

## Society for Neuroscience 2018

San Diego, California

November 4-7

### Symposia and Nanosymposiums

**Tuesday, November 6**

**8:00 AM to 10:00 AM | SDCC 32**

**SESSION 447 – PARKINSON’S DISEASE: ALPHA-SYNUCLEIN: MODELS AND MECHANISMS**

**447.05      Reduction of Alpha-Synuclein in Human iPSC-Derived Dopaminergic Neurons Harboring the A53T Mutation as a Therapeutic Strategy for Parkinson’s Disease**

9:00-9:15      J. D. Graef, V. Villegas, A. M. Cacace

*Fulcrum Therapeut., Cambridge, MA*

**Tuesday, November 6**

**8:00 AM – 11:30 AM | SDCC 31C**

**SESSION 443 – STEM CELLS AND DISEASE MODELING: NEUROPSYCHIATRIC AND NEURODEGENERATIVE DISEASES**

**# 443.11      Using Human iPSC-Derived Neurons to Shed Light on Pathogenic Mechanisms Linked to *SPG4***

10:30-10:45      T. Rizo Garza, N. Denguir, R. Allison, G. Pearson, J. R. Edgar, Z. Kohl, E. Reid, J. Winkler, B. Winner

*Dept. of Stem Cell Biol., Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany; Dept. of Med. Genet., Dept. of Clin. Biochem., Univ. of Cambridge, Cambridge, United Kingdom; Dept. of Mol. Neurol., Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen, Germany*

**Wednesday, November 7**

**8:00 AM to 11:30 AM | SDCC 30E**

**SESSION 624 – STEM CELLS AND DISEASE MODELING: NEURODEVELOPMENT**

**624.04 High Throughput Screening of hiPSC-Derived Brain Organoids to Probe for Phenotypes in Idiopathic Autism**

**8:45-9:00** A. W. Phillips, J. Nestor, M. Durens, M. W. Nestor

*The Hussman Inst. for Autism, Baltimore, MD; Hussman Inst. For Autism, Baltimore, MD; Hussman Inst. for Autism, Baltimore, MD; The Hussman Inst. For Autism, Sykesville, MD*



**624.09 Network and Molecular Changes During Neuronal Differentiation in iPSC Derived from Idiopathic Autism Patients**

**10:00-10:15** Y. Kim, D.N. Amatya, S.B. Linker, C. Marchetto, F.H. Gage

*Child Adolescent Psychiatry, Natl. Ctr. for Mental Hlth., Seoul, Korea, Republic of; Lab. of Genet., LOG-G, Salk Inst., La Jolla, CA; Lab. of Genet., Salk Inst. For Biol. Studies, La Jolla, CA*

**624.10 Altered Network Connectivity in Rett Syndrome Stem Cell-Derived Cortical Neuron Networks**

**10:15-10:30** R. S. Mok, L. Duong, M. Mufteev, D. C. Rodrigues, L. Dejong, W. Wei, A. Piekna, P. Pasceri, J. C. Martinez-Trujillo, J. Ellis

*Developmental & Stem Cell Biol., Hosp. for Sick Children, Toronto, ON, Canada; Robarts Res. Inst., London Ontario, ON, Canada; Physiol. and Pharmacol., Univ. of Western Ontario, London, ON, Canada; Developmental & Stem Cell Biol., The Hosp. for Sick Children, Toronto, ON, Canada*



## Poster Sessions

**Saturday, November 3**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 040 – EPILEPSY: NETWORKS, DYNAMICS, AND COMPUTATION**

**# 040.05/F16 Hesi-Neutox Pilot Study: Seizure Liability Assessment Using hiPSC-Derived CNS-like Neural Co-cultures**

1:00–2:00 C. Fleming, D. Hess, M. Kennedy, T. Palm, G. C. Luerman

*Ncardia Inc, Plymouth Meeting, PA; Ncardia AG, Cologne, Germany; Ncardia AG, Cologne, Germany*

**# 040.09/F20 Dysregulation and Restoration of Homeostatic Network Plasticity in Fragile X Syndrome Mice**

1:00-2:00 D.-C. Liu, K. A. Jewett, K. Lee, S. Soriano, D. E. Eagleman, N.-P. Tsai

*Neurosci., Univ. of Illinois Urbana-Champaign, Champaign, IL; Dept. of Mol. and Integrative Physiology, Sch. of Mol. and Cell. Biol., Neurosci. Program, Univ. of Illinois at Urbana-Champaign, Champaign, IL*

**Saturday, November 3**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 052 - NEUROMUSCULAR DISEASES: MOTOR NEURON DISEASE: *IN VITRO* STUDIES**

**# 052.16/X6 Phenotypic Functional *In Vitro* Screening of Patient iPSC-Derived Motor Neurons Used for *In Vitro* HTS Disease Modeling with AI-based Analysis of Microelectrode Array Data**

4:00-5:00 B.M. Bader, M. Segura Castell, K. Juegelt, M.L. Hendrickson, L. Schultz, O.H.-U. Schroeder

*NeuroProof GmbH, Rostock, Germany; BrainXell, Inc., Madison, WI*

**Sunday, November 4**

**8:00 AM – 12:00 PM | SDCC Halls B-H**

**SESSION 123- SODIUM CHANNELS**

**# 123.13/F21 Enhancement of Multi-Electrode Array “Pain-in-a-Dish” Assays by Adding Optogenetic Stimulation**

8:00-9:00 M. R. Estacion, T. Adi, P. Zhao, L. Macala, S. D. Dib-Hajj, S. G. Waxman

*Neurol, Dept. of Neurol., Yale Univ. Sch. of Med., New Haven, CT; Ctr. for Neurosci. and Regeneration Res., Veterans Affairs Med. Ctr., West Haven, CT; Dept Neurol, Yale Univ. Med. Sch., West Haven, CT; Neurol., Yale Univ., New Haven, CT; Dept Neurol, Yale Sch. of Med. and VAMC, West Haven, CT; Neurol., Yale University, Neurosci. and Regeneration Res. Ctr., West Haven, CT*

**# 123.19/G1 A Novel Gain-of-Function Nav1.7 Mutation in a Carbamazepine-Responsive Patient with Adult-Onset Non-Length-Dependent Small Fiber Neuropathy**

10:00-11:00 T. Adi, M. Estacion, S. Vernino, S. D. Dib-Hajj, S. G. Waxman

*Dept. of Neurol., Yale Univ. Sch. of Med., New Haven, CT; Ctr. for Neurosci. and Regeneration Res., Yale Univ. Sch. of Med., West Haven, CT; Rehabil. Res. Ctr., VA Connecticut Healthcare Syst., West Haven, CT; Dept. of Neurol. & Neurotherapeutics, UT Southwestern Med. Ctr., Dallas, TX*

**Sunday, November 4**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 196 – STEM CELLS AND NEURAL DIFFERENTIATION**

**# 196.05/B1 Spontaneous Functional Network Activity in Organoids Resembles Programmed Early Human Brain Development**

1:00-2:00 C.A. Trujillo, R. Gao, P. Negraes, I.A. Chaim, A. Domissy, M. Vandenberghe, A. Devor, G.W. Yeo, B. Voytek, A.R. Muotri

*Pediatrics, Cognitive Sci., Cell. & Mol. Med., <sup>4</sup>Radiology, Univ. of California - San Diego, La Jolla, CA*

**# 196.14/B10 Network Activity Development of Cultured Cortical Neurons: Comparison Between Embryonic Rat and Human Pluripotent Stem Cell-Derived Systems**

2:00-3:00 T. Hyvarinen, A. Hyysalo, E. Kapucu, L. Yla-Outinen, S. Narkilahti

*BioMediTech and Fac. of Med. and Life Sci., Univ. of Tampere, Tampere, Finland; Dept. of Biomedicine, Danish Res. Inst. of Translational Neurosci. - DANDRITE, Aarhus Univ., Aarhus, Denmark*

**Sunday, November 4**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 198 – GLUTAMATE TRANSPORT AND SIGNALING**

**# 198.03/C11 Nordihydroguairaetic Acid (NDA) Increases Hippocampal Synaptic Density and Enhances Excitatory Amino Acid Transporter 2 (EAAT2) Function**

3:00-4:00 L. Fourgeaud, A.W. Harrington, Q. Wang, G. Woodruff, N. Phillips, P. Bonaventure, A. Bhattacharya

*Neurosci., Janssen Res. And Develo., San Diego, CA*

**Sunday, November 4**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 255 – PHYSIOLOGICAL METHODS: OPTOGENETICS II**

**# 255.13/JJJ10 Simultaneous Multiwell Optogenetic Stimulation and Microelectrode Array Recording for Evaluating Functional Network Electrophysiology *In Vitro***

1:00-2:00 H.B. Hayes, A.M. Nicolini, C.A. Arrowood, I.P. Clements, D.C. Millard

*Axion BioSystems, Atlanta, GA*

**Monday, November 5**

**8:00 AM – 12:00 PM | SDCC Halls B-H**

**SESSION 279 – STEM CELLS AND REPROGRAMMING: NEURAL STEM CELLS: *IN VITRO* STUDIES**

**# 279.19/C1 Quantification of Functional Network Electrophysiology from Stem Cell-Derived Neurons with Multiwell Microelectrode Array Technology**

10:00-11:00 D.C. Millard, H.B. Hayes, A.M. Nicolini, C.A. Arrowood, M. Clements

*Axion BioSystems, Atlanta, GA*

**Monday, November 5**

**8:00 AM – 12:00 PM | SDCC Halls B-H**

**SESSION 301 – PAIN MODELS: PHYSIOLOGY**

**#301.10/AA6 Modeling Nav1.7 Channelopathies Using CRISPR/Cas9**

9:00-10:00 J. Shim, Y. -C. Cheng, C. Laedermann, E. Buttermore, C. Hermawan, D. Dou, N. Wimalasena, A. Snaveley, Y. Yang, M. A. Mis, L. Barrett, S. D. Dib-Hajj, S. G. Waxman, C. J. Woolf

*Neurobio., Boston Children's Hospital/Harvard Med. Sch., Boston, MA; Neurol., VA CT Healthcare Syst., West Haven, CT; Neurol., Yale Univ., West Haven, CT; Dept Neurol, Yale Sch. of Med. and VAMC, West Haven, CT; Neurol., Yale University, Neurosci. and Regeneration Res. Ctr., West Haven, CT; Neurobio., Children's Hosp. Boston, Boston, MA*

**Monday, November 5**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 366 – STEM CELLS AND DISEASE MODELING II**

**#366.21/B6 New Methods for Studying Network Activity in Human Induced-Pluripotent Stem Cell (iPSC) Derived Neural Cultures for Modeling Diseases**

1:00-2:00 K. Padmanabhan, C. Marchetto, R. Santos, F.H. Gage

*Neurosci., Univ. of Rochester, Rochester, NY; LOG-G, Salk Inst., La Jolla, CA; Inst. of Psychiatry and Neurosci. of Paris, INSERM U894 - Univ. Paris Descartes, Paris, France*

**#366.23/B8 An Epilepsy-Associated Slack Mutation Increases  $K_{NA}$  Currents and Enhances Excitability of Human iPSC-Derived Neurons**

3:00-4:00 I.H. Quraishi, K.P. Mangan, Y. Zhang, M. Mercier, S. Stern, M.C. Marchetto, F.H. Gage, L.K. Kaczmarek

*Dept. of Neurol., Dept. of Pharmacol., Departments of Pharmacol. and Cell. and Mol. Physiol., Yale Sch. of Med., New Haven, CT; Cell. Dynamics, Intl., Madison, WI; Lab. of Genet., Salk Inst., La Jolla, CA*

## Monday, November 5

1:00 PM – 5:00 PM | SDCC Halls B-H

**SESSION 379 – ALS MECHANISMS**

**#379.14/K4 Synaptic Deficits in c9orf72-als/ftd Patient-Derived Human Stem Cell Differentiated Neurons and *In Vivo* Models of c9orf72**

2:00-3:00 I. Lorenzini, L. Ghaffari, D. Lall, J. Levy, C. Burciu, D. Bhatia, N. Twishime, D. Shenoy, R. H. Baloh, R. G. Sattler

*Neurobio. Div., Barrow Neurolog. Inst., Phoenix, AZ; Cedars-Sinai Med. Ctr., West Hollywood, CA*

## Monday, November 5

1:00 PM – 5:00 PM | SDCC Halls B-H

**SESSION 431 – PHYSIOLOGICAL METHODS: ELECTROPHYSIOLOGY: ELECTRODE ARRAYS I**

**# 431.27/MMM1 Electrode Array Platform for Transcutaneous Neural Recording and Stimulation**

3:00-4:00 I.P. Clements, A.B. Harrison, A.C. Willsie, A.J. Preyer, A. Brown, J.D. Ross

*Axion BioSystems, Atlanta, GA*

**Tuesday, November 6**

**8:00 AM – 12:00 PM | SDCC Halls B-H**

**SESSION 460 – EPILEPSY: ION CHANNELS**

**# 460.11/C37 Dyshomeostatic Mechanisms of KCNQ2-Related Epileptic Encephalopathy in Patient-Specific iPSC-Derived Excitatory Neurons**

10:00-11:00 D. Simkin, T.J. Searl, J.J. Millichap, B.N. Piyevsky, G.L. Robertson, M. Forrest, P. Penzes, A.L. George Jr., E. Kiskinis

*Pharmacol., Neurol., Epilepsy Ctr. and Div. of Neurology, Departments of Pediatrics and Neurology, Ann & Robert H. Physiol., Northwestern University, Feinberg Sch. of Med., Chicago, IL*



**Tuesday, November 6**

**8:00 AM – 12:00 PM | SDCC Halls B-H**

**SESSION 474 – NEUROTOXICITY, INFLAMMATION, AND NEUROPROTECTION: MECHANISMS OF NEUROTOXICITY I**

**# 474.04/S9 Evaluation of hiPSC-Derived Neuronal Cultures for Safety Assessment of Potential Therapeutic Compounds Against Zika Virus**

11:00-12:00 F. Zanella, I. Slavin, S. Dea, S. Montefusco, J. Siqueira-Neto, C. Carromeu

*Stemonix, San Diego, CA; Vertex Pharmaceuticals, San Diego, CA; StemoniX, San Diego, CA; UCSD, San Diego, CA*

**Tuesday, November 6**

**8:00 AM – 12:00 PM | SDCC Halls B-H**

**SESSION 520 – NEW BEHAVIORAL, *IN VIVO*, AND *IN VITRO* PHYSIOLOGICAL METHODS**



**# 520.19/JJJ63 Highly Homogenous and Highly Functional 3-Dimensional Human Cortical Spheroids Applied to High Throughput and High Content Screening Platform in Drug Discovery**

10:00-11:00 C. Carromeu, S. Dea, S. Biesmans, S. Mora-Castilla, S. Romero, A. Saleh, F. Zanella

*Stemonix, San Diego, CA*

**Tuesday, November 6**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 550 – NEUROGENESIS AND GLIOGENESIS: NEURONAL DEVELOPMENT II**

**# 550.24/A24 Hippocampal Neurons from Human Pluripotent Stem Cells Enables Modeling of Connectivity *In Vitro***

4:00-5:00 A. Sarkar, A. Mei, S. Stern, A. C. M. Paquola, M. Sokhirev, H. Kim, F. H. Gage

*Lab. of Genetics-Gage, Salk Inst., La Jolla, CA*

**Tuesday, November 6**

**1:00 PM – 5:00 PM | SDCC Halls B-H**

**SESSION 563 – MECHANISMS OF SEIZURE GENERATION AND EPILEPSY**

**# 563.26/L3 Aberrant Network Activities in Neural Cultures from Patients with Chronic Mountain Sickness**

2:00-3:00 H. Yao, H. W. Zhao, W. Wu, J. Wang, P. D. Negraes, A. R. Muotri, G. G. Haddad

*Dept Pediat, UCSD, LA Jolla, CA; Pediatrics/Cellular Mol. Med., Dept Neurosci, UCSD, La Jolla, CA; The Rady Children's Hosp., San Diego, CA*

**Wednesday, November 7**

**8:00 AM - 12:00 PM | SDCC Halls B-H**

**SESSION 641 – DEVELOPMENTAL DISORDERS: ANIMAL MODELS OF NEURODEVELOPMENTAL DISEASE III**

**# 641.02/C25 Genomic Aberrations in Embryonic Neural Progenitor Cells May Underlie Cellular Pathologies of Lysophosphatidic Acid Induced Hydrocephalus in Mice**

9:00-10:00 W.S. McDonald, J. Chun

*Sanford Burnham Prebys Med. Discovery Inst., La Jolla, CA*

**Wednesday, November 7**

**8:00 AM - 12:00 PM | SDCC Halls B-H**

**SESSION 648 – SYNAPTIC TRANSMISSION: MODULATION: MECHANISMS OF ACTION**

**# 648.22/H8 - Human Induced Pluripotent Stem Cell (hiPSC)-Derived Motor Neurons Co-Cultured with Primary Astrocytes Exhibit Functional Network Sensitivity to Botulinum Neurotoxin**

9:00-10:00 B. J. Black, J. J. Pancrazio

*The Univ. of Texas At Dallas, Dallas, TX*



**Wednesday, November 7**

**8:00 AM - 12:00 PM | SDCC Halls B-H**

**SESSION 652 – GLIAL MECHANISMS : GLIA-NEURON INTERACTIONS : CNS**

**# 652.29/M9 - Molecular Mechanisms of Astrocyte-Neuron Interactions in the Development of Synchronized Activity in Neuronal Networks**

8:00-9:00 G. Guevara, K. R. Sanchez, J. Sun, M. A. Harrington, M. Temburni

*Biol., Delaware State Univ., Dover, DE*

**Wednesday, November 7**

**8:00 AM - 12:00 PM | SDCC Halls B-H**

**SESSION 700 – PHYSIOLOGICAL METHODS: ELECTROPHYSIOLOGY: ELECTRODE ARRAYS II**

**# 700.07/LLL10 Trial for Drug-Induced Seizure Liability Evaluation Using Microelectrode Array and Primary Rodent Neurons: Multi-site Pilot Study of HESI NeuToxMEA Subteam**

10:00-11:00 N. Miyamoto, A.Ojima, S. Inaba, T. Yoshinaga

*EISAI Co., Ltd., TSUKUBA, Japan; Tsukuba branch, Techno Pro R&D company, Techno Pro Inc., Tsuchiura, Japan*

**Wednesday, November 7**

**1:00 PM - 5:00 PM | SDCC Halls B-H**

**SESSION 727 – ANGELMAN AND OTHER DEVELOPMENT DISORDERS**

**# 727.02/B21 The Enteric Nervous System in Rett Syndrome**

2:00-3:00 S.C. Schock, G. Wahba, P. Humphreys, E. Nizalik, W. Staines, D. Grynspar

*Res. Inst., Div. of Neurol., Pathology, Children's Hosp. of Eastern Ontario, Ottawa, ON, Canada; Cell. and Mol. Med., Univ. of Ottawa, Ottawa, ON, Canada*