



Workshop: Recent Developments in Human-Based Models

Sponsored by the Office of Research Innovation, Validation, and Application (ORIVA) Division for Accelerating Innovation in Biomedical Research (DAIBR) within the Division of Program Coordinating, Planning, and Strategic initiatives (DPCPSI)

October 22-23, 2026

NIH Neuroscience Center, 6001 Executive Blvd., Rockville, MD, 20852

Day 1: Thursday, October 22, 2026

Time	Session Title	Presenter
8:30 AM	Welcome and Meeting Logistics	Ananda Roy, DPCPSI
8:35 AM	Opening Remarks	Jay Bhattacharya, NIH Director
8:45 AM	Keynote	Nicole Kleinstreuer, DPCPSI Director
	Session I: Cell-based systems for studying human-specific development and evolutionary specializations	Session Chairs: John Satterlee, David Panchision
9:10 AM	Using Non-animal Models to Study Human Brain Development and Consequences of Genetic and Environmental Perturbations	Tomasz Nowakowski (University of California San Francisco)

Attendees will be responsible for meals and/or light refreshments on their own, at their own cost. The Government and/or Government contractors are not involved in facilitating the provision of food and/or light refreshments.

Time	Session Title	Presenter
9:30 AM	Using Human Stem Cells to Transform Reproductive Care	Amander Clark (University of California Los Angeles)
9:50 AM	In Vitro Models of Human Age-related Neurodegenerative Disease	Fred Gage (Salk Institute)
10:10 AM	Break <i>Visit the interactive demonstration featuring phantoms from the National Medical Phantom Library (NMPL) during any of the breaks or after sessions</i>	
10:25 AM	Human Genomics, Organoids, and AI for Drug Discovery	Joseph Wu (Stanford University)
10:45 AM	Building Tissues to Understand how Tissues Build Themselves	Zev Gartner (University of California San Francisco)
11:05 AM	Discussion	
12:05 PM	Lunch break – 75 min	
	Session II: <i>Transformative human-based methodologies for biomedical use: existing technologies, perturbations, and future development</i>	Session Chairs: Jermont Chen, Oleg Mirochnitchenko
1:20 PM	Understanding Variability in Region-specific Organoids: Lessons from the Emory Brain Organoid Hub	Jimena Andersen (Emory University)
1:40 PM	Recapitulating Human Development to Generate Complex Tissue Architectures	Sharad Ramanathan (Harvard University)
2:00 PM	Multi-Region Brain Organoids as Decision-Grade Models for CNS Drug Development	Annie Kathuria (Johns Hopkins University)
2:20 PM	Building Vascularized, Multicellular, and Perfusable Human Tissue Models	Jennifer Lewis (Wyss Institute, Harvard University)
2:40 PM	Discussion	
3:40 PM	FAES Resources	Christina Farias (FAES)
3:50 PM	Break	
	Session III: <i>Combining in vitro, in vivo, in chemico, and in silico approaches to complement human-based models</i>	Session Chairs: Margaret Ochocinska, Tiziana P. Cogliati
4:00 PM	How Complex Should <i>In Vitro</i> Models Be? A Case Study on Brain Organoids	Lena Smirnova (Johns Hopkins University)

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Time	Session Title	Presenter
4:20 PM	Human-Based Models Across Scales: Multimodal Generative AI and Mechanistic Digital Twins	Olivier Gevaert (Stanford University)
4:40 PM	RPE Digital Twin Reveals Mesenchymal Drift in Ciliopathy RPE Cells	Ruchi Sharma (National Eye Institute/NIH)
5:00 PM	Language Modeling Materializes a World Model of Protein Biology	Alex Rives (Biohub)
5:20 PM	Discussion	
6:30-8:30 PM	Dinner (Optional)	

Day 2: Friday, October 23, 2026

Time	Session Title	Presenter
8:25 AM	Day 2 Introduction	Ananda Roy, DPCPSI
	Session IV: <i>Human-based methodologies and applications in human disease models</i>	Session Chairs: Rose Aurigemma, Dmitriy Krepiy
8:30 AM	Building NAM Disease Models for Industry: A Framework for Translational Utility	Kimberly Homan (Genentech)
8:50 AM	Advancing Drug Discovery with Biofabricated Human 3D Tissue Models: from Concepts to Applications	Marc Ferrer (NIH)
9:10 AM	From Human Data to Causal Mechanisms: Statistical Design and Integration of Human-Based Models	Huilin Li (New York University)
9:30 AM	Adding Time to Human Models: Capturing Maturation and Aging to Study Late-onset Disease	Lorenz Studer (Memorial Sloan Kettering)
9:50 AM	Break	
10:10 AM	From Fragile Constructs to Distributed Infrastructure: Toward Deployment of Cardiac NAMs	Brenda Ogle (University of Minnesota)
10:30 AM	Development of Human Cortical and Subcortical Neural Organoids to Model Neuropsychiatric Disorders	In-Hyun Park (Yale University)

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10:50 AM	Building Reproducible Retinal NAMs: From Organoids to Microfluidic Platforms	Jason Meyer (Indiana University School of Medicine)
11:10 AM	NIH Standardized Organoid Modeling (SOM) Initiative: Building Trusted Human-Relevant Models for Biomedical Discovery and Translation	Srivatsan Kidambi (NIH Standardized Organoid Modeling Center, NIAID)
11:30 AM	Final Discussion	
12:30 PM	Closing Remarks, Adjourn Day 2	Ananda Roy (DPCPSI)

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