



SOCIETY FOR NEUROSCIENCE 2017

Washington D.C.

November 11-15, 2017

Poster Sessions and Nanosymposiums

Saturday PM, November 11

1:00 PM to 5:00 PM | Halls A-C

Poster Session 030 - Glial Modulation of Neurogenesis

30.08 Non-discriminant approach to generate human central nervous system cell lineages

B8 M. CARNA, V. POZO DEVOTO, V. LACOVICH, M. FEOLE, K. TEXLOVA, G. STOKIN
Translational Neurosci. and Aging Res. Group, Brno, Czech Republic

1:00 PM to 5:00 PM | Halls A-C

Poster Session 032 iPSCs: Disease Models

32.16 A 3-D human induced pluripotent stem cell model of autistic spectrum disorder as a functional analysis platform

B58 A. W. PHILLIPS, J. NESTOR, M. NESTOR
Hussman Inst. for Autism, Baltimore, MD

32.27 Neurodevelopmental phenotypes in DISC1 disrupted hiPSC lines across multiple differentiation protocols

C4 V. LAGOMARSINO¹, P. SRIKANTH², C. R. MURATORE³, W. M. TAYLOR⁴, T. L. YOUNG-PEARSE⁵

¹Ann Romney Ctr. for Neurologic Dis., Brigham and Women's Hosp., Boston, MA; ²HMS, Boston, MA;
³Ann Romney Ctr. For Neurologic Dis., Boston, MA; ⁴BWH, Boston, MA; ⁵Dept Neurol, BWH/Harvard
Med. Sch., Boston, MA

Sunday AM, November 12

9:30 AM to 10:45 AM | 152A

Nanosymposium Session 103 - iPSCs: Disease Models I

103.07 Modeling idiopathic autism using pluripotent stem cells

C. MARCHETTO¹, Y. KIM², S. LINKER¹, D. N. AMATYA¹, A. P. D. MENDES¹, R. SANTOS³, F. H. GAGE¹

¹Salk Inst., La Jolla, CA; ²Seoul Natl. Hosp., Seoul, Korea, Republic of; ³Ecole Normale Supérieure, PSL Res. University, CNRS, Paris, France

103.11 Modeling molecular changes and network response to Risperidone during neuronal differentiation in iPSC derived from Autism patients

Y. KIM^{1,2}, C. MARCHETTO², R. SANTOS², D. AMATYA², S. LINKER², A. P. D. MENDES², F. H. GAGE²

¹Child Adolescent Psychiatry, Natl. Ctr. For Mental Hlth., Seoul, Korea, Republic of; ²Salk Inst., La Jolla, CA

10:00 AM to 10:15 AM | 140A

Nanosymposium Session 104 - iPSCs: Disease Models II

104.09 Establishment of a human induced pluripotent stem cell derived neuromuscular co-culture platform for disease modeling

E. SWARTZ¹, G. SHINTANI², J. WAN², S. WANG², M. PRIBADI², Z. YANG², L. HAVTON², G. COPPOLA²

¹Neurosci., ²Neurol. and Psychiatry, UCLA, Los Angeles, CA



8:00 AM to 12:00 PM

Halls A-C

Poster Session 114 - Neural Progenitor and Stem Cell Development

114.16 Development of an advanced media system for improved neuronal viability and function

B6 N. KAUR, J. SAGAL, B. LIU, M. DERR, Y. YAN, R. JOSEPHSON, D. KUNINGER

Thermo Fisher Scientific, Frederick, MD

8:00 AM to 12:00 PM | Halls A-C

Poster Session 118 - Fragile X: Mechanisms of Pathophysiology

118.24 Mdm2 mediates FMRP- and Gp1 mGluR-induced protein translation and neural network activity

C39

D.-C. LIU¹, J. SEIMETZ², A. KALSOTRA^{3,4}, N.-P. TSAI⁵

¹Neurosci., ²Biochem., Univ. of Illinois Urbana-Champaign, Urbana, IL; ³Biochem., ³Department of Biochemistry, Sch. of Mol. and Cell. Biology, Univ. of Illinois at Urbana-Champaign, Urbana, IL; ⁴Carl R. Woese Inst. of Genomic Biology, Univ. of Illinois, Champaign, IL; ⁵Mol. and Integrative Physiol., ¹Department of Mol. and Integrative Physiology, Sch. of Mol. and Cell. Biology, Univ. of Illinois at Urbana-Champaign, Urbana, IL

8:00 AM to 12:00 PM | Halls A-C

Poster Session 128 - Biomarkers for Alzheimer's Disease and Related Dementias

128.07 Functional biomarker of rare and familial diseases: NPC1 knockout neuronal networks phenotyped with HTS micro electrode arrays and artificial intelligence machine learning methods

N8

X. FENG¹, B. M. BADER²

¹Univ. Med. Rostock, Albrecht-kossel-Institut Für Neuroregeneration, Rostock, Germany; ²NeuroProof GmbH, Rostock, Germany

Sunday PM, November 12

2:30 PM to 2:45 PM | 144A

Nanosymposium Session - 191 - Spinal Cord Injury: Mechanisms and Repair

191.07 Optical control of neural ablation in zebrafish as a model for secondary injury mechanisms

K. MRUK¹, P. PIZA², J. K. CHEN¹

¹Chem. and Systems Biol. and Developmental Biol., ²Dept. of Chem. Engin., Stanford Univ., Stanford, CA



1:00 PM to 5:00 PM | Halls A-C

Poster Session 202 - Neuronal Firing Properties and Regulation

202.14 The difference between activity and function: Utilizing mouse models and hiPSCs for elucidating the electrophysiology of bipolar disorder

C47 C. D. PERNIA¹, R. C. O'DONNELL², B. TOBE², A. WINQUIST², Y. GOSHIMA⁴, E. Y. SNYDER³

¹The Sanford Burnham Med. Res. Inst., La Jolla, CA; ³Stem Cell and Regenerative Biol. Program,
²Sanford Burnham Prebys Med. Discovery Inst., La Jolla, CA; ⁴Yokohama City Univ. Sch. Med.,
Yokohama, Japan

1:00 PM to 5:00 PM | Halls A-C

Poster Session 203 - Epilepsy: Channels - Ion channels and receptors

203.04 iPSC-derived neurons harboring a known epilepsy mutation display known and novel electrophysiological phenotypes

C58 K. P. MANGAN¹, I. H. QURAIHI², Y. ZHANG³, E. ENGHOFFER¹, C. KANNEMEIER¹, M. MCLACHLAN¹, B. MELINE¹, C. MCMAHON¹, E. JONES¹, L. K. KACZMAREK³

¹Cell. Dynamics, Intl., Madison, WI; ²Dept. of Neurol., Yale Sch. of Med., New Haven, CT; ³Yale Univ. Sch. Med., New Haven, CT

Monday AM, November 13

8:00 AM to 12:00 PM | Halls A-C

Poster Session 282 - Fate Specification and Generation of Neuronal Diversity

282.15 Role of de novo DNA methyltransferases in the development and function of human motor neurons

B5 J. ORTEGA¹, M. ZILLER², D. SANTOS³, A. MEISSNER⁴, E. KISKINIS³

¹Dept. of Neurol., Northwestern University, Feinberg Sch. of Medici, Chicago, IL; ²Max Planck Inst. of Psychiatry, Munich, Germany; ³Northwestern Univ., Chicago, IL; ⁴Broad Inst. of MIT and Harvard, Cambridge, MA

8:00 AM to 12:00 PM | Halls A-C

Poster Session 294 - Epilepsy: Animal Models - Genetic Strategies, Optogenetics, and Mechanisms

294.09 **Optimization of a human stem cell derived neuron/astrocyte co-culture system for seizure liability assessment using microelectrode arrays**

L4 G. C. LUERMAN¹, C. FLEMING¹, D. HESS², T. PALM², A. EHLICH², H. BOHLEN²

¹Axiogenesis Inc, Plymouth Meeting, PA; ²Axiogenesis AG, Köln, Germany

8:00 AM to 12:00 PM | Halls A-C

Poster Session 343 - Electrophysiological Techniques

343.05 **Simultaneous multiwell optogenetic stimulation and microelectrode array recording for neural electrophysiology assays**

VV45 M. BEAUMONT^{1,2}, H. B. HAYES², A. M. NICOLINI², C. A. ARROWOOD², I. P. CLEMENTS², D. C. MILLARD²

¹Inst. for Genomic Med., Columbia Univ. Med. Ctr., New York, NY; ²Axion BioSystems, Atlanta, GA

Monday PM, November 13

1:00 PM to 5:00 PM | Halls A-C

Poster Session 366 - Fate Specification and Development of Glia

366.11 **Regulated control of glial cell outgrowth in primary rodent neuronal cultures by CultureOne™ supplement**

B1 M. DERR, D. BEACHAM, N. KAUR, Y. YAN, D. KUNINGER

Div. of Cell Biol., Thermo Fisher Scientific, Frederick, MD

1:00 PM to 5:00 PM | Halls A-C

Poster Session 369 - Autism: Physiology and Systems

369.09 **Convergent pathobiology in human iPSCs from individuals with idiopathic autism uncovered by transcriptomic and neurophysiological analysis**



1:00 PM to 5:00 PM | Halls A-C

Poster Session 375 - Potassium Channels I

375.16 Mouse model of slack-associated epilepsy

D55

I. H. QURAIHI¹, M. MERCIER², Y. ZHANG³, D. P. JENKINS⁴, K. P. MANGAN⁵, L. K. KACZMAREK²

¹Dept. of Neurol., ²Yale Sch. of Med., New Haven, CT; ³Yale Univ. Sch. Med., New Haven, CT; ⁴Pharmacol., Yale Univ., New Haven, CT; ⁵Cell. Dynamics, Intl., Madison, WI

1:00 PM to 5:00 PM | Halls A-C

Poster Session 381 - Network Interactions: Other

381.05 Mutations causing alternating hemiplegia of childhood disrupt normal neural network activity patterns

M5

K. MCSWEENEY¹, E. HEINZEN², M. BOLAND², D. GOLDSTEIN²

¹IGM, ²Inst. for Genomic Med., Columbia Univ., New York, NY

381.28 Human iPSC-derived neuronal cultures form synchronously bursting cultures and display a seizurogenic response to excitatory pharmacology

O6

K. MANGAN, B. D. ANSON, L. HARMS, E. ENGHOFFER, C. CARLSON, C. KANNEMEIER

Cellular Dynamics, Madison, WI

1:00 PM to 5:00 PM | Halls A-C

Poster Session 387 - Amyloid-Beta Biochemistry and Toxicity

387.21 Identification of measurable phenotypes relevant to Alzheimer's disease using human iPSC-derived neurons

DP05/X5

K. MANGAN¹, K. KIM¹, L. HARMS¹, C. KANNEMEIER¹, B. M. BADER³, K. JÜGELT³, O. SCHRÖDER³, *B. FREITAS², C. B. CARLSON¹, E. JONES¹

Tuesday AM, November 14

8:00 AM to 12:00 PM | Hall A-C

Poster Session: 461 - Stem Cell Applications and Neural Reprograming

461.01 Developmental characterization of human induced neurons

B28 L. GIAM, X. DU, I. T. HULL, T. C. SUDHOF

Stanford Univ., Stanford, CA



461.03 Stemdiff cerebral organoid kit: A new tool for the culture of 3-D brain organoids derived from human pluripotent stem cells

B21 V. M. LEE¹, L. H. CHEW¹, A. AÑONUEVO¹, S. LLOYD-BURTON¹, A. C. EAVES^{1,2}, T. E. THOMAS¹, S. A. LOUIS¹

¹Res. and Develop., STEMCELL Technologies Inc, Vancouver, BC, Canada; ²Terry Fox Lab., BC Cancer Agency, Vancouver, BC, Canada

8:00 AM to 12:00 PM | Halls A-C

Poster Session 504 - Early-Life Stress: Neurophysiological and Neurochemical Consequences

504.29 The proinflammatory cytokine TNF α alters neural network activity by injuring GABAergic interneurons

LL24 E. TRIPLET, R. LAFRANCE-COREY, K. MIRCHIA, H.-L. WANG, G. WORRELL, C. HOWE

Neurol., Mayo Clin., Rochester, MN

8:00 AM to 12:00 PM | Halls A-C

Poster Session 528 - Optical Physiology, Electrodes, and Light Shaping

528.03 Enhanced light delivery to multiwell microplates for high throughput optical control of activity and cellular processes

VV55 I. P. CLEMENTS, D. C. MILLARD, M. CLEMENTS, A. M. NICOLINI, S. A. CHVATAL, H. B. HAYES, J. D. ROSS

Tuesday PM, November 14

1:00 PM to 1:15 PM | 146C

Nanosymposium Session 546 - Models, Mechanisms, and Modifiers of ALS

546.01 Insights into MEA recordings of iPSC cells in ALS patients

J. KOH, D. MOAKLEY, E. BEREZOVSKI, A. DEVLIN, J. PEREIRA, B. WAINGER

Massachusetts Gen. Hosp. MIND Inst., Charlestown, MA

1:00 PM to 5:00 PM | Halls A-C

Poster Session 556 – Fragile X: Disease Predictors and Treatments

556.04 Functional assessment of spontaneous and evoked activity in iPSC-derived Fragile X neurons using multielectrode array (MEA) and fluorometric imaging plate reader (FLIPR) platforms

B43 J. D. GRAEF¹, C. SUN², L. LIN², S. WEBB², V. VILLEGAS², S. T. WARREN³, A. M. CACACE²

¹Cell. Physiol., ²Fulcrum Therapeut., Cambridge, MA; ³Emory Univ. Sch. of Med., Atlanta, GA

556.05 Quantitative assessment of the contribution of FMR1 to function in iPSC-derived Fragile X neurons

B44 H. WU¹, J. D. GRAEF², C. NG¹, C. SUN², M. ROTH³, L. WITT¹, S. WEBB⁴, V. VILLEGAS⁵, L. V. RONCO³, S. T. WARREN⁶, A. M. CACACE⁷

²Cell. Physiol., ³Translational Med., ¹Fulcrum Therapeut., Cambridge, MA; ⁴Cell Biol., ⁵Cell. Physiol., Fulcrum Therapeut., Cambridge, MA; ⁶Dept. of Human Genet., Emory Univ. Sch. of Med., Atlanta, GA; ⁷FULCRUM Therapeut., Cambridge, MA

556.13 Functional deficiency in Fragile X neurons derived from human induced pluripotent stem cells

B52 A. ZHANG¹, H. KJELDEN², M. MASTERS², M. J. BOLAND³, A. SZÜCS⁴, K. L. NAZOR⁵, M. SZYMANSKI², Y. WANG¹, J. LORING¹

¹The Scripps Res. Inst., La Jolla, CA; ²Trust Neuroimaging, San Francisco, CA; ³Columbia Univ., New York, NY; ⁴UCSD, La Jolla, CA; ⁵MYi Diagnostics & Discovery, San Diego, CA

1:00 PM to 5:00 PM | Halls A-C

Poster Session 560 - Epilepsy: Genetics - Phenotype Modelling of Human Mutations

560.12 Mouse model of childhood epilepsy caused by a de novo GRIN2A missense mutation

C63 A. AMADOR¹, C. BOSTICK², J. PETERS³, H. OLSON³, A. PODURI⁴, H. YUAN⁵, W. CHEN⁵, S. J. MYERS⁷, S. F. TRAYNELIS⁶, M. BOLAND², D. GOLDSTEIN², W. N. FRANKEL⁸

¹Columbia Univ., New York, NY; ²Columbia Univ., New York City, NY; ³Harvard Med. Sch. & Epilepsy Genet. Program, Boston, MA; ⁴Epilepsy & Clin. Neurophysiol., Boston Children's Hosp., Boston, MA; ⁶Dept Pharmacol, ⁵Emory Univ. Sch. of Med., Atlanta, GA; ⁷Collabtech, Atlanta, GA; ⁸Columbia Univ. Med. Ctr., New York, NY

560.13 Modeling of an epilepsy-related neurodevelopmental disorder caused by de novo GNB1 missense mutations and identification of targeted treatments

D1 S. COLOMBO¹, M. J. BOLAND², W. N. FRANKEL³, D. B. GOLDSTEIN³

¹Inst. for Genomic Med., ²Inst. for Genomic Medicine, Dept. of Neurol., ³Inst. for Genomic Medicine, Dept. of Genet. and Develop., Columbia Univ., New York, NY

560.14 Characterization and therapeutic screening of a gain of function mutation in KCNT1 utilizing multielectrode arrays

D2 C. D. BOSTICK^{1,2}, S. COLOMBO², M. J. BOLAND^{2,3}, V. A. LETTS², W. N. FRANKEL², D. B. GOLDSTEIN²

¹Dept. of Developmental Genet., ²Inst. for Genomic Med., Columbia Univ. Med. Ctr., New York, NY; ³Neurol., Columbia Univ., New York, NY



1:00 PM to 5:00 PM | Halls A-C

Poster Session 562 - Epilepsy: In Vivo and Behavior - In vivo Imaging, Seizure Mapping, and Mechanisms

562.09 Models, mechanisms and therapeutic development of focal cortical dysplasia

D22 Y. WANG¹, S. HU³, T. JI, 48105¹, K. GLANOWSKA¹, G. G. MURPHY², J. M. PARENT¹
²MBNI/Physiology, ¹Univ. of Michigan, Ann Arbor, MI; ³Central South Univ. Xiangya Sch. of Med., Changsha, China

1:00 PM to 5:00 PM | Halls A-C

Poster Session 598 - Motor Neuron: Development

598.09 **Changes in spinal motor networks when cocultured with astrocytes or striated muscle**

LL17 A. THARANEETHARAN, M. A. HARRINGTON

Delaware State Univ., Dover, DE

Wednesday AM, November 15

8:00 AM to 12:00 PM | Halls A-C

Poster Session 659 - Central Modulation

659.16 **Functional analysis of TRIM55 gene in human induced pluripotent stem cells from individuals with idiopathic autism**

D61 J. NESTOR¹, P. D. STEIN², M. W. NESTOR²

¹Hussman Inst. For Autism, Baltimore, MD; ²Hussman Inst. for Autism, Baltimore, MD

8:00 AM to 12:00 PM | Halls A-C

Poster Session 660 - Spike Timing Dependent Plasticity

660.09 **GABAergic input modulates Hebbian plasticity and the free energy minimization In vitro**

F9 T. ISOMURA^{1,2}, T. TOYOIZUMI¹, K. KOTANI², Y. JIMBO²

¹RIKEN Brain Sci. Inst., Saitama, Japan; ²The Univ. of Tokyo, Tokyo, Japan

8:00 AM to 12:00 PM | Halls A-C

Poster Session 664 - Networks: Thalamus, Cortex, and Brainstem

664.12 **Quantification of seizurogenic activity with multiwell microelectrode array technology for proconvulsant risk assessment**

M2 D. C. MILLARD, H. B. HAYES, C. A. ARROWOOD, A. M. NICOLINI

Axion Biosystems, Atlanta, GA

8:00 AM to 12:00 PM | Halls A-C

Poster Session 676 - Peripheral Nerve Injury and Repair

676.03 **Conditioning with botulinum toxin enhances motor axon regrowth in mouse and human models of injury**

AA23 C. K. FRANZ¹, L. JORDAN¹, J. A. ORTEGA², E. KISKINIS³, C. HECKMAN⁴

¹Physical Med. and Rehabil., Shirley Ryan AbilityLab, Chicago, IL; ²Neurol., ³Neurol. and Physiol., ⁴Dept. of Physiol., Northwestern Univ., Chicago, IL

Wednesday PM, November 15

1:00 PM to 5:00 PM | Halls A-C

Poster Session 741 - Regeneration in the Peripheral Nervous System

741.11 **Neurite elongation is enhanced in cells heterozygous for BDNF Val66Met polymorphism**

B18 C. MCGREGOR¹, A. W. ENGLISH²

¹Cell Biol., Emory Univ., Decatur, GA; ²Dept Cell Biol., Emory Univ. Sch. of Med., Atlanta, GA



1:00 PM to 5:00 PM | Halls A-C

Poster Session 760 - ALS: Disease Mechanism

760.15 **Reduced copper transporter trafficking and synaptic deficits in iPSC-MNs derived from an ALS patient with a novel variant of ATP7A**

U6 A. STARR¹, N. BAKKAR¹, Z. MCEACHIN², I. LORENZINI¹, G. J. BASSELL², N. M. BOULIS², R. SATTLER¹, R. BOWSER¹

¹Div. of Neurobio., Barrow Neurolog. Inst., Phoenix, AZ; ²Emory Univ., Atlanta, GA

760.21 **Patient-derived In vitro models of sporadic ALS show relevant disease protein phenotypes and changes in electrical activity**

U12 A. NELSON¹, L. GHAFARI¹, S. MOORE¹, A. STARR¹, I. LORENZINI¹, J. LEVY¹, C. BURCIU¹, J. MERTENS², R. SATTLER¹

¹Barrow Neurolog. Inst., Phoenix, AZ; ²The Salk Inst. for Biol. Studies, La Jolla, CA