

2025 CMBE Conference
 Jan 3-6, 2025
 Hilton Carlsbad, CA

Date	Time	Type	Event	Speaker	Institution	Title
Thu Jan 2	2:00 - 8:00 PM	Administration	Registration			
Fri Jan 3	7:00 AM	Meal	Breakfast			
	8:00 - 10:05 AM	Platform	Session 1: Advances in Regenerative Medicine			
	8:00 AM	Platform	Welcome & Introduction	Ngan Huang & Keyue Shen		
	8:10 AM	Platform	Keynote Speaker	Guillermo Ameer	Northwestern University	Modulating tissue and organ regeneration via microtopography engineering
	8:40 AM	Platform	Rising Star	Karina Nakayama	Oregon Health & Science University	Functional repair and regenerative engineering of composite bone-muscle injury in mouse lower extremity trauma
	8:55 AM	Platform	Rising Star	Quinton Smith	UC Irvine	Stem Cell Derived Placental Organoid Model to Investigate Maternal-Fetal Crosstalk
	9:10 AM	Platform	Rising Star	Claudia Loebel	UMich	Local photo-crosslinking of native tissue matrix regulates alveolar epithelial cell function
	9:25 AM	Platform	Short Talk	Nisha Iyer	Tufts	A hybrid hPSC differentiation strategy for region-specific spinal and sensory neurons
	9:40 AM	Platform	Short Talk	Johnson V. John	Terasaki	Directing the Cellular Organization in 3D Gels Using Filamented Light Biofabrication for Cell Therapy
	9:55 AM	Platform	Postdoctoral Travel Award	Brandon Applewhite	Northwestern University	Targeted Mitochondria Delivery to Repair and Regenerate Injured Vascular Endothelium
	10:05 - 10:30 AM	Break	Coffee Break and Booth Viewing			
	10:30 - 12:40 PM	Platform	Session 2: Mechanobiology of Rejuvenation (or Mechanobiology through the Life Span)			
	10:30 AM	Platform	Keynote Speaker	Rong Li	NUS	Cytoplasmic Dynamics and Mechanics in the Maturation and Aging of Mammalian Oocytes
	11:00 AM	Platform	Rising Star	Haogang Cai	NYU	Dissecting the Molecular Mechanism of Cell Mechanobiology using a Nano-ruler Platform
	11:15 AM	Platform	Rising Star	Yanxiang Deng	UPenn	Multiplexed spatial mapping of chromatin features, transcriptome, and proteins in tissues
	11:30 AM	Platform	Short Talk	Shang Wang	Stevens Institute of Technology	Imaging the dynamic mechanical environment of embryonic development in live mouse model
	11:45 AM	Platform	Short Talk	Robert Raphael	Rice	Computational Modeling of Energy Supply and Demand during Mechanotransduction in Inner Ear Hair Cell Stereocilia
	12:00 PM	Platform	Short Talk (Late Breaking)	Kolade Adebowale	UCSD	Monocytes use protrusive forces to generate migration paths in viscoelastic collagen-based extracellular matrices
	12:15 PM	Platform	Postdoctoral Travel Award	Benjamin Lee	UPenn	Mechanics in a Human Engineered Heart Tissue Model of Lamin Cardiomyopathy
	12:25 PM	Platform	Lightning (3 min)	Daanish Kulkarni	UCI	Piezo1 Mediated Mechanotransduction Regulates Lipid Accumulation in Microglia
		Platform	Lightning (3 min)	Ali Kazempour	NJIT	Margination Behavior of a Circulating Cell in a Tortuous Microvessel
		Platform	Lightning (3 min)	Yerbol Tagay	PSU	Cracking the Code of Nuclear Rigidity: New Frontiers in Cell Migration and Therapy
		Platform	Lightning (3 min)	Yifan Wu	UCLA	Viscoelastic Extracellular Matrix Enhances Epigenetic Remodeling and Cellular Plasticity
	12:40 - 2:00 PM	Meal	Meet the Leaders lunch for Rising Stars and Travel Awardees (by invitation only)			
	12:40 - 2:00 PM		Lunch on your own			
	2:00 - 3:30 PM	Workshop	Meet the Grant Agencies			
	2:00 - 2:30 PM			Ross Okamura	CIRM	
	2:30 - 3:00 PM			Shivani Sharma	NSF	
	3:00 - 3:30 PM			Rahul Thakar	NIH/NHLBI	
	3:00 - 4:30 PM		Break			
	3:00 - 4:30 PM	Administrative	CMBE Council Meeting (by invitation) (BMES staff included)			
	4:30 - 6:00 PM	Posters	Poster Session 1 (with refreshments)			
	5:30 - 7:00 PM	Reception (hors d'oeuvres and drinks)	Welcome Reception			
Sat Jan 4	7:00 AM	Meal	Breakfast			
	8:00 - 9:55 AM	Platform	Session 3: Engineering Cellular and Tissue Rejuvenation (Engineering Cellular and Tissue Rejuvenation and Regeneration)			
	8:00 AM	Platform	Keynote Speaker	Thomas Rando	UCLA	Pathways to Rejuvenation of Adult Stem Cells
	8:30 AM	Platform	Rising Star	Esak Lee	Cornell	Ocular fluid outflow on-chip reveals ALK5/VEGFC-mediated Schlemm's canal endothelial dysfunction in glaucoma
	8:45 AM	Platform	Rising Star	Priscilla Hwang	Virginia Commonwealth	P-cadherin dependent adhesions mediate cell protrusions required for epithelial morphogenesis
	9:00 AM	Platform	Rising Star	Laurel Hind	UColorado - Boulder	M-MDSCs and Neutrophil Dysfunction: Unveiling a Mechanism of Post-Sepsis Immunosuppression

9:15 AM	Platform	Short Talk	Jennifer L. Young	NUS	Elucidating distinct roles of extracellular matrix in cardiac aging
9:30 AM	Platform	Short Talk	Su Chin Heo	UPenn	Precision Mechanomedicine for Zone-Specific Meniscal Repairs Using a Tunable Meniscus ECM-Based Hydrogel System
9:45 AM	Platform	Postdoctoral Travel Award	Di Zhang	Yale University	Spatiotemporal dynamics of mammalian brain development and neuroinflammation by multimodal tri-omics mapping
9:55 - 10:30 AM	Break	Coffee Break and Booth Viewing			
10:30 - 12:40 PM	Platform	Session 4: Advanced Biomaterials for Immunomodulation and Drug Delivery			
10:30 AM	Platform	Keynote Speaker	Tejal Desai	Brown University	Tuning the "Structure" of Biomaterials: Implications for Cell-Based Therapy and Drug Delivery
11:00 AM	Platform	Rising Star	Nitin Joshi	Brigham Women's Hospital	Ultra-Long-Term Delivery of Hydrophilic Drugs Using Injectable In Situ Cross-Linked Depots
11:15 AM	Platform	Rising Star	Marian Hettiaratchi	University of Oregon	Affinity-Controlled Delivery of Multiple Angiogenic Proteins Enhances Vascular Network Formation
11:30 AM	Platform	Rising Star	Brian Aguado	UCSD	Determining sex-specific drug combinations targeting aortic valve myofibroblast activation using an artificial intelligence-derived platform
11:45 AM	Platform	Short Talk	John Clegg	University of Oklahoma	Phenotype-Instructive Nanomaterials for Augmentation of Macrophage Cell Therapies
12:00 PM	Platform	Short Talk	Cheemeng Tan	UCDavis	Engineering Cyborg Mammalian Cells as Therapeutic Materials
12:15 PM	Platform	Postdoctoral Travel Award	Junzhe Lou	Harvard	Surface-Functionalized Microgels as Artificial Antigen-Presenting Cells to Regulate Expansion of T Cells
12:25 PM	Platform	Lightning (3 min)	Ai Mochida	UPenn	Modulators of LFA-1 signaling control leukocyte upstream migration
	Platform	Lightning (3 min)	Karla Lambaren	USC	T Cell Targeting Nanoparticles to Modulate the Immune Response in Hypertension
	Platform	Lightning (3 min)	Ana Diaz Espinosa	Mayo Clinic	Design of a high-throughput screening assay to identify cues promoting distinct alveolar and adventitial lung fibroblast identities
	Platform	Lightning (3 min)	Tuba Marjan	Purdue	Constructing a decellularized extracellular matrix containing interpenetrating network hydrogel to probe cell-material interactions
12:40 - 1:40 PM	Demo	MaxCyte, Inc Product Demo			
12:40 - 2:00 PM		Lunch on your own			
2:00 - 3:00 PM	Workshop	Transitioning to Product Development			
			Pratima Labroo	FDA / CBER	
			Karen Christman?	UCSD	
3:00 - 4:30 PM		Break			
3:00 - 4:30 PM		Perspectives Manuscript Products Meeting (all are welcome to attend)			
4:30 - 6:00 PM	Posters	Poster Session 2 (with refreshments)			
6:00 - 9:00 PM	Gala Dinner	Welcome & Introduction	Ngan Huang & Keyue Shen		
		Presentation of Junior Travel Awards			
		Introduction to CMBE 2026	Evangelia Bellas & Elizabeth Wayne		
		Shu Chien Achievement Award	Christopher Chen	Boston University	title TBD (25 min talk + 5min Q&A)
Sun Jan 5	7:00 AM	Meal	Breakfast		
8:00 - 9:55 AM	Platform	Session 5: Translational Applications of Biomimetic Platforms			
8:00 AM	Platform	Keynote Speaker	Karen Christman	UCSD	Design and Translation of Decellularized Extracellular Matrix Biomaterials
8:30 AM	Platform	Rising Star	Ritu Raman	MIT	Actuating Extracellular Matrices Enable Decoupling Mechanical and Biochemical Impacts of Exercise
8:45 AM	Platform	Rising Star	Yichun Wang	University of Notre Dame	Enhancing therapeutic exosomes: High-efficiency drug loading and large-scale production using biomimetic materials
9:00 AM	Platform	Rising Star	Hadi Nia	Boston University	Real-time probing of pneumonia pathogenesis: dissecting systemic and pulmonary immunity using a novel extracorporeal cross-circulation model
9:15 AM	Platform	Short Talk (Late Breaking)	Sara Nunes Vasconcelos	U Toronto	Human microvessel-based vascularization post myocardial infarction in pigs show unprecedented endothelial retention and scar remuscularization
9:30 AM	Platform	Short Talk	Xiao Huang	Drexel	Precision biomaterials sustain durable and massive expansion of human CAR-T cells in vitro
9:45 AM	Platform	Postdoctoral Travel Award	Marissa Gionet-Gonzales	UCSB	Engineering a viscoelastic, growth factor sequestering hydrogel for induced pluripotent stem cell cardiomyocyte culture (iPSC-CMs)
9:55- 10:30	Break	Coffee Break and Booth Viewing			
10:30 - 12:20 PM		Session 6: Advancing Cancer Mechanomedicine			
10:30 AM	Platform	Keynote Speaker	Konstantinos Konstantopoulos	Johns Hopkins University	Cell Mechanochemical Sensing and Memory Formation
11:00 AM	Platform	Rising Star	Jiahe Li	UMich	Engineering Commensal Bacteria to Neutralize a Microbial Genotoxin Involved in Colorectal Cancer
11:15 AM	Platform	Rising Star	Panagiotis Mistriotis	Auburn University	Pre-exposure to Elevated Hydrostatic Pressure Promotes Downstream Motility by Suppressing Tumor Cell Mechanosensitivity
11:30 AM	Platform	Rising Star	Shreya Raghavan	Texas A&M	Transcriptomic Mechano-Immunology Landscape in Colorectal Cancer in Response to Peristalsis

	11:45 AM	Platform	Short Talk	Adam J. Engler	UCSD	Cell contractility and paracrine signals drive mechanical memory of oral squamous cell carcinoma
	12:00 PM	Platform	Postdoctoral Travel Award	Matthew Ishahak	WUJSTL	Modeling glioblastoma tumor progression via CRISPR-engineered brain organoids
	12:10 PM	Platform	Lightning (3 min)	Bella Raykowski	USC	Regulation of Mitochondrial Membrane Potential by YAP in Cancer Cells
		Platform	Lightning (3 min)	Tianyu Chen	Utah State University	Establishing a Microglia-GBM Organoid Model to Study Immune Response and Tumor Interaction in the Brain
	12:20 - 2:00 PM		Lunch on your own			
	2:00 - 3:00 PM	Workshop	Best Practices in Manuscript Preparation and Submission (Meet the Journal Editors)			
			APL Bioengineering			
			Med-X			
			CMBE			
	2:00 - 4:30 PM	Break				
	4:30 - 6:00 PM	Posters	Poster Session 3 (with refreshments)			
	6:00 - 7:00 PM	Reception (hors d'oeuvres and drinks)	Welcome & Introduction	Ngan Huang & Keyue Shen		
			Chris Jacobs Award for Excellence in Leadership	Yi-Xian Qin	Stony Brook University	title TBD (25 min talk + 5min Q&A)
Mon Jan 6	7:00 AM	Meal	Breakfast			
	8:00 - 10:00 AM	Platform	Session 7: Emerging Technologies in Cell and Molecular Bioengineering			
	8:00 AM	Platform	Keynote Speaker	Kun Zhang	UCSD	Dissecting Kidney Injuries and Repairs with Single-Cell Technologies
	8:30 AM	Platform	Rising Star	Guosong Hong	Stanford	A method to achieve optical transparency in live animals
	8:45 AM	Platform	Rising Star	Jun Chen	UCLA	Programming of Fibroblasts into Neurons via a Scalable Magnetoelastic Generator Array
	9:00 AM	Platform	Rising Star	Joshua Weinstein	UChicago	Volumetric imaging of intact tissue by distributed molecular networks
	9:15 AM	Platform	Short Talk	Xiaojun Lian	PSU	MAGIK: A rapid and efficient method to create lineage-specific reporters in stem cells
	9:30 AM	Platform	Short Talk	Piyush Jain	University of Florida	Programmable RNA targeting with DNA-guided CRISPR/Cas Systems
	9:45 AM	Platform	Short Talk	Fan Zhang	UWashington	Developing High-Throughput In Vivo Screening Technology for Engineered Tissue Formulation
	10:00 - 10:30 AM	Break	Coffee Break			
	10:30 AM - 12:15 PM	Platform	Session 8: Advances in Immunobioengineering and Cellular Therapy			
	10:30 AM	Platform	Momentum Award	Ning Jenny Jiang	UPenn	title TBD (25 min talk + 5min Q&A)
	11:00 AM	Platform	Short Talk	Longwei Liu	USC	Reprogramming T cells in inhibitory tumor microenvironment with TGFβ redirectors for improved ultrasound controllable CAR-T therapy
	11:15 AM	Platform	Short Talk	Claire Robertson	LLNL	Effective Chimeric Antigen T Cells Engineered with NanoLipoProtein Protein Delivery
	11:30 AM	Platform	Short Talk	Jonathan Brunger	Vanderbilt	Synthetic mechanoreceptors derived from clinical anti-tau immunotherapies for regulated gene therapies against neurodegeneration
	11:45 AM	Administrative	Closing Remarks and Poster Awards	Ngan F. Huang and Keyue Shen		
	12:15 PM	Administrative	Meeting Adjourned			