

COLUMBIA BME PRESENTATIONS

Wednesday, October 14, 2020

Time	Session/ Track	Topic	Authors/Presenters
3:10 PM - 3:20 PM	Session 3 Oral Presentations Platform Sessions – 3:00 PM - 4:15 PM including Q&A Track: Translational Biomedical Engineering	Integrated Human Organ-on-a-chip for Predictive Studies of Anti-Tumor Drug Efficacy & Cardiac Safety	Diogo Teles ^{1,2,3} , Alan Chramiec ¹ , Keith Yeager ¹ , Alessandro Marturano-Kruik ^{1,4} , Joseph Pak ¹ , Timothy Chen ¹ , Luke Hao ¹ , Miranda Wang ¹ , Roberta Lock ¹ , Daniel Naveed Tavakol ¹ , Marcus Busub Lee ¹ , Jinho Kim ^{1,5} , Kacey Ronaldson-Bouchard ¹ , and Gordana Vunjak-Novakovic ¹ 1Columbia University, New York, NY, 2University of Minho, Braga, Portugal, 3ICVS/3B's, PT Government Associate

Thursday, October 15, 2020

Time	Session/ Track	Topic	Authors/Presenters
ON DEMAND Q&A 9:00 AM – 10:00 AM ET	On Demand Sessions – Q&A 9:00 AM - 10:00 AM Track: Biomechanics; Modeling Cardiovascular Biomechanics	Mitral Regurgitation Quantification after MitraClip: Comparison of Doppler Echocardiography and FSI Modeling	Andres Caballero ¹ , Tongran Qin ¹ , Raymond McKay ² , Rebecca Hahn ³ , and Wei Sun ¹ 1Georgia Tech, Atlanta, GA, 2Hartford Hospital, Hartford, CT, 3Columbia University Medical Center, New York, NY
10:00 AM – 10:30 AM ET	Plenary Session II	Diversity Award Lecture	Aaron Kyle, Columbia University
3:00 - 4:15 PM ET	Session 5	DEBUT Presentations and Awards: VentureWell Award – NeuroTrack Columbia University	Team Captain: Brandon Cuevas Team Members: Abhinav Kurada, Panagiotis Oikonomou, Juan Rodriguez Faculty Advisors: Aaron Kyle, Katie Reuther

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Friday, October 16, 2020

Time	Session/ Track	Topic	Authors/Presenters
11:05 AM - 11:15 AM	Session 2 Oral Presentations Platform Sessions – 10:45 AM - 12:00 PM including Q&A Track: Orthopaedic and Rehabilitation Engineering	Immunomodulatory Effects of Pulsed Electromagnetic Fields on OA Human Synovium	Robert Stefani ¹ , Colden Lyons ¹ , Matthew Pellicore¹ , Siddharth Guha ¹ , Jocelyn Hung ¹ , Gerard Ateshian ¹ , Ruggero Cadossi ² , J. Chloe Bulinski ¹ , Roshan Shah ¹ , and Clark Hung ¹ ¹ Columbia University, New York, NY, ² Igea Clinical Biophysics, Carpi, Italy
12:00 PM – 4:15 PM EDT	Medtronic Design Competition	NeuroTrack & ViveSense, Columbia University	NeuroTrack Team: Brandon Cuevas, Abhinav Kurada, Panagiotis Oikonomou, Juan Rodriguez; Faculty Advisors: Aaron Kyle, Katie Reuther ViveSense Team: Benjamin Greenfield, Dev Leibowiz, Jeremy Perna and Irene Chen; Faculty Advisors: Aaron Kyle, Qi Wang
ON DEMAND Q&A 2:00 PM - 3:00 PM	On Demand Sessions – Q&A 2:00 PM - 3:00 PM Track: Cancer Technologies; Nanotechnologies and Extracellular Vesicles	Cationic Nanomaterials To Inhibit Breast Cancer Progression In Primary And Metastatic Sites	Tolu Akinade¹ , Jie Zhou ¹ , Tianyu Li ¹ , Divya Bhansali ¹ , Jinzhi Du ² , and Kam Leong ¹ ¹ Columbia University, New York, NY, ² South China University of Technology, Guangzhou, China, People's Republic of
ON DEMAND Q&A 4:15 PM - 5:15 PM	On Demand Sessions – Q&A 4:15 PM - 5:15 PM Track: Cellular and Molecular Bioengineering; CMBE Young Innovators, Part 2	Tissue-Engineered Stromal Reticula to Study Lymph Node Fibroblastic Reticular Cell Networks in Type I Diabetes (Invited)	Alice A. Tomei¹ , Freddy Gonzalez Badillo ¹ , Flavia Zisi Tegou ¹ , Riccardo Masina ¹ , Shane Wright ¹ , Mackenzie Scully ¹ , Laura Harwell ¹ , Michael Lupp ¹ , Jorge Postigo-Fernandez ² , and Remi J. Creusot ² ¹ University of Miami Miller School of Medicine, Miami, FL, ² Columbia University Irving Medical Center, New York, NY
ON DEMAND Q&A 4:15 PM - 5:15 PM	On Demand Sessions – Q&A 4:15 PM - 5:15 PM Track: Tissue Engineering; New Tissue Engineering Methods	Emulating Cosmic Radiation on Hematopoiesis using Engineered Human Bone Marrow	Daniel Naveed Tavakol¹ , Youngbin Kim ¹ , Martin Liberman ¹ , Andrew Harken ¹ , David Brenner ¹ , and Gordana Vunjak-Novakovic ¹ ¹ Columbia University, New York City, NY

Saturday, October 17, 2020

Time	Session/ Track	Topic	Authors/Presenters
2:40 PM - 2:50 PM	Session 2 Oral Presentations Platform Sessions – 2:00 PM - 3:15 PM including Q&A Track: Cellular and Molecular Bioengineering; Molecular and Cellular Engineering for Functional Materials and Sensors	Substrate Stiffness Modulates Human Regulatory T Cell Metabolic Profile and Induction	Lingting Shi¹ and Lance Kam ¹ ¹ Columbia University, New York, NY

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Posters Q&A - 9:00 AM – 10:00 AM	Track: Biomaterials Hydrogel Biomaterials	Generation of Decellularized Brain Extracellular Matrix to Characterize Neuron Functions in iPSC-derived Midbrain Organoids	Moshe Willner ¹ , Hyesung Kim ² , Yang Xiao ² , and Kam Leong ² 1Columbia University, Los Angeles, CA, 2Columbia University, New York, NY
Posters Q&A - 9:00 AM – 10:00 AM	Track: Biomaterials Topics in Biomaterials	Self-Organized Protein Arrays Guided by DNA Origami Lattices	Shih-Ting Wang ¹ , Brian S. Minevich ² , Honghu Zhang ¹ , Jiangfang Liu ³ , Dmytro Nykypanchuk ¹ , James Byrnes ¹ , Wu Liu ¹ , Lev Bershadsky ¹ , Qun Liu ¹ , Tong Wang ⁴ , Gang Ren ³ , and Oleg Gang ² 1Brookhaven National Laboratory, Upton, NY, 2Columbia University, New York, NY, 3Lawrence Berkeley National Laboratory, Berkeley, CA, 4The City College of New York, New York, NY
Posters Q&A - 9:00 AM – 10:00 AM	Track: Bioinformatics, Computational and Systems Biology Systems Approaches to Therapy, Therapeutics, and Precision Medicine	Cellular Mechanisms of Mitral Valve Remodeling after Myocardial Infarction	Daniel P Howsmon ¹ , Bruno V Rego ¹ , Estibaliz Castillero ² , Salma Ayoub ¹ , Amir H Khalighi ¹ , Robert C Gorman ³ , Joseph H Gorman, III ³ , Giovanni Ferrari ² , and Michael S Sacks ¹ 1The University of Texas at Austin, Austin, TX, 2Columbia University Irving Medical Center, New York, NY, 3University of Pennsylvania, Philadelphia, PA
Posters Q&A - 9:00 AM – 10:00 AM	Track: Biomechanics Cancer Mechanobiology	T Cell Infiltration is Sensitive to Local Mechanical Resistance	Chirag Sachar ¹ and Lance Kam ² 1Columbia University, New York, NY, 2Columbia University, New York, NY

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Time	Session/ Track	Topic	Authors/Presenters
Posters Q&A - 9:00 AM – 10:00 AM	Track: Cardiovascular Engineering Cardiovascular Organ-on-Chip Technologies	Organ-on-a-chip with microvascular plexus for drug testing and disease modelling	Yimu Zhao ¹ and Gordana Vunjak-Novakovic ¹ 1Columbia University, NYC, NY

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Posters Q&A - 2:00 PM - 3:00 PM	Track: Nano and Micro Technologies Micro/Nano Technologies for Cancer Detection, Diagnosis, or Therapy	Nanoparticulate Carrier and Scavenger for Treating Oral Cancer, Inflammation, and Associated Pain	Divya Bhansali ¹ , Tianyu Li ¹ , Tolu Akinade ¹ , Nigel Bunnett ² , Brian Schmidt ² , and Kam Leong ¹ 1Columbia University, New York, NY, 2New York University, New York, NY
Posters Q&A - 2:00 PM - 3:00 PM	Track: Cellular and Molecular Bioengineering Topics in Cellular and Molecular Bioengineering	Glycocalyx of Human Brain Microvascular Endothelial Cells Revealed by Stochastic Optical Reconstruction Microscopy (STORM)	Bingmei Fu ¹ , Yifan Xia ¹ , Yunfei Li ¹ , Yan Sun ² , Bin Xu ² , and Kam Leong ² 1The City College of the City University of New York, New York, NY, 2Columbia University, New York, NY
Posters Q&A - 2:00 PM - 3:00 PM	Track: Tissue Engineering Engineering Multi-cellular Systems	An Optogenetic Tissue-Engineered Human Model of Spinal Muscular Atrophy	Olaia Vila ^{1,2} , Yihuai Qu ¹ , Joseph Pak ¹ , Troy Costa ¹ , Stephen Ma ¹ , Todd McDevitt ² , and Gordana Vunjak-Novakovic ¹ 1Columbia University, New York, NY, 2Gladstone Institutes, San Francisco, CA

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Time	Session/ Track	Topic	Authors/Presenters
Posters Q&A - 3:30 PM - 4:30 PM	Track: Undergraduate Research & Design Late Breaking Abstracts	Multiplexed Biosensors for Enhanced Bacteria Tropism <i>in vivo</i>	Tiffany Chien ¹ , Tetsuhiro Harimoto ¹ , Benjamin Kepecs ¹ , Kelsey Gray ¹ , Courtney Coker ¹ , Nicholas Hou ¹ , Kelly Pu ¹ , Tamjeed Azad ¹ , and Tal Danino ¹ 1Columbia University, New York, NY
Posters Q&A - 3:30 PM - 4:30 PM	Track: Undergraduate Research & Design Late Breaking Abstracts	Rapid Engineering of Tumor-Colonizing Bacteria in a 3D Multicellular Coculture	Tetsuhiro Harimoto ¹ , Tiffany Chien ¹ , Zakary Singer ¹ , Benjamin Kepecs ¹ , Oscar Velazquez ¹ , Kelsey Gray ¹ , William Mather ² , and Tal Danino ¹ 1Columbia University, New York, NY, 2BioCircuits Institute, University of California, San Diego, San Diego, CA
Posters Q&A - 3:30 PM - 4:30 PM	Track: Undergraduate Research & Design Late Breaking Abstracts	A Novel Bioengineered Model of Osteosarcoma Recapitulates Critical Tumor Phenotypes Within a Native Bone Microenvironment	Alan Chramiec ¹ , Alessandro Marturano-Kruik ^{2,3} , Luke Hao ³ , Keith Yeager ³ , Max Summers ³ , Miranda Wang ³ , Roberta Lock ³ , and Gordana Vunjak-Novakovic ³ 1Columbia University, Brooklyn, NY, 2Politecnico de Milano, Milan, Italy, 3Columbia University, New York, NY