

# POSTERS SFN 2015



ALLEN INSTITUTE *for*  
BRAIN SCIENCE

## SUNDAY, OCTOBER 18

### 8:00am-12:00pm

**131.23/D31** - An anatomical correlate of the mouse default mode network

*J.D. Whitesell, P. Bohn, M.T. Mortrud, K.E. Hirokawa, S.W. Oh, S. Mihalas, H. Zeng, J.A. Harris*

### 1:00-5:00pm

**262.22/AA20** - Comprehensive transcriptional atlas of primate brain development

*J.A. Miller, T. Bakken, S.-L. Ding, S. Sunkin, K. Smith, L. Ng, A. Szafer, J. Goldy, C.-K. Lee, A. Ebbert, R. Dalley, N. Dee, J. Royall, P.D. Parker, Z. Riley, Z. Molnar, R. Hevner, D. Amaral, M. Hawrylycz, J. Hohmann, A. Jones, J. Phillips, P. Wohnoutka, C. Dang, A. Bernard, E. Lein*

**265.01/BB18** - Progress towards high throughput, *in vivo* cell-type identification using coupled electrophysiological and morphological properties

*G. Holst, W.A. Stoy, I. Kolb, L. Li, U. Knoblich, S.B. Kodandaramaiah, S.A. Sorenson, H. Gill, T. Jarsky, J. Waters, A.C. Singer, B. Yang, G.T. Franzesi, E.S. Boyden, H. Zeng, C.R. Forest*

**267.03/BB46** - The open ephys gui: Plugin-based software for high-channel-count electrophysiology

*A. Cuevas Lopez, Y.A. Patel, J. Voigts, J.H. Siegle*

**267.10/BB53** - The path of least resistance: minimizing vascular damage from electrode array insertions

*W.J. Johnston, N. Gaudreault, D. Denman, B. Long, H. Peng, T.J. Blanche*

## MONDAY, OCTOBER 19

### 8:30-11:00am | SYMPOSIUM

**270** - Early Reports from the BRAIN Initiative Frontline: Advancing Technologies to Accelerate Our Understanding of Brain Function

Chairs: J.I. Roskams, E. Marder

C. Xu, A. Jasanoff, T.J. Gardner, H. Zeng

McCormick Place: S100A

### 8:00am-12:00pm

**359.12/DD49** - Prosubiculum rather than subiculum heavily projects to medial prefrontal cortex, amygdala, ventral striatum, bed nucleus of the stria terminalis and hypothalamus in mouse

S.-L. Ding, J.W. Phillips

### 1:00-5:00pm

**380.03/A14** - Study human neuronal maturation using human pluripotent stem cells

Y. Wang, B. Gregor, M. Fuqua, Z. Yao, H. Mulholland, R. Martinez, J. Ting, A.-R. Krostag, J. Grimley, B. Levi, V. Menon, C. Thompson, S. Ramanathan

**415.03/M45** - The balance of excitatory and inhibitory input shifts population dynamics from linear to nonlinear in a model cortical column

N.H. Cain, R. Iyer, C. Koch, S. Mihalas

**415.08/N2** - A biophysically detailed computational model of layer 4 of the mouse primary visual cortex

A. Arkhipov, N.W. Gouwens, R. Iyer, N.M. da Costa, S. Durand, D. Feng, T.P. Fliss, L. Li, S.R. Olsen, C. Dang, L. Ng, H. Peng, C. Reid, H. Zeng, S. Mihalas, M.J. Hawrylycz, C. Koch

**415.09/N3** - Characterizing the influence of the local state on neuronal responses in mouse thalamo-cortical circuits *in vivo*

R. Iyer, S. Durand, K. Mizuseki, M. Buice, C. Reid, C. Koch, S. Mihalas

**415.11/N5** - The functional roles of cell-type specific short-term plasticity in encoding of sensory inputs

J. Lee, R. Iyer, S. Durand, C. Reid, C. Koch, S. Mihalas

**416.01/N15** - Cross registration of CAM data acquisition platforms for experimental consistency and multimodal data alignment

T.M. Keenan, J. Perkins, T. Siuda, C. White, C. Slaughterbeck, A. Bernard, C. Farrell

**416.02/N16** - Development of a platform for acquiring and analyzing visual field response properties by intrinsic signal imaging

K. Roll, J. Perkins, M. Garrett, E. Mount, F. Long, J. Zhuang, S. Cross, S. Caldejon, C. White, N. Gaudreault, T. Keenan, C. Lau, S. De Vries, D. Williams, J. Waters, S. Olsen, F. Griffin, J. Johal, L. Kuan, C. Slaughterbeck, W. Wakeman, V. Maldonado, C. Farrell, L. Ng, C. Dang, C. Koch, C. Reid, J. Phillips, A. Bernard

**416.05/N19** - Interactive physiological map of visual responses in the mouse visual cortex during sensory stimulation and behavior

W. Wakeman, D. Feng, C. Lau, L. Kuan, Y. Li, F. Long, K. Godfrey, T. Fliss, N. Sjoquist, T. Dolbeare, A. Sodt, M. Chapin, C. Barber, S. Shi, C.L. Thompson, A. Bernard, M. Hawrylycz, C. Reid, J. Phillips, C. Dang, C. Koch, L. Ng

**416.06/N20** - Population coding, correlations, and functional connectivity in the mouse visual system with the Cortical Activity Map (CAM)

M.A. Buice, S. De Vries, A. Bernard, B. Rogers, C. White, C. Dang, P. Groblewski, C. Lau, C. Slaughterbeck, C. Farrell, D. Williams, J. Waters, J. Perkins, K. Roll, L. Kuan, M. Garrett, N. Orlova, S. Olsen, S. Cross, S. Mihalas, T. Keenan, W. Wakeman, J. Phillips, C. Koch, C. Reid

**416.07/N21** - Development of a cortical activity map: A scalable data generation platform for high-throughput *in vivo* functional imaging of awake behaving mice

A. Bernard, S. Olsen, M. Buice, C. Dang, S. De Vries, C. Farrell, M. Garrett, N. Gaudreault, P. Groblewski, J. Harrington, T. Keenan, L. Kuan, C. Lau, F. Long, V. Maldonado, S. Mihalas, L. Ng, N. Orlova, J. Perkins, B. Rogers, K. Roll, N. Sjoquist, C. Slaughterbeck, W. Wakeman, J. Waters, C. White, D. Williams, C. Koch, J. Phillips, R.C. Reid

**416.09/N23** - Modeling behavior in a virtual visual environment: What (if anything) do mice optimize when foraging for abstract objects?

D. Voina, P. Groblewski, S. Olsen, E. Shea-Brown, S. Mihalas

**416.12/N26** - Generating a cortical activity map using high-throughput functional imaging in the mouse visual cortex

S.E. De Vries, M. Buice, A. Bernard, C. Dang, C. Farrell, M. Garrett, P. Groblewski, T. Keenan, C. Koch, L. Kuan, C. Lau, S. Mihalas, L. Ng, S. Olsen, N. Orlova, J. Perkins, B. Rogers, K. Roll, C. Slaughterbeck, W. Wakeman, J. Waters, C. White, D. Williams, J. Phillips, C. Reid

**416.13/N27** - Automated annotation of functional cortical areas in intrinsic signal imaging

F. Long, K. Roll, J. Zhuang, J. Perkins, M. Garrett, C. White, N. Sjoquist, D. Feng, C. Lau, W. Wakeman, J. Phillips, C. Koch, C. Dang, A. Bernard, L. Ng

**416.14/N28** - Characterization of calcium events and spiking activity *in vivo* and their relationship using transgenic mouse lines

U. Knoblich, J. Waters, C. Reid, C. Koch, H. Zeng, L. Li

**416.15/N29** - Development of a platform for training head-fixed mice on a visual stimulus detection task

P.A. Groblewski, D. Ollerenshaw, D. Williams, S. Cross, M. Garrett, C. Mochizuki, J. Zhuang, T. Siuda, T. Keenan, D. Reid, C. Slaughterbeck, C. Farrell, V. Maldonado, J. Phillips, A. Bernard, R.C. Reid, J. Waters, C. Koch, S. Olsen

**429.22/V33** - Organization of the connections between cortex and claustrum in the mouse

Q. Wang, L. Ng, J.A. Harris, S.W. Oh, J.J. Royall, A. Bernard, S. Sunkin, C. Koch, H. Zeng

**451.10/DD56** - NeuronStitcher: A suite for stitching neuron fragments in serial 3D sections

H. Chen, Z. Zhou, N.M. da Costa, L. Li, S. Sorensen, H. Zeng, M. Hawrylycz, E. Lein, T. Li, H. Peng

**DP06.04/DP04** - The Allen Cell Types Database: Interactive multimodal exploration of neurons in the adult mouse brain

D. Feng, S.M. Sunkin, C. Lau, W. Wakeman, Y. Li, F. Long, K. Godfrey, T. Fliss, R. Young, F. Lee, G. Gu, T. Dolbeare, A. Sodt, N. Sjoquist, M. Chapin, N. Hejazi, S. Shi, B. Youngstrom, T. Gilbert, A. Bernard, M. Hawrylycz, H. Zeng, J. Phillips, C. Dang, C. Koch, L. Ng

## TUESDAY, OCTOBER 20

### 8:00am-12:00pm

**511.06/O9** - GCaMP6 fluorescence-based retinotopic mapping reveals medial areas and complementary representations in the mouse visual cortex  
J. Zhuang, D. Williams, M. Valley, M. Garrett, J. Waters

### 1:00-5:00pm

**598.01/J45** - Organization of interareal connectivity in mouse cortex

J.A. Harris, K.E. Hirokawa, L. Ng, S. Mihalas, C. Gerfen, P. Bohn, B. Ouellette, M. Mortrud, J.D. Whitesell, S. Sorensen, H. Zeng

**598.03/J47** - Characterization and comparison of cortical and geniculate responses in awake and anesthetized mouse

S. Durand, R. Iyer, K. Mizuseki, S. Mihalas, C. Reid

**598.04/J48** - The influence of long-range feedback inputs on single-cell dendritic signaling

A. Shai, C.A. Anastassiou, H. Zeng, M. E. Larkum, C. Koch

**598.05/K1** - Cellular taxonomy of the primary visual cortex in mice by single cell RNA-seq

B. Tasic, V. Menon, T.N. Nguyen, T.K. Kim, Z. Yao, K. Smith, T. Dolbeare, B. Levi, T. Jarsky, S. Sorensen, L. Gray, D. Bertagnolli, J. Goldy, N. Shapovalova, S. Parry, L. Madisen, S. Sunkin, S. Mihalas, C. Dang, J. Phillips, L. Ng, A. Bernard, C. Koch, M. Hawrylycz, H. Zeng

**598.07/K3** - Automated creation of generalized leaky integrate-and-fire neuron models at several levels of complexity tuned to *in vitro* electrophysiology data

C.M. Teeter, R. Iyer, N. Cain, D. Feng, S. Sunkin, C. Koch, S. Mihalas

**598.08/K4** - Data generation pipeline for the Allen Cell Types Database

C. Koch, J. Berg, A. Arkhipov, S. Sorensen, B. Tasic, C. Anastassiou, S. Sunkin, N. Gouwens, S. Mihalas, T. Jarsky, C. Teeter, T. Desta, S. Caldejon, S.-L. Ding, N. Gaudreault, V. Menon, S. Parry, K. Smith, J. Ting, W. Wakeman, E. Lein, C. Farrell, V. Maldonado, H. Peng, C. Dang, M. Hawrylycz, L. Ng, A. Bernard, H. Zeng, J. Phillips

**598.09/K5** - Genetic labeling strategies for *in vitro* functional analysis of human neocortical cell types and microcircuits

P. Chong, J.T. Ting, T.L. Daigle, R.P. Gwinn, C. Cobbs, E. Lein

**598.10/K6** - Standardizing spike sorting: an *in vitro*, *in silico* and *in vivo* study to develop quantitative metrics for sorting extracellularly recorded spiking activity

C. Mitelut, S.L. Gratiy, D. Denman, J.H. Siegle, S. Durand, K. Godfrey, C. Lee, R.C. Reid, M. Hawrylycz, C. Koch, N.V. Swindale, C. Anastassiou

**598.11/K7** - Characterizing the mesoscale organization of mouse visual cortex using ultraviolet light

J. Siegle, J. Zhuang, D.J. Denman, M.T. Valley, B.P. Danskin, R.C. Reid, S.R. Olsen, J. Waters, T.J. Blanche

**598.12/K8** - Active somatic and dendritic single-cell models using data from an *in vitro* slice electrophysiology and morphology platform

C. Anastassiou, W. Van Geit, C. Rossert, J. Berg, T. Desta, D. Feng, L. Kanari, S. Sunkin, J. Shillcock, S. Sorensen, H. Peng, A. Bernard, C. Dang, M. Hawrylycz, S. Hill, J.W. Phillips, H. Zeng, E. Mueller, H. Markram, C. Koch

**598.13/K9** - Chromatic responses in the mouse central visual pathway

D.J. Denman, J.H. Siegle, R.C. Reid, T.J. Blanche

**598.15/K11** - Generation and analysis of biophysical models of diverse mouse cortical neuron types

N.W. Gouwens, J. Berg, T. Desta, D. Feng, T. Fliss, K. Godfrey, T. Jarsky, L. Ng, S. Sorensen, S. Sunkin, Z. Zhou, A. Bernard, C. Dang, H. Peng, J. Phillips, H. Zeng, M. Hawrylycz, C. Koch, A. Arkhipov

**598.16/K12** - Characterization of connectivity and synaptic properties of layer 4 neurons in the mouse primary visual cortex

G.J. Soler-Llavina, B.R. Lee, H. Zeng

**598.17/K13** - A fine ultra-structural analysis of synaptic terminals formed by different cell types in layer 4 of the primary visual cortex of the mouse

A.L. Bodor, K. Glattfelder, S. Mihalas, M. Takeno, N.M. Da Costa

**598.20/K16** - Morphological classification of genetically-identified neurons in mouse primary visual cortex

S.A. Sorensen, T. Desta, M. Fisher, A. Henry, D. Sandman, N. Thatra, X. Liu, Z. Zhou, J. Berg, S. Caldejon, N. Gaudreault, T. Lemon, S. Parry, J. Harrington, W. Wakeman, D. Feng, S. Sunkin, A. Bernard, L. Ng, C. Dang, H. Peng, J. Phillips, C. Koch, H. Zeng

**598.21/K17** - Simulating LFP responses in mouse V1 to sensory inputs using a large-scale, biophysically detailed multi-layer circuit model

S.L. Gratiy, C. Mitelut, S. Durand, D. Denman, J. Siegle, J. Berg, S. Sorensen, A. Arkhipov, M. Hines, A. Shai, J. Phillips, H. Zeng, R. Reid, M. Hawrylycz, C. Koch, C. Anastassiou

**598.23/K19** - Characterization of human and mouse neurons using an *in vitro* slice electrophysiology platform

J. Berg, T. Jarsky, A. Oldre, K. Hadley, D. Hill, R. Mann, C. Anastassiou, A. Arkhipov, T. Casper, P. Chong, N. Dee, D. Feng, K. Godfrey, N. Gouwens, B. Lee, L. Li, Y. Li, S. Mihalas, L. Ng, J. Nyhus, J. Perkins, S. Parry, C. Reid, C. Slaughterbeck, G. Soler-Llavina, S. Sullivan, S. Sunkin, N. Taskin, C. Teeter, J. Ting, C. Farrell, M. Hawrylycz, E. Lein, J.W. Phillips, C. Koch, H. Zeng, A. Bernard

**598.24/K20** - Dendritic morphology feature analysis for mouse neuron classification

X. Liu, S. Sorensen, C. Lee, Z. Zhou, B. Long, S. Sunkin, H. Zeng, M. Hawrylycz, H. Peng

**598.26/K22** - Linking electrophysiology and optophysiology *in vivo*

P. Ledochowitsch, M. Ducros, R. Liu, M.A. Buice, C. Mitelut, C. Anastassiou, P. Saggau, T.J. Blanche

**598.28/K24** - Construction of a voxel based mesoscopic mouse connectome

K.D. Harris, J. Harris, H. Zeng, S. Mihalas, E. Shea-Brown

**638.04/DD50** - The open synaptome project: Toward a microscopy-based platform for single-synapse analysis of diverse populations of CNS synapses

S.J. Smith, R. Burns, M. Chevillet, E. Lein, G. Sapiro, W. Seeley, J. Trimmer, J.T. Vogelstein, R. Weinberg

# POSTERS SFN 2015



ALLEN INSTITUTE *for*  
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## WEDNESDAY, OCTOBER 21

8:00am-12:00pm

**733.01/DD5** - Automated dye microinjection to label mouse and human neurons

*B.R. Long, E. Lein, H. Peng*

**734.05/DD21** - Neuron reconstruction for Allen Cell Types Database

*Z. Zhou, X. Liu, S. Sorensen, M. Fisher, D. Sandman, A. Henry, N. Thatra, T. Desta, W. Wakeman, S. Sunkin, E. Lein, H. Zeng, M. Hawrylycz, J. Phillips, C. Koch, H. Peng*

**735.01/DD33** - Synaptomes of electrophysiologically characterized human neocortical neurons

*K.D. Micheva, A. Ko, E. Lein, D.V. Madison, A. Dijkstra, W. Seeley, S.J. Smith, G. Tamas, J. Ting, N.A. O'rourke*

**735.02/DD34** - An integrated imaging and staining platform for cubic millimeter scale array tomography

*F.C. Collman, S. Davis, O. Gliko, T.M. Keenan, K. Parker, L.E. Ostroff, S.J. Smith*