Bioengineering Cardiovascular Training Program Symposium

Monday May 15, 2023
9:00 – 5:00pm Pacific Time
Orin Smith Auditorium
850 Republican St. Seattle, WA. 98109

9:00am Welcome and Introduction of Keynote Speaker
Michael Regnier, PhD, Director

9:10am Keynote Address
Eleonora Grandi, Ph.D., FHRS, Professor, Department of Pharmacology
Chair, Biophysics Graduate Group Chancellor's Fellow, University of California Davis School of Medicine
Sex-specific Predictive Models for Cardiac Health

10:10 Break

10:30am Bioengineering Cardiovascular Training Program Awardees Talks
Ariana Frey, **Zheng Lab**
Stacking thick perfusable human microvascular grafts to create dense vascularized muscular tissues

Hao Zhou, Scatena Lab & Giachelli Lab
CPB Shear Stress Stimulates Monocytes Adhesion to and Transmigration Through Endothelial Cell Through IL-8 Signaling

Casey Kiyohara, Thomas Lab
Antibody-mediated SARS-CoV-2 entry and conformational regulation

Savannah Bifulco, CardSS Lab
Explainable Machine Learning for AFib: Identifying Risk Factors and Predicting Post-Ablation Recurrence

Kerry Kao, Regnier Lab
A molecular scale investigation of the mechanisms of contractile dysfunction for the hypertrophic cardiomyopathy MYH7 G256E mutation

12:10pm Break
(Feel free to attend the “Monday Noon with ISCRM” seminar, 12:30 – 1:30pm)

1:40pm Bioengineering Cardiovascular Training Program Alumni Talks
Anastasiia Stratiievska, Ph.D, Research Scientist, Bloodworks Northwest
“How do platelets sense cold? Could one thermosensitive ion channel TRPM8 be responsible?”

Bioengineering Cardiovascular Training Program (BCTP) is supported by the National Institute of Biomedical Imaging and Bioengineering of the NIH under Award Number T32EB032787 and by the Department of Bioengineering.

Joe Powers, Ph.D Assistant Professor, Lab Medicine & Pathology and Mechanical Engineering, UW.
"How does your heart feel? Investigating biomechanical signals regulating cardiac structure and function"

2:30pm Career Panel

Molly Mollica, Ph.D. Assistant Professor, Mechanical Engineering, UMBC
Meredith Redd Ph.D., Acting Instructor, Bioengineering, UW
Anastasiia Stratiievska, Ph.D., Research Scientist, Bloodworks Northwest
Joe Powers, Ph.D., Assistant Professor, Mechanical Engineering, UW

3:30 – 5:00pm Poster session, Atrium of Building C, SL

Sayantan Jana, Ph.D. Postdoc, Department of Medicine,
Gelsolin, an actin remodeling enzyme, is an important mediator of cardiac fibroblast activation and fibrosis

Agatha Carina Mae, Master's Student**,** Bioengineering
Effects of the MYH7 R369Q dilated cardiomyopathy-causing mutation on myosin crossbridge kinetics

Zhiying Xie, Graduate Student
Quantifying Microvascular Structure in Healthy and Infarcted Rat Hearts Using Optical Coherence Tomography Angiography

Fan Zhang, Ph.D., Postdoc, Bioengineering
Hydrogel composition and stromal cells regulate vascular self-assembly

Chelsea Gibbs, Graduate Student**,** Bioengineering
Changes in Graft-Host Coupling Can Lead to Engraftment Arrhythmia: A Computational Study

Christian Mandrycky, Ph.D., Postdoc, Bioengineering
Embryonic myosin mutations associated with distal arthrogryposis alter the mechanics and maturation of hiPSC derived skeletal muscle

Max Mahoney-Schaefer, Undergraduate
The Effect of Small Molecule Myosin Modulators on ATP Turnover in Pig Cardiac HMM Using Stopped Flow Spectroscopy

Issac Kim Undergraduate, Bioengineering
Systematic Parameter Analysis for Determination of Reentrant Driver Inducibility

Jamie Yang, Undergraduate, Bioengineering
Optogenetic Suppression of Heart Arrhythmias Resulting from Stem Cell Derived Cardiomyocyte Implantation in Post-Heart Attack Patients

Dania Ahmed, Undergraduate

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Investigating the Role of Desmin Insufficiency in Patient Derived Induced Pluripotent Stem Cell Model of MYH7 Variant Dilated Cardiomyopathy

Åshild Telle, Ph.D., Postdoc
Cell-scale computational modeling of cardiac fibrosis

Abby Nagle, Graduate Student, Bioengineering
Endogenous Fret Measurement of Adhesion Tension in Engineered Human Cells
Topographical Cues Rescue Structural Defects in Non-Contractile Cardiomyocytes

Cherry Leung, Master's Student, Bioengineering
Developing a FRET-based tension sensor-compatible system for imaging cardiomyocytes under applied strain

Ethan Eldon Mickelson, Graduate Student, Bioengineering
Emergency Resuscitation of Trauma Patients with Potent Oncotic Polymers

Anthony Asencio Graduate Student, Bioengineering
Measuring Myofilament Specific Calcium in Hipsc Cardiomyocytes with Improved Optogenetic Sensors.

Abigail Garcia, Undergraduate Researcher in Chamberlain Lab, Department of Neurology
Effects of MBNL1 Muscle Gene Therapy for Myotonic Dystrophy on Cardiac Function

Trevor Mollot, Graduate Student
A Microneedle Array Device for Improved Cardiac Stem Cell Delivery, Retention, and Distribution

Sonette Steczina, Graduate Student, Bioengineering
Impaired myofibril function in patient-derived cardiomyocytes with the hypertrophic cardiomyopathy-myosin binding protein-C c.772G>A mutation

Kerry Kao, Graduate Student, Bioengineering
A molecular scale investigation of the mechanisms of contractile dysfunction for the hypertrophic cardiomyopathy MYH7 G256E mutation

Casey Kiyohara, Graduate Student, Bioengineering
Antibody-mediated SARS-CoV-2 entry and conformational regulation

Savannah Bifulco, Graduate Student, Bioengineering
Explainable Machine Learning for AFib: Identifying Risk Factors and Predicting Post-Ablation Recurrence

Hao Zhou, Graduate Student, Bioengineering
Cardiopulmonary Bypass shearing in PVC Tubing Results in IL-8 Dependent Monocytic Insult on the Endothelium.

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Ariana Frey, Graduate Student, Bioengineering
Stacking thick perfusable human microvascular grafts to create dense vascularized muscular tissues

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Questions? Please contact: Katie Dickinson, katiejd8@uw.edu
https://sites.uw.edu/bctg/

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