



# Neuroscience 2024

Chicago, IL. October 5-9

**Booth #1271**

Thank you for visiting our booth and we hope you enjoy your time at Neuroscience 2024. We encourage you to visit the posters below and speak to current users about how our tools helped their research. For information about Axion news and giveaways during this conference, or a closer look at our many neural applications, please visit: [axionbiosystems.com/axion-biosystems-sfn-2024](https://axionbiosystems.com/axion-biosystems-sfn-2024).



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## Sunday, October 6<sup>th</sup>

8 AM – 12 PM

- » **ALS iPSC Models:** Functional phenotypic screening with human iPSC derived spinal motor neurons cultures for new amyotrophic lateral sclerosis therapies. *O. H.-U. Schroeder et al. NeuroProof Systems GmbH.* [PSTR064.10 / C51](#)
- » **ALS iPSC Models:** Measuring activity in human pluripotent stem cell-derived neural organoids for disease modeling and drug discovery. *J. Chan et al. STEMCELL Technologies.* [PSTR064.02 / C43](#)

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- » **ALS iPSC Models:** TDP-43 dysfunction triggers exon skipping and aggregation of the epilepsy gene KCNQ2 in ALS/FTD. *K. A. Marshall et al. Northwestern University.* [PSTR064.16 / C56](#)
- » **ALS iPSC Models:** Utilizing Physiologic Media to Model ALS Motor Neuron Metabolism. *E. Kaspi et al. Northwestern University.* [PSTR064.07 / C48](#)
- » **Pain Models with a Focus on Sex Differences, Human and in vitro:** Developing a Scalable In Vitro Model of Diabetic Peripheral Neuropathy Using hiPSC Derived Sensory Neurons and Schwann Cell Precursors from the Same Donor. *M. Gavino et al. Stem Cell Engin.* [PSTR068.09 / C133](#)
- » **Parkinson's Disease: Neuroprotective Mechanisms:** Effects of endosulfine-alpha expression on alpha-synuclein pathology and neuronal activity. *G. Drafor et al. Purdue University.* [PSTR063.15 / C36](#)
- » **Theme A Late-Breaking Posters:** Dose-dependent effects of supernumerary sex chromosomes on brain organoid architecture and function. *A. Adamo et al. UCSD.* [LBA001.013 / LBA13](#)
- » **Theme A Late-Breaking Posters:** Schwann cell precursors alter motor neuron activity in hiPSC-derived co-cultures from healthy and ALS donors. *A. Huntmer-Silveira et al. Anatomic Inc.* [LBA001.012 / LBA12](#)

### 1 PM – 5 PM

- » **Angelman and Other Developmental Disorders:** Development of an iPSC-based functional validation platform for Dup15q Syndrome. *P. Zhou et al. NeuCyte.* [PSTR099.07 / A7](#)
- » **Cellular Models:** Synthetic substrates enhance adherence, neural activity, and network development of in vitro neural cultures. *A. Passaro et al. Axion BioSystems.* [PSTR114.08 / U7](#)
- » **Cross-Modal Processing: Neural Circuitry and Development:** Digital Signature Library: using neurons as universal bio-digital sensors. *T. Honegger et al. Netri.* [PSTR117.04 / C140](#)
- » **Spinal Circuits for Touch and Pain:** Accelerated Directed Differentiation Of Human Induced Pluripotent Stem Cell Derived Dorsal Horn Neurons for Modeling Pain Pathways. *V. Truong et al. Anatomic Inc.* [PSTR112.10 / C58](#)

## Monday, October 7<sup>th</sup>

### 8 AM – 12 PM

- » **New Approaches to Probing Circuit Interactions and Connectivity:** Optimization of a multiplexed, cell-based assay of neuronal function. *P. J. Ellingson et al. Axion BioSystems.* [PSTR151.09 / B43](#)
- » **Optical Sensors for Neuronal Probing:** Graphene-mediated optical stimulation of cells: a non-genetic alternative for optogenetic stimulation biointerfaces. *A. Savtchenko et al. Nanotools Biosci.* [PSTR196.20 / Z19](#)

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- » **Molecular, Genetic, and Chemigenetic Tools for Neuronal Tagging:** Applications of human spinal motor neurons that stably express genetically encoded calcium indicators, GCaMP and RCaMP. G. Sahin et al. BrainXell, Inc. [PSTR195.04 / Y13](#)
- » **Intrinsic Properties and Modulation of Neuronal Firing:** Generating in vitro genetic epilepsy models for functional phenotypic discovery. J. Roberts et al. insitro. [PSTR150.01 / B14](#)

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- » **Methods for Improving Differentiation and Reprogramming of Pluripotent Stem Cells:** Generation of functional 3D spinal cord organoids from human pluripotent stem cells. J. Wang et al. STEMCELL Technologies, Inc. [PSTR200.01 / A1](#)
- » **Methods for Improving Differentiation and Reprogramming of Pluripotent Stem Cells:** Label-free functional analysis for the characterization of iPSC-derived neural organoid development and maturation. S. Chvatal et al. Axion BioSystems. [PSTR200.07 / A6](#)
- » **Methods for Improving Differentiation and Reprogramming of Pluripotent Stem Cells:** High throughput assessment of barrier function using human ipsc-derived brain microvascular endothelial cells. S. Hilcove et al. Fujifilm Cellular Dynamics Inc. [PSTR200.15 / A14](#)
- » **Muscle, NMJ, HSP and Other Spinal Cord Diseases:** Advancing Neuromuscular Junction Modeling with Compartmentalized Microfluidic Platforms Coupled with MEA Functional Analysis. B. Maisonneuve. NETRI. [PSTR212.19 / C56](#)

## Tuesday, October 8<sup>th</sup>

### 8 AM – 12 PM

- » **Cellular and Molecular Mechanisms of Tauopathies, Synucleinopathies, and Other Degenerative Diseases:** Leveraging a hiPSC derived 3D tri-culture model to accelerate neuronal maturation and induce microglial dysfunction in a model of tauopathy. C. Formica et al. Ncardia. [PSTR269.07 / B134](#)
- » **Cellular and Molecular Mechanisms of Tauopathies, Synucleinopathies, and Other Degenerative Diseases:** A scalable platform, based on physiologically-relevant cellular models which can be leveraged for the high-throughput screening of drug candidates targeting pathological accumulation and aggregation of TAU,  $\alpha$ Syn and TDP-43. K. Riegman et al. Ncardia Services BV. [PSTR269.22 / C7](#)
- » **Electrophysiology and Electrode Arrays in vitro:** Establishment and Characterization of a Novel 3D Glioma-Neuron Fusion Model: Functional and Structural Analysis. S. Oten et al. UCSF. [PSTR312.06 / Y12](#)
- » **Electrophysiology and Electrode Arrays in vitro:** Modeling Alzheimer's disease with cocultures of human iPSC derived glutamatergic neurons and APOE E4 mutant astrocytes on a microfluidic DuaLink MEAs. J. Lawson et al. BrainXell. [PSTR312.07 / Y13](#)

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- » **Electrophysiology and Electrode Arrays in vitro:** Neural tri-culture on-a-chip: glutamatergic neurons, cortical astrocytes, and microglia show robust spontaneous and LPS & INF stimulated activity on microelectrode arrays. *J. Lawson et al. BrainXell.* [PSTR312.01 / Y7](#)
- » **Molecular Mechanisms of Neurodevelopmental Disorders:** Interactive influence of selenium and methylmercury on in vitro maturation of parvalbumin-expressing interneurons. *M. Watanabe et al. Univ. of Hawaii.* [PSTR261.14 / B6](#)
- » **Neural Stem Cells:** Assay development for functional analysis of iPSC-derived neural organoids. *B. Streeter et al. Axion BioSystems.* [PSTR257.08 / A8](#)
- » **Primary Sensory Neurons Pain and Therapeutics:** A multifaceted high-content screening platform for analgesic compounds using human induced pluripotent stem cell-derived nociceptors. *C. Fofie Kuete et al. Univ. of Texas at Dallas.* [PSTR275.17 / C131](#)
- » **Primary Sensory Neurons Pain and Therapeutics:** Advanced Models of Nociception. *F. Vaez Livary et al. Doloromics.* [PSTR275.15 / C129](#)



Travel Award  
Winner

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- » **Alpha-Synuclein: Models:** Development of iPSC-based Parkinson's disease model for drug discovery. *C. Formica et al. Ncardia Services BV.* [PSTR329.04 / B139](#)
- » **Motor Neurons in Exercise, Injury, and Disease with a Focus on Human and Non-Primate Mammal Models:** Characterizing Differences Between Schwann Cells and Motor Neurons Differentiated from Healthy and ALS Patient-Derived hiPSCs. *D. Arora et al. Anatomic Inc.* [PSTR350.11 / J9](#)

## Wednesday, October 9<sup>th</sup>

### 8 AM – 12 PM

- » **Neuroinflammation and Neurotoxicity:** Benefits of early in vitro screening for seizure liability in problem solving and decision making. *K. Rockley et al. Apconix.* [PSTR395.06 / C108](#)
- » **Neuroinflammation and Neurotoxicity:** Metabolic measurements of disease-relevant human iPSC-derived cells using Seahorse XF Assay technology. *C. B. Carlson et al. Fujifilm Cell. Dynamics.* [PSTR395.04 / C106](#)

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- » **Proteinopathies: Therapeutic Strategies: Cellular Models:** A tri-culture system to explore the role of neuroinflammation in the degeneration of retinal ganglion cells. *J. Harkin et al. Indiana University.* [PSTR453.15 / D25](#)

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- » **Proteinopathies: Therapeutic Strategies: Cellular Models:** In vitro differentiation of dopaminergic neurons from human ESC: Parkinson's disease in vitro model. *M. Bsibsi et al. Charles River Lab.*  
[PSTR453.05 / D15](#)
- » **Voltage-Gated Potassium Channels: Signaling, Function and Disease:** Early Dyshomeostatic Compensation Leads to Synaptic Dysfunction in KCNQ2 Developmental and Epileptic Encephalopathy in Patient-Specific iPSC-Derived Neurons. *D. Simkin et al. Northwestern University.*  
[PSTR438.01 / B28](#)
- » **Voltage-Gated Potassium Channels: Signaling, Function and Disease:** Gain of function of KCNH1 induces hypoexcitability in cortical excitatory neurons derived from human induced pluripotent stem cells. *W. Chi et al. Northwestern University.*  
[PSTR438.08 / B35](#)



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