



Neuronal Models Symposium 2026: Organoids, NAMs, and Neural Circuit Assays for Disease and Drug Discovery | Program

Wednesday, September 16

Location: Ambassador House Zürich, Thurgauerstrasse 101, 8152 Opfikon, Switzerland

8:30 - 9:30	Registration and Welcome Coffee	
9:30 - 9:40	Opening Remarks	
nanjilon	Decoding Neurological Disease with Human Neural Models Chair: Dr. Laura D'Ignazio (MaxWell Biosystems)	
9:40 - 10:25	Keynote Talk	From Genes to Circuits: Convergent Molecular Signatures of Autism Dr. Tom Nowakowski University of California, San Francisco, United States
10:25 - 10:50	Scientific Talk	Brain Organoids as Platforms for Understanding and Treating Neurological Disorders Dr. Silvia Velasco Novo Nordisk Foundation Center for Stem Cell Medicine, reNEW Melbourne, Australia
10:50 - 11:00	Short Talk	An Integrated Platform Combining Longitudinal High-Density MEA Electrophysiology and On-Chip Signal-Amplified Spatial Transcriptomics in Human iPSC Neural Networks Aayush Marishi ETH Zürich, Switzerland
11:00 - 11:20	Product Update	From Activity to Insight: Functional Phenotyping with HD-MEAs Dr. Marie Obien MaxWell Biosystems
11:20 - 11:50	Morning Coffee Break	
11:50 - 12:00	Short Talk	Isogenic Human Cerebellar Organoids Reveal RNA Processing and Translational Defects Underlying PCH2a Dr. Theresa Kagermeier Karlsruhe Institut für Technologie, Germany
12:00 - 12:15	Scientific Spotlight	Altered Excitability and Variation of Ion Channel activity in variants of ALS using iPSC-Derived Motor Neurons and High-throughput Automated Patch-Clamp Dr. David Colameo University of Zürich, Switzerland
12:15 - 12:40	Scientific Talk	High-Throughput Phenotyping and Neural Circuit Analysis in Brain Organoids: Morphology, Neuropharmacology, and Neuromodulation Xinyu Chen Fudan University, China
12:40 - 13:05	Special Session	Stem Cell Research and Biomanufacturing in Space Dr. Arun Sharma Cedars-Sinai Medical Center, United States
13:05 - 14:35	Lunch Break and Poster Session	
bit.bio	Neurodevelopment and Neurodegeneration Chair: Dr. Matt Kelley (Alexion AstraZeneca)	
14:35 - 14:40	Sponsor Talk	Why Complexity Matters: Building Consistent Complex Neuronal Models to Enable Human-Relevant Discoveries Dr. Rebecca Northeast bit.bio, United Kingdom

14:40 - 14:50	Travel Grant Winner	Divergent Paths to Convergent Cortical Hyperactivity in CACNA1A Loss- and Gain-of-Function Forebrain Assembloids Arvin Sarkissian Emory University, United States
14:50 - 15:15	Scientific Talk	Human Neuronal Models Reveal XPO7 as a Regulator of Sodium Channel Function and Network Activity Dr. Jen Pan Broad Institute of MIT and Harvard, United States
15:15 - 15:40	Scientific Talk	Contextualizing Molecular Pathology through Network Dynamics in Human Brain Assembloids Dr. Ranmal Samarasinghe University of California, Los Angeles, United States
15:40 - 16:10	Panel Discussion	Beyond the Bench: Exploring Careers in Science
16:10 - 17:10	Afternoon Coffee Break and Poster Session	
17:10 - 17:20	Short Talk	Electrophysiological Mapping of Human Striatal Microcircuits Enables Parkinson's Disease Stratification Jannes Straub VIB – KU Leuven, Belgium
17:20 - 17:30	Short Talk	Improving Neurology Drug Discovery Success through High-Density Microelectrode Arrays Dr. Matt Kelley Alexion AstraZeneca, United States
17:30 - 18:15	Keynote Talk	Cerebral Organoids: Growing Human Brain Tissue from Stem Cells to Study Development and Disease Prof. Jürgen Knoblich Institute of Molecular Biotechnology, Austria
18:15	Closing Remarks	

Thursday, September 17

Location: Ambassador House Zürich, Thurgauerstrasse 101, 8152 Opfikon, Switzerland

9:00 - 9:30	Welcome Coffee	
9:30 - 9:35	Opening Remarks	
	Neural Models for Drug Discovery and Screening Chair: Dr. Giorgia Quadrato (University of Southern California)	
9:35 - 10:20	Keynote Talk	Human iPSC-Based Neuronal Models for ALS Disease Modeling, Drug Discovery, and Reverse Translation Prof. Hideyuki Okano Keio University, Japan
10:20 - 10:45	Scientific Talk	Human Spatial Genomics to Stem Cell Models: Circuit Vulnerability in Alzheimer's Disease Prof. Keri Martinowich Lieber Institute for Brain Development, United States
10:45 - 10:55	Short Talk	Disease modeling of α -synuclein propagation in human brain assembloids Dr. Kaneyasu Nishimura Doshisha University, Japan
10:55 - 11:25	Morning Coffee Break	

11:25 - 11:35	Short Talk	Human Enteric Nervous System Organoids: a Platform for Structure-to-Function Phenotyping at the Neuromuscular Interface Dr. Marcella Birtelle University of Southern California, United States
11:35 - 12:00	Scientific Talk	Village-Based Proliferation and Viability Assays Dr. Michael Wells University of California, Los Angeles, United States
12:00 - 12:25	Special Session	Publishing with Cell Press: Inside the Editorial Process Dr. Sheila Chari Cell Stem Cell, United States
12:25 - 13:55	Lunch Break and Poster Session	
 Open Culture		Neuroengineering and Bio-Inspired Computing Chair: Prof. Yoshiho Ikeuchi (The University of Tokyo)
13:55 - 14:05	Short Talk	Dissecting Neurodegeneration Across Engineered Hierarchical Human Neural Circuits Dr. Nicolai Winter-Hjelm ETH Zürich, Switzerland
14:05 - 14:15	Short Talk	Engineering Vision In Vitro: Functional Light-Evoked Responses in Laminated Retinal Organoids Antonio Ortega Johns Hopkins University, United States
14:15 - 14:40	Scientific Talk	Engineering Living Neuronal Networks: from Structure-Function Relationships to Bio-Inspired Computing Dr. Mohammed Andres Mostajo-Radji University of California, Santa Cruz, USA
14:40 - 14:50	Short Talk	Progressive neuronal network reorganisation in glioblastoma drives pathological activity in vitro Giulia Amos ETH Zürich, Switzerland
14:50 - 15:15	Scientific Talk	Uncovering the origins of human neural syntax Dr. Tal Sharf University of California, Santa Cruz, United States
15:15 - 15:30	Picture Taking	
15:30 - 16:30	Afternoon Coffee Break and Poster Session	
16:30 - 16:40	Short Talk	Closed-Loop Reinforcement Trains the Spatial Origin of Network Bursts across Days in Cortical Cultures Dr. Wesley Clawson Tufts University, United States
16:40 - 16:50	Short Talk	Network Architecture Drives Functional Diversification among Connected Cerebral Organoids Prof. Yoshiho Ikeuchi The University of Tokyo, Japan
16:50 - 17:15	Scientific Talk	Engineering and Decoding Neuronal Circuits Prof. Hideaki Yamamoto Tohoku University, Japan
17:15 - 18:00	Keynote Talk	Interacting with Neuron Microcircuits 24/7 Prof. Janos Vörös ETH Zürich, Switzerland
18:00	Closing Remarks	
19:30	Dinner at Zunfthaus zur Meisen	

Friday, September 18

Multiple locations

9:00 - 9:15	Welcome	
9:15 - 14:30	Workshops	
	 Wunderlichips Custom microfabrication for the life sciences.	Microfluidic Patterning on High-Density Microelectrode Arrays Dr. Benedikt Mauer, Joël Küchler ETH Zürich, Switzerland Location: Gloriastrasse 37, Zürich, Switzerland
	 Open Culture	Plate -> Prompt -> Publish: Toward Full Lab Automation with Open Culture Science Dr. Tjitse van der Molen, Dr. Spencer Seiler, Dr. Kate Voitiuk Open Culture Science, United States Location: Memox YOND, Albisriederstrasse 199, Zürich, Switzerland
		How to Train your Organoid: An Introduction to BrainDance Dr. Mircea Teodorescu, Dr. Ash Robbins, Hunter Schweiger University of California Santa Cruz, United States Location: Memox YOND, Albisriederstrasse 199, Zürich, Switzerland
		Unlocking Functional Insights from Neural Organoids MaxWell Biosystems' Product & Application Team MaxWell Biosystems Location: Memox YOND, Albisriederstrasse 199, Zürich, Switzerland

Poster Number	Presenting Author	Title of the Poster	Day of Presentation
1	Flora Brozzi	An Open, Remotely Accessible Neuroplatform for Long-Term Closed-Loop Electrophysiology of Human iPSC-Derived Biological Neural Networks	Day 1
2	Sreedevi Raghu	Delayed maturation of GABAergic interneurons and pathological mitochondrial dynamics as key driving factors of epileptic seizures in hiPSC derived cortical organoid models of Rett syndrome	Day 2
3	Michele Bertacchi	High-density MEA analysis of neural network activity, maturation and plasticity in region-specific human brain organoids	Day 1
4	Gregorio Rebecchi	SpikeTrain Spotting: how to infer synaptic connectivity in brain organoids	Day 2
5	Scott Erickson	A Bioelectronic Platform for Modeling Functional Connections Between Neural Organoids	Day 1
6	Marcus Kaji	Driving with the Parking Brake On. Repairing KCNQ2 Gain-of-Function Neuronal Hypo-excitability with an Antisense Oligonucleotide tune-up	Day 2
7	Nina Doorn	Beyond phenotyping: from MEA data to mechanistic insight using computational modeling	Day 1
8	Ferenc Deak	Prevention of cognitive impairment and synaptic dysfunction in Alzheimer's disease	Day 2
9	Michal Liput	Physioxia Regulates Mitochondrial Dynamics and Protects Developing Cortical Neurons from Hypoxia-Induced Cell Death in Human Brain Organoids	Day 1
10	Zofia Knapinska	Selective Modulation of the Senescence-Associated Transcriptome in Human Dorsal Forebrain Organoids Cultured Under Physiological Oxygen Tension	Day 2
11	Aidan Loehde-Woolard	Functional pharmacology of brain organoids enabled by automated microfluidic electrophysiology	Day 1
12	Benedikt Maurer	A system for unperturbed longitudinal recording of neuronal networks through constant culturing conditions	Day 2
13	Aline Girard	Human iPSC-derived models to unravel the role of glypicans in synaptic alterations in Sanfilippo syndrome	Day 1

Poster Number	Presenting Author	Title of the Poster	Day of Presentation
14	Yoko Uwate	Effects of Time-Series Length and Noise on Recurrence Plot Analysis of Developmental Neural Dynamics in iPSC Cell-Derived Networks	Day 2
15	Veronica Astro	Dosage-dependent disruption of neural stem cell proliferation and neuronal network activity in X-chromosome aneuploidies is mediated by the cell-autonomous ZFX-SOX2 axis	Day 1
16	Rebecca Bonrath	Human adherent cortical organoids derived from individuals with grey matter heterotopia	Day 2
17	Pablo Carbajal Martin	Unmasking energetic and intracellular dysregulation in HK1-associated neurological disorders using iPSC-based neural models	Day 1
18	Moran-Adel Khamaisi	Studying Functional Neural Activity in iPSC-derived Brain Organoids Using Microelectrode Arrays	Day 2
19	Ruben de Vries	AXIAL STEM CELL DERIVED HUMAN DORSAL ROOT GANGLION MODEL RECAPITULATES CELLULAR DIVERSITY AND SOMATOSENSORY FUNCTIONALITY	Day 1
20	James Crowe	Dissecting neuronal contributions to network hyperexcitability in human iPSC models of neuronopathic Gaucher disease using high-density microelectrode arrays	Day 2
21	Amr Othman	HD-MEA Validation of Human iPSC-Derived Neuron – Glia Models for 2D and 3D Neural NAMs	Day 1
22	Olga Teresa Bianciotto	Generation of a glia-enriched human cerebellar organoid model to investigate developmental glia-neuron interactions	Day 2
23	Kazushi Takehana	Adaptive electrode selection for longitudinal tracking of early network dynamics in cortical cultures	Day 1
24	Hunter Schweiger	Self-supervised deep learning model for understanding circuit development at scale	Day 2
25	Marta Brasili	Distinct Presynaptic Homeostatic Adaptations in Human Synapses Reveal a Link to TDP-43	Day 1
26	Dai Akita	Expanding Living Neuronal Computing Systems by Virtual Coupling across HD-MEAs	Day 2
27	Nobuyuki Kido	Bridging Functional Dynamics and Spatial Transcriptomics in Biological Neuronal Networks	Day 1

Poster Number	Presenting Author	Title of the Poster	Day of Presentation
28	Theresa Lahoud	Impact of COP-ID dysfunction on brain development in human	Day 2
29	Vaiva Vasiliauskaite	Inferring effective networks of excitatory-inhibitory networks in vitro using transfer entropy	Day 1
30	Feng Bin	Ketamine dose-dependently suppresses PVN single-unit firing and leaves a reorganised network state after washout	Day 2
31	Alena Kapnulina	KCNQ2 Variant-Specific Signatures in Channel Function, Neuronal Excitability and Gene Expression	Day 1
32	Kenta Shimba	Post-Recording Spatial Gene Detection for Cell-Type-Resolved HD-MEA Network Analysis	Day 2
33	Romy Van Acker	HD-MEA Platform for Drug Discovery in patient-derived models of Neurodevelopmental Disorders	Day 1
34	Daria Andreeva	Human iPSC-Derived Neural Organoids Reveal Early Developmental Pathway Dysregulation in PCH2A	Day 2
35	Faribi Karimi	Dissecting the Cellular Mechanism of Temporal Interference Stimulation in Human iPSC-Derived Neurons	Day 1
36	Yue Yang Cao	Exploring Gene Network Expression Dynamics Using Integrated Spatial Transcriptomics and Large-scale Electrophysiology in Cellular Models of Human Neurodevelopmental Disorders	Day 2
37	Diane Balallo	A Single-Cell Microfluidic Model for Investigating Synaptic Spread of Amyloid- β and Tau in Alzheimer's Disease	Day 1
38	Nadia Jimenez	Fully On-Chip Bio-Plausible Learning and Inference for Memristive Neuromorphic Systems	Day 2
39	Josephine Loehle	Towards model predictive control of engineered in vitro neural cultures	Day 1
40	Florian Willi	Towards Biological Neural Networks as Intelligent Agents: Investigating the Effect of Network Size	Day 2
41	Fiona Konnerth	Towards a compartmentalized in vitro model of nociception using microfluidics for drug screening targeted at chronic pain	Day 1
42	Salma Marselha Ramon-Carrasco	A proof-of-concept automated platform for synaptic assays on HD-MEA	Day 2

Poster Number	Presenting Author	Title of the Poster	Day of Presentation
43	Nicol Dusan	CRISPR-Cas9 Knockout of ASD-Associated Genes Differentially Alters Neuronal Excitability	Day 1
45	Joel Kuchler	Are Biological Neural Networks Useful for Task-Specific Computation? A Biological-Artificial Neural Network Classifier	Day 1
46	Lennart Valentin Schneider	From Neuronal Networks to Seizure Models: Integrating Functional and Cellular Profiling to Inform Candidate Prioritization	Day 2
47	Revathy Guruswamy	Towards understanding the role of TDP-43-G3BP1 axis in maturation dependent functional defects in ALS	Day 1
48	Andrew Chinn	Input Encoding in Human Brain Organoids Under Resource-Limited Network Bursts	Day 2
49	Matthew Chan	Toward modeling early RGC axonal dysfunction in glaucoma	Day 1
50	Monika Eshaghzey	Virtual Reality Games and Gamers' Well-Being	Day 2
51	Arianna Forni	Towards Adaptive, Self-Assessing Agentic Tools for Electrophysiology Analysis	Day 1
52	Anabel Migenda Herranz	Core facility for induced pluripotent stem cells - iPSCore Zurich	Day 2
53	Hunter Schweiger	Self-supervised deep learning model for understanding circuit development at scale	Day 1
54	Rebecca Northeast	Physiologically relevant media unmasks severe mitochondrial dysfunction in a deterministically programmed ipsc-derived model of huntington's disease	Day 2
55	Vince Truong	Scalable Human iPSC-Derived Trigeminal Neurons for Migraine and Pain Therapeutic Discovery	Day 1
57	Tjitse van der Molen	AI-native provenance from recordings to conclusions with the Open Culture Science knowledge graph	Day 1