Society For Biomaterials

2023 ANNUAL MEETING AND EXPOSITION

SHERATON SAN DIEGO HOTEL & MARINA
APRIL 19 – APRIL 22, 2023

San Diego, CA

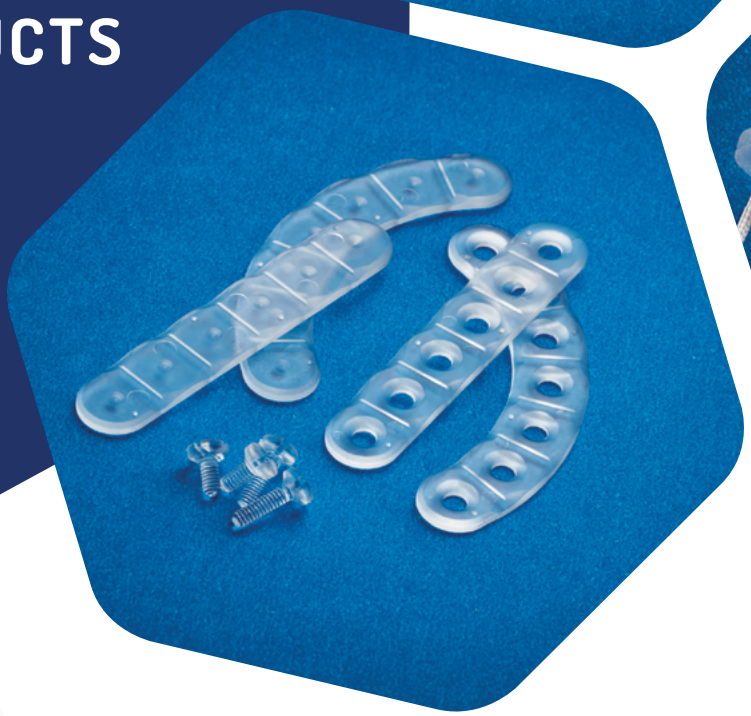
FINAL PROGRAM

RIDING THE *Translational waves* TO THE FUTURE

www.biomaterials.org

TESco ASSOCIATES

STRATEGIC QUALITY PARTNER FOR OUTSOURCED R&D AND CONTRACT MANUFACTURING OF BIOABSORBABLE PRODUCTS



DELIVERING CLINICAL UTILITY

Our business model is designed to adapt to our client's specific manufacturing and material development needs. We offer the resources, knowledge, and experience necessary to provide rapid research and development and a smooth transition into commercial production.

INNOVATIVE MATERIAL DEVELOPMENT

TESco has been processing materials from both research grade and commercially available products. Our knowledge of bioabsorbable/biodurable polymers and co-polymers covers a wide range of molecular weights and formulations.

QUALITY

Our team puts the quality and integrity of the device first in every stage of development. TESco has a stringent and robust quality management system, certified to ISO 13485:2016 and registered with FDA as a contract manufacturer. Our facility houses 12 ISO Class 7 cleanroom suites with independent suite design.

EXPERIENCE

- Material Selection and Compounding
- Injection Molding & Extrusion
- Packaging and Sterilization Support
- FDA Submission Assistance
- Assembly

G. LAWRENCE THATCHER
2023 C. William Hall Award Recipient

978.649.5527 INFO@TESCOASSOCIATES.COM WWW.TESCOASSOCIATES.COM

WELCOME

TO THE SOCIETY FOR BIOMATERIALS 2023 ANNUAL MEETING & EXPOSITION

We would like to extend a warm welcome to everyone attending the Society For Biomaterials 2023 Annual Meeting & Exposition: Riding the Translational Waves to the Future. SFB's Annual Meeting & Exposition provides a welcome haven for the many different, unique individuals in the biomaterials field!

We would like to thank the members of the Program Committee for their efforts and guidance in creating an engaging conference program this year. We are also grateful to the numerous individuals who have worked to create each session, workshop, and panel, as well as those who dedicated time to reviewing abstracts. It is through this process that we are best able to highlight the most exciting scientific findings each year and we are therefore truly grateful for your efforts. Of course, we are especially appreciative of our generous sponsors and exhibitors, without whom this meeting would not be possible.

Finally, we would like to give our thanks to you, the attendees of the 2023 Annual Meeting & Exposition! We sincerely hope that you find that the program inspires further connections to enable your own future directions.

Karen L. Christman, PhD
Program Committee Co-Chair
University of California San Diego

Jennifer Woodell-May, PhD
Program Committee Co-Chair
Zimmer Biomet

About THE SOCIETY

The Society For Biomaterials is a multidisciplinary society of academic, healthcare, governmental and business professionals dedicated to promoting advancements in all aspects of biomaterial science, education and professional standards to enhance human health and quality of life. The vision of the Society For Biomaterials is to serve as the world's preeminent interactive global community committed to advancing excellence in all aspects of biomaterial science, engineering and technology for promoting human health and well-being.

Program OVERVIEW

RIDING THE TRANSLATIONAL WAVES TO THE FUTURE

The Society For Biomaterials welcomes you to Harbor Island in San Diego, California. Riding the transitional waves to the future requires an extraordinary combination of people from a variety of disciplines. Clinicians, researchers, regulatory agencies, and students from academic research labs, medical device manufacturers, and operating rooms across the country and around the world will convene in San Diego to discuss their latest research, form new collaborations, and be inspired by the work of their peers. This interdisciplinary gathering is a critical pathway to identifying issues with current technologies, and for translating academic research to clinical practice. We look forward to once again being able to educate, learn from, and collaborate across various scientific disciplines including materials science, biology, engineering and medicine for improving human health.

Join us in congratulating our CEO Ali Khademhosseini on winning the 2023 Technology Innovation and Development Award. The Terasaki Institute for Biomedical Innovation is accelerating the pace of translational research by supporting the world's leading scientists with an open, entrepreneurial environment for bioengineering new materials, biological models, and technologies to address critical challenges to the health of the planet and its people. Ready to join us on our mission? Visit our website and apply today to join our team.

terasaki.org

GENERAL INFORMATION

All conference events will take place at the Sheraton San Diego Hotel & Marina. Photographs and/or videos of any slide or poster presentation are strictly prohibited.

REGISTRATION

All attendees must register for the meeting. Registration fees include: admittance to all scientific sessions, panel discussions, exhibits, opening reception, poster and exhibition receptions and the BASH. Additional fees apply to participate in workshops and luncheons.

SFB supports Diversity, Equity and Inclusion and, in our ongoing efforts to lead by example, pronoun stickers for your name badges will once again be available at registration.

Registration is located in the Seascape Foyer on the Lobby Level of the Marina Tower.

Onsite Registration Hours

- Wednesday, April 19 | 7:30 AM–7:00 PM
- Thursday, April 20 | 7:00 AM–6:30 PM
- Friday, April 21 | 7:00 AM–6:30 PM
- Saturday, April 22 | 7:00 AM–11:00 AM

We recognize that some attendees may require caregiver assistance with certain daily tasks and activities. If you are a qualifying caregiver or recipient of these services, please stop by the SFB Registration Desk for assistance.

EXHIBIT HOURS

Wednesday, April 19

- **12:00 PM–5:00 PM** **Exhibitor Set-up**
- **6:30 PM–8:30 PM** **Opening Reception in Exhibit Hall & Poster Session I**

Thursday, April 20

- **10:00 AM–1:00 PM** **Exhibit Hall Open**
- **2:30 PM–7:15 PM** **Exhibit Hall Open**
- **5:45 PM–7:15 PM** **Exhibit & Poster Session II**

Friday, April 21

- **9:30 AM–1:30 PM** **Exhibit Hall Open**
- **3:30 PM–5:00 PM** **Exhibit & Poster Session III**
- **5:30 PM–7:30 PM** **Exhibitor Tear Down**

POSTER SESSIONS

The Poster Sessions are an integral piece of the conference's educational opportunities. We encourage all meeting participants to support and engage with the poster presenters to learn more about their scientific findings. This year's conference features more than 600 unique scientific posters. Poster presentations will be held in the Exhibit Hall. Additional details, including the poster schedule, are available in the mobile app.

Wednesday, April 19

- **12:00 PM–5:00 PM** **Exhibitor Setup**
- **6:30 PM–8:30 PM** **Opening Reception in Exhibit Hall & Poster Session I**
- **8:30 PM–9:30 PM** **Poster Session I Tear Down**

Thursday, April 20

- **7:00 AM–8:00 AM** **Poster Session II Setup**
- **5:45 PM–7:15 PM** **Exhibit & Poster Session II**
- **7:15 PM–8:15 PM** **Poster Session II Tear Down**

Friday, April 21

- **7:00 AM–9:00 AM** **Poster Session III Setup**
- **3:30 PM–5:00 PM** **Exhibit & Poster Session III**
- **5:00 PM–6:30 PM** **Poster Session III Tear Down**

All poster presenters are required to hang their posters, during the designated time frame, at the location that corresponds to their poster number. Supplies will be provided. Posters not removed by the end of the designated time will be discarded. For safety reasons, poster presenters may not leave poster tubes or any other items under the poster boards.

SPEAKER READY ROOM

The Speaker Ready Room is located in Tidepool 2 on the Lobby Level of the Marina Tower. The Speaker Ready Room is provided for presenters to prepare for and upload their presentations prior to their scheduled session. **All speakers must check into the Speaker Ready Room at least four (4) hours prior to their presentation.**

Speaker Ready Room Hours

- Wednesday, April 19 | 7:00 AM–7:00 PM
- Thursday, April 20 | 6:00 AM–8:30 PM
- Friday, April 21 | 6:00 AM–8:30 PM
- Saturday, April 22 | 6:00 AM–12:00 PM

PERSONAL CARE LOUNGE

Need space at the SFB 2023 Annual Meeting to feed an infant, express milk, have quiet prayer time or another personal care need requiring peace and privacy? The Personal Care Lounge is available for SFB attendees only and is open on a first-come, first-served basis. The Personal Care Lounge is located in Low Tide on the Lobby Level of the Marina Tower. Please visit the conference mobile app for additional details.

SFB 2023 SPONSORS

PLATINUM

TESco ASSOCIATES

GOLD

htl BIOTECHNOLOGY

MCRA

ZIMMER BIOMET Moving You Forward.™

SILVER

Acta

Ca P Biomaterials, LLC

ELSEVIER

Takeda

TEXAS A&M UNIVERSITY Department of Biomedical Engineering

UNIVERSITY OF OREGON

WILEY

BRONZE

BIOMOMENTUM

CLEMSON BIOENGINEERING

Corbion

EVONIK Leading Beyond Chemistry

Park SYSTEMS

Regenity

Biomaterials Science Journal of Materials Chemistry B Materials Advances

TERASAKI INSTITUTE

SUPPORTERS

AlephFarms

LUNG BIOTECHNOLOGY

Northwestern CENTER FOR ADVANCED REGENERATIVE ENGINEERING

UC San Diego JACOBS SCHOOL OF ENGINEERING Shu Chien-Gene Lay Department of Bioengineering

THE UNIVERSITY OF MEMPHIS | THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER Joint Graduate Program in Biomedical Engineering

Penn Engineering Department of Bioengineering

FRIENDS

ACS APPLIED BIO MATERIALS

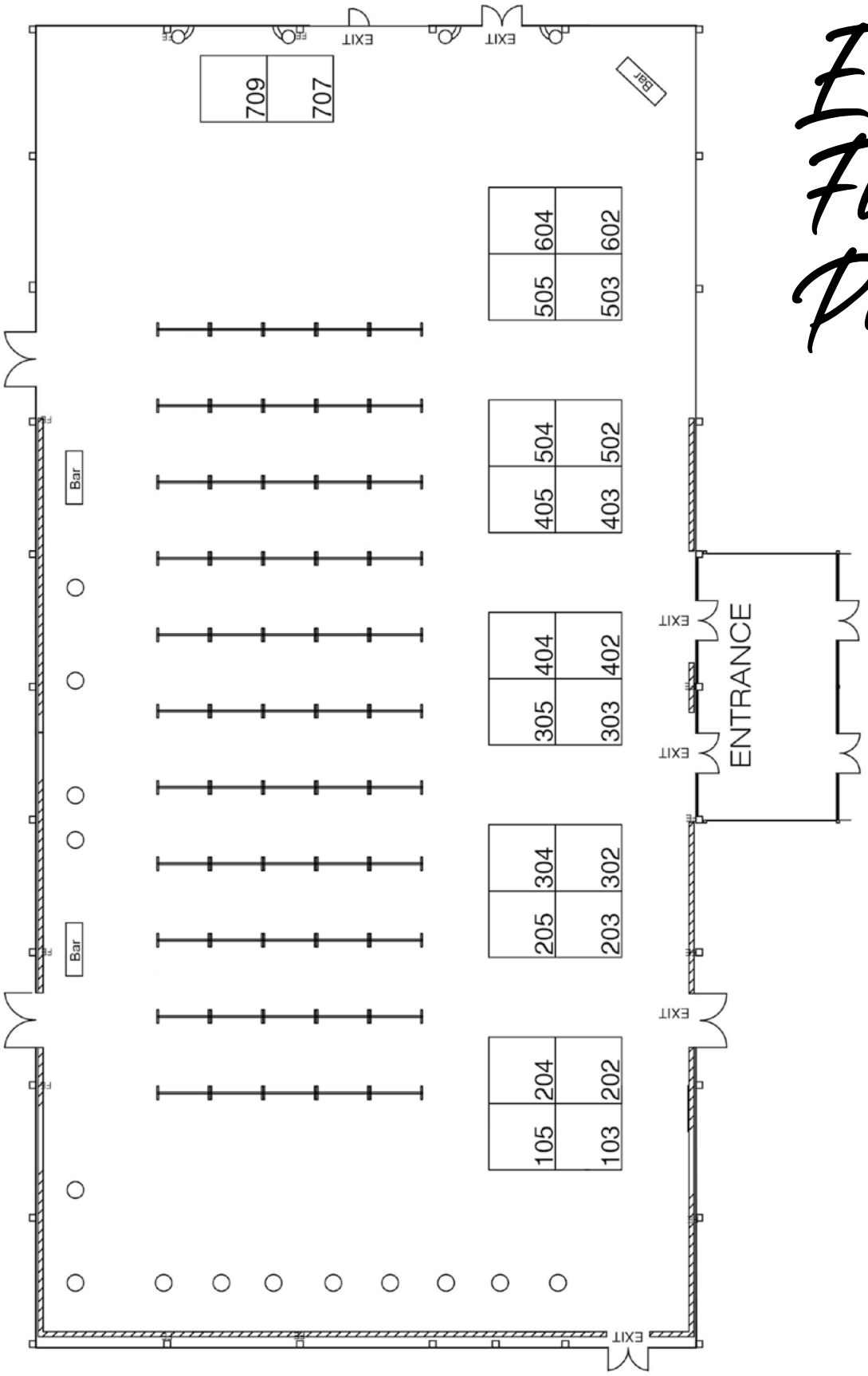
ACS Biomaterials SCIENCE & ENGINEERING

ACS Macro Letters

Bio MACROMOLECULES

UCONN SCHOOL OF DENTAL MEDICINE

Exhibit Floor Plan



EXHIBITORS

COMPANY	BOOTH #	COMPANY WEBSITE
12th World Biomaterials Congress (WBC 2024)	604	https://wbc2024.com
Allevi by 3D Systems	504	allevi3d.com
Biomomentum, Inc.	502	https://www.biomomentum.com
Bruker	105	www.bruker.com/nano
CaP Biomaterials.	402	https://www.capbiomaterials.com
CellScale Biomaterials Testing	202	www.cellscale.com
DataPhysics Instruments USA Corp.	304	www.dataphysics-instruments.com/us
Delong Instruments	404	delongamerica.com
Evonik Corporation	302	evonik.com/healthcare
Himed	503	www.himed.com
HTL Biotechnology.	602	https://htlbiotech.com
Jellagen	403	https://jellagen.co.uk
MCRA, LLC	707	mcra.com
Nanoscience Instruments	405	www.nanoscience.com
NIBIB/NIH	203	www.nibib.nih.gov
Optics11 Life	103	www.optics11life.com
Park Systems Inc.	204	https://www.parksystems.com
Regenity	205	https://regenity.com
Rheolution, Inc.	305	www.rheolution.com
TESco Associates, Inc.	303	www.tescoassociates.com
University of California San Diego	505	grad.ucsd.edu
YSG	709	https://biomaterials.org/committees-committees-overview/young-scientist-group

TABLE OF CONTENTS

Annual Meeting Highlights

PROGRAM CO-CHAIRS
Karen L. Christman, PhD, University of California San Diego
Jennifer Woodell-May, PhD, Zimmer Biomet

PROGRAM COMMITTEE MEMBERS
Brian Aguado, PhD | Natalie Artzi, PhD | Ashley C. Brown, PhD | Elizabeth Cosgriff-Hernandez, PhD | Thomas Gilbert, PhD | Elizabeth A. Lipke, PhD | Kaitlyn Sadtler, PhD | Sam Senyo, PhD | Carl Simon, PhD | Cherie Stabler, PhD

STAFF LIAISONS
Dan Lemyre, CAE, IOM | Shena Seppanen | Vicki Lindberg | Jessica Goodone

2023 KEYNOTE SPEAKER

Dr. Amarpreet Singh Sawhney, Incept LLC

Dr. Amarpreet Sawhney is the CEO of Instylla, a company focused on embolic therapies for hypervascular tumors and control of hemorrhage, of Rejoni, a company developing products for preventing intrauterine scar formation, and of Pramand LLC, a company focused on developing biosurgery products. He was previously the Founder and CEO of Ocular Therapeutix, Augmenix, Confluent Surgical, and the technology founder of Focal and Access Closure. Amar's innovations are the subject of over 120 issued and pending patents in biomaterials and bio-surgery. His inventions include several "first of a kind" surgical sealants, spacers, and drugs to be approved by the FDA including ReSure Sealant and Dextenza for ophthalmology, DuraSeal for neurosurgery, FocalSeal for Lung surgery, Mynx for femoral puncture sealing, and SpaceOAR for prostate cancer radiotherapy. Amar and his partner Fred Khosravi have created Incept LLC, which provides a platform to support other healthcare entrepreneurs. Amar has been recognized by several awards including being named the "Champion of Change" by the Whitehouse and "Outstanding American by Choice" by the US Citizenship and Immigration Service. His companies and inventions have touched over 5 million patients and have created over 4000 jobs to date. He is a member of the National Academy of Sciences and a fellow of the American Institutes of Biomedical Engg. Amar holds an M.S. and a Ph.D. in Chemical Engineering from the University of Texas at Austin and a B. Tech. in Chemical Engineering from the Indian Institute of Technology, New Delhi.

2023 Award Winners

Founders Award
Andrés J. García, PhD, FBSE, Georgia Institute of Technology
Awardee Address: Thursday, April 20, 2023 Plenary Session I, 8:00 AM – 10:15 AM

Mid Career Awards
Ngan F. Huang, PhD, Stanford University
Awardee Address: Thursday, April 20, 2023 Plenary Session I, 8:00 AM – 10:15 AM

Technology, Innovation and Development Award
Ali Khademhosseini, PhD, Terasaki Institute for Biomedical Innovation
Awardee Address: Thursday, April 20, 2023 Plenary Session I, 8:00 AM – 10:15 AM

Young Investigator Award
Eric A. Appel, PhD, Stanford University
Awardee Address: Thursday, April 20, 2023 Plenary Session I, 8:00 AM – 10:15 AM

Diversity, Equity, & Inclusion (DEI) Award
Cato T. Laurencin, MD, PhD, University of Connecticut Health Science Center
Awardee Address: Thursday, April 20, 2023 Plenary Session I, 8:00 AM – 10:15 AM

Clemson Award for Applied Research
William L. Murphy, PhD, University of Wisconsin-Madison
Awardee Address: Friday, April 21, 2023, Plenary Session II, 8:00 AM – 9:30 AM

Clemson Award for Basic Research
Krishnendu Roy, PhD, Georgia Institute of Technology
Awardee Address: Friday, April 21, 2023, Plenary Session II, 8:00 AM – 9:30 AM

Clemson Award for Contributions to Literature
Johnna S. Temenoff, PhD, Georgia Institute of Technology
Awardee Address: Friday, April 21, 2023, Plenary Session II, 8:00 AM – 9:30 AM

2023 Award Winners

CONTINUED

Society For Biomaterials Award for Service

Arthur J. Coury, PhD, Northeastern University
Award Recognition: Friday, April 21, 2023, Annual Business Meeting, 5:00 PM – 6:00 PM

C. William Hall Award

G. Lawrence Thatcher, TESco Associates, Inc.
Award Recognition: Friday, April 21, 2023, Annual Business Meeting, 5:00 PM – 6:00 PM

Acta Biomaterialia Gold Medal

Clemens van Blitterswijk, PhD, Professor Emeritus, Maastricht University
Awardee Address: Saturday, April 22, 2023, Plenary Session IV, 8:00 AM –10:00 AM

Acta Biomaterialia Silver Medal

Giovanni Traverso, MD, PhD, MBBCH, Massachusetts Institute of Technology
Awardee Address: Saturday, April 22, 2023, Plenary Session IV, 8:00 AM–10:00 AM

Student Awards for Outstanding Research

PhD Candidate Category

Hannah A. Pearce, PhD, Rice University
POSTER #1129: "Thermogelling Hydrogel Charge and LCST Influence Cellular Infiltration and Tissue Integration in an Ex Vivo Cartilage Explant Model"

Maryam Ramezami, PhD, Syracuse University
Thursday, April 20, 2023, 10:45 – 11:00 AM, Smart Biomaterials, "Enzymatically-Responsive Shape Memory Polymers for Infection Surveillance and Biofilm Removal in Chronic Wounds"

Undergraduate Category

Blake Kuzemchak, University of Maryland
POSTER #3025: "3D Printable Phantom for Mimicking Electrical Properties of Dermal Tissue"

C. William Hall Scholarship

Erfan Jabari, University of Maryland, College Park

Cato T. Laurencin, MD, PhD Travel Fellowship

Saron Ghebrezadik, Agnes Scott College
POSTER #2015: "In-situ Photocrosslinked PEG Microgels as Delivery Platform for Human Mesenchymal Stem Cells"

Mackenzie Long, North Carolina A&T University
POSTER #2104: "Fabrication and Analysis of the Mechanical Properties of Polycaprolactone-Zinc Nanofibers for Biomedical Applications"

WEDNESDAY, APRIL 19, 2023

7:00 AM–7:00 PM | SPEAKER READY ROOM | Tidepool 2

7:30 AM–7:00 PM | REGISTRATION OPEN | Seascape Foyer

8:00 AM–6:00 PM | PERSONAL CARE LOUNGE | Low Tide

WORKSHOPS

8:00 AM–10:00 AM | Workshop 1: Recent Advances in 3D Printing of Biomaterials | Seaglass

8:00 AM–12:00 PM | Workshop 2: Future Biomaterials Faculty Workshop | Shorebreak

9:00 AM–12:00 PM | Workshop 3: Regulatory Challenges for Medical Products | Coral 1-2

10:00 AM–12:00 PM | Workshop 4: Building Resilience and Preventing Burnout in Science | Coral 3-4

10:30 AM–12:00 PM | Workshop 5: Leveraging Your Online Presence as a Scientist | Seaglass

12:00 PM–1:00 PM | LUNCH ON OWN

1:00 PM–2:30 PM | CONCURRENT SESSION 1

1A: Panel Discussion: Back to the Future – The Wild West of Biomaterials | Silver Pearl 1
Sponsored by TESco Associates, Inc.

1B: Bioactive Materials for Hard Tissue Regeneration | Silver Pearl 2

1C: Biomaterials Systems and Devices for Hemostasis and Wound Care | Silver Pearl 3

1D: Peptides as Therapeutics and Biomaterials | Coral 1-2

1E: Post-Doc Recognition Award Session | Coral 3-4
Sponsored by Royal Society of Chemistry

1F: Ophthalmic Biomaterials (SIG) | Coral 5

1G: Biomaterials Education (SIG) | Seaglass

1H: Biomaterials in Engineering the Tumor Immune Microenvironment | Shorebreak

2:30 PM–2:45 PM | BREAK

2:45 PM–4:15 PM | CONCURRENT SESSION 2

2A: Panel Discussion: Translational Aspects of 3D and 4D Printing and Bioprinting | Silver Pearl 1

2B: Bioactive Materials for Soft Tissue Regeneration | Silver Pearl 2

2C: Dental/Craniofacial Biomaterials (SIG) | Silver Pearl 3

2D: Bioinspired Approaches to Supramolecular Biomaterials | Coral 1-2

2E: Sex, Ancestral and Geographical Determinants in Biomaterials Research | Coral 3-4

2F: Extracellular Vesicles for Biomedical Applications | Coral 5

2G: Devices Designed for Imaging | Seaglass

2H: Applied Biomaterials for Microphysiological Systems | Shorebreak

4:15 PM–4:30 PM | BREAK

4:30 PM–6:30 PM | OPENING CEREMONY | Pacific Jewel Ballroom
Keynote Address: Amar Sawhney, PhD, Incept, LLC

6:30 PM–8:30 PM | OPENING RECEPTION and POSTER SESSION I | Eventide
In the Exhibit Hall

8:30 PM–9:30 PM | LGBTQIA + & FRIENDS MIXER | OFFSITE: Coasterra
Sponsored by University of Memphis and the University of Pennsylvania

8:30 PM–9:30 PM INDUSTRY MIXER | OFFSITE: Happy Does

CONCURRENT SESSION 1

WEDNESDAY, APRIL 19, 2023 • 1:00 PM – 2:30PM

Session Title	Panel Discussion: Back to the Future – The Wild West of Biomaterials Panel Discussion	Bioactive Materials for Hard Tissue Regeneration	Biomaterials Systems and Devices for Hemostasis and Wound Care	Peptides as Therapeutics and Biomaterials	Postdoctoral Recognition Award	Ophthalmic Biomaterials (SIG)	Biomaterials Education (SIG)	Biomaterials in Engineering the Tumor Immune Microenvironment
Moderators	**Scott Taylor, Chris Thatcher**	**Robert Horowitz**	**Anirban Sen Gupta, Ashley Brown**	**Era Jain**	**Jason Guo, Claudia Loebel**	**Katelyn Swindle-Reilly, Hamid Hamedi**	**Amber Jennings, Cheryl Gomillion, Daniel Alge**	**Shreya Raghavan, Chase Cornelison, Vinay Abhyankar**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
1:00–1:15	**G. Lawrence Thatcher**, TESco Associates, Inc., Nienke De Roode, Access2Bone and Mark Wagner, Vivorte, Inc.	5. Dual-functional Peptide DPI-VTK Promotes Migration of MSCs for Bone Regeneration, **Eric Madsen**, Seungmeen Rhee, David Kohn, University of Michigan School of Dentistry, Ann Arbor, MI, USA	11. Bioactive Material-coated Microelectrodes for Dielectric Coagulometry-based Detection of Trauma-induced Coagulopathies, **Dante Disharoon, PhD**[1], Sina Pourang[1], Sanjay Ahuja, MD[1,2], Michael Suster, PhD[1], Pedram Mohseni, PhD[1], Anirban Sen Gupta, PhD[1], [1]Case Western Reserve University, Cleveland, OH, USA, [2]Rainbow Babies and Children's Hospital, Cleveland, OH, USA	17. Targeted Delivery of Peptide-Functionalized Nanoparticles to Improve Tendon Healing, **Emmanuella Adjei-Sowah, BS, MS**[1], Alayna Loiselle, PhD[1], Danielle Benoit, PhD[1,2], [1]University of Rochester, Rochester, NY, USA, [2]University of Oregon, Eugene, OR, USA	1:00–1:10 Caspase-3-Responsive Plasmonic Nanosensors for In Vivo Monitoring of Stem Cell Location and Viability, **Jinhwan Kim**, Georgia Institute of Technology	32. Drug-Eluting Adhesive Patches for the Treatment of Ocular Injuries, **Nasim Annabi, Shima Gholizadeh**, Xi Chen, Yavuz Oz, Reza Dana, Schepens Eye Research Institute, Boston, MA, USA		44. INVITED SPEAKER: **Omid Veiseh**, Rice University
1:15–1:30		6. Controllable Gelled Magnesium-Nanocomposite as Minimally Invasive Approach for Enhancing Angiogenesis-mediated Mandible Regeneration, **Jiaxin Guo**[1], Hao Yao, PhD[1], Liang Chang[1], Wangyong Zhu, MD, PhD[2], Xu Li, PhD[1], Boguang Yang, PhD[1], Ziyi Chen, PhD[1], Yuxiong Su, PhD[3], Jiankun Xu, PhD[1], Ling Qin, PhD[1], [1]Department of Orthopedics & Traumatology, The Chinese University of Hong Kong, Hong Kong, Hong Kong, [2]Department of Dental Surgery, The University of Hong Kong-Shenzhen Hospital, Guangdong, China, [3]Faculty of Dentistry, The University of Hong Kong, Hong Kong	12. Bioresorbable, battery-free and wireless electrotherapy system for wound healing and monitoring in diabetes, **Joseph Song**[1], Hanjun Ryu[2], Wubin Bai[3], Abraham Vázquez-Guardado[1], Guillermo Ameer[1], John Rogers[1], [1]Northwestern University, Evanston, IL, USA, [2]Chung-Ang University, Anseong, Republic of Korea, [3]The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA	18. Spatial Configuration of Charge Modulates Transport of Cationic Carriers in Cartilage Matrix, **Bill Hakim**, Timothy Boyer, Ambika Bajpayee, Northeastern University, Boston, MA, USA	1:10 –1:20 Branched Lipid Architecture Enhances LNP-mediated mRNA Delivery to the Liver via Enhanced Endosomal Escape, **Marshall S. Padilla**, University of Pennsylvania 1:20 –1:30 Cell Membrane-coated Microribbon Scaffolds Elicit Regenerative Immune Responses and Enhance Endogenous Cranial Bone Regeneration in vivo, **Ni Su**, Stanford University	33. Improved Eye Drop Formulation Targeting Glaucoma Therapy, **Frances Lasowski**, Lina Liu, Ben Muirhead, Talena Rambarran, Heather Sheardown, McMaster University, Hamilton, ON, Canada	39. Gleaning Best Practices from a Biomaterials Summer Bridge Program, Timothy Burg, Cheryl Gomillion, **Karen Burg**, University of Georgia, Athens, GA, USA	
1:30–1:45		7. 3D Printable Carboxymethyl Chitosan-Amorphous Calcium Phosphate Nanoparticles for Bone Regeneration., **Ming Yan, MS PhD candidate**, Hani Awad, PhD, University of Rochester, Rochester, NY, USA	13. Sequential Burst and Sustained Release of P-Coumaric Acid from Shape Memory Polymer Foams for Polymicrobial Infection Prevention in Trauma-Related Hemorrhagic Wounds, **Changling Du**, David Fikhman, Mary Beth Monroe, PhD, BioInspired Syracuse, Syracuse, NY, USA	19. A Targeted Fusogenic Peptide Alters siRNA Delivery in Ovarian Cancer, **Kharimat Lora Alatise**, Angela Alexander-Bryant, Ph.D. , Clemson University, Clemson, SC, USA	1:30–1:40 Bioinspired Patch Platform for Translational Adhesive Technologies, **Jingjing Wu**, Massachusetts Institute of Technology	34. Stimuli-Activated Hydrogel Tissue Expanders for Guiding Facial Growth in Microphthalmia Patients, **Stephanie Fung, PhD**[1], James Katowitz, MD[1], Riccardo Gottardi, PhD[1,2], [1]Children's Hospital of Philadelphia, Philadelphia, PA, USA, [2]University of Pennsylvania, Philadelphia, PA, USA	40. A Case Study for Active Learning in a First-Year Biomaterials Design Course, **Joseph Choy**, Johns Hopkins University, Baltimore, MD, USA	45. Engineered Macrophages eliminate Solid Tumors and initiate Anti-tumor Immunity, **Dennis Discher**, University of Pennsylvania, Philadelphia, PA, USA

CONCURRENT SESSION 1 • WEDNESDAY, APRIL 19, 2023 • 1:00 PM – 2:30PM

Session Title	Panel Discussion...	Bioactive Materials for Hard...	Biomaterials Systems...	Peptides as Therapeutics...	Postdoctoral Recognition Award	Ophthalmic Biomaterials (SIG)	Biomaterials Education (SIG)	Biomaterials in Engineering...
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
1:45–2:00		8. Effects of Micropore on Mechanical Strength and Tissue Response to Carbonate Apatite Honeycomb, **Kunio Ishikawa, PhD**, Keigo Shibahara, MD, Koichiro Hayashi, PhD, Yasuharu Nakashima, PhD, MD, Kyushu University, Fukuoka, Japan	14. Bioadhesive Hydrogels with Ultrafast Gelation Promote Gastric Ulcer Healing and Arrest Acute Gastric Hemorrhage, **Xiayi Xu, Ph**D, Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Shatin, Hong Kong	20. Temperature Modulates the Assembled Structure of Co-Assembling Synthetic Peptides, **Ryan Clark**, Benjamin Keselowsky, PhD, Gregory Hudalla, PhD, University of Florida, Gainesville, FL, USA	1:40 –1:50 Strain-Stiffening Bottlebrush Polymer Hydrogels Influence hMSC Morphology and Mechano-transduction, **Monica L. Ohnsorg**, University of Colorado 1:50 –2:00 Immunometabolism and Polylactide Stereochemistry: Reconciling a Decades-long Controversy, **Chima V. Maduka**, University of Colorado	35. Wireless Theranostic Smart Contact Lens for Monitoring and Control of Intraocular Pressure in Glaucoma, **Tae Yeon Kim**[1,2], Sei Kwang Hahn[1,2], [1]Pohang University of Science and Technology (POSTECH), Pohang, Republic of Korea, [2]PHI BIOMED Co., Seoul, Republic of Korea	41. Soft Robotics in Education: Impact on and Students' Attitude towards a Soft Material Robotics Curriculum, Elizabeth McNeela[1], Thomas Tran[1], Karin Jensen, PhD[2], **Holly Golecki, PhD**[1], [1]University of Illinois at Urbana Champaign, Urbana, IL, USA, [2]University of Michigan, Ann Arbor, MI, USA	46. Conjugated STING-agonist nanoparticles enhance anti-tumor immunity in multiple tumor models, Pere Dosta Pons[1,2], Alexander Cryer[1,2], Michelle Dion[1,2], Tsubasa Shiraishi[3], Steven Langston[3], David Lok[3], Michaela Prado[1,2], Alma Rodríguez[1,2], Adnan Abu-Yousif[3], **Natalie Artzi**[1,2], [1]Brigham and Women's Hospital, Cambridge, MA, USA, [2]Massachusetts Institute of Technology, Cambridge, MA, USA, [3]Takeda Development Center Americas, Inc. (TDCA), Lexington, MA, USA
2:00–2:15		9. Bioinspired Scaffold for Sophisticated Regeneration of Osteoporotic Bone via Regulation of Homeostasis, Da-Seul Kim[1,2], Jun-Kyu Lee[1], **Dong Keun Han, PhD**[1], [1]CHA University, Seongnam-si, Republic of Korea, [2]Chung-Ang University, Seoul, Republic of Korea	15. Sprayable Hydrogel for Instant Sealing of Vascular Anastomosis, Pere Dosta[1,2], Natalie Artzi[1,2,3], Elazer Edelman[1], **Gonzalo Munoz, MBA**[4,5], [1]Massachusetts Institute of Technology, Cambridge, MA, USA, [2]Brigham and Women's Hospital, Boston, MA, USA, [3]Wyss Institute, Boston, MA, USA, [4]Institut Quimic de Sarria, Barcelona, Spain, [5]BioDevek, Allston, MA, USA	21. Post-translational glycosylation of polypeptide tags for modification of protein assembly and receptor targeting, **Eric Hill, MS**, Alexander Kwiatkowski, PhD, Gregory Hudalla, PhD, Benjamin Keselowsky, PhD, University of Florida, Gainesville, FL, USA	2:00–2:20 Engineering Siloxane-Derived Lipid Nanoparticles for Tissue-Specific mRNA Therapeutics Delivery, **Lulu Xue**, University of Pennsylvania 2:10–2:20 Hydrogel Tissue Expanders for Stimulating Facial Growth in Congenital Microphthalmia Patients, **Stephanie L. Fung**, Children's Hospital of Philadelphia	36. Mucoadhesion and mucopenetration of self-assembled poly(lactic acid)-block-poly(oligoethylene glycol methacrylate) block copolymer nanoparticles with different ethylene oxide side-chain lengths, **Ridhdhi Dave**[1], Cecile Fradin[1], Francisco Goycoolea[2], Heather Sheardown[1], Todd Hoare[1], [1]McMaster University, Hamilton, ON, Canada, [2]University of Leeds, Leeds, United Kingdom	42. How to make a new nose when it is off entirely and the dog has eaten it: the Lab Tales workshop as an approach to teach biomaterials trainees the art of narrative storytelling in science, **Daniel Cohen**, Princeton University, Princeton, NJ, USA	47. Multi-niche Human Bone Marrow On-A-Chip for Studying Interactions of Cell Therapies With Multiple Myeloma, **Udita Goshal**, Abel Thomas, Ingrid Petersen, Krishnendu Roy, Georgia Institute of Technology, Atlanta, GA, USA
2:15–2:30		10. Filling the Gaps: Dynamic Bone Graft Substitute Embedding Biodegradable Beads Containing Human Mesenchymal Stromal Cells, **Rotsiniaina Randriantsilefisoa**, Ezgi Bektas, Matteo D'Este, AO Research Institute, AO Foundation, Davos, Davos Platz, Switzerland	16. Engineering thermoresponsive shear-thinning hydrogel (T-STH) hemostats with improved coagulation, **Marvin Mecwan, PhD**, Emily Torres[1], Reihaneh Haghniaz, PhD[1], Alireza Hassani, PhD[1], Johnson John, PhD[1], Ali Khademhosseini, PhD[1], [1]Terasaki Institute for Biomedical Innovation, Los Angeles, CA, USA	22. Epsin mimetic UPI peptide delivery strategies to improve endothelization of vascular grafts, Shirin Changizi[1], Mahyar Sameti[1], Hong Chen[2], **Chris Bashur**[1], [1]Florida institute of Technology, Melbourne, FL, USA, [2]Boston Children's Hospital - Harvard University, Boston, MA, USA		37. Surface Modified Fibrous Scaffold for Ocular Surface Regeneration, **Nasif Mahmood, Mohamed Eletmany**, Ahmed El-Shafei, PhD, Ummay Mowshome Jahan, Jessica M Gluck, North Carolina State University, Raleigh, NC, USA	43. Undergraduate Biomaterials Instruction with Basic Introduction to Design, **Joel Bumgardner, PhD, FBSE, FAIMBE**, Jessica Jennings, PhD, The University of Memphis, Memphis, TN, USA	48. Multi-omics Guided Design of Biomaterials-based Lymphoid Tissues to Study BCR-TLR Signaling in Lymphomas, **Christopher Carlson**[1], Shivem Shah[2], Zhe Zhong[1], Mayar Allam[1], Lauren Walter[2], Karen Martin[1], Benjamin Cosgrove[2], Andrés García[1], Ahmet Coskun[1], Jean Koff[3], Ankur Singh[1], [1]Georgia Institute of Technology, Atlanta, GA, USA, [2]Cornell University, Ithaca, NY, USA, [3]Emory University, Atlanta, GA, USA

CONCURRENT SESSION 2

WEDNESDAY, APRIL 19, 2023 • 2:45 PM – 4:15 PM

Session Title	Panel Discussion: Translational Aspects of 3D and 4D Printing and Bioprinting	Bioactive Materials for Soft Tissue Regeneration	Dental/Craniofacial Biomaterials (SIG)	Bioinspired Approaches to Supramolecular Biomaterials	Sex, Ancestral and Geographical Determinants in Biomaterials Research	Extracellular Vesicles for Biomedical Applications	Devices Designed for Imaging	Applied Biomaterials for Microphysiological Systems
Moderators	**Nureddin Ashammakhi, Scott Taylor**	**Robert Horowitz**	**Xiaohua Liu, Santiago Orrego**	**Felipe Quiroz**	**Mykel Green, Olivia Lanier**	**Eunji Chung**	**Abby Whittington, Chris Bashur**	**Scott Wood**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
2:45 –3:00	49. TO COME	53. A Mechanically Tunable Granular Nanofiber-Hydrogel Composite for Host Macrophage Conditioning and Soft Tissue Remodeling, **Jiayuan Kong**[1,2], Zhi-Cheng Yao[1,2], Jessica Stelzel[1,2], Joshua Doloff[1,2], Sashank Reddy[1,2], Hai-Quan Kong[1,2], Jeffrey Chen[1,2], [1]Institute for NanoBioTechnology, Baltimore, MD, USA, [2]Johns Hopkins University, Baltimore, MD, USA	59. Monodisperse Microspheres Distinctly Release Multifunctional Peptide-Conjugated Gene Carrier/miRNA218 Complexes for Bone Defect Regeneration, **Qian Li, PhD**, Xiaohua Liu, PhD, Texas A&M University School of Dentistry, Dallas, TX, USA	65. Synthetic High-Density Lipoprotein-Like Nanoparticles as a Targeted Approach to Modulate Inflammation in Cytokine-Stimulated Keratinocytes, **Jacquelyn Trujillo, BS**, Andrea Calvert, PhD, Jonathan Rink, PhD, Han Peng, PhD, Kurt Lu, PhD, Robert Lavker, PhD, Colby Thaxton, MD, PhD, Feinberg School of Medicine Northwestern University, Chicago, IL, USA	71. Metanalysis of Global Participation in Biomaterials Publications, **Alejandro Hernandez**, Ana Porras, University of Florida, Gainesville, FL, USA	77. Stem Cell-Derived Exosome Nebulization Therapy (SCENT) Promotes Heart Repair in Mice and Pigs, **Junlang Li**, Ke Cheng, University of North Carolina at Chapel Hill & North Carolina State University, Raleigh, NC, USA	83. INVITED SPEAKER: **Eric Brey, PhD**, University of Texas at San Antonio	88. 3D Muscle Satellite Cell Niche System for Identifying Anti-geronic Factors in Parabiosis, **Yunki Lee**[1], Jeongmoon Choi[1], Young C. Jang[1,2], [1]Emory University, Atlanta, GA, USA, [2]Georgia Institute of Technology, Atlanta, GA, USA
3:00 –3:15	50. TO COME	54. Catalase-immobilized Syringes to Create Hyperoxia-inducible Hydrogels for In Situ Tissue Regeneration, **Jeon Il Kang, MS**[1], Kyung Min Park, PhD[1,2], [1]Incheon National University, Incheon, Republic of Korea, [2]Research Center for Bio Materials & Process Development, Incheon, Republic of Korea	60. A new approach to evaluate the bond strength of dental restorations, Carolina Montoya, PhD, Mansi Bharatkumar, DDS, **Santiago Orrego, PhD**, Temple University, Philadelphia, PA, USA	66. Phase separation driven assembly of highly stable protein nanoparticles, **Alexa Regina Avecilla**, Felipe Garcia Quiroz, PhD, Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University, Atlanta, GA, USA	72. Leveraging Machine Learning to Assess How Ancestry is Reported in Biomaterial Models, Nisha Kotta[1], **Alison Veintimilla**[1], Tomer Zilbershtein[2], Ylan Beaudoin de Roca[2], Erika Moore[1], [1]University of Florida, [2]Thomas Jefferson University	78. Engineered Extracellular Vesicles Attenuate Inflammation in a Murine Model of Acute Lung Injury, **Ana Salazar Puerta**, Maria Rincon Benavides, Tatiana Cuellar-Gaviria, Lilibeth Ortega-Pineda, Devleena Das, Daniel Dodd, Daniel Gallego-Perez, Natalia Higuita-Castro, The Ohio State University, Columbus, OH, USA		89. A multifunctional epicardial bioelectronic patch made from soft rubbery materials, **Cunjiang Yu**, Pennsylvania State University, University Park, PA, USA
3:15 –3:30	51. TO COME	55. Zinc Ion-releasing Hydrogels for In Situ Tissue Regeneration, **Yeonjeong Kim, MS**[1], Kyung Min Park, PhD[1,2], [1]Incheon National University, Incheon, Republic of Korea, [2]Research Center for Bio Materials & Process Development, Incheon, Republic of Korea	61. Immunomodulatory Antagonist Nanocoatings for Implant Soft Tissue Healing, **Nicholas Fischer, PhD**[1], John Pizarek, DDS[1,2], Conrado Aparicio, PhD[1,3,4], [1]University of Minnnesota, Minneapolis, MN, USA, [2]United States Navy Dental Corps, Bethesda, MD, USA, [3]Universitat Internacional de Catalunya, Josep Trueta s/n, Spain, [4]Institute for Bioengineering of Catalonia, Barcelona, Spain	67. Controlling self-assembly and bioactivity of de novo peptides via block heterochirality, **Conor O'Neill**[1], Jonathan Fascetti[1], Zain Clapacs[1], Paresh Shrimali, PhD[1], Amanda Winkler[1], Mark White, PhD[2], Jai Rudra, PhD[1], [1]Washington University in St. Louis, St. Louis, MO, USA, [2]University of Texas Medical Branch, Galveston, TX, USA	73. Omniphobic Spray Coating Created from Hierarchical Structures with Repel and Kill Mechanism Prevents the Pathogenic Contamination of High-touch Surfaces, **Noor Abu Jarad**[1], Kenneth Rachwalski[1], Fereshteh Bayat[1], Shadman Khan[1], Amid Shakeri[1], Roderick MacLachlan[1], Martin Villegas[1], Tohid Didar[2], [1]McMaster, Hamilton, ON, Canada, [2]McMaster University, Hamilton, ON, Canada	79. Phosphatidylserine-incorporated Exosome Mimetics Encapsulating CXCR3 Antagonist Inhibit Osteoclast Differentiation and Alleviate Osteoporosis, **Minjee Kang, PhD**[1], Jiabing Fan, M.D., Ph.D.[2], Michelle Chiang[1], Tara Aghaloo, DDS., Ph.D.[1], Min Lee, PhD[1], [1]University of California, Los Angeles, Los Angeles, CA, USA, [2]University of Maryland Eastern Shore, Princess Anne, MD, USA	84. TAT2: Next-generation Endoscopic Tattoo Inks for Multimodal Imaging, Jordan Yaron, PhD[1], **Mallikarjun Gosangi, PhD**[1], Subhadeep Dutta, PhD[1], Mukti Vats, PhD[1], Rahul Pannala, MD[2], Kaushal Rege, PhD[1], [1]Arizona State University, Tempe, AZ, USA, [2]Mayo Clinic, Scottsdale, AZ, USA	90. Development of Tissue-Specific, Perfusable Vasculature in Microphysiological Systems, **Kevin Ling, MS**[1], Arvind Srivatsava, MS[1], Annika Deans[1], Robert Brown[1], Kannan Manian, PhD[1], Steven George, PhD[2], James McGrath, PhD[1], Ruchira Singh, PhD[1], Danielle Benoit, PhD[1,3], [1]University of Rochester, Rochester, NY, NY, USA, [2]University of California Davis, Davis, CA, USA, [3]University of Oregon, Eugene, OR, USA

CONCURRENT SESSION 2 • WEDNESDAY, APRIL 19, 2023 • 2:45 PM – 4:15 PM

Session Title	Panel Discussion...	Bioactive Materials for Soft...	Dental/Craniofacial...	Bioinspired Approaches to...	Sex, Ancestral and...	Extracellular Vesicles for...	Devices Designed for Imaging	Applied Biomaterials for...
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
3:30 –3:45	52. TO COME	56. A dynamic cell-based therapy patch for accelerating wound healing, **Christian Schreib**[1], Lizzy Kelley[1], Scott Johnson[2], Peng Jiang[3], Raghav Garg[2], Tzahi Cohen-Karni, Stephan Badylak[2], Omid Veiseh[1], [1]Rice University, Houston, TX, USA, [2]University of Pittsburgh, Pittsburgh, PA, USA, [3]Cleveland State University, Cleveland, OH, USA	62. Thermoresponsive polymeric simvastatin prodrug hydrogel for the treatment of experimental periodontitis in rats, **Xiaoke Xu**, Zhenshan Jia, Ningrong Chen, Subodh Lele, Richard Reinhardt, Amy Killeen, University of Nebraska Medical Center, Omaha, NE, USA	68. Rational Design of Supramolecular Polymer-Prodrugs for Regenerative Medicine, **Kelsey DeFrates**[1], Joakim Engstrom, PhD[1], Nivedina Sarma[1], Athiyya Umar[1], Jisoo Shin, PhD[1], Jing Cheng, PhD[1], Weiran Xie[2], Darrin Pochan, PhD[2], Ahmad Omar, PhD[1], Phil Messersmith, PhD[1], [1]University of California, Berkeley, Berkeley, CA, USA, [2]University of Delaware, Newark, DE, USA	74. Circulating Sex Hormone Response to Traumatic Brain Injury: Implications for Drug Delivery, **Amberlyn Simmons**[1], Veronica Pena[1], Heather Bimonte-Nelson[1], Chris Plaisier[1], Sarah Stabenfeldt[1], Rachael Sirianni[2], [1]Arizona State University, Tempe, AZ, USA, [2]University of Massachusetts Amherst, Amherst, MA, USA	80. Engineered Extracellular Vesicles loaded with pro-vascular cargo induced direct reprograming to endothelial cells and promote wound closure In vivo, **Maria Rincon-Benavides**, Tatiana Cuellar-Gaviria, Natalia Mendonca, Ana Salazar-Puerta, Britani Blackstone, Heather Powell, Daniel Gallego-Perez, Natalia Higuita-Castro, The Ohio State University, Columbus, OH, USA	85. Nondestructive, Quantitative Monitoring of Tissue Scaffolds with Spectral Photon-Counting Computed Tomography, **Connor Evans**[1], Lan Li[1], Carmen Gil[2,3], Vahid Serpooshan[2,3], Ryan Roeder, PhD[1], [1]University of Notre Dame, Notre Dame, IN, USA, [2]Emory University, Atlanta, GA, USA, [3]Georgia Institute of Technology, Atlanta, GA, USA	91. Hydrogen peroxide-releasing hydrogels for cellular behavior manipulation and therapeutic applications, **Thi Thai Thanh Hoang, PhD**, Yunki Lee, PhD, Young Jang, PhD, Emory University School of Medicine, Atlanta, GA, USA
3:45 –4:00		57. Decellularized Dehydrated Human Amniotic Membranes Support the Cellular Functions of Human Tenocytes In Vitro, **Anna Gosiewska, PhD**[1], Yong Mao, PhD[2], Nicole Protzman, MS[3], Nikita John, BS[2], Adam Kuehn, MD[1], Desiree Long, MBA[1], Raja Sivalenka, PhD[1], Robert Hariri, MD, PhD[1], Stephen Brigido, DPM[1], [1]Celularity Inc., Florham Park, NJ, USA, [2]Rutgers University, Piscataway, NJ, USA, [3]Healthcare Analytics, LLC, Easton, PA, USA	63. Surface treatment of titanium oxides using polyaniline for photocatalytic, antibacterial and biocompatible implants, **Aya Ali, BDS, MSc**[1], Sheetal Chowdhury[1], Mary Carr[1], Amol Janorkar[1], Mary Marquart[1], Jason Griggs[1], Joel Bumgardner[2], Michael Roach[1], [1]University of Mississippi Medical Center, Jackson, MS, USA, [2]University of Memphis, Memphis, TN, USA	69. Designing Peptidic Assemblies as Bioelectronic Interfaces and Adaptive Bioscaffolds, Zefan Yao, PhD, Yuyao Kuang, **Herdeline Ardona, PhD**, University of California, Irvine, Irvine, CA, USA	75. Sex-specific Valvular Myofibroblast Activation in Response to Nano-scale Stiffness Cues, **Rayyan Gorashi, MS**[1], Michaela Wenning, BS[2], Joseph Grim, PhD[2], Cierra Walker, PhD[2], Brisa Pena, PhD[3], Luisa Mestroni, MD[3], Kristi Anseth, PhD[2], Brian Aguado, PhD[1,4], [1]University of California, San Diego, La Jolla, CA, USA, [2]University of Colorado, Boulder, Boulder, CO, USA, [3]University of Colorado, Anschutz Medical Campus, Aurora, CO, USA, [4]Sanford Consortium for Regenerative Medicine, La Jolla, CA, USA	81. Immune engineered extracellular vesicles to modulate T cell activation in type 1 diabetes, **Matthew Becker, PhD**, Leeana Peters, Thinzar Myint, PhD, Todd Brusko, PhD, Edward Phelps, PhD, University of Florida, Gainesville, FL, USA	86. Gadolinium-doped hafnium oxide nanoparticles for contrast-enhanced imaging of photopolymerized hydrogels, **Lan Li**, Tracie McGinnity, James Bathon, Irfan Khan, Anthony Hoffman, Ryan Roeder, University of Notre Dame, Notre Dame, IN, USA	92. A Novel Block Copolyester Photoresin for UV-assisted 3D Printing, **Warrick Ma**, Yadong Wang, Meinig School of Biomedical Engineering, College of Engineering, Cornell University, Ithaca, NY, USA
4:00 –4:15		58. Nanofiber Aerogels with Precision Channels and LL-37-derived Peptides for Diabetic Wound Healing, **Jingwei Xie**, University of Nebraska Medical Center, Omaha, NE, USA	64. 3D Woven Magnesium Alloy Scaffolds for Craniofacial Defects, **Beril Ulugun**[1], Ju Xue[1], Ryan Guilbault[2], Greg Osgood[2], Warren Grayson[1], Timothy Weihs[1], Srujan Singh[1], Yuxiao Zhou[3], [1]Johns Hopkins University, Baltimore, MD, USA, [2]The Johns Hopkins University School of Medicine, Baltimore, MD, USA, [3]Texas A&M University, College Station, TX, USA	70. Tunable and Responsive Modulation of Host–Guest Recognition in Supramolecular Hydrogels, Lei Zou, PhD, Adam Braegelman, PhD, Bo Su, Christopher Addonizio, **Matthew Webber, PhD**, University of Notre Dame, Notre Dame, IN, USA	76. A Cell-Degradable, Photo-Stiffening Hydrogel to Study Sex-Differences in Pulmonary Fibrosis, **Mikala Mueller, MS**[1], Chelsea Magin, PhD[1,2], [1]University of Colorado Denver | Anschutz Medical Campus, Aurora, CO, USA, [2]Anschutz Medical Campus, Aurora, CO, USA	82. Analysis and Biomimetic in vitro Modeling of Extracellular Vesicle-Mediated Perineural Invasion, **Emory Gregory**[1], Isabel Powers[1], Azemat Jamshidi-Parsian, MS[2], Robert Griffin, PhD[2], Young Hye Song, PhD[1], [1]University of Arkansas, Fayetteville, AR, USA, [2]University of Arkansas for Medical Sciences, Little Rock, AR, USA	87. Incorporating Hydroxyapatite Nanoparticles to Improve the Echogenic Properties of Polyurethane Composites, **Samuel Vibostok**[1], Dante Leone[1], Mackenzie Baro[1], Christopher Bashur, PhD[2], Abby Whittington, PhD[1], [1]Virginia Polytechnic Institute & State University, Blacksburg, VA, USA, [2]Florida Institute of Technology, Melbourne, FL, USA	93. Hydrogel Encapsulation of Bacterial Biosensors for Detection of Inflammatory Metabolites in IBD, **Samira Aghlara-Fotovat, BA**, Elena Musteata, Michael Doerfert, Moshe Baruch, PhD, Maya Levitan, Jeffrey Tabor, Omid Veiseh, Rice University, Houston, TX, USA

THURSDAY, APRIL 20, 2023

6:00 AM–8:30 PM | SPEAKER READY ROOM | Tidepool 2

7:00 AM–6:30 PM | REGISTRATION | Seascape Foyer

8:00 AM–10:15 AM |PLENARY SESSION I – SOCIETY AWARDS | Pacific Jewel Ballroom

8:00 AM–6:00 PM | PERSONAL CARE LOUNGE | Low Tide

10:15 AM–10:30 AM | BREAK

10:00 AM–1:00 PM | EXHIBIT HALL OPEN | Eventide

10:30 AM–12:00 PM | CONCURRENT SESSION 3

3A: Panel Discussion: Scientific Writing: Crafting Your Story | Silver Pearl 1
Sponsored by ACS Publications

3B: Granular Hydrogel Scaffolds | Silver Pearl 2

3C: Fibrous Biomaterials for Tissue Engineering | Silver Pearl 3

3D: Biomaterials for Organoids | Coral 1-2

3E: Biomaterials for the Lungs | Coral 3-4
Sponsored by Lung Biotechnology, United Therapeutics

3F: Smart Biomaterials | Coral 5

3G: Emerging Innovations and Translation in Orthopedic Biomaterials Science and Engineering | Seaglass

3H: Industry Rising Star Competition | Shorebreak
Sponsored by Evonik Corporation

12:00 PM–1:30 PM | LUNCH ON OWN

12:00 PM–1:30 PM | JBMRA EDITORIAL BOARD LUNCH | Tidepool 4
Editorial Board Only

12:00 PM–1:30 PM | WOMEN'S LUNCHEON | Pacific Jewel Ballroom
Separate Registration Required | Sponsored by Texas A&M University Department of Biomedical Engineering

12:00 PM–1:30 PM | SFB PRESIDENT'S ADVISORY COMMITTEE |Tidepool 5
Advisory Committee Members Only

1:30 PM–3:30 PM | CONCURRENT SESSION 4

4A: Panel Discussion: New Product Concept to Market: Influence of Investment and Proper Commercial Valuation | Silver Pearl 1

4B: Drug Delivery (SIG) 1 | Silver Pearl 2
Sponsored by Takeda

4C: Orthopaedic Biomaterials (SIG) | Silver Pearl 3

4D: Immunomodulatory Biomaterials | Coral 1-2

4E: Nanomaterials (SIG) | Coral 3-4
Sponsored by Park Systems

4F: Engineering Complex Tissues | Coral 5

4G: Biomaterials for Cell Therapy | Seaglass

4H: Black and LatinX Voices in Biomaterials | Shorebreak

2:30 PM–7:15 PM | EXHIBIT HALL OPEN

3:30 PM–3:45 PM | BREAK

3:45 PM–5:45 PM | CONCURRENT SESSION 5

5A: The US-Korea Joint Workshop on Biomaterials in Translational Medicine | Silver Pearl 1
This session ends at 6:00 PM

5B: Biomaterials for Regenerative Engineerings 1 | Silver Pearl 2

5C: Immune Engineering (SIG) 1 | Silver Pearl 3

5D: Stimuli-Responsive Biomaterials | Coral 1-2

5E: Engineering Cells & Their Microenvironments (SIG) 1 | Coral 3-4

5F: Computational and Machine Learning Approaches | Coral 5

5G: Biomaterials for Women's Health | Seaglass

5H: BioInterfaces (SIG) | Shorebreak

5:45 PM–7:15 PM | EXHIBIT & POSTER SESSION II | BIOMATERIALS EDUCATION CHALLENGE
In Exhibit Hall

7:30 PM–8:30 PM | SPECIAL INTEREST GROUP (SIG) MIXERS | OFFSITE: Gaslamp District; more information to come

8:30 PM–9:30 PM | STUDENT AND YOUNG SCIENTIST GROUP (YSG) MIXER | OFFSITE: Happy Does
Sponsored by the Center for Advanced Regenerative Engineering

NOTES

CONCURRENT SESSION 3

THURSDAY, APRIL 20, 2023 • 10:30 AM – 12:00 PM

Session Title	Panel Discussion: Scientific Writing: Crafting Your Story	Granular Hydrogel Scaffolds	Fibrous Biomaterials for Tissue Engineering	Biomaterials for Organoids	Biomaterials for the Lungs	Smart Biomaterials	Emerging Innovations and Translation in Orthopedic Biomaterials Science and Engineering	Industry Rising Star Competition
Moderators	**Teresa Rapp, Mykel Green, Jason Guo**	**Tatiana Segura, Donald Griffin**	**Jessica Gluck**	**Qun Wang, Ying Mei**	**Chelsea Magin, Christine Knabe-Ducheyne, Claudia Loebel**	**Danielle Benoit, Santiago Orrego**	**Bingyun Li, Malcolm Xing**	**QingQing Qiu**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
10:30-10:45	94. **Kent Leach, PhD**, UC Davis	98. Conjugation of IL-33 to microporous annealed particle scaffolds initiates type 2 immune response in vitro and in vivo, **Colleen Roosa**, Samantha Lempke, Riley Hannan, PhD, Jeffrey Sturek, PhD, MD, Sarah Ewald, PhD, Donald Griffin, PhD, University of Virginia, Charlottesville, VA, USA	104. Electrospinning of Decellularized Tissue to Harness its Angiogenic and Immunoregulatory Bioactivity, **Sarah Jones**[1], Del Donehoo[2], Shreya Raghavan, PhD[2], Elizabeth Cosgriff-Hernandez, PhD[1], [1]University of Texas at Austin, Austin, TX, USA, [2]Texas A&M University, College Station, TX, USA	110. Induced Epithelial Curvature in Photopatterned Intestinal Organoids Regulates Symmetry Breaking via Pre-Transcriptional Changes in Membrane Tension and Resting Potential, **Bruce Kirkpatrick**[1,2,3], Francis Yavitt[2,3], Radu Moldovan, PhD[4], Peter Dempsey, PhD[5], Kristi Anseth, PhD[2,3], [1]University of Colorado Medical Scientist Training Program, Aurora, CO, USA, [2]University of Colorado Boulder Department of Chemical and Biological Engineering, Boulder, CO, USA, [3]BioFrontiers Institute, Boulder, CO, USA, [4]University of Colorado Anschutz Advanced Light Microscopy Core, Aurora, CO, USA, [5]University of Colorado Anschutz Department of Pediatrics, Aurora, CO, USA	116. INVITED SPEAKER: **Sarah Gilpin, PhD**, Lung Biotechnology, United Therapeutics	121. Enzyme-Responsive "Smart" Hydrogels for Triggered Delivery of Antibiotics to Infected Wounds, **Akram Abbasi**[1], Zhaowei Jiang[1], Alec Mccall[1], Brian LeBlanc[2], Anita Shukla[1], [1]Brown University, Providence, RI, USA, [2]Rhode Island Hospital, Providence, RI, USA	127. INVITED SPEAKER: **Andrés García, PhD**, Georgia Institute of Technology	132. INVITED SPEAKER: **Chander P. Chawla, PhD**, Evonik
10:45-11:00	95. TO COME	99. Injectable Cellular Spheroid and Microgel Granular Composites for Cartilage Repair, **Nikolas Di Caprio**[1,2], Matthew Davidson, PhD[2], Jason Burdick, PhD[2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]Biofrontiers Institute, Boulder, PA, USA	105. Directed Wet Spinning of Reactive Macromers to Fabricate Multi-Fiber Hydrogel Scaffolds, **Matthew Davidson, PhD**, Jason Burdick, PhD, University of Colorado Boulder, Boulder, CO, USA	111. Study Transportation of Drugs within Newly Established Colon Organoid Systems, Zahra Davoudi, **Qun Wang**, Iowa State University, Ames, IA, USA		122. Enzymatically-Responsive Shape Memory Polymers for Infection Surveillance and Biofilm Removal in Chronic Wounds, **Maryam Ramezani**, Mary Beth Monroe, PhD, Syracuse University, Syracuse, NY, USA		10:45 AM–10:55 AM Modeling Cell-Material Interactions in Wounds with A Novel Human Keratin Matrix In Vitro, **Allison N. Ramey-Ward**, ProgenaCare Global LLC 10:55 AM–11:05 AM 3D In Vitro Model of Oral Mucosa for in-Lab Assessment of Dental Materials and Oral Wound Care Products, **Fahimeh Tabatabaei**, iFyber, LLC 11:05 AM–11:15 AM Information to Come, **Gonzalo Muñoz Taboada**, BioDevek
11:00-11:15	96. TO COME	100. Biomaterial microstructure and spatial bioactivity in microporous annealed particle (MAP) scaffolds guides endothelial cell patterning and lumen formation, **Alexa Anderson**[1], Dimitris Ntekoumes[1,2], Sharon Gerecht, PhD[1], Tatiana Segura, PhD[1], [1]Duke University, Durham, NC, USA, [2]Johns Hopkins University, Baltimore, MD, USA	106. Discrete Electrospun Microfibers Influence Granular Hydrogel Properties, **Gregory Grewal**, Georgia Helein, Jenna Sumey, Steven Caliari, PhD, Christopher Highley, PhD, University of Virginia, Charlottesville, VA, USA	112. Pancreatic Differentiation of iPSC in Thiol-Norbornene Photo-Click Hydrogels, **Chien-Chi Lin, PhD**, Matthew Arkenberg, Purdue University, Indianapolis, IN, USA	117. Local Matrix Stiffening as an Ex-Vivo Model of Early Pulmonary Fibrotic Remodeling, **Donia Ahmed**, Jingyi Xia, Rachel Zemans, M.D., Brendon Baker, Ph.D., Claudia Loebel, M.D., Ph.D., University of Michigan, Ann Arbor, MI, USA	123. Biodegradable Piezoelectric Nanofibers for Biomedical Applications, **Thinh Le**, Thanh Nguyen, Ph.D., The University of Connecticut, Storrs, CT, USA	128. Optimized Minerals for Long Term Stabilization and Delivery of Therapeutic mRNA, **Joshua Choe, MS**, William Murphy, PHD, University of Wisconsin Madison, Madison, WI, USA	

CONCURRENT SESSION 3 • THURSDAY, APRIL 20, 2023 • 10:30 AM – 12:00 PM

Session Title	Panel Discussion...	Granular Hydrogel Scaffolds	Fibrous Biomaterials for...	Biomaterials for Organoids	Biomaterials for the Lungs	Smart Biomaterials	Emerging Innovations and...	Industry Rising Star...
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
11:15-11:30	97. TO COME	101. Impact of Thiol-Ene and Tetrazine Click Annealing Chemistry on Osteogenic Outcomes in a Calvarial Defect Model, **Sarea Recalde Phillips**, Elizabeth Ruben, Talia Baig, Carl Gregory, PhD, Daniel Alge, PhD, Texas A&M University, College Station, TX, USA	107. Magnetic alignment of electrospun fiber segments within a 3D hydrogel composite guides tendon fibroblast spreading and multicellular epithelial migration phenotype switching, **Harrison Hiraki**, Daniel Matera, PhD, Robert Kent, III, Samuel DePalma, Brendon Baker, PhD, University of Michigan, Ann Arbor, MI, USA	113. Spatially Controlled Fabrication of Assembloids with 3D Bioprinting, **Michelle Huang**, Julien Roth, Lucia Brunel, Yueming Liu, Betty Cai, Sauradeep Sinha, Fan Yang, PhD, Sergiu Pasca, MD, Sungchul Shin, PhD, Sarah Heilshorn, PhD, Stanford University, Stanford, CA, USA	118. Engineering a 3D Distal Lung Co-Culture Model of Human Pulmonary Fibrosis, **Alicia Tanneberger, BS, MS**, Chelsea Magin, PhD, University of Colorado Denver | Anschutz, Aurora, CO, USA	124. An injectable smart piezoelectric hydrogel for periodontal disease treatment, Lina Roldan, DDF, Carolina Montoya, PhD, Varun Solanki, DDS, **Santiago Orrego, PhD**, Temple University, Philadelphia, PA, USA	129. Biodegradable Zinc-Transition Metal Alloys as Bone Implants, **Yingchao Su**, Yadong Wang, Yi-Xian Qin, Donghui Zhu, Stony Brook University, Stony Brook, NY, USA	11:15 AM–11:25 AM HABP Functionalized Electrospun PCL Fibers as a Candidate for Building an Artificial Synovial Membrane, **Hosein Mirazi**, South Dakota School of Mines and Technology
11:30-11:45		102. Influence of Microgel and Interstitial Matrix Compositions on Granular Hydrogel Composite Properties, **Victoria Muir**[1], Jason Burdick[1,2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]University of Colorado, Boulder, CO, USA	108. Anisotropic Guides for Neuronal Regeneration Generated by Microfluidic-Assisted Interfacial Polyelectrolyte Complexation of Extracellular Matrix Biomolecules, **Rui Costa, PhD**[1,2], David Caballero[1,2], Diana Soares da Costa[1,2], Romen Rodriguez-Trujillo[3,4], Subhas Kundu, PhD[1,2], Rui Reis[1,2], Iva Pashkuleva, PhD[1,2], [1]University of Minho, Barco, Guimaraes, Portugal, [2]ICVS/3B's, Braga/Guimaraes, Portugal, [3]Barcelona Institute of Science and Technology (BIST), Barcelona, Spain, [4]University of Barcelona, Barcelona, Spain	114. Rapid and facile light-based approach to generate gut-on-a-chip systems using synthetic hydrogels, **Ana Mora-Boza, PhD**, Adriana Mulero-Russe, Ankur Singh, Andrés J. García, Georgia Institute of Technology, Atlanta, GA, USA	119. Engineered lung microtissue to model macrophage-regulated pulmonary fibrosis and anti-fibrosis treatment, **Ruogang Zhao**, Ying Xu, State University of New York at Buffalo, Buffalo, NY, USA	125. Photo-Carbon Monoxide Releasing Molecules for Dual Antibacterial and Vascular Cell Impacts, Merfat Hammad, Nicholas Huynh, Adnan Elgattar, Yi Liao, PhD, **Chris Bashur, Ph.D.**, Florida, Melbourne, FL, USA	130. Low power electron beam modification of metallic biomaterial surfaces, **Peter Kurtz**, Annsley Mace, PhD, Jeremy Gilbert, PhD, Clemson University, Clemson, SC, USA	11:25 AM–11:35 AM Enzymatically-Responsive Shape Memory Polymers for Chronic Wound Infection Surveillance and Biofilm Removal, **Maryam Ramezani**, BioInspired Syracuse 11:35 AM–11:45 AM Tuning Thermo-Mechanical Properties of Shape Memory Polymer Foams for Biomedical Applications, **Marziya Hasan**, Shape Memory Medical Inc.
11:45-12:00		103. Single Microgel Species for Forming Guest-Host Microporous Annealed Particle PEG-MAL Hydrogels, **Adrienne Widener**, Abilene Roberts, Jorge Santini-Gonzalez, Edward Phelps, PhD, University of Florida, Gainesville, FL, USA	109. Fibrosis Development in Engineered Adipose Tissue Models of Obesity, Golnaz Anvari, PhD, Anthony Berger, PhD, Nikolas Di Caprio, BS, **Evangelia Bellas, PhD**, Temple University, Philadelphia, PA, USA	115. Engineering Human Induced Pluripotent Stem Cell Derived Neural Tissue Constructs for Modeling Neuroinflammation and Neurotoxicity, **Joydeb Majumder, PhD**, Elizabeth Torr, William Murphy, PhD, University of Wisconsin-Madison, Madison, WI, USA	120. Lung-Mimetic Sealant: Lab-to-Market Translation via Biomedical Technology Accelerator, **Meghan Pinezich, PhD**[1], Mohammad Mir[2], Pamela Graney, PhD[1], Daniel Naveed Tavakol[1], Sarah Kaslow, MD[1], Panpan Chen, MD[1], Jiawen Chen[2], Maria Hudock[1], Olimpia Gavaudan[1], Brandon Guenthart, MD[3], Matthew Bacchetta, MD[4], John O'Neill, PhD, Jinho Kim, PhD[2], Gordana Vunjak-Novakovic, PhD[1], [1]Columbia University, New York, NY, USA, [2]Stevens Institute of Technology, Hoboken, NJ, USA, [3]Stanford University, Stanford, CA, USA, [4]Vanderbilt University, Nashville, TN, USA	126. Precisely Controlled Antimicrobial Peptide Delivery Hydrogels for Diabetic Wound Healing, **Sang Hoon Jeong**, Sei Kwang Hahn, Pohang University of Science and Technology, Pohang, Republic of Korea	131. Innovative Silver Nanohybrids with Enhanced Antimicrobial Properties, **Bingyun Li, PhD**, Jianhua Yan, PhD, West Virginia University, Morgantown, WV, USA	

CONCURRENT SESSION 4

THURSDAY, APRIL 20, 2023 • 1:30 PM – 3:30 PM

Session Title	Panel Discussion: New Product Concept to Market: Influence of Investment and Proper Commercial Valuation	Drug Delivery (SIG) 1	Orthopaedic Biomaterials (SIG) 1	Immunomodulatory Biomaterials 1	Nanomaterials (SIG)	Engineering Complex Tissues	Biomaterials for Cell Therapy	Black and LatinX Voices in Biomaterials (6 minutes Each)
Moderators	**Subramanian Gunasekaran, Brent Upshaw**	**Michael Mitchell, Xuexiang Han**	**Donghui Zhu**	**Ashish Kulkarni, Alexandra Stubelius**	**Rachel Sirianni**	**Lesley Chow, Vipuil Kipshore, Jeannine Coburn**	**Era Jain, Silviya Zustiak**	**Brian Aguado, Ana Maria Porras**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
1:30-1:45	138. **Subramanian Gunasekaran, PhD**, Encoll Corporation	142. INVITED SPEAKER: **Vincent Ling**, PhD, Takeda	149. Rapid elimination of Staphylococcus aureus achieved by sonodynamic Au@Cu2O hybrid nano-cubes, **Kelvin Yeung, PhD**[1,2], Yizhou Zhu, PhD[1,2], Kenneth Cheung, MD[1,2], [1]The University of Hong Kong, Hong Kong, China, [2]The University of Hong Kong Shenzhen Hospital, Shenzhen, China	157. Harnessing Nanoscale Architecture to Program Multi-faceted Cancer Immunity, **Michelle Teplensky, PhD**[1,2], [1]Boston University, Boston, MA, USA, [2]Northwestern University, Evanston, IL, USA	165. Ionizable Lipid Nanoparticle Platform for in Vivo Delivery of Small Protein Scaffolds for Potent RAS Inhibition, **Rebecca Haley**, Alexander Chan, Margaret Billingsley, Andrew Tsourkas, PhD, Michael Mitchell, PhD, University of Pennsylvania, Philadelphia, PA, USA	173. Mechanically-Mediated Biochemical Signaling Guides Assembly and Maturation of Engineered Multicellular Tissues, **Ritu Raman, PhD**, Naomi Lynch, Angel Bu, Massachusetts Institute of Technology, Cambridge, MA, USA	181. **JianYang, PhD**, Pennsylvania State University	188. **Andrés García, PhD**, Georgia Institute of Technology 189. An injectable smart piezoelectric hydrogel for periodontal disease treatment, Lina Roldan, DDF, Carolina Montoya, PhD, Varun Solanki, DDS, **Santiago Orrego, PhD**, Temple University, Philadelphia, PA, USA 190. Tuberculosis Treatment Strategies Through Sustained Local Delivery, **Emmanuel Opolot**, Horst von Recum, Case Western Reserve University, Cleveland, OH, USA 191. Evaluating therapeutic potential of silk fibroin nanoparticles for intravenous oxygen delivery, **Marisa Pacheco**, Jostin Armada, Hannah Bagnis, Bruce Spiess, Whitney Stoppel, PhD, University of Florida, Gainesville, FL, USA 192. Modeling of Carbon Monoxide Delivery for Treating Disruptions in the Blood Brain Barrier Endothelium, **Rubens Jourdain**, Tanya Enderly, Venkat Keshav Chivukula, PhD, Chris Bashur, PhD, Florida Institute of Technology, Melbourne, FL, USA 193. (TO COME) 194. Investigating Bio-Nano Interactions of Polyamidoamine Dendrimers within Synovial Joints, Juan Aleman, Brandon Johnston, Alan Grodzinsky, Paula Hammond, **Simone Douglas-Green**, Massachusetts Institute of Technology, Cambridge, MA, USA 195. Development of a Nanoparticle-Hydrogel Composite for Gene Editing in Osteoarthritis, **Larry Stokes, II**, Isom Kelly, PhD, Brock Fletcher, Richard Darcy, PhD, Bryan Dollinger, PhD, Craig Duvall, PhD, Vanderbilt University, Nashville, TN, USA
1:45-2:00	139. **Brent Upshaw**, Grind Capitol		150. A Resurfacing-Regenerative Approach to Repair Osteochondral Defects using a Bioprosthetic Device, Connor Demott, Ph.D., Lauren Davis, Ph.D., William Saunders, Ph.D., **Melissa Grunlan, Ph.D.** , Texas A&M University, College Station, TX, USA	158. Immune-modulating therapy via the delivery of butyrate using polymeric micelles, **Shijie Cao, PhD**, Ruyi Wang, PhD, Mohamed Bashir, PhD, Lauren Hesser, Cathryn Nagler, PhD, Jeffrey Hubbell, PhD, University of Chicago, Chicago, IL, USA	166. Bone Marrow Vascular Microenvironment Combination RNAi Nanomaterials Therapy for Multiple Myeloma, **Christian Figueroa-Espada**, Pedro Guimarães, PhD[1], Michael Mitchell, PhD[2], [1]Universidade Federal de Minas Gerais, Minas Gerais, Brazil, [2]University of Pennsylvania, Philadelphia, PA, USA	174. 3D Bioprinting of Dense Cellular Structures within Functional Hydrogels, **Alperen Abaci**, Murat Guvendiren, PhD, New Jersey Institute of Technology, Newark, NJ, USA		
2:00-2:15	140. **Lauren Costella**, Luna Labs	143. Controlled Release of Bioactive Antibodies from a Modular Pulsatile Release Platform, **Kevin McHugh, PhD**[1], Tyler Graf[1], Erin Euliano[1], Mei-Li Laracuente[1,2], [1]Rice University, Houston, TX, USA, [2]Baylor College of Medicine, Houston, TX, USA	151. Physical and Biochemical Microenvironmental Cues Potentiate TGFβ-mediated Scleraxis Expression, **Robert Kent, III, MS**[1], Mohamed Said, BS[1], Megan Busch, BS[1], Ariane Tsai, BS[1], Daniel Matera, PhD[1], William Wang, PhD[1], Samuel DePalma, MS[1], Harrison Hiraki, MS[1], Megan Killian, PhD[1], Adam Abraham, PhD[1], Alice Huang, PhD[2], Ariella Shikanov, PhD[1], Brendon Baker, PhD[1], [1]University of Michigan, Ann Arbor, MI, USA, [2]Columbia University, New York, NY, USA	159. Microneedle-mediated Delivery of Immunomodulators Restores Immune Privilege in Hair Follicles and Reverses Alopecia Areata, **Núria Puigmal, PhD**[1,2,3,4], Nour Younis, MD[1,2], Diane Cruz[1,2], Andrea Daccache[1,2], Anis Saad[1,2], Triana Huerta[1,2], Ahmad Halawi[1,2], Christa Deban[1,2], Dongliang Zhang[1,2], Jamil Azzi, Professor[1,2], Natalie Artzi, Professor[1,2,3,4], [1]Brigham and Women's Hospital, Boston, MA, USA, [2]Harvard Medical School, Boston, MA, USA, [3]Massachusetts Institute of Technology, Cambridge, MA, USA, [4]Wyss Institute at Harvard, Boston, MA, USA	167. Targeting of Porous Silicon Nanoparticles to the Traumatically Injured Brain for the Delivery of Growth Factors, **Jonathan Zuidema, PhD**[1,2], Lauren Waggoner[1], Jinyoung Kang, PhD[1], Sanahan Vijayakumar, PhD[1], Alan Hurtado[1], Michael Sailor, PhD[1], Ester Kwon, PhD[1], [1]University of California San Diego, La Jolla, CA, USA, [2]Mario Negri Institute for Pharmacological Research, Milano, Italy	175. A modular microreactor for the preparation, maintenance and conditioning of multilayer tissues or multi-tissue structures, **Luca Gasperini**[1,2], Ana Soares[1,2], Zahara Eltayari[1,2], Rui Reis[1,2], Alexandra Marques[1,2], [1]3B's Research Group, I3Bs – Research Institute on Biomaterials, Biodegradables and Biomimetics, Guimaraes, Portugal, [2]ICVS/3B's – PT Government Associate Laboratory, Braga, Portugal	182. Intracellular Control of Macrophage Phenotype via Dexamethasone-loaded Microparticles for Cell Therapy, **Tina Tylek, PhD**[1], Kara Spiller, PhD[1], Joanna Wong[2], Andrew Vaughan[2], [1]Drexel University, Philadelphia, PA, USA, [2]University of Pennsylvania, Philadelphia, PA, USA	
2:15-2:30		144. Direct Delivery of Plasmin using Clot-anchoring Thrombin-responsive Nanoparticles for Targeted Fibrinolytic Therapy, Michael Sun, PhD[1], Maxine Hao Hao Pontius[2], Stephanie Yang[1], Shruti Raghunathan[1], Jordan Shavit, MD PhD[2], **Anirban Sen Gupta, PhD**[1], [1]Case Western Reserve University, Cleveland, OH, USA, [2]University of Michigan, Ann Arbor, MI, USA	152. Injectable Radiopaque Hyaluronic Acid Granular Hydrogels for Intervertebral Disc Repair, **Victoria Muir**[1], Sarah Gullbrand[1], Jason Burdick[1,2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]University of Colorado, Boulder, CO, USA	160. Induction of Antigen Specific Immunity with a Biologic Scaffold Assisted Therapeutic Cancer Vaccine, Sanjay Pal, PhD, Brenna Hill, PhD, **Matthew Wolf, PhD**, National Cancer Institute, Frederick, MD, USA	168. Use of a Keap1-inhibiting Peptide Brush Polymer for Myocardial Infarction Treatment, **Joshua Mesfin**[1], Kendal Carrow[2], Alexander Chen[1], Emma Zelus[1], Jervaughn Hunter[1], Elyse Wong[1], Colin Luo[1], Nathan Gianneschi[2], Karen Christman[1], UC San Diego, Sanford Consortium for Regenerative Medicine, La Jolla, CA, USA, [2]Northwestern University, Evanston, IL, USA	176. Investigating Paracrine Signaling in a Triphasic Biomaterial for Rotator Cuff Repair, **Kyle Timmer**[1], Megan Killian, PhD[2], Brendan Harley, Sc.D.[1], [1]University of Illinois Urbana-Champaign, Urbana, IL, USA, [2]University of Michigan, Ann Arbor, MI, USA	183. Microporous Scaffold with Vasculogenic Modification for Transplantation of Stem Cell-Derived β-Cells, **Kelly Crumley**, Nicholas Schott, PhD, Elizabeth Bealer, Jan Stegemann, PhD, Lonnie Shea, PhD, University of Michigan, Ann Arbor, MI, USA	

CONCURRENT SESSION 4 • THURSDAY, APRIL 20, 2023 • 1:30 PM – 3:30 PM

Session Title	Panel Discussion...	Drug Delivery (SIG) 1	Orthopaedic Biomaterials...	Immunomodulatory...	Nanomaterials (SIG)	Engineering Complex...	Biomaterials for Cell Therapy	Black and LatinX Voices in... (6 minutes Each)
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
2:30-2:45	**Rick Harlow**, TechWerx	145. Evaluation of clot-targeted nanogels for anticoagulant and fibrinolytic dual-delivery in a rat model of disseminated intravascular coagulation, **Ana Sheridan**, Kimberly Nellenbach, PhD, Ashley Brown, PhD, Emily Mihalko, PhD, Nina Moiseiwitsch, Grant Scull, Elizabeth Byrnes, Sanika Pandit, North Carolina State University and University of North Carolina at Chapel Hill, Raleigh, NC, USA	153. Woven Bone Organoids as a Therapy Model for In Vivo Bone Regeneration, Sai Sreenivasamurthy, Juncen Zhou, Jiayi Zhou, **Donghui Zhu**, Stony Brook University, Stony Brook, NY, USA	161. Microribbon Hydrogels with Tunable Compositions Enhances Bone Regeneration through Immunomodulation, **Ni Su, PhD**, Cassandra Villicana, Fan Yang, Stanford University, Stanford, CA, USA	169. Characterizing NP Fate in the CNS After Intrathecal Administration: A PET/CT Imaging Approach, **Oluwatobi Babayemi**[1], Corinne Fotso, Fred Christian Velasquez, Sauradip Chaudhuri, Lindsey Sablatura, Janelle Morton, Eva Sevick-Muraca, Rachael Sirianni[1], Rice University, Houston, TX, USA	177. Cytokine and T cell Stimulus Differentially Regulates Aged B cell Activation and ECM remodeling, **Secil Demir, PhD**[1], Zhe Zhong[1], Sona Desai, Ankur Singh, [1]Georgia Institute of Technology, Atlanta, GA, USA	184. Reduction of hypoxia-induced cell death by macro-encapsulation of toroid-shaped microtissues in homogeneous spatial distribution., Yang Chen, PhD[1], Yicong Zuo, PhD[1], Nam Tran[1], Vernice Tan[1], **Tram Dang, PhD**, [1]Nanyang Technological University, Singapore, Singapore	196. Corticosteroid Eluting Endotracheal Tubes Impact Mechanical Properties in Laryngeal Burn Injury Model, **Gabriela Cervantes-Gonzales**, Teja Guda, The University of Texas at San Antonio, San Antonio, TX, USA 197. SHIELD Hydrogels Allow for Long-Term Survival and Integration of Human Cortical Neurons into a Chronic Adult Cervical Spinal Cord Injury, **Vanessa Doulames, PhD**, Meghan Hefferon, Riley Suhar, PhD, Neil Baugh, Theo Palmer, PhD, Sarah Heilshorn, PhD, Stanford University, Stanford, CA, USA 198. Culturing Primary Hepatocytes in Glycosaminoglycan-Based Capsules: Interior ECM Components Promote Hepatic Organization and Function., **Rafael Ramos, MS**[1,2], Howard Matthew, PhD[1], [1]Wayne State University, Detroit, MI, USA, [2]Wayne State University School of Medicine, Detroit, MI, USA 199. Co-Assembling Peptide Hydrogels for Protein Localization: Humoral Immune Response, **Lucas Melgar**, Gregory Hudalla, Bethsymarie Soto-Morales, University of Florida, Gainesville, FL, USA 200. Alginate-Based Artificial Antigen Presenting Cells Improve CD8+ T cell Memory Formation, **Mary Omotoso**, Savannah Est-Witte, Sarah Neshat, Jordan Green, PhD, Jonathan Schneck, MD, PhD, Johns Hopkins University, Baltimore, MD, USA 201. AThy-1 negative inflammatory fibroblast subpopulation emerges as a key determinant of fibrotic outcomes to biomaterials, **Daniel Abebayehu, PhD**, Blaise Pfaff, Grace Bingham, Andrew Miller, Donald Griffin, PhD, Thomas Barker, PhD, University of Virginia, Charlottesville, VA, USA 202. Gold-Coated Microfluidic-Based Enhanced Capture, Controlled Release, and In Vitro Culture of Heterogeneous Circulating Tumor Cells, **Elyahb Allie Kwizera, PhD**, Xiaoming He, PhD, Katherine Tkaczuk, MD, University of Maryland Baltimore, Baltimore, MD, USA 203. Cancer Engineering a three-dimensional multilayer multicellular model of endometrial cancer for high throughput drug screening, **Ines Cadena**, Mina Buchanan, Kaitlin Fogg, Oregon State University, Corvallis, OR, USA
2:45-3:00		146. A conformable compartmentalized microMESH for the combinatorial treatment of Glioblastoma, Irene Guerriero, MSc, Cristiano Pesce, MSc, Daniele Dimascolo, PhD, **Anna Lisa Palange, PhD**, Paolo Decuzzi, PhD, Italian Institute of Technology, Genoa, Italy	154. Additive Manufactured Bioabsorbable Magnesium/Zinc Scaffolds for In Vivo Bone Regeneration, **Juncen Zhou**, Donghui Zhu, Stony Brook University, Stony Brook, NY, USA	162. Immunomodulatory Biomaterials Designs for Long-term Delivery of Cell Therapeutics, **Boram Kim**[1], Sudip Mukherjee, PhD[1], Lauren Cheng, PhD[1], Amanda Nash[1], Samantha Fleury[1], Michael Doerfert[1], Peter Rios, PhD[2], Jose Oberholzer, PhD[2], David Zhang, PhD[1], Omid Veiseh, PhD[1], [1]Rice University, Houston, TX, USA, [2]CellTrans, Inc., Chicago, IL, USA	170. Reprogramming Clots for In Vivo Chemical Targeting of Nanomaterials in Traumatic Brain Injury, **Rebecca Kandell**, Jason Wu, Ester Kwon, PhD, UC San Diego, La Jolla, CA, USA	178. Engineering Microscale Co-cultures of iPSC-derived Cardiomyocytes and Fibroblasts via Photopatterned Alginate, **Derrick Wells, MS**, Yong Duk Han, PhD, Eben Alsberg, PhD, Salman Khetani, PhD, University of Illinois at Chicago, Chicago, IL, USA	185. Cell-assembling collagen microgel for stem cell therapy in critical limb ischemia, **Sangheon Kim**, Korea Institute of Science and Technology, Seoul, Republic of Korea	
3:00-3:15		147. Biodegradable dendrimers for mRNA therapeutics delivery into the ischemic brain, **Ana Paula Pego, PhD**[1,2], Marília Torrado[1,2], Ana Spencer[1,3], Victoria Leiro, PhD[1], Sofia Santos, PhD[1], [1]i3S - Instituto de Investigação e Inovação em Saúde / INEB - Instituto de Engenharia Biomédica, Porto, Portugal, [2]ICBAS - Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, Porto, Portugal, [3]Faculdade de Engenharia da Universidade do Porto, Porto, Portugal	155. Decellularized Meniscus Scaffold and Cartilage Progenitor Cells for Total Meniscal Repair, **Alexandra Dumas**[1], Paul Gehret[1], Riccardo Gottardi, PhD[1,2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]Children's Hospital of Philadelphia, Philadelphia, PA, USA	163. Engineering Injectable Nanoparticle-Based Hydrogels for Immune Niche Modulation and Improved Immunotherapy, **Emily Meany**, Santiago Correa, PhD, Eric Appel, PhD, Stanford University, Stanford, CA, USA	171. Nanoformulation of a Peptide Prophylactic for the Treatment of Traumatic Brain Injury, **Jason Wu**, Akash Canjels, Ester Kwon, University of California-San Diego, La Jolla, CA, USA	179. Heart-on-a-chip with vascular plexus for drug testing, **Yimu Zhao, Ph.D.**[1], Gordana Vunjak-Novakovic, Ph.D.[2], Milica Radisic, Ph.D.[1], [1]University of Toronto, Toronto, ON, Canada, [2]Columbia University, New York City, NY, USA	186. Development of a Decellularized Bone Model to Test Efficacy of a Hydrogel Cell Carrier for HSC Transplantation, **Mykel Green, PhD**, Taylor Sullivan, Patience Oliveira, Elizabeth Cosgriff-Hernandez, PhD, The University of Texas at Austin, Austin, TX, USA	
3:15-3:30		148. Throughput-Scalable Silicon and Glass Microfluidic Platform for Manufacturing of SARS-CoV-2 mRNA Lipid Nanoparticles Vaccines, **Sarah Shepherd**, David Issadore, Michael Mitchell, University of Pennsylvania, Philadelphia, PA, USA	156. Whitlockite-poly(ethylene glycol) hybrid scaffold promotes bone tissue regeneration through stepwise magnesium ion release, **Wei Qiao, BDS, MDS, PhD**, The University of Hong Kong, Hong Kong, Hong Kong	164. An Infusible Extracellular Matrix Material for the Mitigation of Severe Systemic Inflammation in an Aged Mouse Model, **Maria Karkanitsa**, Raymond Wang, PhD, Anne Lyons, Ryan Middleton, PhD, Mark Hepokoski, MD PhD, Karen Christman, PhD, University of California San Diego, La Jolla, CA, USA	172. Development of lipid-polymer hybrid nanoparticles for the co-encapsulation of 6-bromo-indirubin-3'-oxime and copper diethyldithiocarbamate for synergistic cancer therapy, **Radu Paun**[1,2], Daciana Dumut[1,2], Danuta Radzioch[1,2], Maryam Tabrizian[1,3], [1]Faculty of Medicine and Health Sciences, McGill University, Montreal, QC, Canada, [2]Research Institute of the McGill University Health Centre, Montreal, QC, Canada, [3]Faculty of Dental Medicine and Oral Health Sciences, McGill Universit, Montreal, QC, Canada	180. Cell Assembled 3D Tumor Stroma In-A-Dish Using Decellularized Extracellular Matrix Scaffolds, Michael Buckenmeyer, PhD, Elizabeth Brooks, PhD, Madison Taylor, **Matthew Wolf, PhD**, National Cancer Institute, Frederick, MD, USA	187. Vasculogenic, Synthetic Hydrogel Supports the Engraftment and Real-Time Tracking of Human Pluripotent Stem Cell-derived β-cells, **Sophia Kioulaphides, MS**, Michael Hunckler, PhD, Andres Garcia, PhD, Georgia Institute of Technology, Atlanta, GA, USA	

CONCURRENT SESSION 5 • THURSDAY, APRIL 20, 2023 • 3:45 PM – 5:45 PM

Session Title	The US-Korea Joint Workshop on Biomaterials in Translational Medicine	Biomaterials for Regenerative Engineering 1	Immune Engineering (SIG)	Stimuli-Responsive Biomaterials	Engineering Cells & Their Microenvironments (SIG) 1	Computational and Machine Learning Approaches	Biomaterials for Women's Health	BioInterfaces (SIG)
Moderators	**Jong-Chul Park, Ho-Wook Jun, Dong-Wook Han**	**Qun Wang, Ngan Huang, Gulden Camci-Unal**	**Joshua Doloff, Abhinav Acharya**	**Mary Beth Monroe**	**Sara Pedron-Haba, Janeta Zoldan, Daniel Alge**	**Jason Guo, Adam Gormley, Marian Hettiaratchi**	**Brendan Harley, Christina Bailey-Hytholt, Ariella Shikanov**	**Nathan Gallant, Felipe Quiroz**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
3:45–4:00	204. Introductory Remarks and WBC 2024 , **Ki-Dong Park**, Chair of WBC 2024 Organizing Committee	209. Unconventional Biomaterials for Regenerative Medicine, **Gulden Camci-Unal, PhD,** University of Massachusetts Lowell, Lowell, MA, USA	217. Transient Injectable Stimulatory Hydrogels to Improve the Efficacy of CAR-T Therapies of Solid Tumors, **Eric Appel, PhD**, Stanford University, Stanford, CA, USA	225. Dithiolane-Based Dynamic Hydrogels for Photoinduced Crosslinking, Exchange, and Depolymerization, **Benjamin Nelson**, Bruce Kirkpatrick, Connor Miksch, Matthew Davidson, PhD, Nathaniel Skillin, Grace Hach, Benjamin Fairbanks, PhD, Jason Burdick, PhD, Christopher Bowman, PhD, Kristi Anseth, PhD, University of Colorado Boulder, Boulder, CO, USA	233. Poly(Ethylene Glycol)-Based Microcarriers Alter Secretory Activity of Genetically-Modified Mesenchymal Stromal Cells, **Gilad Doron, PhD**[1], Levi Wood, PhD[1], Robert Guldberg, PhD[2], Johnna Temenoff, PhD[1], [1]Georgia Institute of Technology & Emory University, Atlanta, GA, USA, [2]University of Oregon, Eugene, OR, USA	241. Engineering High Throughput Screening Platforms for Cervical Cancer, **Ines Cadena**, Kaitlin Fogg, Oregon State University, Corvallis, OR, USA	249. Micromechanical Characterization with AFM Indentation and Viscoelastic Modeling Reveals both Elastic and Viscoelastic Heterogeneities in Ovarian Tissue, **Samantha Stewart**, Wenquan Ou, PhD, Xiaoming He, PhD, University of Maryland, College Park, College Park, MD, USA	257. **Robert Smitty Oakes**
4:00–4:15	205. Developing DLP bioprinters: from a prototype to commercial products, **Shaochen Chen, PhD**, University of California, San Diego	210. Role of Injectable Biomaterials in Restoring Vocal Fold Muscle Volume after Laryngeal Nerve, **Alisa Isaac**, Teja Guda, The University of Texas at San Antonio, San Antonio, TX, USA	218. Lipid Nanoparticle Composition Shapes Immune Response to mRNA Vaccine and Potency of Anticancer Immunity, **Yining Zhu**, Jingyao Ma, Ruochen Shen, Ivan Vuong, Hai-Quan Mao, Johns Hopkins University, Baltimore, MD, USA	226. Developing Enzyme-Sensitive Peptide-Polymer Conjugates for Cell-Mediated Degradation, **Natasha Hunt**[1], Srujan Singh, M.Tech[2], E. Thomas Pashuck, PhD[1], Warren Grayson, PhD[2], Lesley Chow, PhD[1], [1]Lehigh University, Bethlehem, PA, USA, [2]Johns Hopkins University, Baltimore, MD, USA	234. Strain-Stiffening Bottlebrush Polymer Hydrogels Influence hMSC Morphology and Mechano-transduction, **Monica Ohnsorg**, Varsha Rao, Alex Khang, Kristi Anseth, University of Colorado Boulder, Boulder, CO, USA	242. Rational Design of an Affinity-Based Biomaterial for Sustained Angiogenic Protein Delivery, **Justin Svendsen**, Simon Oh, Karly Fear, Parisa Hosseinzadeh, PhD, Marian Hettiaratchi, PhD, University of Oregon, Eugene, OR, USA	250. Multi-Compartment Organoids of the Human Fallopian Tube, **Ashleigh Crawford**[1], Isha Bhorkar[1], Andre Forjaz[1], Triya Roy[1], David Schell[1], Ashley Kiemen, PhD[1,2], Ie-Ming Shih, MD, PhD[2], Tian-Li Wang, PhD[2], Denis Wirtz, PhD[1,2], [1]Johns Hopkins University, Baltimore, MD, USA, [2]Johns Hopkins University School of Medicine, Baltimore, MD, USA	258. TO COME
4:15–4:30		211. A novel injectable piezoelectric hydrogel for osteoarthritis treatment, **Tra Vinikoor**, Thanh Nguyen, PhD, University of Connecticut, Storrs, CT, USA	219. Non-inflammatory mRNA Vaccine for Antigen-specific Immunomodulation in the Lung, Atanu Chakraborty, PhD, Shruti Dharmaraj, MS, Nhu Truong, **Ryan Pearson, PhD**, University of Maryland, Baltimore, Baltimore, MD, USA	227. Bioactive Protein Photorelease from Hydrogels via Tissue-penetrating Green Light, **Teresa Rapp, PhD**, Cole DeForest, PhD, University of Washington, Seattle, WA, USA	235. Stem Cells in Sliding Hydrogels 'Dance' to Enhance 3D Chondrogenesis via Early Cytoskeletal and Nuclear dynamics, **Manish Ayushman**, Georgios Mikos, Xinming Tong, Pamela Cai, Andrew Spakowitz, Sarah Heilshorn, Fan Yang, Stanford University, Stanford, CA, USA	243. Moderate-Affinity Affibodies for Affinity-Controlled Delivery of Bone Morphogenetic Protein-2 (BMP-2), Jonathan Dorogin, MS, Henry Hochstatter, Karly Fear, Parisa Hosseinzadeh, PhD, **Marian Hettiaratchi, PhD**, University of Oregon, Eugene, OR, USA	251. Designing a Synthetic Scaffold to Support Human. Folliculogenesis in vivo, **Monica Wall, M.S.**, Ariella Shikanov, PhD, University of Michigan, Ann Arbor, MI, USA	259. Decoding Glycoengineered Vaccine and Carrier Immunogenicity using Biomaterials-based Immune Organoids, Tyler Moeller[1], Shivem Shah[1], Kristine Lai[2], Natalia Lopez-Barbosa[1], Primit Desai[1], Weiyao Wang[1], Zhe Zhong[2], Matthew DeLisa[1], **Ankur Singh**[1,2], [1]Cornell University, Ithaca, NY, USA, [2]Georgia Institute of Technology, Atlanta, GA, USA
4:30–4:45	206. Smart Wearable Healthcare Devices for Translational Applications, **Sei Kwang Hahn**, PhD, Professor, POSTECH, South Korea	212. Human fibroblast-derived matrix hydrogel enables regenerative wound remodeling via interaction with macrophages, **Kwideok Park, PhD**[1,2], Cininta Savitri, PhD[1], Sang Su Ha, PhD[1], Jae Won Kwon[1,2], Sung Hoon Kim[1,2], Young-Min Kim, PhD[1,2], Hyun-Mee Park, PhD[1], [1]Korea Institute of Science and Technology (KIST), Seoul, Republic of Korea, [2]KIST School, University of Science and Technology (UST), Seoul, Republic of Korea	220. Biomaterial-based Ex vivo Natural Killer Cell Surface Engineering for Enhanced Cancer Immunotherapy, **Sungjun Kim, PhD Student**, Kyobum Kim, PhD, Dongguk University, Seoul, Republic of Korea	228. Sorting and Harvesting Cells With Dynamic Biointerfaces, **Sergiy Minko, PhD**[1], Yongwook Kim[1], Ummay Jahan[1], Alexander Delchev[1], Nickolay Lavrik[2], Vladimir Reukov[1], [1]University of Georgia, Athens, GA, USA, [2]Oak Ridge National Lab, Oak Ridge, TN, USA	236. Stiff and Fast-Relaxing Hydrogel to Probe Pancreatic Ductal Adenocarcinoma Cell Behavior, **Han Nguyen**[1], Chien-Chi Lin, PhD[2], [1]Purdue University, West Lafayette, IN, USA, [2]Indiana University Purdue University Indianapolis, Indianapolis, IN, USA	244. Computational Simulation of the Impact of Cell-Adhesive Sequence on Supramolecular Peptide Hydrogel Assembly, Andrew Thede, Clare Cocker, Liza Harold, Rachel Letteri, PhD, **Kyle Lampe, PhD**, University of Virginia, Charlottesville, VA, USA	252. Developing a Microporous Annealed Particle Hydrogel for Human Ovarian Tissue Encapsulation, **Despina Pavlidis**, Ariella Shikanov, PhD, University of Michigan, Ann Arbor, MI, USA	260. Shaking hands with yourself: 3D nanostructures to inducing cellular 'self-adhesion' to adhere cells to biomaterials, Anamika Singh, PhD[1], Lauren Rawson[1], **Daniel Cohen, PhD**, [1]Princeton University, Princeton, NJ, USA

CONCURRENT SESSION 5 • THURSDAY, APRIL 20, 2023 • 3:45 PM – 5:45 PM

Session Title	The US-Korea...	Biomaterials for Regenerative...	Immune Engineering (SIG)	Stimuli-Responsive Biomaterials	Engineering Cells & Their...	Computational and...	Biomaterials for Women's...	BioInterfaces (SIG)
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
4:45–5:00		213. Biodegradable piezoelectric skin-wound scaffold, **Ritopa Das**, Thanh Nguyen, University of Connecticut, Storrs, CT, USA	221. PEGylation of Indoleamine 2,3-Dioxygenase for Systemic Immune Regulation, **Jennifer Simonovich**[1], Alexander Kwiatkowski[1], Arun Wanchoo[1], Dorina Avram[2], Benjamin Keselowsky[1], [1]University of Florida, Gainesville, FL, USA, [2]H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL, USA	229. Ultrasound-Responsive Biomaterial Platform for 3D Spheroid Gene Delivery to Model Early Tumor Initiation, **Katherine Huynh, B.S.**, Mary Lowrey, B.S., Sara Evans-Dutson, B.S., Kevin Schilling, PhD, Danielle Brasino, PhD, Mithila Handu, PhD, Sean Speese, PhD, Carolyn Schutt Ibsen, PhD, Oregon Health and Science University, Portland, OR, USA	237. Extracellular Matrix Stiffness Mediates Insulin Secretion in Pancreatic Islets via Phosphofructokinase Activity, **Chelsea Garcia, BS**, Keifer Holcomb, BS, Nikki Farnsworth, PhD, Colorado School of Mines, Golden, CO, USA	245. The optimization of poly(vinyl)-alcohol-alginate beads with tetrabutoxysilane for the aerobic cometabolism of chlorinated solvents, **Conor Harris, MS**, Hannah Gedde, Lewis Semprini, PhD, Willie Rochefort, PhD, Kaitlin Fogg, PhD, Oregon State University, Corvallis, OR, USA	253. Developing Semi-synthetic Biomaterial Tools to Model the Interface of Endometriotic Lesions & Healthy Tissue, **Hannah Theriault**, Hannah Kimmel, Kathryn Clancy, PhD, Gregory Underhill, PhD, Brendan Harley, ScD, University of Illinois at Urbana-Champaign, Champaign, IL, USA	261. Controlling Biomaterial Associated Infections by Small Molecules that Interfere with Nucleotide Second Messenger Signaling, Chen Chen[1], Christopher Siedlecki, PhD[2], Harry Allcock, PhD[1], **Lichong Xu, PhD**[2], Alyssa Ochetto[3], [1]The Pennsylvania State University, University Park, PA, USA, [2]Penn State University College of Medicine, Hershey, PA, USA, [3]Rowan University, Glassboro, NJ, USA
5:00–5:15	207. Application of Peptide as a Key component for the Development of Regenerative Medicine, **Yoon Jeang Park, PhD**, Seoul National University, South Korea	214. Conductive Elastomer for Bladder Regeneration, **Rebecca Keate**, Jonathan Rivnay, PhD, Guillermo Ameer, D.Sc. , Northwestern University, Evanston, IL, USA	222. Human stem cell derived beta-like cells engineered to present PD-L1 improve transplant survival in NOD mice carrying human HLA class I, **Jorge Santini-Gonzalez**[1], Roberto Castro-Gutierrez[2], Matthew Becker[1], Chad Rancourt[1], Holger Russ, PhD[2], Edward Phelps, PhD[1], [1]University of Florida, Gainesville, FL, USA, [2]University of Colorado Anschutz Medical Campus, Aurora, CO, USA	230. A protease-based theranostic as a tool to understand and inhibit calpain in brain injury, **Marianne Madias, BS**, Sophia Warlof, Ester Kwon, PhD, BS, University of California, San Diego, La Jolla, CA, USA	238. Enzyme-functionalized covalent alginate microparticles for low-cost anaerobic culture, **Tyrell Williams**, Claudia Daboin, Paul Kim, Fengguang Guo, Paul de Figueiredo, PhD, Daniel Alge, PhD, Texas A&M University, College Station, TX, USA	246. Machine Learning on a Robotic Platform for the Design of Protein-Polymer Hybrids, Matthew Tamasi[1], Roshan Patel[2], Carlos Borca[2], Shashank Kosuri[1], Rahul Upadhya[1], Sanjeeva Murthy[1], Michael Webb[2], **Adam Gormley, PhD**[1], [1]Rutgers University, Piscataway, NJ, USA, [2]Princeton University, Princeton, NJ, USA	254. Orthogonal Design of Experiments for Engineering of Lipid Nanoparticles for Selective mRNA Delivery to the Placenta, **Hannah Safford**, Kelsey Swingle, Hannah Geisler, Michael Mitchell, University of Pennsylvania, Philadelphia, PA, USA	262. Transcriptional Reprogramming of Endothelial Cells by Topographical Micropatterning via YAP, **Meghan Fallon**, Anthony Barnes, PhD, Monica Hinds, PhD, Oregon Health & Science University, Portland, OR, USA
5:15–5:30		215. Decellularized Meniscus Scaffolds for Pediatric Laryngotracheal Reconstruction in a Porcine Model, **Alexandra Dumas**[1,2], Paul Gehret[1,2], Soheila Ali Akbari Ghavimi, PhD[2], Ian Jacobs[2], Riccardo Gottardi[1], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]Childrens Hospital of Philadelphia, Philadelphia, PA, USA	223. Vaccines restore homeostasis in Collagen Induced Arthritis mice, **Abhirami Thumsi**, Srivatsan Swaminathan, Abhirami Suresh, Arezoo Esrafili, Madhan Jaggarapu, Kelly Lintecum, Michelle Halim, Tyler Johnston, Yasmin Sleiman, Shivani Mantri, Abhinav Acharya, Arizona State University, Tempe, AZ, USA	231. Novel Intrinsically Disordered Protein Polymers with Tunable Band-Pass Phase Separation Behavior, **Maria Giraldo Castano**[1,2], Felipe Garcia Quiroz[1,2][1]Emory University, Atlanta, GA, USA, [2]Georgia Institute of Technology, Atlanta, GA, USA	239. Preserving vasculature on the encapsulation device led to successful stem cell derived beta cell engraftment, Gauree Chendke[1], **Bhushan Kharbikar, PhD**[1], Sudipta Ashe, PhD[1], Matthias Hebrok, PhD[1,2,3], Tejal Desai, PhD[1,4], [1]University of California San Francisco, San Francisco, CA, USA, [2]Technical University Munich (TUM), Garching-Forschungszentrum, Germany, [3]Institute for Diabetes and Organoid Technology (IDOT) and Helmholtz Diabetes Center (HDC), Neuherberg, Germany, [4]Brown University, Providence, RI, USA	247. Predicting Ti-6Al-4V Corrosion Using Artificial Intelligence, **Michael Kurtz, BS**[1,2], Ruoyu Yang, PhD[1], Mohan Elapolu, PhD[1], Dinghe Liu, MS[1,2], Rahul Rai, PhD[1], Jeremy Gilbert, PhD[1,2], [1]Clemson University, Charleston, SC, USA, [2]Medical University of South Carolina, Charleston, SC, USA	255. Co-culture Organoids Recapitulate the Human Menstrual Cycle and Reveal Inflammatory Cascades in Endometriosis, **Laura Bahlmann, PhD**[1], Juan Gnecco, PhD[1,2], Alexander Brown, PhD[1], Lauren Baugh, PhD[1], Jeremy Huang, PhD[1], Kira Buttery[1], Clara Ives[1], Brittany Goods[3], Victor Hernandez-Gordillo[1], Doug Lauffenburger, PhD[1], Megan Loring[1,4], Keith Isaacson, MD[1,4], Linda Griffith[1], Bryan Bryson, PhD[1,5], [1]Massachusetts Institute of Technology, Cambridge, MA, USA, [2]Tufts University, Medford, MA, USA, [3]Dartmouth College, Hanover, NH, USA, [4]Newton Wellesley Hospital, Newton, MA, USA, [5]Ragon Institute, Cambridge, MA, USA	263. Directing 4D Cell Fate through Irreversible Protein Photoassembly in Biomaterials and in Living Cells, Emily Ruskowitz, PhD, Brizzia Munoz-Robles, **Cole DeForest, PhD**, University of Washington, Seattle, WA, USA
5:30–5:45	208. Engineered Nanomaterials for Immune-Modulation, **James Moon, PhD**, University of Michigan **(ends at 6:00pm)**	216. Rapid Magnetically Directed Assembly of Patterned Capillary-Scale Microvessels, **Maggie Jewett**[1], Harrison Hiraki[1], Michal Wojasiński, PhD[2], Amanda Bluem[1], Eashan Prabhu[1], Zenghao Zhang[1], William Wang, PhD[1], Abdon Pena-Francesch, PhD[1], Brendon Baker, PhD[1], [1]University of Michigan, Ann Arbor, MI, USA, [2]Warsaw University of Technology, Warszawa, Poland	224. Tissue-Engineered Stromal Reticula to Study Tolerogenic Fibroblastic Reticular Cell Properties in Type 1 Diabetes, **Leonor Teles**[1,2], Zachary Wilkes[1,2], Remi Creusot[3,4], Alice Tomei[1,2], [1]Diabetes Research Institute, Miami, FL, USA, [2]University of Miami, Coral Gables, FL, USA, [3]Columbia Center for Translational Immunology, New York, NY, USA, [4]Naomi Berrie Diabetes Center, New York, NY, USA	232. Matrix Remodeling Modulates Therapeutic Potential of Heterotypic Cell Spheroids for Wound Healing, **Victoria Thai**, David Ramos-Rodriguez, PhD, Jonathan Leach, PhD, University of California Davis, Davis, CA, USA	240. Non-Specific Proteolytic Degradation of Peptides Within Hydrogels Impacts Cell Function, **Samuel Rozans, MS**, Eugene Pashuk, PhD[1], [1]Lehigh University, Bethlehem, PA, USA	248. 3D mapping of whole human fallopian tubes at single-cell resolution, **Andre Forjaz, MS**[1,2], Ashleigh Crawford[1,2], Pei-Hsun Wu[1,2], Ashley Kiemen[2,3,4], Ie-Ming Shih[4,5], Denis Wirtz[1,2], [1]Department of Chemical and Biomolecular Engineering, [2]Institute for Nanobiotechnology, , [3]Department of Pathology, [4]Department of Oncology, [5]Department of Gynecology and Obstetrics, Johns Hopkins University School of Medicine, Baltimore, MD, USA	256. Hybrid Poly(ethylene glycol) and Hyaluronic Acid Bioactive Hydrogels for Endometrial Tissue Engineering, **Samantha Holt**, A. Nihan Kilinc, Christina Kim, Linda Griffith, Massachusetts Institute of Technology, Cambridge, MA, USA	264. Electroconductive agarose hydrogels modulate MSC adhesion and spreading through protein adsorption, **Alena Casella**[1,2], Alyssa Panitch, PhD[3,4], J. Kent Leach, PhD[1,2], [1]University of California, Davis, Davis, CA, USA, [2]UC Davis Medical Center, Sacramento, CA, USA, [3]Georgia Institute of Technology, Atlanta, GA, USA, [4]Emory University, Atlanta, GA, USA

NOTES

FRIDAY, APRIL 21, 2023

6:00 AM–8:30 PM | SPEAKER READY ROOM | Tidepool 2

7:00 AM–6:30 PM | REGISTRATION | Seascape Foyer

8:00 AM–9:30 AM | PLENARY SESSION II – CLEMSON AWARDS | Pacific Jewel Ballroom

8:00 AM–6:00 PM | PERSONAL CARE LOUNGE | Low Tide

9:30 AM–9:45 AM | BREAK

9:30 AM–1:30 PM | EXHIBIT HALL OPEN | Eventide

9:45 AM–11:15 AM | PLENARY SESSION III – BIOMATERIALS JOURNAL AWARD | Pacific Jewel Ballroom

11:15 AM–11:30 AM | BREAK

11:30 AM–12:30 PM | CONCURRENT SESSION 6

6A: Panel Discussion: Emerging Scholars in Biomaterials | Silver Pearl 1

6B: Biomaterials for Regenerative Engineering RAPID FIRE | Silver Pearl 2

6C: Drug Delivery (SIG) RAPID FIRE | Silver Pearl 3

6D: Immune Engineering (SIG) RAPID FIRE | Coral 1-2

6E: 3D and Nano Biomaterials RAPID FIRE | Coral 3-4

6F: Engineering Cells and Their Microenvironments (SIG) RAPID FIRE | Coral 5

6G: Cardiovascular Biomaterials (SIG) RAPID FIRE | Seaglass

6H: Tissue Engineering (SIG) RAPID FIRE | Shorebreak

12:30 PM–2:00 PM | LUNCH ON OWN

12:30 PM–2:00 PM | JBMRB EDITORIAL BOARD LUNCH | Tidepool 4
Editorial Board Only

12:30 PM–2:00 PM | STUDENT LUNCHEON | Pacific Jewel Ballroom
Additional Registration Required

2:00 PM–3:30 PM | Concurrent Session 7

7A: Panel Discussion: Biomaterials Publications Year in Review | Silver Pearl 1
JBMRA, JMBRB, Acta Biomaterialia, Biomaterials

7B: Biomaterial-Based Vitro Cancer/Tumor Models for Drug Screening and Diagnostics 1 | Silver Pearl 2

7C: Business Pitch Competition | Silver Pearl 3

7D: Biofunctionalized Biomaterial Surfaces for Cellular and Tissue Engineering | Coral 1-2

7E: Musculoskeletal Regeneration | Coral 3-4

7F: Development of Novel Bioinks for Tissue Engineering | Coral 5

7G: Biophysical Strategies for Regulation of Cellular Microenvironments | Seaglass

7H: 3-Minute Thesis | Shorebreak
Sponsored by Royal Society of Chemistry

3:30 PM–5:00 PM | EXHIBIT & POSTER SESSION III | Eventide
In the Exhibit Hall

5:00 PM–6:00 PM | SFB ANNUAL BUSINESS MEETING | Pacific Jewel Ballroom

5:00 PM–6:00 PM | SFB STUDENT AND POSTDOC FORUM | Silver Pearl 3

6:00 PM–7:00 PM | CHINESE ASSOCIATION FOR BIOMATERIALS (CAB) AWARD CEREMONY & RECEPTION | Silver Pearl 1

6:00 PM–7:00 PM | BLACK, LATINX, INDIGENOUS, AND PERSONS OF COLOR MIXER | Pacific Jewel Foyer
Sponsored by Department of Bioengineering University of California San Diego

7:00 PM–10:00 PM | SFB BASH | Eventide Gardens
Sponsored by TESco Associates, Inc.

CONCURRENT SESSION 6

RAPID FIRE SESSIONS • FRIDAY, APRIL 21, 2023 • 11:30 AM – 12:30 PM

Session Title	Panel Discussion: Emerging Scholars in Biomaterials	Biomaterials for Regenerative Engineering	Drug Delivery (SIG)	Immune Engineering (SIG)	3D and Nano Biomaterials	Engineering Cells & Their Microenvironments (SIG)	Cardiovascular Biomaterials (SIG)	Tissue Engineering (SIG)
Moderators	**Kent Leach**	**Gulden Camci-Unal, Qun Wang**	**Michael Mitchell, Xuexiang Han**	**Joshua Doloff, Abhinav Acharya**	**Juan Beltran-Huarac, Robert Horowitz, Silviya Zustiak**	**Sara Pedron-Haba, Janeta Zoldan, Daniel Alge**	**Yi Hong, Zhen Ma, Jessica Gluck, Nathaniel Huebsch**	**Jeannine Coburn, Qun Wang**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
11:30–11:35	265. Invited Speaker: **Kaitlin Fogg**, Oregon State University	271. Functionalization of 3D-Printed Scaffolds with 2D Heterostructures and Immuno-regulative Cytokines for Osteo-Immunomodulated Bone Repair, **Xifeng Liu, PhD**, Lichun Lu, PhD, Mayo Clinic, Rochester, MN, USA	281. Host-Modified Hydrogels Enable Sustained Release Through Engineered Biomolecule Avidity, **Arielle D'Elia, M.S.**, Christopher Rodell, PhD, Drexel University, Philadelphia, PA, USA	291. Monitoring melanoma responses to STING agonism and focused ultrasound thermal ablation using microneedles and ultra-sensitive single molecule arrays, **Daniel Dahis, PhD Student**[1,2,3], Michele Dion, PhD Student[2,3,4], Alexander Cryer, PhD[2,3,4], Tal Gilboa, PhD[2,3], Mariana Alonso[2], Michael Lewandosky, PhD[2,3], Nuria Puigmal[2,3,4], Haim Azhari, PhD[1], Rushdy Ahmed, PhD[2,3], David Walt, PhD[2,3], Natalie Artzi, PhD[2,3,4], [1]Technion Institute of Technology, Haifa, Israel, [2]Brigham and Women's Hospital, Boston, MA, USA, [3]Wyss Institute, Boston, MA, USA, [4]MIT, Cambridge, MA, USA	301. Modeling Age in Macrophage-Endothelial Interactions and Therapeutic Interventions in a 3D PEG Hydrogel, **Justin Silberman**, Erika Moore, PhD, University of Florida, Gainesville, FL, USA	311. Spatial confinement modulates macrophage response in microporous scaffolds, **Alejandra Suarez-Arnedo**, Yining Liu, Lindsay Riley, Eleanor Caston, Tasman Miley, Michelle Schneider, Tatiana Segura, Duke University, Durham, NC, USA	321. Implantable Vascular Platform with Multi-Material Stent and Printed, Soft Sensors for Wireless Monitoring of Restenosis, **Robert Herbert**, Woon-Hong Yeo, Georgia Institute of Technology, Atlanta, GA, USA	331. Fibrous Topographical Cues Govern Tenogenic vs. Chondrogenic Fate Switch, **Robert Kent, III, MS**, Maggie Jewett, BS, Daniel Matera, PhD, Ariella Shikanov, PhD, Brendon Baker, PhD, University of Michigan, Ann Arbor, MI, USA
11:35–11:40		272. In vitro screening of engineered extracellular matrices as tissue engineered periosteum to promote allograft healing, **Alyson March**[1], Yiming Li, PhD[1], YoungJoo Lee[1,2], Regine Choe, PhD[1], Danielle Benoit, PhD[1,3], [1]University of Rochester, Rochester, NY, USA, [2]Gwangju Institute of Science and Technology, Gwangju, Republic of Korea, [3]University of Oregon, Eugene, OR, USA	282. Engineering Siloxane-Derived Lipid Nanoparticles for Tissue-Specific mRNA Therapeutics Delivery, **Lulu Xue, PhD**[1], Gan Zhao, PhD[2], Ningqiang Gong, PhD[1], Xuexiang Han[1], Sarah Shepherd[1], Claude Clarence Warzecha[3], Rakan El-Mayta[1], Mohamad-Gabriel Alameh[4], Lili Wang[3], Drew Weissman[4], Andrew Vaughan[2], James Wilson[3], Michael Mitchell[1], [1]Department of Bioengineering, Philadelphia, PA, USA, [2]School of Veterinary Medicine, Philaldelphia, PA, USA, [3]Perelman School of Medicine, Philadelphia, PA, USA, [4]Department of Medicine, Phialdelphia, PA, USA	292. Cytokine-Loaded Nano-in-Cryogel Biomaterials for Repolarization of Tumor Associated Macrophages, **Sydney Henriques**[1], Ori Chalom[1], Evan Glass, PhD[1], Sohini Roy, PhD[2], Abigail Manning[1], Benjamin Hacker[1], Marjan Rafat, PhD[1], Laura Kennedy, MD[2], Fiona Yull, PhD[1], Young Kim, MD, PhD[2], Todd Giorgio, PhD[1], [1]Vanderbilt University, Nashville, TN, USA, [2]Vanderbilt University Medical Center, Nashville, TN, USA	302. A 3D Platform to Study Monocyte Activation in Systemic Lupus Erythematosus, **Holly Ryan**, Mark Segal, MD, PhD, Erika Moore, University of Florida, Gainesville, FL, USA	312. Optogenetically-Controlled Bacterial Persistence, **Yousr Dhaouadi, BS Chemical Engineering**, Dacheng Ren, Syracuse University, Syracuse, NY, USA	322. 3D-Printed Low-Profile and Mechanically Competent Bioresorbable Vascular Scaffolds, **Yonghui Ding, PhD**, Cheng Sun, PhD, Guillermo Ameer, ScD, Northwestern University, Evanston, IL, USA	332. Engineering adipose tissue using edible scaffolds with tunable stiffness for cultured meat, Kathleen Chen, Sam Norris, Amy Rowat, Associate Professor, **Nora Kawecki**, University of California, Los Angeles, Los Angeles, CA, USA
11:40–11:45		273. Anisotropy and Stiffness of Tunable Collagen Scaffolds Drive Endothelial Inflammatory Phenotype, Myogenesis and Osteogenesis, **Yong How Tan**, Krista Habing, Karina Nakayama, PhDOregon Health & Science University, Portland, OR, USA	283. Tissue-reactive Drugs Enable Materials-free Local Depots, **Rukesh Chinthapatla**, Sharda Pandit, Belen Neumann-Rivera, Sandeep Palvai, Nicholas Massaro, Joshua Pierce, Yevgeny Brudno, North Carolina State University, Raleigh, NC, USA	293. Augmented anticancer efficacy of natural killer cells via surface functionalized quantum dots using PD-1 binding peptides, **Sehwan Jeong**[1], Kyobum Kim[1], Min-Jae Choi[1], Woo-jin Jeong[2], [1]Dongguk University, Seoul, Republic of Korea, [2]Inha University, Incheon, Republic of Korea	303. A 3D Bioprinted Hydrogel-Based Microfluidic Device for Anti-Cancer Drug Screening, **Amir K. Miri**[1], Anant Bhusal[2], [1]New Jersey Institute of Technology, Newark, NJ, USA, [2]Rowan University, Glassboro, NJ, USA	313. Compressive Mechanical Load Modulates the Secretome and Cytoskeleton of MSC Spheroids, **Sabrina Mierswa**, Victoria Thai, J. Kent Leach, PhD, University of California Davis, Davis, CA, USA	323. Substrate Stiffness Modulates Endothelial Phenotypic Transition, Maedeh Zamani, PhD[1], Yu-Hao Cheng, MD[2], Patrick Cahan, PhD[2], **Ngan Huang, PhD**[1], [1]Stanford University, Stanford, CA, USA, [2]Johns Hopkins University, Baltimore, MD, USA	333. Preliminary analysis of the effect of dissolution products of SCPC resorbable bioactive ceramic on nerve cells, **Arjun Tiwari, Ph.D**, In Hong Yang, Ahmed El-Ghannam, University of North Carolina at Charlotte, Charlotte, NC, USA

CONCURRENT SESSION 6 • RAPID FIRE SESSIONS • FRIDAY, APRIL 21, 2023 • 11:30 AM – 12:30 PM

Session Title	Panel Discussion...	Biomaterials for Regenerative...	Drug Delivery (SIG)	Immune Engineering (SIG)	3D and Nano Biomaterials	Engineering Cells & Their...	Cardiovascular Biomaterials...	Tissue Engineering (SIG)
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
11:45–11:50	266. Invited Speaker: **Kaitlyn Sadtler**, US Dept of Health and Human Services	274. Elucidating Mechanism of Action of Injectable Extracellular Matrix Hydrogel in a Model of Tongue Fibrosis, **Emma Zelus, BS**, Marianna Alperin, MD, MS, Andrew Vahabzadeh-Hagh, MD, Karen Christman, PhD, UC San Diego, La Jolla, CA, USA	284. Targeting the Protease-Activated Receptor-2 (PAR2) with Nanotherapeutics to Reduce Oral Cancer Pain, **Divya Bhansali, MS**[1], Tu Nguyen, PhD[2], Tianyu Li, PhD[1], Kenji Inoue, PhD[2], Chloe Peach, PhD[2], Raquel Tonello, PhD[2], Dane Jensen, PhD[2], Nigel Bunnett, PhD[2], Brian Schmidt, MD, DDS, PhD[2], Kam Leong, PhD[1], [1]Columbia University, New York, NY, USA, [2]New York University, New York, NY, USA	294. Ionizable Lipid Nanoparticles with Integrated Immune Checkpoint Inhibition for mRNA CAR T Cell Engineering, **Alex Hamilton**, Michael Mitchell, University of Pennsylvania, Philadelphia, PA, USA	304. 3D Printed Gelatin Methacrylate Models for Normal and Glaucomatous Trabecular Meshwork Studies, **Bikram Adhikari**[1], Mina Pantcheva, MD[2], Melissa Krebs, PhD[1], [1]Colorado School of Mines, Golden, CO, USA, [2]University of Colorado School of Medicine, Aurora, CO, USA		324. Development and Testing of Combinatorial Biomaterials for Increased Biocompatibility, **Christopher Siedlecki, PhD**[1], Yi Wu[2], Keren Beita[2], Chad Schmeidt, DVM[2], Hitesh Handa, PhD[2], Li-Chong Xu, PhD[1], [1]Penn State College of Medicine, Hershey, PA, USA, [2]University of Georgia, Athens, GA, USA	334. A nanofiber-hydrogel scaffold embedded with adipose-derived stem cells for treatment of Crohn's perianal fistulas, **Zhicheng Yao**[1,2,3,4], Ling Li[1,5], Susan Gearhart[1,6], Florin Selaru[1,5], Hai-Quan Mao[1,2,3,4,7], Alyssa Parian[1,5], [1]Johns Hopkins University, Baltimore, MD, USA, [2]The Johns Hopkins University School of Medicine, Translational Tissue Engineering Center, Baltimore, MD, USA, [3]The Johns Hopkins University, Institute for NanoBioTechnology, Baltimore, MD, USA, [4]The Johns Hopkins University, Whiting School of Engineering, Department of Materials Science and Engineering, Baltimore, MD, USA, [5]The Johns Hopkins University School of Medicine, Division of Gastroenterology and Hepatology, Baltimore, MD, USA, [6]The Johns Hopkins University School of Medicine, Department of Surgery, Baltimore, MD, USA, [7]The Johns Hopkins University, Whiting School of Engineering, Department of Biomedical Engineering, Baltimore, MD, USA
11:50–11:55		275. Licensed hMSCs exhibit enhanced immunomodulatory capacity in a biomaterial mediated manner, **Vasiliki Kolliopoulos, BS**, Brendan Harley, PhD, University of Illinois at Urbana-Champaign, Urbana, IL, USA	285. Engineering Ligand-Tethered Lipidoids for Targeted RNA Delivery to Treat Liver Fibrosis, **Xuexiang Han**, Ningqiang Gong, Lulu Xue, Margaret Billingsley, Sarah Shepherd, Michael Mitchell, University of Pennsylvania, Philadelphia, PA, USA	295. Antigen-Decorated Liposomal Hydrogels for Robust and Durable Protection against SARS-CoV-2 Infections, **Julie Baillet**[1,2], John Klich[1], Ben Ou[1], Sebastien Lecommandoux[2], Eric Appel[1], [1]Stanford University, Stanford, CA, USA, [2]University of Bordeaux, Talence, France	305. Desmoplastic Pancreatic Adenocarcinoma Mimicking Hydrogels for Modelling 3D Cancer Spheroids, **Menekse Ermis, MD, PhD**[1], Natashya Falcone, PhD[1], Natan Barros, PhD[1], Marvin Mecwan, PhD[1], Reihaneh Haghniaz, PhD[1], Auveen Choroomi[1], Mahsa Monirizad[1], Yangzhi Zhu, PhD[1], Ali Khademhosseini, PhD[1], Junmin Lee, PhD[2], Han-Jun Kim[1], [1]Terasaki Institute for Biomedical Innovation, Los Angeles, CA, USA, [2]Pohang University of Science and Technology (POSTECH), Pohang, Kyungbuk, Republic of Korea	315. Nanoparticle Interaction with Extracellular Matrix Stabilizes Cartilage Tissue Integrity, **Ula von Mentzer**, Gizem Erensoy, PhD, Stefanny de Fatima Guedes Cunha, Sara Yousefiadashi, Alexandra Stubelius, PhD, PharmD, Chalmers University of Technology, Gothenburg, Sweden	325. Cell-Laden Bead Bath to Support Extrusion Bioprinting of Vascularized Constructs, **Irene Zhang**, Nicole Friend, Emily Margolis, Andrew Putnam, PhD, University of Michigan, Ann Arbor, MI, USA	335. Vascularizing 3D Printed GelMA Hydrogel for Pancreatic Islet Transplantation, **Martha Fowler, M.S.**, Boram Kim, Cody Fell, Michael Doerfert, M.S., Shalini Pandey, PhD, Joe Swain, Chris Wright, Jeffrey Hartgerink, PhD, Omid Veiseh, PhD, Rice University, Houston, TX, USA

CONCURRENT SESSION 6 (CONTINUED)

RAPID FIRE SESSIONS • FRIDAY, APRIL 21, 2023 • 11:30 AM – 12:30 PM

Session Title	Panel Discussion: Emerging Scholars in Biomaterials	Biomaterials for Regenerative Engineering	Drug Delivery (SIG)	Immune Engineering (SIG)	3D and Nano Biomaterials	Engineering Cells & Their Microenvironments (SIG)	Cardiovascular Biomaterials (SIG)	Tissue Engineering (SIG)
Moderators	**Kent Leach**	**Gulden Camci-Unal, Qun Wang**	**Michael Mitchell, Xuexiang Han**	**Joshua Doloff, Abhinav Acharya**	**Juan Beltran-Huarac, Robert Horowitz, Silviya Zustiak**	**Sara Pedron-Haba, Janeta Zoldan, Daniel Alge**	**Yi Hong, Zhen Ma, Jessica Gluck, Nathaniel Huebsch**	**Jeannine Coburn**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
5–MINUTES Q&A ON FIRST 5 RAPID FIRES								
12:00–12:05	267. Invited Speaker: **Thomas Werfel**, University of Mississippi	276. Gaussian Curvature-Driven Direction of Cell Fate Towards Osteogenesis with Triply Periodic Minimal Surface Scaffolds, **Xin Zhao, PhD**, The Hong Kong Polytechnic University,Hong Kong, China	286. Zwitterionic Peptide Sequence Determines Anti-Fouling Behavior and Protein Adsorption Profile on Nanoparticle Surfaces, **Clyde Overby, III, M.S.**[1,2], Danielle Benoit, Ph.D.[1,2,3], [1]University of Rochester, Rochester, NY, USA, [2]University of Rochester Medical Center, Rochester, NY, USA, [3]University of Oregon, Eugene, OR, USA	296. Cationic Exosomes Anchored with Receptor Antagonist of IL-1 for Cartilage Targeting and Repair, **Tanvi Vinod Pathrikar**, Chenzhen Zhang, Helna Baby, Ambika Bajpayee, Northeastern University, Boston, MA, USA	306. Development of an Injectable Upconversion Nanoparticle conjugated Doxorubicin Theranostics Electrospun Nanostructure for Breast Cancer, **Amreen Khan**, Mayuri Gandhi, Jayesh Bellare, Professor, Rohit Srivastava, Professor, Indian Institute of Technology Bombay India, Mumbai, India	316. Tunable Gelatin Methacrylate Polyethylene Glycol Hydrogels for Cell Mechanosensing Applications, **Eya Ferchichi**, Silviya Petrova Zustiak, PhD, Saint Louis University, Saint Louis, MO, USA	326. Pro-healing Nanomatrix Coated Stent Analysis in an In Vitro Vascular Double-Layer System and in a Rabbit Model, **Ho-Wook Jun**[1,2], Xixi Zhang[1], Jun Chen[1], Brigitta Brott[1,2], Peter Anderson[1], Patrick Hwang[2], Jennifer Sherwood[2], Gillian Huskin[1], Young-sup Yoon, Renu Virmani[3], [1]University of Alabama at Birmingham, Birmingham, AL, USA, [2]Endomimetics, LLC, Birmingham, AL, USA, [3]CVPath Institute, Inc., Gaithersburg, MD, USA	336. Development of Shrink Wrapped Endothelial Tubule Segments for Tissue Vascularization, **Shubhangi Sathyakumar**, Rachelle Palchesko, Ph.D., Jacqueline Bliley, Ph.D., Adam Feinberg, PhD, Carnegie Mellon University, Pittsburgh, PA, USA
12:05–12:10		277. 3D Printing with Photopolymerizable Polyester Resins for Resorbable Tissue Scaffold Applications, **Mathew Stanford, M.S.**[1,2], Melinda Harman, Ph.D.[2], Michael Vaughn, Ph.D.[1,2], [1]Poly-Med, Inc., Anderson, SC, USA, [2]Clemson University, Clemson, SC, USA	287. Uricase Functionalized Hydrogel for the Localized Treatment of Gout, **Madeline Fuchs**, Gregory Hudalla, PhD, Benjamin Keselowsky, University of Florida, Gainesville, FL, USA	297. In situ engineering of an immunologically active tumor microenvironment with cold-responsive nanoparticles for cryoimmunotherapy of breast cancer, **Wenquan Ou, PhD**, Samantha Stewart, BS, Alisa White, MS, James Shamul, MS, Xiaoming He, PhD, University of Maryland, College Park, MD, USA	307. Bone-targeted Nanoparticles Modulate Macrophage-mediated Fracture Healing, **Baixue (Dorothy) Xiao**[1], Danielle Benoit[1,2], Marian Ackun-Farmmer[1], Yuchen Wang[1], [1]University of Rochester, Rochester, NY, USA, [2]University of Oregon, Eugene, OR, USA	317. Fibronectin's EDA Region Mechanoregulates Matrix Microarchitecture During Wound Healing, **Jennifer Patten**, Michael Kegel, Fatima Ahmed, Patrick Halligan, Karin Wang, Temple University, Philadelphia, PA, USA	327. Decoy Exosomes Offer Protection Against Chemotherapy-Induced Cardiotoxicity, **Zhenhua Li**[1], Maio Fan[1], Ke Cheng[2], [1]Southern Medical University, Guangdong, China, [2]NC State University, Raleigh, NC, USA	337. Conductive Electrospun Polymer Platforms Improve Stem Cell-Derived Cardiomyocyte Function and Maturation, **Gisselle Gonzalez**, Aileena Nelson, Erin LaMontagne, Alexander Whitehead, PhD, Ritwik Vatsyayan, Shadi Dayeh, PhD, Adam Engler, PhD, University of California, San Diego, La Jolla, CA, USA
12:10–12:15		278. Semi-synthetic Hyaluronic Acid Hydrogels Promote Muscle Regeneration by Inducing BAT Differentiation of FAPs, **Morgan Pfaff**[1], Anouk Killaars, PhD[1], Derek Ning[1], Michael Davies, MD[2], Anthony Nguyen[2], Prashant Nuthalapati[2], Mengyao Liu[2], Xuhui Liu, PhD[2], Brian Feeley, MD[2], Kevin Healy, PhD[1], [1]University of California, Berkeley, Berkeley, CA, USA, [2]University of California, San Francisco, San Francisco, CA, USA	288. A Local Release, Reloadable Antibiotic Delivery Device Manages Biofilm Hardware-Related Infection Better than Clinical Standards, **Robert Falconer**[1], Walker Kay[1], Connor Hunt[1], Jacob Adams[1], Alice Miller[1], Korinna Hylen[1], Tyler Smith[1], Lisa Nehring[1], Brooke Kawaguchi[1], Richard Epperson[1], Brian Barnum[2], Nicholas Ashton, PhD[1,2], Dustin Williams, PhD[1,2], [1]University of Utah, Salt Lake City, UT, USA, [2]Purgo Scientific, Draper, UT, USA	298. mRNA Lipid Nanoparticles for ex vivo Engineering of Primary Human T Cells for Autoimmunity Therapies, **Ajay Thatte**, Alex Hamilton, Margaret Billingsley, Alvin Mukalel, Michael Mitchell, PhD, University of Pennsylvania, Philadelphia, PA, USA	308. Effect of Lipid Saturation and Cholesterol Concentration on Liposome Interaction with Fungal and Mammalian Cells, **Veronica LaMastro**, Kayla Campbell, PhD, Peter Gonzalez, Tobias Meng-Saccoccio, Anita Shukla, PhD, Brown University, Providence, RI, USA	318. The Influence of Hyaluronic Acid Properties on Natural Killer Cell Function in an Engineered Hydrogel System, **Suzanne Lightsey**, Madison Temples, Benjamin Kaufman, Tiffany Conklin, Blanka Sharma, University of Florida, Gaineville, FL, USA		338. Light-Pipe FRESH 3D Bioprinting for Engineering Spatial Heterogeneity of Tissue Scaffolds, **Caner Dikyol**, Adam Feinberg, PhD, Carnegie Mellon University, Pittsburgh, PA, USA

CONCURRENT SESSION 6 • RAPID FIRE SESSIONS • FRIDAY, APRIL 21, 2023 • 11:30 AM – 12:30 PM

Session Title	Panel Discussion...	Biomaterials for Regenerative...	Drug Delivery (SIG)	Immune Engineering (SIG)	3D and Nano Biomaterials	Engineering Cells & Their...	Cardiovascular Biomaterials...	Tissue Engineering (SIG)
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
12:15–12:20	268. Invited Speaker, **Matt Becker**, University of Florida	279. Combinatorial Effects of Surface Modification of Poly (glycerol-dodecanedioate) on Chondrocyte Behavior, **Yue Qin, PhD**, Rhima Coleman, PhD, University of Michigan,, Ann Arbor, MI, USA	289. Dual Responsive Nanoparticles for Precision Therapy of Rheumatoid Arthritis, **Gizem Erensoy, PhD**, Luca Menges, Tilia Selldén, Alexandra Stubelius, PhD, PharmD, Chalmers University of Technology, Gothenburg, Sweden	299. Development of Intranasal Vaccine System Using Hyaluronic Acid-Coated Polymeric Micelles, **Yuichi Ohya, PhD**[1], Kengo Suzuki[1], Yuta Yoshizaki, PhD[2], Nobuo Murase, PhD[1], Kenta Horii[1], Takuma Kato[1], Akinori Kuzuya, PhD[1], [1]Kansai University, Suita, Japan, [2]Tohoku University, Sendai, Japan	309. Lipid-polymer hybrid "Particle-in-Particle" nanostructure gene delivery platform explored for lyophilizable DNA and mRNA COVID-19 vaccines, **Zhongyu Li**, Xiaoyang Xu, New Jersery Institute of Technology, Newark, NJ, USA	319. Atomic Vacancy Rich 2D Nanoparticles Drive Mitochondrial Biogenesis and Bioenergetics, **Kanwar Abhay Singh**[1], John Soukar[1], Mohammad Zulkifli[1], Irtisha Singh[1,2], Vishal Gohil[1], Akhilesh Gaharwar[1], [1]Texas A&M University, College Station, TX, USA, [2]Texas A&M Health Science Center, Bryan, TX, USA	329. Targeting Tissue-resident Macrophage Secreted MCP-1 for Attenuating Inflammation After Myocardial Infarction, **Jiaxing Wen**, Ya Guan, PhD, Hong Niu, PhD, Yu Dang, PhD, Jianjun Guan, PhD, Washington University in St. Louis, Saint Louis, MO, USA	339. Two-dimensional Nanosilicates Stimulate Angiogenesis in Endothelial Cells, **Giriraj Lokhande**[1], Kanwar Abhay Singh[1], Anna Kersey[1], Irtisha Singh, Ph.D[1,2], Akhilesh Gaharwar[1], [1]Texas A&M University, College Station, TX, USA, [2]Texas A&M Health Science Center, Bryan, TX, USA
12:20–12:25		280. Investigating the Combinatory Effect of Raspberry Ketone and Simvastatin on In Vitro Osteodifferentiation for Application in Guided Bone Regeneration, **Matthew Atwill**[1,2], Joel Bumgardner, PhD[1,2], [1]The University of Memphis, Memphis, TN, USA, [2]The University of Tennessee Health Science Center, Memphis, TN, USA	290. Self-Assembled Oligo-Urethane Nanoparticles for Intracellular Delivery of mRNA, **Suja Shrestha**[1,2], Ryan Marks[3,4], Sina Fatehi[3,4], Allen Teng[2,5], Meghan McFadden, PhD[2,6], Ronald Cohn[3,4], Evgueni Ivakine[3,5], Anthony Gramolini[2,5], Paul Santerre[1,2,6], [1]Faculty of Dentistry, University of Toronto, Toronto, ON, Canada, [2]Translational Biology and Engineering Program (TBEP) and Ted Rogers Centre for Heart Research, Toronto, ON, Canada, [3]Genetics & Genome Biology Program, The Hospital for Sick Children, Toronto, ON, Canada, [4]Department of Molecular Genetics, University of Toronto, Toronto, ON, Canada, [5]Department of Physiology, University of Toronto, Toronto, ON, Canada, [6]Institute of Biomedical Engineering, Toronto, ON, Canada	300. IL-12-Based Cytokine Factories Modulate Tumor Microenvironment to Eradicate Pancreatic Tumors in Mice and are Well Tolerated in Non-human Primates, Samira Aghlara-Fotovat[1], Bertha Castillo[1], Peter Rios[2], Sofia Ghani[2], Ira Joshi[2], Douglas Isa[2], Jose Oberholzer[2], Omid Veiseh[1], **Amanda Nash**, [1]Rice University, Houston, TX, USA, [2]CellTrans Inc, Chicago, IL, USA	310. Investigation of the Protein Corona's Impact on Nanoliposome Drug Delivery Systems in Cancer Cells Using QCM-D, **Nicholas Van Der Sanden**, Maryam Tabrizian, PhD, McGill University, Montreal, QC, Canada	320. Co-assembled Peptide-Protein Granules for Cytosolic Protein Delivery, **Stephanie Herrera**, Renjie Liu, PhD, Jennifer Simonovich, Gregory Hudalla, PhD, Benjamin Keselowsky, PhD, University of Florida, Gainesville, FL, USA	330. Metallic Bioresorbable Flow Diverters for the Treatment of Intracranial Aneurysms, **Alexander Oliver, BS**[1,2], Cem Bilgin, MD[2], Andrew Vercnocke, BS[2], Kent Carlson, PhD[2], Ramanathan Kadirvel, PhD[2], Roger Guillory, II, PhD[3], Adam Griebel, MS[4], Jeremy Schaffer, PhD[4], Dan Dragomir-Daescu, PhD[1,2], David Kallmes, MD[1,2], [1]Mayo Clinic Graduate School of Biomedical Sciences, Rochester, MN, USA, [2]Mayo Clinic, Rochester, MN, USA, [3]Michigan Technological University, Houghton, MI, USA, [4]Fort Wayne Metals, Fort Wayne, IN, USA	340. Incorporating elastomeric particles into bioinks to enhance 3D-printed tissues stability, **Shira Landau, PhD**, Jennifer Kieda, Sargol Okhovatian1, Kaitlyn Ramsay, PhD, Chuan Liu, Milica Radisic, PhD, University of Toronto, Toronto, ON, Canada
5–MINUTES Q&A ON LAST 5 RAPID FIRES								

CONCURRENT SESSION 7

FRIDAY, APRIL 21, 2023 • 2:00 PM – 3:30PM

Session Title	Panel Discussion: Biomaterials Publications Year in Review	Biomaterial-based Cancer/ Tumor Models for Drug Screening and Diagnostics 1	Business Pitch Competition	Biofunctionalized Biomaterial Surfaces for Cellular and Tissue Engineering	Musculoskeletal Regeneration	Development of Novel Bioinks for Tissue Engineering	Biophysical Strategies for Regulation of Cellular Microenvironments	3-Minute Thesis Competition (3MT)
Moderators	**Jan Stegemann**	**Silviya Zustiak, Sara Pedron-Haba**	**Subramanian Gunasekaran, Stephanie Steichen**	**Rui Reis**	**Noelle Comolli, Vanessa Doulames, Ram Kumar**	**Jennifer Patterson, Gulden Camci-Unal**	**Tugba Ozdemir, Scott Wood**	**Nicholas Fischer**
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
2:00–2:15	341. **Jan Stegemann, PhD**, University of Michigan, SFB Publications Committee Chair	347. INVITED SPEAKER: **Jeannine Coburn**, Worcester Polytechnic Institute	352. TO COME	360. Synthetic Matrix Fibers Promote 3D Vasculogenesis via Intercellular Mechanical Signaling, **Firaol Midekssa**, Christopher Davidson, Jordan Kamen, Megan Wieger, Brendon Baker, University of Michigan, Ann Arbor, MI, USA	366. Engineered Skeletal Muscle in Space as a Novel Model Sarcopenia, Mahdis Shayan, PhD, Bugra Ayan, PhD, Soochi Kim, PhD, Thomas Rando, MD, PhD, **Ngan Huang, PhD**, Stanford University, Stanford, CA, USA	372. Microporogen-structured Collagen Matrices for Embedded Bioprinting of Functional Tumor Models, **Daniel Reynolds, Ph.D.**[1], Irene de Lazaro, Ph.D.[1], Manon Blache, M.S.[1,2], Ramsey Doolittle[1], David Mooney, Ph.D.[1], Jennifer Lewis, Sc.D.[1], [1]Harvard University, Cambridge, MA, USA, [2]Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland	378. Multisized Photoannealable Microgels Regulate Cell Aggregation and Macrophage Phenotype through Microporous Void Space, **Jeremy Lowen**, Gabriella Bond, Katherine Griffin, Nathan Shimamoto, Victoria Thai, Jonathan Leach, University of California Davis, Davis, CA, USA	384. TO COME
2:15–2:30	342. **Kent Leach, PhD**, UC Davis, JBMR-A Editor in Chief		353. TO COME	361. Nitric Oxide Releasing Nanomatrix Gel for Dialysis Fistula Maturation Enhancement, **Patrick Hwang, PhD**[1], Maheshika Somarathna, PhD[2], Benjamin Estep[2], Jennifer Sherwood[1], Brigitta Brott, MD[1,2], Timmy Lee, MD[2], Ho-Wook Jun, PhD[1,2], [1]Endomimetics, Birmingham, AL, USA, [2]University of Alabama at Birmingham, Birmingham, AL, USA	367. The Anti-SASP Ruxolitinib Modulates Aged Macrophage Phenotype Transitions and Promotes Aged Bone Healing, Yamin Liu, PhD[1], Kara Spiller, PhD[2], **Liisa Kuhn, PhD**[1], [1]University of Connecticut Health Center, Farmington, CT, USA, [2]Drexel University, Philadelphia, PA, USA	373. Spheroid-only Bioinks for Suspension Bioprinting of Tissue Engineered Cartilage Constructs, **Megan Cooke, PhD**, Jason Burdick, PhD, University of Colorado Boulder, Boulder, CO, USA	379. Regulating Biophysical Cues in Engineered Extracellular Matrices with Peptoids, **Adrianne Rosales**, Logan Morton, David Castilla-Casadiego, The University of Texas at Austin, Austin, TX, USA	385. TO COME
2:30–2:45	343. **Jeremy Gilbert, PhD**, Clemson University, JBMR-B Editor in Chief	348. Adhesion Strength of Disseminating Tumor Cells Predicts Severity of Metastatic Disease, Katherine Birmingham, PhD[1], Benjamin Yeoman, PhD[1,2], **Madison Kane**[1], Pranjali Beri, PhD[1,3], Jeremy Tuler[1], Isabelle Williams[1], Aditya Kumar, PhD[1], Sarah Klein[1], Parag Katira, PhD[2], Adam Engler, PhD[1,4,5], [1]University of California, San Diego, San Diego, CA, USA, [2]San Diego State University, San Diego, CA, USA, [3]Genomics Institute of the Novartis Foundation, San Diego, CA, USA, [4]Moores Cancer Center, San Diego, CA, USA, [5]Sanford Consortium for Regenerative Medicine, San Diego, CA, USA	354. TO COME	362. Engineering of architectural complexities of conical cardiac ventricle using polyesters, **Sargol Okhovatian, BASc**, Shira Landau, PhD, Mohammad Hossein Mohammadi, Houman Savoji, PhD, Institute of Biomedical Engineering, University of Toronto, Toronto, ON, Canada	368. Sliding Hydrogels Attenuate the Inflammatory Phenotype of Osteoarthritic Chondrocytes via Mechanotransduction, **Manish Ayushman**, Xinming Tong, Pranay Agarwal, Nidhi Bhutani, Fan Yang, Stanford University, Stanford, CA, USA	374. Cell-Laden Composite Hydrogel Bioinks with Human Bone Allograft Particles to Enhance Stem Cell Osteogenesis, **Hadis Gharacheh**, Murat Guvendiren, PhD, New Jersey Institute of Technology, Newark, NJ, USA	380. Alginate Microfibers as Anisotropic Porogens to Enhance Vasculogenic Assembly in Dense Fibrin Hydrogels, **Firaol Midekssa**, Maggie Jewett, Megan Busch, Megan Wieger, Jordan Kamen, Brendon Baker, University of Michigan, Ann Arbor, MI, USA	386. TO COME

CONCURRENT SESSION 7 • FRIDAY, APRIL 21, 2023 • 2:00 PM – 3:30PM

Session Title	Panel Discussion...	Biomaterial-based Cancer...	Business Pitch Competition	Biofunctionalized Biomaterial...	Musculoskeletal Regeneration...	Development of Novel...	Biophysical Strategies...	3-Minute Thesis Competition...
Room	**Silver Pearl 1**	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
2:45–3:00	344. **William R. Wagner, PhD**, University of Pittsburgh, Acta Biomaterialia Editor in Chief	349. Gold-Coated Microfluidic-Based Enhanced Capture, Controlled Release, and In Vitro Culture of Heterogeneous Circulating Tumor Cells, **Elyahb Allie Kwizera, PhD**, Xiaoming He, PhD, Katherine Tkaczuk, MD, University of Maryland Baltimore, Baltimore, MD, USA	355. TO COME	363. Effects of engineering nanotopography on the inflammatory response of silk-fibroin hydrogels, **Viviana Posada, PhD**, Andrea Mesa-Restrepo, MSc, Alexandru Marin, PhD, Jean Paul Allain, Pennsylvania State University, University Park, PA, USA	369. Aspirin synergizes with optimized calcium phosphate particles to enhance macroporous scaffold-mediated bone regeneration in vivo, **Ni Su, PhD**, Cassandra Villicana, Fan Yang, Professor, Stanford University, Palo Alto, CA, USA	375. Tuning the Rheology of Wholly-Cellular Bioinks for Bioprinting, **Jianyi Du, PhD**[1], Stacey Lee, PhD[1], Debbie Ho[1], Soham Sinha[1], Mengdi He[2], Mark Skylar-Scott, PhD[1,3], [1]Stanford University, Stanford, CA, USA, [2]Carnegie Mellon University, Pittsburgh, PA, USA, [3]Chan Zuckerberg Biohub, San Francisco, CA, USA	381. Mobile Sliding Hydrogels with Tunable Stiffness Enhance MSC Osteogenesis in 3D via Mechanosensing, **Georgios Mikos**, Manish Ayushman, Xinming Tong, PhD, Sarah Jones, Fan Yang, PhD, Stanford University, Stanford, CA, USA	387. TO COME
3:00–3:15	345. **Kam Leong, PhD**, Columbia University, Biomaterials Editor in Chief	350. A Versatile, Reductionist Platform for Studying 3D Microenvironmental Interactions in Colorectal Cancer, **Irina Kopyeva**[1], Ross Bretherton[1], Jessica Ayers[2], Ming Yu[2], William Grady[1,2], Cole DeForest, PhD[1, 1]University of Washington, Seattle, WA, USA, [2]Fred Hutchinson Cancer Center, Seattle, WA, USA	356. TO COME	364. A Cell-Free Platform for Urinary Bladder Tissue Engineering, **Larry Wang**[1], Matthew Bury, MS[1], Natalie Fuller[1], Tiffany Sharma, PhD[1], Arun Sharma, PhD[1,2,3,4,5,6], [1]Lurie Children's Hospital of Chicago, Chicago, IL, USA, [2]Northwestern University, Evanston, IL, USA, [3]Feinberg School of Medicine, Chicago, IL, USA, [4]Simpson Querrey Institute, Chicago, IL, USA, [5]Stanley Manne Children's Research Institute, Chicago, IL, USA, [6]Center for Advanced Regenerative Medicine, Evanston, IL, USA	370. Biomimetic Proteoglycans Molecularly Engineer and Mechanically Modulate Human Osteoarthritic Cartilage, **Elizabeth Kahle**[1], Colette Trouillot[1], Paul DeSantis[1], Anish Aitha[1], Lin Han[1], Michele Marcolongo[2], [1]Drexel University, Philadelphia, PA, USA, [2]Villanova University, Villanova, PA, USA	376. Development of Bioinks for 3D Bioprinting of an Osteochondral Tissue Substitute, **Mahdieh Heydarigoojani, M.Sc.**, Eric Lehoux, Ph.D., Isabelle Catelas, Ph.D., P.Eng., FIOR, University of Ottawa, Ottawa, ON, Canada	382. Reciprocal Cell-ECM Dynamics Drive Nematic Ordering of C2C12 Myotubes on Anisotropic Liquid Crystalline Polymer Networks, **Nathaniel Skillin, BS**[1], Katie Herbert, PhD[1], Bruce Kirkpatrick, BS[1], Grace Hach[1], Kemal Gunay, PhD[1], Frank DelRio, PhD[2], Ryan Khan, PhD[2], Kristi Anseth, PhD[1], Timothy White, PhD[1], [1]University of Colorado Boulder, Boulder, CO, USA, [2]Sandia National Laboratories, Albuquerque, NM, USA	388. TO COME
3:15–3:30		351. Tuning mineral cues modulates breast cancer-bone metastasis in a spatially patterned 3D model, **Michelle Tai**, Eva González Díaz, PhD, Angelina Mao, Fan Yang, PhD, Stanford University, Palo Alto, CA, USA	357. TO COME	365. Hydrogel Nanocomposite Emulsion for siRNA Drug Delivery into Adipocytes, **Ruth Negru, MAS**, Jessica Park, Fouad Teymour, PhD, Georgia Papavasiliou, PhD, Marcella Vaicik, PhD, Illinois Institute of Technology, Chicago, IL, USA	371. Nanofibrillar engineered muscle therapy enhances muscle and bone functional healing in composite lower extremity trauma, **Karina Nakayama, PhD**[1], Cynthia Alcazar[1], Krista Habing[1], Zachary Working, MD[1], Nick Willett, PhD[2], Anthony Tahayeri[1], Luiz Bertassoni, DDS, PhD[1], [1]Oregon Health & Science University, Portland, OR, USA, [2]University of Oregon, Eugene, OR, USA	377. Bioinks designed for contrast-enhanced X-ray imaging with photopolymerizable and renally-clearable nanoparticles, **Lan Li, Meng**[1], Carmen Gil[2], Xiaoqi Yu[1], Vahid Serpooshan[2], Ryan Roeder[1], [1]University of Notre Dame, Notre Dame, IN, USA, [2]Emory University and Georgia Institute of Technology, Atlanta, GA, USA	383. Small molecules to modulate hydrogel gelation and mechanics for dynamic organoid culture, **Aidan Gilchrist, PhD**, Yueming Liu, Yuan Guan, PhD, Gary Peltz, MD, PhD, Sarah Heilshorn, PhD, Stanford University, Stanford, CA, USA	389. TO COME

NOTES

SATURDAY, APRIL 22, 2023

6:00 AM–12:00 PM | SPEAKER READY ROOM | Tidepool 2

7:00 AM–11:00 AM | REGISTRATION | Seascape Foyer

8:00 AM–12:00 PM | PERSONAL CARE LOUNGE | Low Tide

8:00 AM–10:00 AM | PLENARY SESSION IV – ACTA BIOMATERIALIA GOLD & SILVER MEDALS | Pacific Jewel Ballroom

10:00 AM–10:15 AM | BREAK | Seascape Foyer

10:15 AM–12:15 PM | CONCURRENT SESSION 8

8B: Biomaterial-Based In Vitro Cancer/Tumor Models for Drug Screening and Diagnostics 2 | Silver Pearl 2

8C: Engineered Biomaterials for Neural Applications | Silver Pearl 3

8D: Cardiovascular Biomaterials (SIG) | Coral 1-2

8E: Intrinsic and Extrinsic Factors Influencing the Tissue-Biomaterial Interface | Coral 3-4

8F: Advances and Translation of Self-Assembly Soft Biomaterials | Coral 5

8G: Pediatric Drug Delivery and Device Design | Seaglass

8H: Nature Bioinsprired Biomaterials and Strategies for TERM | Shorebreak

12:15 PM | ADJOURN

NOTES

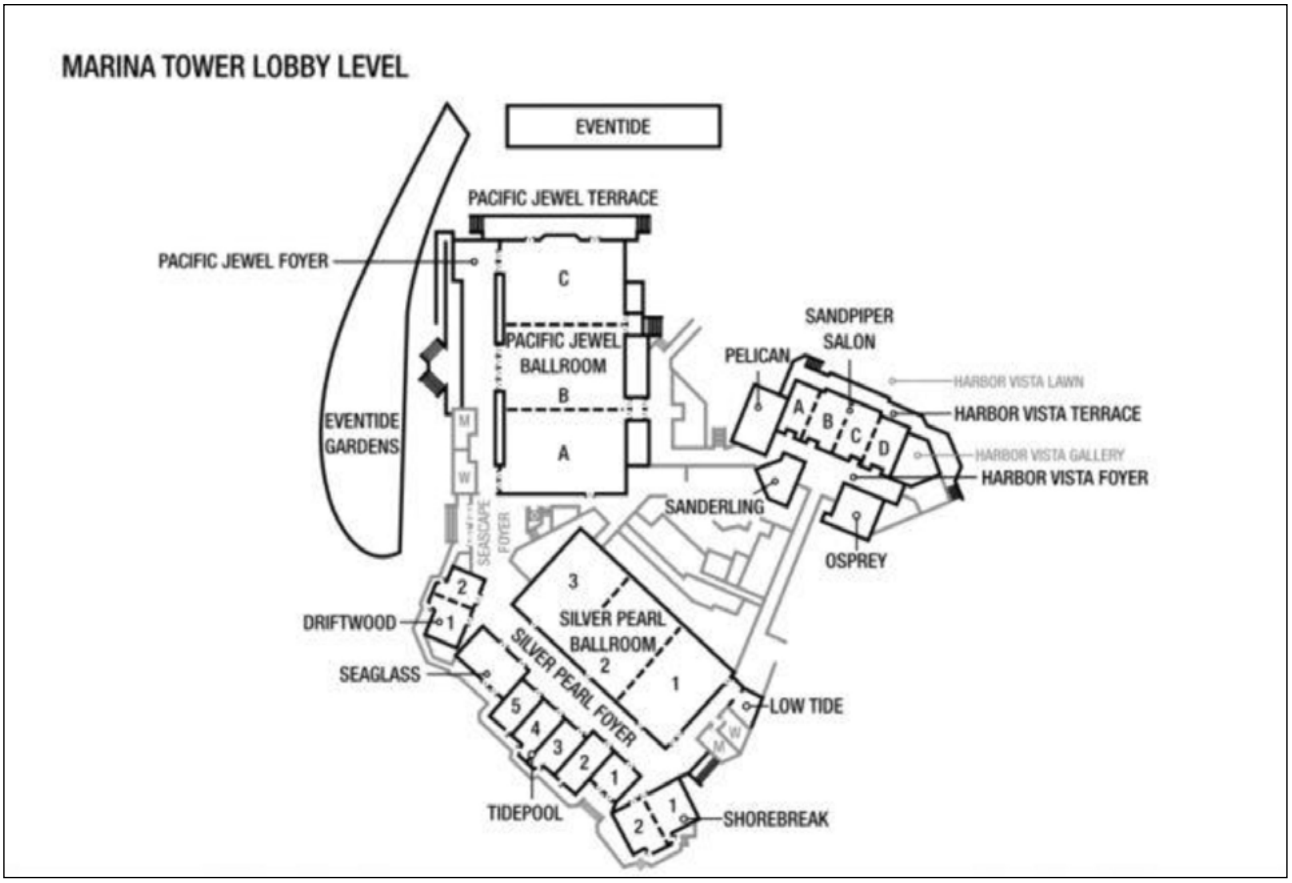
CONCURRENT SESSION 8

SATURDAY, APRIL 22, 2023 • 10:15 AM – 12:15 PM

Session Title	Biomaterial-based Cancer/tumor Models for Drug Screening and Diagnostics 2	Engineered Biomaterials for Neural Applications	Cardiovascular Biomaterials (SIG)	Intrinsic and Extrinsic Factors Influencing the Tissue-Biomaterial Interface	Advances and Translation of Self-assembly Soft Biomaterials	Pediatric Drug Delivery and Device Design	Nature Bioinspired Biomaterials and Strategies for TERM
Moderators	**Silviya Zustiak, Sara Pedron-Haba**	**Sarah Stabenfeldt, Kyle Lampe**	**Jessica Gluck, Nathaniel Huebsch, Zhen Ma**	**Yi Hong**	**Bingyun Li, Kevin Kang**	**Elizabeth Barker**	**Nuno Neves**
Room	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
10:15–10:30	392. INVITED SPEAKER: **Shilpa Sant, PhD**, University of Pittsburgh	399. SHIELD Hydrogels Allow for Long-Term Survival and Integration of Human Cortical Neurons into a Chronic Adult Cervical Spinal Cord Injury, **Vanessa Doulames, PhD**, Meghan Hefferon, Riley Suhar, PhD, Neil Baugh, Theo Palmer, PhD, Sarah Heilshorn, PhD, Stanford University, Stanford, CA, USA	407. Mechanical loading unveils calcium handling dysfunction in iPSC micro-heart muscle harboring Hypertrophic Cardiomyopathy mutations, Jingxuan Guo, David Schuftan, Huanzhu Jiang, Druv Bhagavan, Lavanya Aryan, **Nathaniel Huebsch**, Washington University in St. Louis, University City, MO, USA	415. Novel Targeted Treatment of Coagulase-Mediated S. aureus Biofilms, **Grant Scull, BS**[1,2], Adrian Aligwekwe[1,2], Drew Koch, DVM, MS, Diplomate ACVS[2], Kimberly Nellenbach, PhD[1,2], Jennifer Sollinger, MS[1,2], Jessica Gilbertie, DVM, PhD, MS[2], Lauren Schnabel, DVM, PhD, Diplomate ACVS, Diplomate ACVSMR[2], Ashley Brown, PhD[1,2], [1]University of North Carolina-Chapel Hill, Chapel Hill, NC, USA, [2]North Carolina State University, Raleigh, NC, USA	423. INVITED SPEAKER: **Joel Collier, PhD**, Duke University	430. INVITED SPEAKER: **Anne Zajicek, PhD**, NIH	437. INVITED SPEAKER: **Rui Reis, PhD**, University of Minho
10:30–10:45		400. Analysis of Lipid Nanoparticle Formulations in a Mouse Model of Traumatic Brain Injury, **Katelyn Miyasaki, BS**, Lauren Waggoner, Ester Kwon, PhD, University of California San Diego, La Jolla, CA, USA	408. Microfluidic Bioprinting of Tough Hydrogel-based Vascular Conduits for Functional Blood Vessels, **Xiao Kuang, Ph.D.**, Di Wang, PhD,, Sushila Maharjan, Yu Shrike Zhang, Brigham and Women's Hospital, Harvard Medical School, Cambridge, MA, USA	416. Efficacy of saline wash plus vancomycin/tobramycin-doped PVA composite (PVA-VAN/TOB-P) in a mouse pouch infection model implanted with 3D-printed porous titanium cylinders, David Markel, MD.[1,2], Therese Bou-Akl, MD., PhD.[1,2], Paula Dietz, MS.[1], Bin Wu, MD.[1], **Weiping Ren, MD., PhD.**[1,3], [1]Ascension Providence Hospital, Southfield, MI, USA, [2]Wayne State University, Detroit, MI, USA, [3]Virotech Co., Inc., Troy, MI, USA			
10:45–11:00	393. Therapeutic Nanocarriers Inhibit Chemotherapy-Induced Breast Cancer Metastasis, **Tianyu Li, PhD**[1], Tolulope Akinade, MD/PhD[1], Jie Zhou, PhD[1,2], Hongxia Wang[1], Qisong Tong[3], Siyu He[1], Emily Rinebold[1,4], Luis Valencia Salazar[1], Divya Bhansali[1], Yiling Zhong[1], Jing Ruan[1], Jinzhi Du[3], Piero Dalerba[1], Kam Leong, Professor[1,4], [1]Columbia University, New York, NY, USA, [2]Affiliated Cancer Hospital and Institute of Guangzhou Medical University, Guangzhou, China, [3]South China University of Technology, Guangzhou, China, [4]Columbia University Medical Center, New York, NY, USA	401. DNA-Inspired Electrically Conductive Nanocoating for Intracortical Microelectrode Stimulation and Recording, **Ian Sands**[1], Alpaslan Ersoz, PhD[1], Wuxia Zhang[1], Libo Zhou[1], Will Linthicum[2], Bryan Huey[2], Martin Han[1], Yupeng Chen[1], Sabato Santaniello[1], [1]Department of Biomedical Engineering, University of Connecticut, Storrs, CT, USA, [2]Department of Materials and Science Engineering, University of Connecticut, Storrs, CT, USA	409. Long-term performance of a biodegradable elastomer based vascular graft prepared by metal ligand chelation in rat/sheep carotid artery replacement and pig CABG models, **Ying Chen**[1,2], Anthony D'Amato[2], Ayla Musciano[2], Halle Welch[2], Cole Latvis[2], Iwijn Vlaminck[2], Yadong Wang[2], [1]Nancy E. and Peter C. Meinig School of Biomedical Engineering, Cornell University, Ithaca, NY, USA, [2]Department of Biomedical Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY, USA	417. Peptidomimetic polyurethanes inhibit bacterial biofilm formation and disrupt surface established biofilms, **Abraham Joy**, Apoorva Vishwakarma, Zixi Chen, University of Akron, Akron, OH, USA	424. Development of a Nanoparticle-Hydrogel Composite for Gene Editing in Osteoarthritis, **Larry Stokes, II**, Isom Kelly, PhD, Brock Fletcher, Richard Darcy, PhD, Bryan Dollinger, PhD, Craig Duvall, PhD, Vanderbilt University, Nashville, TN, USA	431. Ionizable Lipid Nanoparticles for In Vivo mRNA Delivery to the Placenta During Pregnancy, **Kelsey Swingle**, Michael Mitchell, PhD, University of Pennsylvania, Philadelphia, PA, USA	438. Mussel Inspired Nanoparticles for Mucoadhesion, **Arianna Avellán Jaramillo**, Kelsey DeFrates, Phillip Messersmith, PhD, University of California, Berkeley, CA, USA
11:00–11:15	394. Organotypic Breast Tumor Model Enables Drug Screening Against Tumor-Stromal Interactions, **Hossein Tavana, PhD,** University of Akron, Akron, OH, USA	402. Cell Specific Spatially Resolved, Multi-omic Analysis of Intracortical Microelectrode-Tissue Interface, **Lindsey Druschel**[1,2], Sydney Song[1,2], Jacob Conard[1,2], Jeffrey Capadona, PhD[1,2], [1]Case Western Reserve University, Cleveland, OH, USA, [2]Advanced Platform Technology Center, Louis Stokes Cleveland Veterans Affairs Medical Center, Cleveland, OH, USA	410. Integrated Functional Analysis for Engineered Cardiac Organoids Enabled by Artificial Intelligence, **Zhen Ma**, Andrew Kowalczewski, Shiyang Sun, Plansky Hoang, Syracuse University, Syracuse, NY, USA	418. AThy-1 negative inflammatory fibroblast subpopulation emerges as a key determinant of fibrotic outcomes to biomaterials, **Daniel Abebayehu, PhD**, Blaise Pfaff, Grace Bingham, Andrew Miller, Donald Griffin, PhD, Thomas Barker, PhD, University of Virginia, Charlottesville, VA, USA	425. Injectable and Expansile Nanofiber Peanuts for Junctional Hemorrhage Treatment, **Jingwei Xie**, University of Nebraska Medical Center, Omaha, NE, USA	432. Ionizable lipid nanoparticles for therapeutic base editing of congenital brain disease, **Rohan Palanki**[1,2], Sourav Bose[2], Apeksha Dave[2], Brandon White[2], Kelsey Swingle[1], Margaret Billingsley[1], William Peranteau[2], Michael Mitchell[1], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]Children's Hospital of Philadelphia, Philadelphia, PA, USA	439. Electroactive gelatin composites for flexible biodevices and tissue engineering, **Anne Brooks**, Vamsi Yadavalli, PhD, Virginia Commonwealth University, Richmond, VA, USA

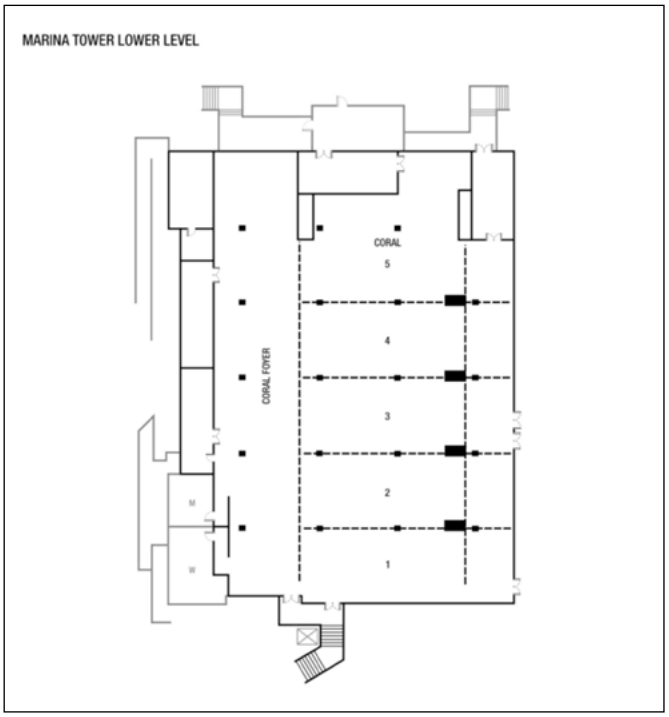
CONCURRENT SESSION 8 • SATURDAY, APRIL 22, 2023 • 10:15 AM – 12:15 PM

Session Title	Biomaterial-based Cancer...	Engineered Biomaterials for...	Cardiovascular Biomaterials (SIG)	Intrinsic and Extrinsic Factors...	Advances and Translation of...	Pediatric Drug Delivery and...	Nature Bioinspired...
Room	**Silver Pearl 2**	**Silver Pearl 3**	**Coral 1-2**	**Coral 3-4**	**Coral 5**	**Seaglass**	**Shorebreak**
11:15–11:30	395. Glioblastoma Spheroid Growth, Infiltration, Motility, and Chemotherapeutic Responses in Single and Dual-Stiffness Hydrogels, **Shabnam Nejat, B.S.**, Joseph Bruns, PhD, Silviya Zustiak, PhD, Saint Louis University, Saint Louis City, MO, USA	403. Multichannel Bridge Implantation and Neural Stem Cell Transplantation to Facilitate Axonal Regeneration, Myelination, and Connectivity After Spinal Cord Injury, **Usha Nekanti**[1], Pooja Sakthivel[1], Atena Zahedi[1], Rebecca Nishi[1], Dana Creasman[1], Xiaoxiao Lin[1], Zhiling Guo[1], Xiangmin Xu[1], Lonnie Shea[2], Brian Cummings[1], Aileen Anderson[1], [1]University of California, Irvine, Irvine, CA, USA, [2]University of Michigan,, Ann Arbor, MI, USA	411. Matrix Mechanics Regulate Engineered Myocardial Microtissue Organization and Contractility, Samuel DePalma, Austin Stis, Darcy Huang, Javiera Jilberto, Christopher Davidson, PhD, Aamilah Chowdhury, Maggie Jewett, Adam Helms, MD, David Nordsletten, DPhil, **Brendon Baker, PhD**, University of Michigan, Ann Arbor, MI, USA	419. The surface topography of silicone breast implants mediates the foreign body response in mice, rabbits, and humans, **Joshua Doloff, PhD**, Johns Hopkins University, Baltimore, MD, USA	426. Self-Assembled Amino Acid Nanofibers for Infection Control, **Alexa Sowers**, Bingyun Li, PhDWest Virginia University, Morgantown, WV, USA	433. Delivery of Decorin via Microspheres to Inhibit Fibrosis in Pediatric Vocal Folds, **Ryan Friedman**[1,2], Elizabeth Brown[1,2], Matthew Aronson[1,2], Karen Zur, MD[2], Riccardo Gottardi, PhD[1,2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]Children's Hospital of Philadelphia, Philadelphia, PA, USA	440. Cell-secreted extracellular matrix modulates expression of osteogenic markers in iPSC-MSC spheroids, **David Ramos-Rodriguez, PhD**, Shierley Fok Lau, Jonathan Leach, PhD, University of California Davis, Davis, CA, USA
11:30–11:45	396. Merging Biomaterials and Microscale Technologies to Engineer Ex vivo Organotypic Tumor Microenvironment (TME) Models, **Mehdi Nikkhah**, Arizona State University, Tempe, AZ, USA	404. TGF-β1 and PCL Nanofibers to Enhance Schwann Cell Migration, **Yang Hu, PhD Candidate**[1], Yin Mei Chan, PhD Candidate[2], Alan Zhang[1], Matthew Becker[2], Rebecca Willits[1], [1]Northeastern University, Boston, MA, USA, [2]Duke University, Durham, NC, USA	412. Connexin rich biomaterials electrochemically couple induced pluripotent stem cell-derived cardiomyocytes, Nima Momtahan, Jeanne Stachowiak, **Janet Zoldan**, The University of Texas at Austin, Austin, TX, USA	420. Dynamic profiling of inflammatory protease biomarkers in subcutaneous host response to implanted biomaterials, Thi Hong Anh Truong, Nam Nam, **Tram Dang, PhD**, Nanyang Technological University, Singapore, Singapore	427. Fabrication of lamellar-structured material with controlled shape inspired by fish bone, **YuYang Jiao**, Masahiro Okada, Takuya Matsumoto, Okayama university, Okayama, Japan	434. Antimicrobial Peptide Eluting Endotracheal Tubes Prevent Subglottic Stenosis in a Mouse Model, **Matthew Aronson**[1,2,3], Amrita Mehta[1,2], Ryan Friedman[1,2], Daniel Ghaderi[1,2], Ryan Borek, MD[1,2], Hoang Nguyen, MD, PhD[1], Kendra McDaid[2], Natasha Mirza, MD[1,3], Ian Jacobs, MD[1,2], Riccardo Gottardi, PhD[1,2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]Children's Hospital of Philadelphia, Philadelphia, PA, USA, [3]Philadelphia Veterans Affairs Medical Center, Philadelphia, PA, USA	441. Toward Quantifying Silk Scaffold Degradation Rates in vivo, Julie Jameson[1,2,3], Henry Lutz[1], Nisha Kotta[1], Jonathan Grasman[4], **Whitney Stoppel**[1], [1]University of Florida, Gainesville, FL, USA, [2]UES, Inc, Dayton, OH, USA, [3]Biotechnology Branch, Airman Biosciences Division, 711th Human Performance Wing, Airforce Research Laboratory, Dayton, OH, USA, [4]New Jersey Institute of Technology, Newark, NJ, USA
11:45–12:00	397. Microphysiological Prostate Cancer System for in vitro Evaluation of Anti-cancer Nanotherapeutics, Nicole Habbit[1], Benjamin Anbiah[1], Tareq Anani, PhD[1], Allan David, PhD[1], Balabhaskar Prabhakarpandian, PhD[2], Robert Arnold, PhD[1], **Elizabeth Lipke, PhD**[1], [1]Auburn University, Auburn, AL, USA, [2]CFD Research Corporation, Huntsville, AL, USA	405. Design of cell-adhesive guest-host hydrogels for neural tissue engineering, **Gregory Jensen**, Sarah Stabenfeldt, PhD, Julianne Holloway, PhD, Arizona State University, Tempe, AZ, USA	413. Hydrogel Assisted Double Molding of 3D Print Reveals Prestress Regulation of MicroHeart Muscle Electrophysiology, **Daniel Simmons**, David Schuftan, Jingxuan Guo, Kasoorelope Oguntuyo, Ghiska Ramahdita, Mary Munsell, Brennan Kandalaft, Missy Pear, Nathaniel Huebsch, Washington University in St. Louis, St. Louis, MO, USA	421. The Role of Toll-Like Receptor 2 and 4 in the Innate Immune Cell Response to Biomaterials and the Foreign Body Response, **Brittany Thompson, MS**, Leila Saleh, PhD, Stephanie Bryant, PhD, University of Colorado, Boulder, Boulder, CO, USA	428. Self-immolative boronated retinoic acid prodrug nanoassemblies for treatment of hepatic ischemia/reperfusion injury, **Dongwon Lee**[1], Nanhee Song[1], Eunkyeong Jung[2], Manseok Yang[1], Soonyoung Kwon[1], [1]Jeonbuk National University, Jeonju, Republic of Korea, [2]University of California, San Diego, San Diego, CA, USA	435. Development of a geometrically tunable blood shunt for pediatric heart reconstruction surgery, Victor Mishin, Shreya Soni, Akari Seiner, Amy Throckmorton, **Christopher Rodell**, Drexel University, Philadelphia, PA, USA	442. Evaluating therapeutic potential of silk fibroin nanoparticles for intravenous oxygen delivery, **Marisa Pacheco**, Jostin Armada, Hannah Bagnis, Bruce Spiess, Whitney Stoppel, PhD, University of Florida, Gainesville, FL, USA
12:00–12:15	398. Interrogating matrix determinants of cell migration mode and survival in a tunable tumor stroma mimetic, **Harrison Hiraki**, Daniel Matera, PhD, William Wang, PhD, Brendon Baker, PhD, University of Michigan, Ann Arbor, MI, USA	406. Glioma-derived matrices to probe stromal-matrix interactions in the brain tumor microenvironment, **Chase Cornelison, PhD**, University of Massachusetts Amherst, Amherst, MA, USA	414. High-throughput screening identifies hydrogel conditions for cardiomyocyte differentiation and maturation, **Margot Amitrano**, William Murphy, University of Wisconsin-Madison, Madison, WI, USA	422. Attenuated Foreign Body Response to Subcutaneous Implants in Regenerative Spiny Mice, **Michele Dill**, Janak Gaire, PhD, Valentina Supper, Erika Moore, PhD, Chelsey Simmons, PhD, University of Florida, Gainesville, FL, USA	429. Branched Lipid Architecture Enhances LNP-mediated mRNA Delivery to the Liver via Enhanced Endosomal Escape, **Marshall Padilla, PhD**, Michael Mitchell, University of Pennsylvania, Philadelphia, PA, USA	436. Pediatric Gummy Formulations for Drug Resistant Tuberculosis, Kelsey Broderick, Morteza Mostashari, Melissa Wright, Nikolai Braun, PhD, **Lindsay Woodard, PhD**, Luna Labs USA, Charlottesville, VA, USA	443. Characterization and Digital Light Processing of a Hydrolytically Degradable Hyaluronic Acid Hydrogel, **Abhishek Dhand**[1], Jonathan Galarraga, PhD[1], Bruce Enzmann, III[1], Jason Burdick, PhD[1,2], [1]University of Pennsylvania, Philadelphia, PA, USA, [2]University of Colorado, Boulder, Boulder, CO, USA



SHERATON SAN DIEGO HOTEL & MARINA

Floor Plan



2023 SFB ANNUAL MEETING *Mobile App*

THE COMPLETE 2023 SFB PROGRAM IS AT YOUR FINGERTIPS.

ACCESS THE 2023 SFB MOBILE APP TO:

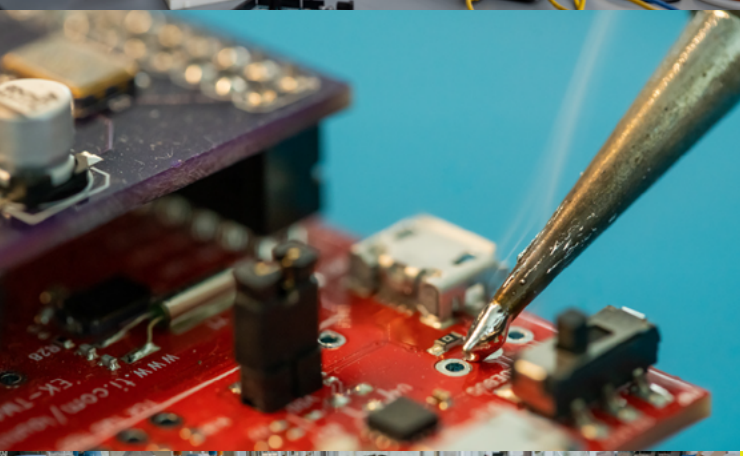
- Explore the agenda and concurrent sessions
- Learn more about the SFB Annual Meeting Exhibitors and Sponsors
- Identify speakers and presentations
- View hundreds of oral presentation abstracts
- Delve into the Poster Session schedule

...and much more!

UNIVERSITY OF OREGON | Phil and Penny Knight Campus for Accelerating Scientific Impact

Research That Fuels the Impact Cycle

The Knight Campus was specifically designed to encourage a team-based, interactive approach to research and dramatically reduce the time it takes for discoveries to enter the market.



At the University of Oregon's Phil and Penny Knight Campus for Accelerating Scientific Impact, teams of world-class bioengineers are tackling everything from developing cartilage regeneration therapies for better healing to designing pH-responsive nanoparticle drug delivery approaches to reduce tooth decay. We are developing protein-trapping biomaterials to improve tissue repair and engineering do-it-yourself kits that enable microscale 3D printing innovators to help themselves to revolutionary melt electrowriting technology.

Learn more about all of the ways we are accelerating the impact cycle and speeding the success of our faculty members and graduate students.

bioengineering.uoregon.edu

bioengineering@uoregon.edu