UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE *of* ENGINEERING

The Center for Biomedical Engineering & Science

Charlotte Biomedical 2019

320 East 9th Street, Charlotte, NC – 9th Floor

Special Topic: Regenerative Medicine

Friday, May 10, 2019

Symposium Agenda:

08:00 AM - 08:20 AM	Arrival, Registration, Badges & Breakfast	
08:20 AM - 08:25 AM	Welcome and Introductory remarks by Dr. Charles Lee, CBES Director (902)	
08:25 AM - 08:30 AM	Greetings from Nancy Gutierrez, Dean of College of Liberal Arts and Sciences (902)	
08:30 AM - 09:30 AM	**Session 1 (902):** Translational Regenerative Medicine	
09:30 AM - 09:40 AM	Vendor Presentation – North Carolina Biotechnology Center (902)	
09:40 AM - 10:10 AM	Break, Vendors, Posters (901)	
10:10 AM - 11:10 AM	**Keynote Speaker (902):** Dr. Thomas Shupe, WFIRM Ex vivo Console of Human Organoids (ECHO) “Body-on-a-Chip” Platform	
11:10 AM - 11:20 AM	Vendor Presentation – Sarstedt (902)	
11:20 AM - 11:30 AM	Vendor Presentation – Miltenyi Biotec (902)	
11:30 AM - 12:00 PM	Vendors/Lunch (901)	
12:00 PM - 01:30 PM	Parallel Sessions: **Session 2 (902):** 3D Organs and Organs on a Chip	**Session 3 (906):** Orthopedic Regenerative Medicine
01:30 PM - 02:00 PM	Vendors/Break (901)	
02:00 PM - 03:30 PM	Parallel Sessions: **Session 4 (902):** Cancer Diagnostics and Personalized Medicine	**Session 5 (906):** Cryopreservation of Tissues and Organs
03:30 PM - 05:00 PM	11th Annual CBES Graduate Student Poster Competition (901 & 905)	

Session Talks

Session 1: Translational Regenerative Medicine (902, 8:30 AM - 9:30 AM)

Introduction: Co-Chairs: Drs. Mark Clemens, UNCC & Cynthia Wilkins-Port, WFIRM

- Department of Defense funding — Vijay Gorantla, WFIRM

Panel Discussion

Session 2: 3D Organs and Organs on a Chip (902, 12:00 PM - 1:30 PM)

Introduction: Co-Chairs: Drs. Hansang Cho, UNCC & Aleks Skardal, WFIRM

- Electroporation of Adhered Brain Endothelial Cells on Chip Toward Controlled Transcellular Permeabilization of the Blood-Brain Barrier — Rafael Davalos, Virginia Tech
- Airway Organoids for Disease Modeling and Drug Discovery. — Sean Murphy, WFIRM
- Modulation of Neural Activity to Enhance the Myelination of Axons By Oligodendrocytes — In Hong Yang, UNCC
- Colorectal Cancer Organoids for Modeling and predicting disease progression — Mahesh Devarasetty, WFIRM

Panel Discussion

Session 3: Orthopedic Regenerative Medicine (906, 12:00 PM - 1:30 PM)

Introduction: Co-Chairs: Drs. Nigel Zheng, UNCC & John Jackson, WFIRM

- 3D Bioprinting Strategy for Musculoskeletal Tissue Engineering — Sang Jin Lee, WFRIM
- A Novel Model of Acute Skeletal Muscle Injury in rats for Testing the Effects of Age and Gender on Regeneration and Recovery of Function — Tracy Criswell, WFIRM
- Engineering of biomimetic skeletal muscle tissue constructs for functional restoration — Ji Hyun Kim, WFIRM
- Successful Design of Resorbable Bioactive Ceramic Medical Device and Applications in Regenerative Medicine — Ahmed El-Ghannam, UNCC

Panel Discussion

Session 4: Cancer Diagnostics and Personalized Medicine (902, 2:00 PM - 3:30 PM)

Introduction: Co-Chairs: Drs. Didier Dreau, UNCC & Shay Soker, WFIRM

➢ Cancer Pharmacogenomics and Personalized Medicine at Levine Cancer Institute	Jai Patel, Atrium Health
➢ Brain Metastasis Imaging and Targeted Therapy	Dawen Zhao, WFIRM
➢ Nucleic Acid Nanoparticles (NANPs) with Controlled Immunostimulation	Kirill Afonin, UNCC
➢ Theranostic Polymer Nanoparticles for Detection and Photothermal Treatment of Colorectal Cancer	Nicole Levi, WFIRM
➢ Characterization of the HSP70 Co-chaperone HDJ2 as a Hub of Anticancer Drug Resistance	Andrew Truman, UNCC
Roundtable Discussion	

Session 5: Cryopreservation of Tissues and Organs (906, 2:00 PM - 3:30 PM)

Introduction: Co-Chairs: Dr. Gloria Elliott, UNCC & Dr. Hooman Sadri-Ardekani, WFIRM

➢ Composite Tissue Cryopreservation: Challenges for Vascularization and Viability	Vijay Gorantla, WFIRM Fatih Zor, WFIRM Huseyin Karagoz, WFIRM
➢ Biomanufacturing and Cryopreservation of a Novel SiC Bone Tissue Engineering Graft	Ahmed El-Ghannam, UNCC Gloria Elliott, UNCC
➢ Whole Testis Cryopreservation, an animal model	Kelvin Brockbank, Tissue Testing Technologies Hooman Sadri-Ardekani, WFIRM
Roundtable Discussion	

UNCC Graduate Student Poster Competition (901 & 905, 03:30 PM - 05:00 PM)

- .Nitika - Identification of the novel regulatory role of Hsp70 co-chaperone Ydj1/Hdj2 on oncoprotein Ribonucleotide reductase complex
- Oluwaseun Adeyemi - The Relationship of Healthcare Disparity and Functional Impairment among Patients with Chronic Obstructive Pulmonary Disease (COPD)
- Abhijith Bagepalli - Seizure prediction using Deep Learning
- Damian Beasock - Synthesis and characterization of bioactive silicon carbide for load-bearing implants

- Sunny Bellary - Human robot cooperation using EEG signals with self-learning
- Morgan Chandler - Bioresponsive quantum dot lattices for applications in biosensing and conditionally activated RNA interference
- Fangjian Chen - Level-walking analysis using stereophotogrammetry system to test TKA surgery patients
- Ashley Ciero - Development of Experimental and Numerical Tools for Magnetic Drug Targeting in Cardiovascular Flow
- Eric Cutler - Dopamine Detection for Parkinson's Disease Via SERS Plasmonic Enhancement
- Jacob Dixon - Red Fluorescence in Bovine Serum Albumin-Gold Complexes
- Daniel Furr - Testing the Functionality of Lysozyme after Desiccation by Light Assisted Drying
- Akhil Gargey – Electrostatic interactions within Loop 1 and the force generation region of human cardiac myosin affect the rate of actomyosin dissociation and ADP release
- Dakota Goad - Efficacy of Oncolytic Vesicular Stomatitis Virus against Murine Pancreatic Ductal Adenocarcinoma Cells
- Shreya Goyal - Understanding the function of novel SNX-BAR protein in yeast
- Madeline Greenier - Engineering Surface Activated Silicon Carbide as a Porous Cell Carrier
- Justin Halman - Structure and Composition Determine Immunorecognition of Nucleic Acid Nanoparticles
- Abolfazl Hosseinpour – Investigation of the Effect of Bone Remodeling on Bone Loss and Loosening of Femoral Component in Total Knee Aurthroplasty
- Hyunjae Jeon - Acute deformation of femoral cartilage following three different movements in patients with patellofemoral pain
- Alexis Johnston - Porphyrin Modified Polyhedral Oligomeric Silsesquioxane Molecules for the Photodynamic Therapy of Cancer Cells
- Laura Knighton - Understanding the role of the Hsp70 chaperone code in the DNA damage response
- Cobey McGinnis - Single Pixel Hyper-Spectral Imaging with the use of a Coherent Fiber Bundle
- Adit Mehta - Biomechanics of the neck: Applications to Vehicle Occupant Safety
- Amanda Reid - Simplifying Complex Bacterial Pathogens - Glycan Bioassembly with A Highly Fluorescent Probe

- Beth Scarbrough - Characterization of proteins involved in lipid A modification and polymyxin resistance in Escherichia coli using a fluorescent lipid probe
- Sara Seegers - Experimental evolution of oncolytic vesicular stomatitis results in improved viral attachment to SUIT-2 cells
- Chang Shu - Three-dimensional joint kinematics of TKA-reconstructed knee during stair ascent before and after surgery
- Valentina Talevi - Periodontal disease-associated SNPs in head and neck cancer irradiation patients
- Mubin Tarannum - Nanoparticle-based sequential therapy for improved treatment of triple negative breast cancer
- Danielle Torp - Validity of a Novel Cross-Line Laser for Predicting Lateral Plantar Pressure in Individuals with Chronic Ankle Instability
- Hemapriyadarshini Vadarevu - Mesoporous silica nanoparticles as a delivery platform for combined chemo and gene therapy
- Mahboubeh Yazdanifar - Developing a novel anti-MUC1 CAR T cell for treating pancreatic cancer and breaking the resistance by combination therapy

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