(s):**

Sriram Neelamegham

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 3, Room: 005

Track: Biomaterials

**Session Chair(s):**Kevin McHugh  
Tracy Hookway**Abstract Title:** Studying the interactions of  
Cryptococcus Neoformans with Innate Immune cells**Presenter:** Jamal Lewis**Principal Investigator:** N/A**Author(s):**

N/A

**Biomaterials for Immunoengineering****Session Chair(s):**Kevin McHugh  
Tracy Hookway**Abstract Title:** Dendritic Peptide-Conjugated  
Polymeric Nanovectors for In Vivo Delivery of  
mRNA and Enhanced Non-Viral Transfection of  
Immune Cells**Presenter:** Yuan Qian**Principal Investigator:** N/A**Author(s):**Yuan Qian  
Simseok Yuk  
Evan Scott  
Fanfan Du  
swagat sharma**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 3, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Kevin McHugh  
Tracy Hookway**Abstract Title:** Tissue Engineering Scaffolds Predict  
Acute Solid Organ Transplant Rejection**Presenter:** Russell Urie**Principal Investigator:** Lonnie Shea**Author(s):**Lonnie Shea  
Aaron Morris**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 3, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Kevin McHugh  
Tracy Hookway**Abstract Title:** Chirality driven macrophage  
phenotypic changes in microporous annealed particle  
scaffolds.**Presenter:** Alejandra Suarez Arnedo**Principal Investigator:** N/A**Author(s):**Yining Liu  
Tatiana Segura**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 3, Room: 005

Track: Biomaterials

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 3, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Kevin McHugh  
Tracy Hookway**Abstract Title:** Engineering a Single Injection Prime-Boost Vaccine via Controlled Release**Presenter:** Lisa Tostanoski**Principal Investigator:** N/A**Author(s):**Lisa Tostanoski  
John Daristotle  
Catherine Jacob-Dolan  
Dhruv Varshney  
Erika Yan Wang  
Maya Makarovsky  
Linzixuan Zhang  
Aaron Schmidt  
Robert Langer  
Ana Jaklenec  
Dan Barouch**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 206

Track: Biomechanics

**Session Chair(s):**Ellie Rahbar  
Hugo Giambini  
Axel Moore**Abstract Title:** Neonatal Brachial Plexus Injury: Advancing Bench to Bedside Research**Presenter:** Anita Singh**Principal Investigator:** N/A**Author(s):** N/A**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**Ellie Rahbar  
Hugo Giambini  
Axel Moore**Abstract Title:** Investigating Structural Changes of Neonatal Brachial Plexus Post-Stretch**Presenter:** Virginia Orozco**Principal Investigator:** Anita Singh**Author(s):**Rachel Magee  
Mitali Sahni  
Sriram Balasubramanian  
Anita Singh**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**Ellie Rahbar  
Hugo Giambini  
Axel Moore**Abstract Title:** Finite Element Analysis of Femoroplasty Implants Using Four-Point Bending Simulation Test**Presenter:** Eugene Ablordeppey**Principal Investigator:** Philip J. Brown PhD**Author(s):**

Philip Brown

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**Ellie Rahbar  
Hugo Giambini  
Axel Moore**Abstract Title:** Blast, Acceleration, and Repeated Subconcussive Exposure Mechanisms of Traumatic Brain Injury Produce Different Behavioral Phenotypes and Pathological Characteristics**Presenter:** Jack Seifert**Principal Investigator:** N/A**Author(s):**Alok Shah  
Rachel Chiariello  
Matthew Budde  
Chris Olsen  
Michael McCrea  
Brian Stemper**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 206

Track: Biomechanics

**Biomechanics of Rehabilitation/Injury****Session Chair(s):**Ellie Rahbar  
Hugo Giambini  
Axel Moore**Abstract Title:** Differential Uptake of Therapeutic Triblock Amphiphilic Polymer P188 in an Injured Brain Endothelium Model**Presenter:** Michael Cho**Principal Investigator:** N/A**Author(s):**Naghm Alatrash  
Michael Cho**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 206

Track: Biomechanics

Biomechanics of Rehabilitation/Injury

**Session Chair(s):**Ellie Rahbar  
Hugo Giambini  
Axel Moore**Abstract Title:** Investigating Position Specific Brain Tissue Responses in High School American Football**Presenter:** Mohammadreza Ramzanpour**Principal Investigator:** N/A**Author(s):**Morteza Seidi  
Marzieh Hajiaghamemar**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Biomechanics****Session Chair(s):**Chiara Bellini  
Matt Bersi**Abstract Title:** Mechanical coupling in the cardiovascular system: role of Perivascular Adipose Tissue (PVAT) in arterial mechanics**Presenter:** Sara Roccabianca**Principal Investigator:** N/A**Author(s):** N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Biomechanics****Session Chair(s):**

Chiara Bellini

Matt Bersi

**Abstract Title:** Mechanical-Dependent Costameres Assembly and Incorporation to Cardiomyocyte Sarcomeres**Presenter:** Zhen Ma**Principal Investigator:** Zhen Ma**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiovascular Biomechanics****Session Chair(s):**

Chiara Bellini

Matt Bersi

**Abstract Title:** Oxygen-generating microparticles increase cardiac contractility, downregulate HIF-1 $\alpha$  expression, and mitigate ischemic injury**Presenter:** Kalpana Mandal**Principal Investigator:** Ali Khademhosseini**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 216 AB**Track:** Cardiovascular Engineering**Cardiac Electrophysiology****Session Chair(s):**

Chiara Bellini

Matt Bersi

**Abstract Title:** Optogenetic Stimulation Can Modulate Propensity of Arrhythmogenic Ectopic Beats: A Proof-of-Concept Study**Presenter:** Patrick Boyle**Principal Investigator:** N/A**Author(s):**

Alexander Ochs

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 4, **Room:** 216 AB**Track:** Cardiovascular Engineering**Hemodynamics and Vascular Mechanics****Session Chair(s):**

Chiara Bellini

Matt Bersi

**Abstract Title:** Changes in Arterial Compliance in Experimental Trauma/Hemorrhagic Shock**Presenter:** Joyce Li**Principal Investigator:** Erik B. Kistler**Author(s):**

Fernando dos Santos

Geert Schmid-Schoenbein

Erik Kistler

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Biomechanics****Session Chair(s):**Chiara Bellini  
Matt Bersi**Abstract Title:** The Role of Elastin on Mechanically-induced Deformation of Nuclei in the Tricuspid Valve Interstitial Cells**Presenter:** Mina Pakzadmanesh**Principal Investigator:** N/A**Author(s):**Vineet Thomas  
Samuel Salinas  
Rouzbeh Amini**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Session Chair(s):**Yi-Xian Qin  
Michael Torry  
Li-Hsin Han**Abstract Title:** Mechanical Stimulation Induced Osteogenesis through Piezo-1 Channel Activation**Presenter:** Yi-Xian Qi**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Rehabilitation Engineering****Session Chair(s):**Yi-Xian Qin  
Michael Torry  
Li-Hsin Han**Abstract Title:** Leveraging Early Rehabilitation to Improve Functional Regeneration of Sub-Critical Bone Fractures**Presenter:** Kylie Nash**Principal Investigator:** N/A**Author(s):**Julia Harrer  
Nick Willett  
Robert Guldberg**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Bone****Session Chair(s):**Yi-Xian Qin  
Michael Torry  
Li-Hsin Han**Abstract Title:** Head Start! Quantification of Cranial Remolding Orthotic Holding Pressures During Treatment**Presenter:** Katie Bender**Principal Investigator:** N/A**Author(s):**Sarah Johnson  
Taylor Cruse  
Mariana Miller  
John DesJardins

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Bone****Session Chair(s):**Yi-Xian Qin  
Michael Torry  
Li-Hsin Han**Abstract Title:** Osteocyte-Specific  $\beta$ -Catenin Deficiency Does Not Affect Unloading-Induced Bone Loss in C57Bl/6J Mice**Presenter:** Gabriel Hoppock**Principal Investigator:** N/A**Author(s):**Jolene Windle  
Henry Donahue**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Bone****Session Chair(s):**Yi-Xian Qin  
Michael Torry  
Li-Hsin Han**Abstract Title:** Elucidating Dysregulated Immune Response in Destabilized Femoral Fractures in Mice**Presenter:** Matthew Patrick**Principal Investigator:** N/A**Author(s):**Matthew Patrick  
Ramkumar T. Annamalai**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 4, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Bone****Session Chair(s):**Yi-Xian Qin  
Michael Torry  
Li-Hsin Han**Abstract Title:** Skin Motion Artifact of Radiopaque Bead Tracking Through Motion Relative to Markerless Bone Tracking**Presenter:** Quianna Vaughan**Principal Investigator:** Joseph Crisco**Author(s):**Amy Morton  
Taissa Hayda  
Joseph Crisco**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 5, Room: 214 D

Track: Cancer Technologies

Tumor Microenvironment

**Session Chair(s):**Jacopo Ferruzzi  
Tanmoy Saha**Abstract Title:** Extracellular Vesicle Secretion From Irradiated Fibroblasts Drives Cell Phenotype In Breast Cancer**Presenter:** Greg Berumen**Principal Investigator:** Marjan Rafat**Author(s):**

Marjan Rafat

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 5, Room: 214 D

Track: Cancer Technologies

**Circulating Biomarkers: CTCs, Extracellular Vesicles and DNA**

Session Chair(s):

Jacopo Ferruzzi  
Tanmoy Saha**Abstract Title:** Predicting Responses to Immunotherapy via Single-Extracellular-Vesicle Protein and mRNA Detection**Presenter:** Xilal Rima**Principal Investigator:** Eduardo Reátegui**Author(s):**

Eduardo Reategui

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 5, Room: 214 D

Track: Cancer Technologies

**Computational Modeling of Cancer**

Session Chair(s):

Jacopo Ferruzzi  
Tanmoy Saha**Abstract Title:** A Pan-Cancer Analysis of Glycogene Dysregulation**Presenter:** Sriram Neelamegham**Principal Investigator:** N/A**Author(s):**Sriram Neelamegham  
Ted Groth**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 5, Room: 214 D

Track: Cancer Technologies

Session Chair(s):

Jacopo Ferruzzi  
Tanmoy Saha**Abstract Title:** A Metabolic Rewiring Assay for Evaluating Combination Therapies in Hypoxic Tumors**Presenter:** Jeong Oh**Principal Investigator:** N/A**Author(s):**Hydari Begum  
Keyue Shen**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 5, Room: 214 D

Track: Cancer Technologies

Tumor Microenvironment

Session Chair(s):

Jacopo Ferruzzi  
Tanmoy Saha**Abstract Title:** Spatial Protein Analysis of the Tumor Microenvironment and Biomarkers in Hodgkin's Lymphoma**Presenter:** Alexander Xu**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 D**Track:** Cancer Technologies

Tumor Microenvironment

**Session Chair(s):**

Jacopo Ferruzzi

Tanmoy Saha

**Abstract Title:** Hypoxia-Mediated Epithelial-Mesenchymal Transition in Pancreas Cancer**Presenter:** Brooke Brown**Principal Investigator:** Matthew Lazzara**Author(s):**

Brooke Brown

Paul Myers

Matthew Lazzara

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Claudia Loebel

Hua Wang

**Abstract Title:** Enhanced and Sustained T Cell Activation Overtime via Fluid Shear Stress Exposure**Presenter:** Nicole Sarna**Principal Investigator:** Michael R. King**Author(s):**

Jacob Hope

Shanay Desai

Michael King

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Claudia Loebel

Hua Wang

**Abstract Title:** CRISPRi Mismatched sgRNA Titration of Macrophage Checkpoint CD47 Reveals Critical Surface Density Required for Therapeutic Efficacy and Developing Acquired Immunity**Presenter:** Brandon Hayes**Principal Investigator:** N/A**Author(s):**

Brandon Hayes

Hui Zhu

Jason Anderchak

Dennis Disher

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Claudia Loebel

Hua Wang

**Abstract Title:** PEGylation of Indoleamine 2,3-Dioxygenase for Systemic Immune Regulation**Presenter:** Jennifer Simonovich**Principal Investigator:** N/A**Author(s):**

Alexander Kwiatkowski

Arun Wanchoo

Dorina Avram

Benjamin Keselowsky

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Claudia Loebel

Hua Wang

**Abstract Title:** A Facile Metabolic Labeling Approach for Developing Enhanced Dendritic Cell Vaccines**Presenter:** Joonsu Han**Principal Investigator:** Hua Wang**Author(s):**

Rimsha Bhatta

Yusheng Liu

Hua Wang

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Claudia Loebel

Hua Wang

**Abstract Title:** Peptide-Aggregation Induced Immunogenic Rupture on the Cell Membranes**Presenter:** Handan Acar**Principal Investigator:** Handan Acar**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Claudia Loebel

Hua Wang

**Abstract Title:** T Cell Mechanosensing Harnessed for Optimal Ex Vivo Expansion**Presenter:** Anna-Liisa Sepp**Principal Investigator:** Lance Kam**Author(s):**

Lance Kam

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 C**Track:** Neural Engineering**Session Chair(s):****Abstract Title:** Towards Reinforcement Learning for Brain Machine Interfacing**Presenter:** Joe Francis**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 C**Track:** Neural Engineering**Computational Neural Modeling****Session Chair(s):****Abstract Title:** Computational modeling of extracellular microelectrode recordings from A-delta neurons in the dorsal root ganglia**Presenter:** Lauren Madden**Principal Investigator:** N/A**Author(s):**

Robert Graham

Tim Bruns

Scott Lempka

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 C**Track:** Neural Engineering**Neural Decoding and Control****Session Chair(s):****Abstract Title:** Attention-Based CNN-LSTM for Sleep States Classification of Spatial-Temporal Wide-field Calcium Imaging Data**Presenter:** Xiaohui Zhang**Principal Investigator:** N/A**Author(s):**

Xiaohui Zhang

Eric Landness

Joe Culver

Jinmoo Lee

Mark Anastasio

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 C**Track:** Neural Engineering**Computational Neural Modeling****Session Chair(s):****Abstract Title:** An Agent Based Model of Collective Stem Cell Migration Post Transplantation in the Retina**Presenter:** Larissa DePamphilis**Principal Investigator:** Maribel Vazquez**Author(s):**

Maribel Vazquez

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 5, **Room:** 214 C**Track:** Neural Engineering**Computational Neural Modeling****Session Chair(s):****Abstract Title:** Linear Dimensionality Reduction for Analysis of Neuronal Network Dynamics**Presenter:** Daniel Carbonero**Principal Investigator:** John A. White**Author(s):**

Jad Noueihed

John White

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**  
Rajanikanth Vadigepalli  
Daniel P. Howsmon**Abstract Title:** A unique blood and bronchoalveolar lavage signature of rapid FEV1 decline in smoking-associated COPD**Presenter:** Katarina DiLillo  
**Principal Investigator:** Kelly Arnold**Author(s):**  
Katarina DiLillo  
Christine Freeman  
neil alexis  
Alejandro Comellas  
Eugene Bleecker  
David Couper  
Claire Doerschuk  
MeiLan Han  
Nadia Hansel  
Annette Hastie  
Deborah A Meyers  
Wanda O'Neal  
Christopher Cooper  
Jeffrey Curtis  
Kelly Arnold**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**  
Rajanikanth Vadigepalli  
Daniel P. Howsmon**Abstract Title:** Systems Modeling of Gut Microbiome Regulation of Estrogen Receptor Beta Signaling in Ulcerative Colitis**Presenter:** Alan Trinh  
**Principal Investigator:** N/A**Author(s):**  
Javier Munoz  
Douglas Brubaker  
Tzu-Wen Cross**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**  
Rajanikanth Vadigepalli  
Daniel P. Howsmon**Abstract Title:** Cell Line-to-Human Modeling of Orexin 1 Network States in Alzheimer's Disease**Presenter:** Brendan Ball  
**Principal Investigator:** N/A**Author(s):**  
Brendan Ball  
Elizabeth Proctor  
Brendan Lucey  
Douglas Brubaker

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 213 AB**Track:** Bioinformatics, Computational and Systems Biology**Omics Data: Methods, Modeling and Analysis****Session Chair(s):**Rajanikanth Vadigepalli  
Daniel P. Howsmon**Abstract Title:** Predictive Link Between Systemic Metabolism and Immune Signaling in the Brain of APOE4 Mice**Presenter:** Elizabeth Proctor**Principal Investigator:** N/A**Author(s):**Rebecca Fleeman  
Madison Kuhn  
Dennis Chan  
Amy Arnold**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Chao Zhou

**Abstract Title:** Optical spectroscopic assay for non-destructive metabolic characterization of radio-resistant and radio-sensitive breast cancer cells**Presenter:** Jing Yan**Principal Investigator:** N/A**Author(s):**Md Zahid Hasan  
Caigang Zhu**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Chao Zhou

**Abstract Title:** Functionalization of a PC-TIR Biosensor for Label-Free Detection of cTnI Antigen**Presenter:** Christian Gonzalez**Principal Investigator:** Jing Yong Ye**Author(s):**Christian Gonzalez  
Louie Trabucco  
Maisha Ahmed  
Faolias Metang Sietcheu  
Jing Yong Ye**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Chao Zhou

**Abstract Title:** Resonance Raman Spectroscopic Assessment Of Liver Biopsies For Organ Transplantation**Presenter:** Rohil Jain**Principal Investigator:** Shannon N. Tessier**Author(s):**Rohil Jain  
Huyun Chen  
John Romfh  
Shannon Tessier

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Chao Zhou

**Abstract Title:** Effects of Contact Force and Angle on Signal Quality of Wearable Photonic Devices**Presenter:** Wei-Chiang Lin**Principal Investigator:** Wei-Chiang Lin**Author(s):**

Wei-Chiang Lin

Yoonkyu Na

Maria Villavicencio

Akeeb Hassan

Markondeya Raj Pulugurtha

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**

Joel Spencer

Kara McCloskey / Geeta Mehta

**Abstract Title:** Impaired wound healing at high viscosity and its health implications**Presenter:** Yun Chen**Principal Investigator:** N/A**Author(s):**

Matthew Pittman

Junjie Chen

Daniel Yan

Humza Qureshi

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Molecular Imaging in Live Cells****Session Chair(s):**

Joel Spencer

Kara McCloskey / Geeta Mehta

**Abstract Title:** G-Protein Coupled Receptor Signaling Measurement and Drug Profiling with an Automated Live-cell Microscopy System**Presenter:** Clara Posner**Principal Investigator:** Jin Zhang**Author(s):**

Eric Greenwald

Ananya Bharath

Anne Lyons

Cristina Salmerón

Paul Insel

Jin Zhang

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 6, **Room:** 006 B**Track:** Biomedical Imaging and Instrumentation**Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)****Session Chair(s):**

Chao Zhou

**Abstract Title:** Optical spectroscopic method towards point-of-care real-time monitoring of nanoparticle delivery in biological tissue models**Presenter:** Md Zahid Hasan**Principal Investigator:** N/A**Author(s):**

Jing Yan

Zhongchao Yi

Sheng Tong

Caigang Zhu

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Molecular Imaging in Live Cells****Session Chair(s):**

Joel Spencer

Kara McCloskey / Geeta Mehta

**Abstract Title:** Inducible Biological Assembly Formation for Simultaneous Imaging and Manipulation of Genomic Loci in Live Cells**Presenter:** Ziliang Huang**Principal Investigator:** N/A**Author(s):**

Qin Peng

Linshan Zhu

Yingxiao Wang

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 008 A**Track:** Cellular and Molecular Bioengineering**Molecular Imaging in Live Cells****Session Chair(s):**

Joel Spencer

Kara McCloskey / Geeta Mehta

**Abstract Title:** Simultaneous Genomic Locus Imaging and Manipulation by Elastin-like Proteins in Live Cells**Presenter:** Linshan Zhu**Principal Investigator:** N/A**Author(s):**

Linshan Zhu

Ziliang Huang

Yingxiao Wang

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 006 A**Track:** Tissue Engineering**Multi-Cellular Engineered Living Systems****Session Chair(s):**

Justin Saul

Bin Jang

**Abstract Title:** Development of a Three-Compartment Microvascular Model-on-a-Chip**Presenter:** Sophia Chen**Principal Investigator:** Roger D. Kamm**Author(s):**

Sophia Chen

Roger Kamm

Sarah Shelton

Giovanni Offeddu

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 7, **Room:** 006 A**Track:** Tissue Engineering**Multi-Cellular Engineered Living Systems****Session Chair(s):**

Justin Saul

Bin Jang

**Abstract Title:** Activating Synthetic Notch Receptors by a Patterned Surface for Spatial Control of Differentiation**Presenter:** Mher Garibyan**Principal Investigator:** Megan L. McCain and

Leonardo Morsut

**Author(s):**

Mher Garibyan

Megan McCain

Nathan Cho

Grace TRUE

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 7, Room: 006 A

Track: Tissue Engineering

**Multi-Cellular Engineered Living Systems****Session Chair(s):**Justin Saul  
Bin Jang**Abstract Title:** Mechanical Stimulation of Muscles Influences Bone Phenotype by Modulating Myostatin (GDF8) Secretion**Presenter:** Harshini Sureshkumar**Principal Investigator:** N/A**Author(s):**Harshini Sureshkumar  
Evangelia Kalaitzoglou  
John Fowlkes  
Ramkumar T. Annamalai**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 7, Room: 006 A

Track: Tissue Engineering

**Multi-Cellular Engineered Living Systems****Session Chair(s):**Justin Saul  
Bin Jang**Abstract Title:** Exercise-Mediated Biochemical Secretion Guides Maturation and Repair of Neuromuscular Tissues**Presenter:** Ritu Raman**Principal Investigator:** N/A**Author(s):**Angel Bu  
Naomi Lynch**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 7, Room: 006 A

Track: Tissue Engineering

**Multi-Cellular Engineered Living Systems****Session Chair(s):**Justin Saul  
Bin Jang**Abstract Title:** A Fully Biological Gas Exchange Membrane for a Biomimetic Oxygenator**Presenter:** Erica Comber**Principal Investigator:** N/A**Author(s):**Kalliope Roberts  
Isabel Joyce  
Rachelle Palchesko  
Daniel Shiwarski  
Syed Faaz Ashraf  
Xi Ren  
Adam Feinberg  
Keith Cook**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 7, Room: 006 A

Track: Tissue Engineering

**Multi-Cellular Engineered Living Systems****Session Chair(s):**Justin Saul  
Bin Jang**Abstract Title:** Hepatic Organoids in Engineered Matrices Reveal Stiffness-Mediated Progression of Fatty Liver Disease**Presenter:** Aidan Gilchrist**Principal Investigator:** Sarah Heilshorn**Author(s):**Yueming Liu  
Yuan Guan  
Gary Peltz  
Sarah Heilshorn

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Timothy Chung  
Ashiqur Rahaman**Abstract Title:** Re-Inventing the Airway Management Capabilities of our First Responders**Presenter:** Lyle Hood**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Timothy Chung  
Ashiqur Rahaman**Abstract Title:** In-Home Respiration Monitoring Using Thigh-Thigh Bioimpedance Measurements**Presenter:** Krittika Goyal**Principal Investigator:** N/A**Author(s):**Krittika Goyal  
David Borkholder  
Steven Day**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Timothy Chung  
Ashiqur Rahaman**Abstract Title:** A Bio-inspired Breast Pump with Soft Pneumatic Actuators to Simulate Infant's Oral Suckling Patterns during Breastfeeding**Presenter:** Lin Jiang**Principal Investigator:** N/A**Author(s):**Yuying Li  
Marlene Valadez Lozano  
ISH GULATI**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 210 A**Track:** Device Technologies and Biomedical Robotics**Session Chair(s):**Timothy Chung  
Ashiqur Rahaman**Abstract Title:** Taking a Different Approach to Chronic Disease Treatment: Personalized Therapy for Hypertension**Presenter:** Anh Truong**Principal Investigator:** Dean Ho**Author(s):**Anh Truong  
Wen Jeit Lester Tan  
Kimberly Chew  
Agata Blasiak  
Christopher Chen  
Dean Ho

## Saturday, October 15

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 210 A

**Track:** Device Technologies and Biomedical Robotics

**Session Chair(s):**

Timothy Chung  
Ashiqur Rahaman

**Abstract Title:** Development of Fiber Optic Probes to Detect Visceral Arteries for in situ Fenestration

**Presenter:** Timothy Chung

**Principal Investigator:** Timothy K. Chung

**Author(s):**

Cyrus Darvish  
Timothy Chung  
David Vorp

**Session Chair(s):**

Aniruddh Sarkar  
Melikhan Tanyeri

**Abstract Title:** Extracorporeal Illumination of Blood with Blue/Green Light for Treating Hyperbilirubinemia

**Presenter:** Adam Higgins

**Principal Investigator:** N/A

**Author(s):**

John Lahmann  
Ryan Fraase  
David Leu  
Steven Jacques  
Brian Scottoline  
Kate Schilke  
Joe Baio

## Saturday, October 15 1:00 PM - 2:30 PM

**Session:** 8, **Room:** 214 A

**Track:** Nano and Micro Technologies

### Micro/Nano Tools for Precision Medicine

**Session Chair(s):**

Aniruddh Sarkar  
Melikhan Tanyeri

**Abstract Title:** Using Biocompatible Bornite Nanocrystals to Treat Antibiotic-Resistant Bacteria Through the Photothermal Effect

**Presenter:** Artemis Margaronis

**Principal Investigator:** Allison Dennis

**Author(s):**

Artemis Margaronis  
Joshua Kays  
Xingjian Zhong  
Allison Dennis

## Saturday, October 15

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 210 A

**Track:** Device Technologies and Biomedical Robotics

**Session Chair(s):**

Timothy Chung  
Ashiqur Rahaman

**Abstract Title:** Preclinical Proof-of-Concept of a Minimally Invasive Direct Cardiac Compression Device for Pediatric Heart Assist

**Presenter:** Melanie Hager

**Principal Investigator:** N/A

**Author(s):**

N/A

## Saturday, October 15

1:00 PM - 2:30 PM

**Session:** 8, **Room:** 214 A

**Track:** Nano and Micro Technologies

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 8, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Tools for Precision Medicine**

Session Chair(s):

Aniruddh Sarkar

Melikhan Tanyeri

**Abstract Title:** Peptide Amphiphile Supramolecular Nanofibers Designed to Target Abdominal Aortic Aneurysms

Presenter: Benjamin Ledford

Principal Investigator: Melina R. Kibbe

Author(s):

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 8, Room: 214 A

Track: Nano and Micro Technologies

**Molecular Sensors and Nanodevices for Diagnostics and Biomedical Imaging**

Session Chair(s):

Aniruddh Sarkar

Melikhan Tanyeri

**Abstract Title:** Magnetic Nanoparticle-based ELISA for the Rapid and Sensitive Quantification of Protein Biomarkers

Presenter: Kavya Singampalli

Principal Investigator: Peter Lillehoj

Author(s):

Jiran Li

Peter Lillehoj

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 8, Room: 214 A

Track: Nano and Micro Technologies

**Micro/Nano Tools for Precision Medicine**

Session Chair(s):

Aniruddh Sarkar

Melikhan Tanyeri

**Abstract Title:** The Ratio of Self-peptide to Regulatory Cue in Controlled Release Particles Regulate Treg Activation Signals

Presenter: Chris Bridgeman

Principal Investigator: N/A

Author(s):

Christopher Jewell

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 10, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds**

Session Chair(s):

Catherine Faye Whittington

Weiyi Qian

**Abstract Title:** Sudan Black B Pretreatment Suppresses Autofluorescence of Silk Fibroin Scaffolds

Presenter: Olivia Foster

Principal Investigator: David Kaplan

Author(s):

Sawnaz Shaidani

Thomas Falcucci

Sophia Theodossiou

David Kaplan

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 10, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds****Session Chair(s):**Catherine Faye Whittington  
Weiyi Qian**Abstract Title:** Resurfacing-Regenerative Approach to Repair Osteochondral Defects with a Bioprosthetic Implant**Presenter:** Olivia Dingus**Principal Investigator:** Melissa Grunlan**Author(s):**Connor Demott  
Lauren Dobson  
W. Saunders  
Melissa Grunlan**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 10, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds****Session Chair(s):**Catherine Faye Whittington  
Weiyi Qian**Abstract Title:** Exploring the Role of Spatial Confinement in Immune Cell Recruitment and Regeneration**Presenter:** Eleanor Caston**Principal Investigator:** Tatiana Segura**Author(s):**Yining Liu  
Tatiana Segura**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 10, Room: 004

Track: Biomaterials

**Biomaterials Scaffolds****Session Chair(s):**Catherine Faye Whittington  
Weiyi Qian**Abstract Title:** Quantification of axonogenesis and angiogenesis following stroke treatment with MAP**Presenter:** Lucy Zhang**Principal Investigator:** N/A**Author(s):**Shangjing Xin  
Nhi Phan  
Lucy Zhang  
Tatiana Segura**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 10, Room: 004

Track: Biomaterials

**3D Printing and Advanced Biomaterial Manufacturing****Session Chair(s):**Catherine Faye Whittington  
Weiyi Qian**Abstract Title:** Diamond as an Implant Biomaterial**Presenter:** Kate Fox**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 10, **Room:** 007 A**Track:** Drug Delivery**Session Chair(s):**Katelyn Reilly  
Christina Holmes  
Junqu Wu**Abstract Title:** Selective Blood Cell Hitchhiking in Whole Blood with Ionic Liquid-Coated PLGA Nanoparticles**Presenter:** Eden Tanner**Principal Investigator:** N/A**Author(s):**Christine Hamadani  
Mercedes Pride  
Gaya Dasanayake  
Meghan Gorniak  
Mehjabeen Hossain  
Claylee Chism  
Karen Wong  
Joh'nis Randall  
Thomas Werfel  
Eden Tanner**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 10, **Room:** 007 A**Track:** Drug Delivery**Session Chair(s):**Katelyn Reilly  
Christina Holmes  
Junqu Wu**Abstract Title:** Targeted Delivery to Adipocytes Using Integrin Alpha 7 Modified Lipid Coated - Mesoporous Silica Nanoparticles**Presenter:** Maria Alejandra Porras**Principal Investigator:** N/A**Author(s):**Maria Alejandra Porras  
Achraf Noureddine  
David Zhang  
Eric Brey**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 10, **Room:** 007 A**Track:** Drug Delivery**Session Chair(s):**Katelyn Reilly  
Christina Holmes  
Junqu Wu**Abstract Title:** Natural Extracellular Vesicles and Extruded Nanovesicles Have Highly Similar Membrane Protein Profiles**Presenter:** Yuan Wan**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Session:** 10, **Room:** 007 A**Track:** Drug Delivery**Session Chair(s):**Katelyn Reilly  
Christina Holmes  
Junqu Wu

**Abstract Title:** Photothermal Modulation of Dynamically Crosslinked Hydrogels for Drug Delivery Application

**Presenter:** Kushal Thapa  
**Principal Investigator:** N/A  
**Author(s):**  
 Kushal Thapa  
 Joanna Zepeda  
 McKenzie Siller  
 Thomas FitzSimons  
 Anne Crowell  
 Adrienne Rosales  
 Tania Betancourt

## Saturday, October 15

1:00 PM - 2:30 PM

**Session:** 10, **Room:** 007 A

**Track:** Drug Delivery

**Session Chair(s):**  
 Katelyn Reilly  
 Christina Holmes  
 Junqu Wu

**Abstract Title:** Stimuli-Responsive Layer-by-Layer Nanoparticles Enhance Biofilm Permeation

**Presenter:** Elad Deiss-Yehiely  
**Principal Investigator:** Paula T. Hammond  
**Author(s):**  
 N/A

## Saturday, October 15

1:00 PM - 2:30 PM

**Session:** 10, **Room:** 007 A

**Track:** Drug Delivery

### Cancer Drug Delivery

**Session Chair(s):**  
 Katelyn Reilly  
 Christina Holmes  
 Junqu Wu

**Abstract Title:** Ultrasound Guided Drug-Loaded Hydrogel Injection with Monitoring of Tumor Volume and Increased Necrosis

**Presenter:** Alissa Hendricks-Wenger  
**Principal Investigator:** Elizabeth D Barker  
**Author(s):**  
 Alissa Hendricks  
 Jenny Patel  
 Elizabeth Barker

## Saturday, October 15

1:00 PM - 2:30 PM

**Session:** 16, **Room:** 207

**Track:** Biomechanics

### Neuromuscular and Brain Biomechanics

**Session Chair(s):**  
 Ellie Rahbar  
 Anamika Prasad  
 Jing Tang

**Abstract Title:** MRE of In Vivo Rodent Brain Mechanical Properties Using Nonlinear Inversion

**Presenter:** L. Tyler Williams  
**Principal Investigator:** Curtis L. Johnson  
**Author(s):**  
 Lance Williams  
 Curtis Johnson

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 16, Room: 207

Track: Biomechanics

**Neuromuscular and Brain Biomechanics****Session Chair(s):**

Ellie Rahbar  
Anamika Prasad  
Jing Tang

**Abstract Title:** Biomechanics Of The Hindbrain Motion Predicts The Diagnosis Of Chiari Malformation I

**Presenter:** Javid Abderezaei  
**Principal Investigator:** N/A

**Author(s):**  
Aymeric Pionteck  
Ya-Chen Chuang  
GIZEM BILGILI  
Itamar Terem  
Leo Dang  
Miriam Scadeng  
Peter Morgenstern  
Yang Yang  
Samantha Holdsworth  
raj shrivastava  
Mehmet Kurt

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 16, Room: 207

Track: Biomechanics

**Neuromuscular and Brain Biomechanics****Session Chair(s):**

Ellie Rahbar  
Anamika Prasad  
Jing Tang

**Abstract Title:** A novel 3D platform reveals the evolution of neuronal tissue force during in-vitro synaptogenesis

**Presenter:** MD Saddam Hossain Joy  
**Principal Investigator:** M. Taher Saif  
**Author(s):**  
Bashar Emon  
M Taher Saif

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 16, Room: 207

Track: Biomechanics

**Neuromuscular and Brain Biomechanics****Session Chair(s):**

Ellie Rahbar  
Anamika Prasad  
Jing Tang

**Abstract Title:** A Biomechanical Study Of An Improved Controlled Cortical Impact Mouse Model Of Concussion Designed To Achieve Clinically Relevant Peak Angular Velocities

**Presenter:** Emilie Potts  
**Principal Investigator:** N/A

**Author(s):**  
Emilie Potts  
Lihong Lu  
Xiaoyun Xu  
Arthur Brown  
Haojie Mao

**Saturday, October 15**

1:00 PM - 2:30 PM

Session: 16, Room: 207

Track: Biomechanics

**Neuromuscular and Brain Biomechanics****Session Chair(s):**

Ellie Rahbar  
Anamika Prasad  
Jing Tang

**Abstract Title:** Assessing Patient-specific, Cardiac-driven Brain Motion: MRI-based Biomechanics

**Presenter:** Tyler Diorio

**Principal Investigator:** Vitaliy L. Rayz

**Author(s):**

Mehmet Kurt  
Yunjie Tong  
Vitaliy Rayz

**Saturday, October 15**

**1:00 PM - 2:30 PM**

**Session:** 16, **Room:** 207

**Track:** Biomechanics

**Neuromuscular and Brain Biomechanics****Session Chair(s):**

Ellie Rahbar  
Anamika Prasad  
Jing Tang

**Abstract Title:** Stress Analysis based on Cell Nuclei in the Developing Cortex of the Ferret Brain

**Presenter:** Kara Garcia

**Principal Investigator:** N/A

**Author(s):**

Anmoldeep Singh

**Saturday, October 15**

**2:30 PM - 4:00 PM**

**Session:** 7, **Room:** 006 B

**Track:** Biomedical Imaging and Instrumentation

**Imaging System Development & Emerging Imaging Technologies****Session Chair(s):**

Ahmet Coskun

**Abstract Title:** Ultrasound-based Electromyometrial Imaging System

**Presenter:** Zichao Wen

**Principal Investigator:** N/A

**Author(s):**

Stephanie Pizzella  
Haonan Xu  
Yuelin Li  
Yong Wang

**Saturday, October 15**

**2:30 PM - 4:00 PM**

**Session:** 7, **Room:** 006 B

**Track:** Biomedical Imaging and Instrumentation

**Magnetic Resonance Imaging and Applications (MRI)****Session Chair(s):**

Ahmet Coskun

**Abstract Title:** Quantitative Mapping of Brain Tissue Oxygenation around Chronically Implanted Neural Interface

**Presenter:** Yuka Sugamura

**Principal Investigator:** N/A

**Author(s):**

Arati Sridharan  
Livia de Mesquita Teixeira  
Jit Muthuswamy  
Vikram Kodibagkar  
Umu Jalloh

**Saturday, October 15**

2:30 PM - 4:00 PM

Session: 7, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Imaging System Development & Emerging Imaging Technologies**

Session Chair(s):

Ahmet Coskun

**Abstract Title:** Combined Ultrasound and Photoacoustic Thermal Imaging for Improved Temperature Mapping when Tissue Composition is Unknown

**Presenter:** Kelsey Kubelick**Principal Investigator:** Stanislav Emelianov**Author(s):**

Kelsey Kubelick

Jeungyoon Lee

Stanislav Emelianov

**Saturday, October 15**

2:30 PM - 4:00 PM

Session: 7, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Imaging System Development & Emerging Imaging Technologies**

Session Chair(s):

Ahmet Coskun

**Abstract Title:** Magnetoencephalography Data in Epilepsy Patients with Implanted Responsive Neurostimulation System

**Presenter:** Pegah Askari**Principal Investigator:** N/A**Author(s):**

natascha cardoso da fonseca

Tyrell Pruitt

Jennifer Griffin

Adriana Ohm

Joseph Maldjian

Sasha Alick-Lindstrom

Elizabeth Davenport

**Saturday, October 15**

2:30 PM - 4:00 PM

Session: 7, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**Imaging System Development & Emerging Imaging Technologies**

Session Chair(s):

Ahmet Coskun

**Abstract Title:** Development of a Novel Crystal Ribcage to Probe Functional Lungs at Cellular Resolution in Real-Time

**Presenter:** Rohin Banerji**Principal Investigator:** N/A**Author(s):**

Gabrielle Grifno

Hadi Nia

**Saturday, October 15**

2:30 PM - 4:00 PM

Session: 7, Room: 006 B

Track: Biomedical Imaging and Instrumentation

**X-ray and Computed Tomographic Imaging (CT)**

Session Chair(s):

Ahmet Coskun

**Abstract Title:** Removing the Foreground and Background of Chest X-rays using a Generative Adversarial Network (GAN)

**Presenter:** Frank Li

**Principal Investigator:** Ching-Long Lin

**Author(s):**  
Ching-Long Lin

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 212 A

**Track:** Biomanufacturing

**Session Chair(s):**

Kunal Mitra  
Monica Moya

**Abstract Title:** Microfluidic bioprinting for vascular engineering

**Presenter:** Shrike Yu Zhang

**Principal Investigator:** N/A

**Author(s):**  
N/A

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 212 A

**Track:** Biomanufacturing

### **Biomaterials for Cell Manufacturing and Tissue Biofabrication**

**Session Chair(s):**

Kunal Mitra  
Monica Moya

**Abstract Title:** Stem Cell Encapsulation in Engineered Tissue Microspheres During Suspension-based Differentiation Provides Enhanced Cardiomyocyte Yield and Cardiac Tissue Functionality

**Presenter:** Mohammadjafar Hashemi

**Principal Investigator:** Elizabeth Lipke

**Author(s):**  
Mohammadjafar Hashemi  
Ferdous Finklea  
Yuan Tian  
Samira Mohammadi  
Selen Cremaschi  
Elizabeth Lipke

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 212 A

**Track:** Biomanufacturing

Cryopreservation in Biomanufacturing

**Session Chair(s):**

Kunal Mitra  
Monica Moya

**Abstract Title:** Optimized Cryopreservation Methods for On-Demand Use of Human iPSC-derived Cardiomyocytes

**Presenter:** Kristen Cotton

**Principal Investigator:** N/A

**Author(s):**  
Kristen Cotton  
Ashlin Michell  
Chiara Castella  
Dawood Darbar  
Salman Khetani

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 212 A**Track:** Biomanufacturing

Cryopreservation in Biomanufacturing

**Session Chair(s):**

Kunal Mitra

Monica Moya

**Abstract Title:** Lyophilization of *Lumbricus terrestris* Erythrocytes to Create a Portable Red Blood Cell Substitute**Presenter:** Sean Dowd**Principal Investigator:** N/A**Author(s):**

Jacob Elmer

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 212 A**Track:** Biomanufacturing

Tissue and Organ Biomanufacturing

**Session Chair(s):**

Kunal Mitra

Monica Moya

**Abstract Title:** An Engineered Model of the Human Liver Containing Both Hepatocytes and Branching Biliary Ducts**Presenter:** Ashlin Michell**Principal Investigator:** N/A**Author(s):**

Ashlin Michell

Xin Li

Ramille Shah

Salman Khetani

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering

Orthopedic and Rehabilitation Engineering: Implant and Prosthetic Biomechanics

**Session Chair(s):**

David J. Warren

Deanna Gates

**Abstract Title:** Design and Evaluation of an Expandable Compliant Spinal Fusion Cage**Presenter:** Anton Bowden**Principal Investigator:** Anton Bowden**Author(s):**

Daniel Orr

James Anderson

Chris Payne

Alek Sperry

Brandon Sargent

Bruce Frankel

Larry Howell

Anton Bowden

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 2, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering

Rehabilitation Engineering

**Session Chair(s):**

David J. Warren

Deanna Gates

**Abstract Title:** Pledget Sensor to Monitor Loading in Tendon and Ligament Sutures During Physical Therapy**Presenter:** Kaylee Meyers**Principal Investigator:** Keat Ghee Ong**Author(s):**

Keat Ghee Ong

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 2, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering

Other / Non-specified

**Session Chair(s):**

David J. Warren

Deanna Gates

**Abstract Title:** Design and Validation of a Skin-Covered, Linkage-Driven Implantable Prosthesis**Presenter:** Gracia Lai**Principal Investigator:** Tyler R. Clites**Author(s):**

Gracia Lai

Nirbhay Jain

Meaghan Barr

Marcus Belingheri

kodi Azari

Lauren Wessel

Tyler Clites

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 2, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering

Orthopedic and Rehabilitation Engineering: Implant and Prosthetic Biomechanics

**Session Chair(s):**

David J. Warren

Deanna Gates

**Abstract Title:** Dynamic Leg Length Phase Tuning of a Length-Actuated Transfemoral Prosthesis**Presenter:** Therese Parr**Principal Investigator:** N/A**Author(s):**

Catherine Pitts

Sarah Thomas

James Rhoads

Omar Aguilar

John DesJardins

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 2, **Room:** 214 B**Track:** Orthopedic and Rehabilitation Engineering**Orthopedic and Rehabilitation Engineering: Implant and Prosthetic Biomechanics****Session Chair(s):**

David J. Warren

Deanna Gates

**Abstract Title:** Predicting the Mechanical Behavior of Strut-Based Lattices Using Finite Element Simulation**Presenter:** Anthony Marino**Principal Investigator:** N/A**Author(s):**

Christopher Weathers

Arash Soltani Tehrani

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 2, Room: 214 B

Track: Orthopedic and Rehabilitation Engineering

**Orthopedic and Rehabilitation Engineering: Implant and Prosthetic Biomechanics****Session Chair(s):**David J. Warren  
Deanna Gates**Abstract Title:** Replacement of Biological Tendons with Artificial Tendons Reduces Muscle Mass and Length in Rabbits**Presenter:** Obinna Fidelis**Principal Investigator:** Dustin L. Crouch**Author(s):**Obinna Fidelis  
Fisher Adkisson  
Jessica Pierce  
Katrina Easton  
Caroline Billings  
Kristin Bowers  
Dustin Crouch**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 3, Room: 213 AB

Track: Bioinformatics, Computational and Systems Biology

**Machine Learning for Biomedical Applications****Session Chair(s):**

Varghese Kurian

**Abstract Title:** Multi-omic Networks of Blood Biomolecules Identify Computational Biomarkers of Rheumatoid Arthritis**Presenter:** Jaeyun Sung**Principal Investigator:** N/A**Author(s):**Benjamin Hur  
Kevin Cunningham**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 3, Room: 213 AB

Track: Bioinformatics, Computational and Systems Biology

**Machine Learning for Biomedical Applications****Session Chair(s):**

Varghese Kurian

**Abstract Title:** Online application for genome-scale loss-of-function predictions using compact sgRNA subsets**Presenter:** Sajid Hossain**Principal Investigator:** Justin Pritchard**Author(s):**Sajid Hossain  
Justin Pritchard**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 3, Room: 213 AB

Track: Bioinformatics, Computational and Systems Biology

**Machine Learning for Biomedical Applications****Session Chair(s):**

Varghese Kurian

**Abstract Title:** Characterizing the Drug Transportome with Machine Learning and Tissue Engineering

**Presenter:** Daniel Reker

**Principal Investigator:** N/A

**Author(s):**

Keats MIT

Robert Langer

Giovanni Traverso

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 3, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Machine Learning for Biomedical Applications

**Session Chair(s):**

Varghese Kurian

**Abstract Title:** Quantitative Strategy for Anti-Aging Drug Discovery using an Intelligent High-Throughput Intervention Testing Platform in a New Model System

**Presenter:** Yongmin Cho

**Principal Investigator:** N/A

**Author(s):**

N/A

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 3, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Machine Learning for Biomedical Applications

**Session Chair(s):**

Varghese Kurian

**Abstract Title:** Deep Self-supervised Denoising Enhances Highly Multiplexed Imaging Mass Cytometry

**Presenter:** Peng Lu

**Principal Investigator:** N/A

**Author(s):**

Peng Lu

Karolyn Oetjen

Daniel Link

Daniel Thorek

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 3, **Room:** 213 AB

**Track:** Bioinformatics, Computational and Systems Biology

### Omics Data: Methods, Modeling and Analysis

**Session Chair(s):**

Varghese Kurian

**Abstract Title:** Absolute Prediction of Protein Copy Numbers by Transcriptome Regression

**Presenter:** Andrew Sweatt

**Principal Investigator:** N/A

**Author(s):**

Kevin Janes

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 4, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Min Tang-Schomer 14  
Jeff Jacot**Abstract Title:** Regulation of Fibroblast  
Mechanosensing under Inflammatory Stimulation by  
Type V Collagen**Presenter:** Neil Patel**Principal Investigator:** N/A**Author(s):**Kara Spiller  
Lin Han**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 4, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Min Tang-Schomer 14  
Jeff Jacot**Abstract Title:** Multifunctional Scaffold Platforms  
for T-Cell Engineering**Presenter:** Sharda Pandit**Principal Investigator:** N/A**Author(s):**Pritha Agarwalla  
Yevgeny Brudno**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 4, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Min Tang-Schomer 14  
Jeff Jacot**Abstract Title:** Basophils govern immune responses  
elicited by self-assembled peptide nanofiber vaccines**Presenter:** Yaoying Wu**Principal Investigator:** Joel Collier**Author(s):**Yaoying Wu  
Hanning Wen  
Ben Cossette  
Lucas Shores  
Tatiana Segura  
Joel Collier**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 4, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Min Tang-Schomer 14  
Jeff Jacot**Abstract Title:** Biofunctional Biomaterial Design To  
Promote Vessel Formation And Reduce Macrophage  
Activation**Presenter:** Aakanksha Jha**Principal Investigator:** N/A**Author(s):**

Erika Moore

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 4, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Min Tang-Schomer 14  
Jeff Jacot**Abstract Title:** A Metabolic Labeling Approach For Developing Enhanced Tumor Exosome Vaccines**Presenter:** Rimsha Bhatta**Principal Investigator:** N/A**Author(s):**Hua Wang  
Rimsha Bhatta**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 4, Room: 005

Track: Biomaterials

**Biomaterials for Immunoengineering****Session Chair(s):**Min Tang-Schomer 14  
Jeff Jacot**Abstract Title:** Engineering B Cell Germinal Center Function with Synthetic Depots to Combat Multiple Sclerosis**Presenter:** Eppler Haleigh**Principal Investigator:** Christopher Jewell**Author(s):**

Christopher Jewell

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Session Chair(s):**Lyle Hood  
Jing Tang**Abstract Title:** Microswimmer combing: An Ultra-simple Approach for Rapid Isolation of Active Microswimmers**Presenter:** Gongchen Sun**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Session Chair(s):**Lyle Hood  
Jing Tang**Abstract Title:** Cardiovascular Devices – Biomechanics Based Approaches in Hardware, Artificial Intelligence, and Augmented Reality**Presenter:** Timothy Chung**Principal Investigator:** N/A**Author(s):**

David Vorp

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Design and Control of Prostheses and Exoskeletons**

Session Chair(s):

Lyle Hood

Jing Tang

**Abstract Title:** Initiating and Terminating Multi-joint Assistance for Walking after Stroke**Presenter:** Nathan Makowski**Principal Investigator:** N/A**Author(s):**

Hailey Heidecker

Marshaun Fitzpatrick

Lisa Lombardo

Ronald Triolo

Nathan Makowski

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Interventional Devices and Robotics**

Session Chair(s):

Lyle Hood

Jing Tang

**Abstract Title:** Autonomous Fluid Recognition by Ultrasound for the Purpose of Assisting in Image-Guided Drainage**Presenter:** Jermaine Chambers**Principal Investigator:** N/A**Author(s):**

Jermaine Chambers

Scott Santeler

Olivia Coiado

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Surgical Robotics**

Session Chair(s):

Lyle Hood

Jing Tang

**Abstract Title:** Deep Learning Based Calibration of Surgical Robot Force Sensing Tool**Presenter:** Benjamin Hezrony**Principal Investigator:** N/A**Author(s):**

Scotty Chung

Philip Brown

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 210 A

Track: Device Technologies and Biomedical Robotics

**Interventional Devices and Robotics**

Session Chair(s):

Lyle Hood

Jing Tang

**Abstract Title:** Evaluation of an Altered Self-Tightening Tourniquet System**Presenter:** Zechariah Knowlton**Principal Investigator:** N/A**Author(s):**

Emily Boice

Eric Snider

Saul Vega

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 214 C

Track: Neural Engineering

**Session Chair(s):**

Dean Krusienski

Sydney Schaefer

**Abstract Title:** Characterizing subject-specific adaptation of motor outputs and sensory inputs in locomotion**Presenter:** Gelsey Torreis Oveido**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 214 C

Track: Neural Engineering

**Neurorehabilitation****Session Chair(s):**

Dean Krusienski

Sydney Schaefer

**Abstract Title:** Ventral Horn Neurons Contribute to Sensory Hyperexcitability After Spinal Cord Injury**Presenter:** Maria Bandres**Principal Investigator:** N/A**Author(s):**

Maria Bandres

Jacob McPherson

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 214 C

Track: Neural Engineering

**Neurorehabilitation****Session Chair(s):**

Dean Krusienski

Sydney Schaefer

**Abstract Title:** Engineering The Skeletal Muscle for Improved Innervation After Peripheral Nerve Injury**Presenter:** Pihu Metrota**Principal Investigator:** Stelios Andreadis**Author(s):**

Shahryar Shahini

Nika Rajabian

Yali Zhang

Jianmin Wang

Susan Udin

Stelios Andreadis

Kirkwood Personius

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 6, Room: 214 C

Track: Neural Engineering

**Neurorehabilitation****Session Chair(s):**

Dean Krusienski

Sydney Schaefer

**Abstract Title:** Characterizing Effects Of Electrically Elicited Sensations On Spinal Reflex Pathways**Presenter:** Suzhou Li**Principal Investigator:** Ronald Triolo**Author(s):**

Ronald Triolo

Hamid Charkhkar

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 6, **Room:** 214 C**Track:** Neural Engineering**Neurorehabilitation****Session Chair(s):**Dean Krusienski  
Sydney Schaefer**Abstract Title:** Functional Changes in Hypoxic Neonatal Brachial Plexus After Stretch Injury**Presenter:** Rachel Mcgee**Principal Investigator:** N/A**Author(s):**Rachel Magee  
Jessica Guarino  
Virginia Orozco  
Sriram Balasubramanian  
Anita Singh**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 216 AB**Track:** Cardiovascular Engineering**Thrombosis and Hemostasis****Session Chair(s):**Ishita Tandon  
Noelia Grande Gutiérrez**Abstract Title:** Patient-Specific Multi-Scale Thrombosis Models: Bridging the Gap Between Macroscale Hemodynamics and Microscale Thrombosis Simulations**Presenter:** Noelia Grande Gutierrez**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 216 AB**Track:** Cardiovascular Engineering**Hemodynamics and Vascular Mechanics****Session Chair(s):**Ishita Tandon  
Noelia Grande Gutiérrez**Abstract Title:** Disturbed Hemodynamics Prediction in Aortic Diseases using Deep Learning Approach**Presenter:** Huseyin Yalcin**Principal Investigator:** Huseyin Yalcin**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 216 AB**Track:** Cardiovascular Engineering**Hemodynamics and Vascular Mechanics****Session Chair(s):**Ishita Tandon  
Noelia Grande Gutiérrez**Abstract Title:** Watch Your Womersley: Consequences of Estimating Transient Wall Shear Stress via Poiseuille's Law**Presenter:** Joseph Muskat**Principal Investigator:** Vitaliy L. Rayz**Author(s):**Craig Goergen  
Vitaliy Rayz

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 8, Room: 216 AB

Track: Cardiovascular Engineering

**Cardiovascular Devices****Session Chair(s):**

Ishita Tandon

Noelia Grande Gutiérrez

**Abstract Title:** Predicting Device Related Thrombosis Using Computational Fluid Dynamics**Presenter:** Hoda Hatoum**Principal Investigator:** N/A**Author(s):**

Brennan Vogl

Hoda Hatoum

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 8, Room: 216 AB

Track: Cardiovascular Engineering

**Thrombosis and Hemostasis****Session Chair(s):**

Ishita Tandon

Noelia Grande Gutiérrez

**Abstract Title:** Vein-Chip recapitulates influence of hemodynamics and cytokines on COVID-19 induced endotheliopathy and thrombosis**Presenter:** Abhishek Jain**Principal Investigator:** N/A**Author(s):**

Jason Eades

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 8, Room: 216 AB

Track: Cardiovascular Engineering

**Thrombosis and Hemostasis****Session Chair(s):**

Ishita Tandon

Noelia Grande Gutiérrez

**Abstract Title:** AI-Accelerated Multiscale Modeling for Platelet Adhesion Dynamics and Thrombus Formation**Presenter:** Peineng Wang**Principal Investigator:** Danny Bluestein**Author(s):**

Yicong Zhu

Jawaad Sheriff

Peng Zhang

Yuefan Deng

Danny Bluestein

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 8, Room: 007 B

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**

Katie Galloway

Caymen Novak

**Abstract Title:** Synthetic biosystems for programmable cell manipulation**Presenter:** Rebecca Taylor**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Katie Gallloway  
Caymen Novak**Abstract Title:** Single-cell approaches to understanding cellular plasticity enable optimized reprogramming to neurons**Presenter:** Kate Galloway**Principal Investigator:** N/A**Author(s):**

Kate Galloway

**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Katie Gallloway  
Caymen Novak**Abstract Title:** Transcription Factor Delivery For Cellular Programming**Presenter:** Aparna Murali**Principal Investigator:** Akhilesh K.Gaharwar**Author(s):**Anna Kersey  
Irtisha Singh  
Akhilesh Gaharwar**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Katie Gallloway  
Caymen Novak**Abstract Title:** Pancreatic  $\beta$  Cells Derived from Fibroblasts using Non-viral Cell Reprogramming Methods**Presenter:** Luke Lemmerman**Principal Investigator:** Daniel Gallego-Perez**Author(s):**Lilibeth Ortega Pineda  
Devleena Das  
Maria Angelica Rincon Benavides  
Natalia Higuaita-Castro  
Daniel Gallego-Perez**Saturday, October 15**

3:00 PM - 4:30 PM

**Session:** 8, **Room:** 007 B**Track:** Cellular and Molecular Bioengineering**Session Chair(s):**Katie Gallloway  
Caymen Novak**Abstract Title:** Polymeric nanoparticle-mediated base editing in immortalized cystic fibrosis cells with rare variant**Presenter:** Erin Kavanagh**Principal Investigator:** Jordan Green**Author(s):**Jordan Green  
Stephany Tzeng

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 8, Room: 007 B

Track: Cellular and Molecular Bioengineering

**Session Chair(s):**Katie Gallloway  
Caymen Novak**Abstract Title:** In Situ Circularized RNA Improves Vaccine and Genome Editing Activity**Presenter:** Aditya Kumar**Principal Investigator:** Prashant Mali**Author(s):**Aditya Kumar  
Nathan Palmer  
Katelyn Miyasaki  
Emma Finburgh  
Ester Kwon  
Prashant Mali**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 214 D

Track: Cancer Technologies

**Tumor Microenvironment****Session Chair(s):**Erica Pratt  
Mahsa Dabagh**Abstract Title:** Microengineered Tumor-On-Chip Model To Decipher The Role Of Stromal Crosstalk On Tumor Progression**Presenter:** Kalpana Ravi**Principal Investigator:** N/A**Author(s):**

Mehdi Nikkhah

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 214 D

Track: Cancer Technologies

**Cancer Immunoengineering, Immunomodulation and Immunotherapy****Session Chair(s):**Erica Pratt  
Mahsa Dabagh**Abstract Title:** Vascularized Tumor-on-a-chip to Investigate Immunosuppression and Functions of CAR T-Cells**Presenter:** Venkatesh Shirure**Principal Investigator:** N/A**Author(s):**Venkatesh Shirure  
Yukiko Yamaguchi  
Anton Block  
Rajul Bains  
Saul Priceman  
Steven George**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Erica Pratt  
Mahsa Dabagh**Abstract Title:** Modeling the Effect of Radiation on Glioblastoma in a Vascularized Hydrogel Model**Presenter:** Yoanna Ivanova**Principal Investigator:** Brendan Harley**Author(s):**Mai Ngo  
Brendan Harley

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 214 D

Track: Cancer Technologies

**Engineered Cancer Models for In Vitro Studies****Session Chair(s):**Erica Pratt  
Mahsa Dabagh**Abstract Title:** ECM Produced by Tumor Cells Promotes Adhesion in Transcoelomic Metastasis**Presenter:** Hannah Micek**Principal Investigator:** N/A**Author(s):**Lauren Rosenstock  
Caitlin Hielsberg  
Yicheng Ma  
Pamela Kreeger**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 007 A

Track: Drug Delivery

**Respiratory Drug Delivery****Session Chair(s):**Diego Correa  
Jessica Larsen  
Maria Gonzalez Porras**Abstract Title:** Extracellular Vesicles for Pulmonary Drug Delivery and Vaccine Applications**Presenter:** Ke Cheng**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 007 A

Track: Drug Delivery

**Respiratory Drug Delivery****Session Chair(s):**Diego Correa  
Jessica Larsen  
Maria Gonzalez Porras**Abstract Title:** Biomimetic Peptide Aerogels for Rapid Clearance of Pulmonary MDR Tuberculosis**Presenter:** Scott Medina**Principal Investigator:** Scott H. Medina**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 007 A

Track: Drug Delivery

**Respiratory Drug Delivery****Session Chair(s):**Diego Correa  
Jessica Larsen  
Maria Gonzalez Porras**Abstract Title:** Engineering extracellular vesicles for therapeutic applications in lung injury**Presenter:** Ana Puerta**Principal Investigator:** N/A**Author(s):**Maria Angelica Rincon-Benavides  
Natalia Higueta-Castro  
Daniel Gallego-Perez  
Tatiana Cuellar-Gaviria  
Daniel Dodd  
Devleena Das

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 007 A

Track: Drug Delivery

**Respiratory Drug Delivery****Session Chair(s):**

Diego Correa

Jessica Larsen

Maria Gonzalez Porras

**Abstract Title:** Inhalable Aluminum-based Metal Organic Framework Nanoparticles as Humoral Pulmonary Adjuvants

**Presenter:** Catherine Fromen**Principal Investigator:** Catherine Fromen**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 007 A

Track: Drug Delivery

**Respiratory Drug Delivery****Session Chair(s):**

Diego Correa

Jessica Larsen

Maria Gonzalez Porras

**Abstract Title:** Intranasal mRNA vaccination with End Group Modified Poly(amine-co-ester) Polyplexes

**Presenter:** Alexandra Suberi**Principal Investigator:** W. Mark Saltzman**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 214 A

Track: Nano and Micro Technologies

**Session Chair(s):**

Adam Higgins

Marissa Elizabeth Wechsler

**Abstract Title:** Nanoparticles in Cancer Diagnostics

**Presenter:** Jessica Winter**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 9, Room: 007 A

Track: Drug Delivery

**Respiratory Drug Delivery****Session Chair(s):**

Diego Correa

Jessica Larsen

Maria Gonzalez Porras

**Abstract Title:** Novel Nanocomposites For Enhanced Pulmonary Drug Delivery

**Presenter:** Uday Chintapula**Principal Investigator:** N/A**Author(s):**

Su Yang

Trinh Nguyen

Amie Kieu

Harish Ramachandramoorthy

He Dong

Kytai Nguyen

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 9, **Room:** 214 A**Track:** Nano and Micro Technologies**Molecular Sensors and Nanodevices for Diagnostics and Biomedical Imaging****Session Chair(s):**

Adam Higgins

Marissa Elizabeth Wechsler

**Abstract Title:** Dual Reporter Sensor Cell (DRSC)

Assay: an Enhanced Tool for Measuring the HIV Viral Reservoir

**Presenter:** Soroosh Torabi**Principal Investigator:** Scott Berry**Author(s):**

Soroosh Torabi

Spencer Backus

Katrina Eterovich

Nathan Sherer

Rob striker

Scott Berry

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 9, **Room:** 214 A**Track:** Nano and Micro Technologies**Molecular Sensors and Nanodevices for Diagnostics and Biomedical Imaging****Session Chair(s):**

Adam Higgins

Marissa Elizabeth Wechsler

**Abstract Title:** High Throughput Electronic

Detection of COVID-19 Biomarkers using Enzymatic Metallization

**Presenter:** Hanhao Zhang**Principal Investigator:** Aniruddh Sarkar**Author(s):**

Hanhao Zhang

Neda Rafat

Josiah Rudge

Yuna Kim

Aniruddh Sarkar

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 9, **Room:** 214 A**Track:** Nano and Micro Technologies**Molecular Sensors and Nanodevices for Diagnostics and Biomedical Imaging****Session Chair(s):**

Adam Higgins

Marissa Elizabeth Wechsler

**Abstract Title:** A Point-of-Care Device with Probe-Based Melt Curve Analysis Enabled ID-AST of Bacterial STI**Presenter:** Jonathan Wang**Principal Investigator:** Jeff Wang**Author(s):**

Jonathan Wang

Tza-Huei Wang

**Saturday, October 15****3:00 PM - 4:30 PM****Session:** 17, **Room:** 206**Track:** Biomechanics**Session Chair(s):**

Nehal Abu-Lail

Ritu Raman

Yixiang Deng

**Abstract Title:** Lumbopelvic Coordination in Veterans with Low and High Levels of Physical Disability

**Presenter:** Clare Tyler

**Principal Investigator:** Babak Bazrgari

**Author(s):**

Babak Bazrgari

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 17, **Room:** 206

**Track:** Biomechanics

**Session Chair(s):**

Nehal Abu-Lail

Ritu Raman

Yixiang Deng

**Abstract Title:** ECIS as a platform for evaluating TJ susceptibility and damage from pulmonary atelectrauma in vitro.

**Presenter:** Eiichiro Yamaguchi

**Principal Investigator:** N/A

**Author(s):**

David Cheng

Carolina Chi

Donald Gaver

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 17, **Room:** 206

**Track:** Biomechanics

**Session Chair(s):**

Nehal Abu-Lail

Ritu Raman

Yixiang Deng

**Abstract Title:** Mechanical Characterization of Sheep Lymphatic Growth and Remodeling

**Presenter:** Sophia Mavris

**Principal Investigator:** Rudolph Gleason

**Author(s):**

Sophia Mavris

Zhanna Nepiyushchikh

Brandon Dixon

Rudolph Gleason

## Saturday, October 15

3:00 PM - 4:30 PM

**Session:** 17, **Room:** 206

**Track:** Biomechanics

**Session Chair(s):**

Nehal Abu-Lail

Ritu Raman

Yixiang Deng

**Abstract Title:** Tissue-Aging Effect of Glycosaminoglycan Content on Cortical Bone Failure Strain

**Presenter:** Savannah Heath

**Principal Investigator:** N/A

**Author(s):**

Michael Reyes

Yan Han

Michael Castillo

Xiaodu Wang

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 17, Room: 206

Track: Biomechanics

**Session Chair(s):**

Nehal Abu-Lail

Ritu Raman

Yixiang Deng

**Abstract Title:** Development of Drop Tower Impact Testing Apparatus to Evaluate Novel THA Femoral Broaches

**Presenter:** Rebecca Bates**Principal Investigator:** Michael R Moreno**Author(s):**

Rebecca Bates

Zachary Lawson

Andrew Robbins

Michael Moreno

**Saturday, October 15**

3:00 PM - 4:30 PM

Session: 17, Room: 206

Track: Biomechanics

**Session Chair(s):**

Nehal Abu-Lail

Ritu Raman

Yixiang Deng

**Abstract Title:** Hindlimb Suspension Accurately Models Spaceflight Effects on Bone and Muscle in Skeletally Immature Mice

**Presenter:** Michael Friedman**Principal Investigator:** Nehal Abu-Lail**Author(s):**

Evan Buettmann

Henry Donahue

**Saturday, October 15**

3:30 PM - 5:00 PM

Session: 9, Room: 006 A

Track: Tissue Engineering

**Biomechanics of Engineered Tissues****Session Chair(s):**

Ellie Rahbar

Teja Guda

**Abstract Title:** Mechanical Regulation of Provisional Matrix Assembly in 3D Fibrous Microtissues

**Presenter:** Jeroen Eyckmans**Principal Investigator:** N/A**Author(s):**

N/A

**Saturday, October 15**

3:30 PM - 5:00 PM

Session: 9, Room: 006 A

Track: Tissue Engineering

**Biomechanics of Engineered Tissues****Session Chair(s):**

Ellie Rahbar

Teja Guda

**Abstract Title:** Harnessing Mechanical Instabilities in Hydrogel Bilayers to Recreate Tissue Folding Patterns

**Presenter:** Avinava Roy**Principal Investigator:** N/A**Author(s):**

Avinava Roy

Everett Hume

Claudia Loebel

## Saturday, October 15

3:30 PM - 5:00 PM

**Session:** 9, **Room:** 006 A

**Track:** Tissue Engineering

### Biomechanics of Engineered Tissues

**Session Chair(s):**

Ellie Rahbar  
Teja Guda

**Abstract Title:** Morphogenetic Evolution of hiPSC-Derived Mesenchymal Tissues under Spatial Mechanical Constraints

**Presenter:** Zhen Ma Ma

**Principal Investigator:** N/A

**Author(s):**  
N/A

## Saturday, October 15

3:30 PM - 5:00 PM

**Session:** 9, **Room:** 006 A

**Track:** Tissue Engineering

**Session Chair(s):**

Ellie Rahbar  
Teja Guda

**Abstract Title:** Demonstration of an Adipose-Vascularized Human Skin Equivalent Culture Model for Photoaging

**Presenter:** Joshua Morgan

**Principal Investigator:** N/A

**Author(s):**  
Martina Sanchez

## Saturday, October 15

3:30 PM - 5:00 PM

**Session:** 9, **Room:** 006 A

**Track:** Tissue Engineering

**Session Chair(s):**

Ellie Rahbar  
Teja Guda

**Abstract Title:** A 3D Glioblastoma-Vascular Model to Reveal Dormancy and Therapeutic Resistance of Glioma Stem Cells

**Presenter:** Nathaniel Silvia

**Principal Investigator:** Guohao Dai

**Author(s):**  
Nathaniel Silvia  
Vivian Lee  
Guohao Dai