

# The Journal of Neuroscience

February 11, 2015 • Volume 35 Number 6 • www.jneurosci.org



**Cover legend:** This image shows dye-filled, genetically identified retinal ganglion cells (RGCs). Some RGC types are more likely than others to degenerate in the early stages of glaucoma, one of the leading causes of blindness. RGCs whose dendrites reside in the "Off" sublayer of the inner retina are particularly vulnerable. For more information, see the article by El-Danaf and Huberman (pages 2329–2343).

## i This Week in The Journal

### Journal Club

- 2323 **Network Mechanisms Underlying the Initiation and Generation of Sharp-Wave-Associated Ripple Oscillations**  
Jagdish Patel
- 2326 **A Thalamic Origin to the Electrocortical Patterns Associated with Transitions into Anesthetic-Induced Loss-of-Consciousness**  
Lia Mesbah-Oskui

### Brief Communications

- 2417 **Modulation of Microglial Process Convergence Toward Neuronal Dendrites by Extracellular Calcium**  
Ukpong B. Eyo, Nan Gu, Srijisnu De, Hailong Dong, Jason R. Richardson, and Long-Jun Wu

### Articles

#### CELLULAR/MOLECULAR

- 2438 **Aberrant Synaptic Integration in Adult Lamina I Projection Neurons Following Neonatal Tissue Damage**  
Jie Li, Elizabeth Kritzer, Paige E. Craig, and Mark L. Baccei
- 2492 **Phosphorylation of Synaptic Vesicle Protein 2A at Thr84 by Casein Kinase 1 Family Kinases Controls the Specific Retrieval of Synaptotagmin-1**  
Ning Zhang, Sarah L. Gordon, Maximilian J. Fritsch, Noor Esoof, David G. Campbell, Robert Gourlay, Srikannathasan Velupillai, Thomas Macartney, Mark Peggie, Daan M.F. van Aalten, Michael A. Cousin, and Dario R. Alessi
- 2530 **Functional Cooperation between the IP<sub>3</sub> Receptor and Phospholipase C Secures the High Sensitivity to Light of *Drosophila* Photoreceptors *In Vivo***  
Elkana Kohn, Ben Katz, Bushra Yasin, Maximilian Peters, Elisheva Rhodes, Rachel Zaguri, Shirley Weiss, and Baruch Minke
- 2559 **Trip6 Promotes Dendritic Morphogenesis through Dephosphorylated GRIP1-Dependent Myosin VI and F-Actin Organization**  
Kaosheng Lv (吕考升), Liang Chen (陈亮), Yuanjun Li (李圆君), Zenglong Li (李曾龙), Pengli Zheng (郑鹏里), Yingying Liu (刘盈盈), Jianguo Chen (陈建国), and Junlin Teng (滕俊琳)
- 2624 **The Roles of Cdk5-Mediated Subcellular Localization of FOXO1 in Neuronal Death**  
Jiechao Zhou, Huifang Li, Xiaoping Li, Guanyun Zhang, Yaqiong Niu, Zengqiang Yuan, Karl Herrup, Yun-Wu Zhang, Guojun Bu, Huaxi Xu, and Jie Zhang

- 2646 **Cooperative Roles of Hydrophilic Loop 1 and the C-Terminus of Presenilin 1 in the Substrate-Gating Mechanism of  $\gamma$ -Secretase**  
Shizuka Takagi-Niidome, Tomoki Sasaki, Satoko Osawa, Takeshi Sato, Kanan Morishima, Tetsuo Cai, Takeshi Iwatsubo, and Taisuke Tomita
- 2674 **A Novel Size-Based Sorting Mechanism of Pinocytic Luminal Cargoes in Microglia**  
Cong Chen, Hui-Quan Li, Yi-jun Liu, Zhi-fei Guo, Hang-jun Wu, Xia Li, Hui-Fang Lou, Liya Zhu, Di Wang, Xiao-Ming Li, Li Yu, Xuetao Cao, Linrong Lu, Zhihua Gao, and Shu-Min Duan
- 2731 **Speed and Sensitivity of Phototransduction in *Drosophila* Depend on Degree of Saturation of Membrane Phospholipids**  
Alex S. Randall, Che-Hsiung Liu, Brian Chu, Qifeng Zhang, Sidharta A. Dongre, Mikko Juusola, Kristian Franze, Michael J.O. Wakelam, and Roger C. Hardie
- 2747 **PKC Enhances the Capacity for Secretion by Rapidly Recruiting Covert Voltage-Gated  $Ca^{2+}$  Channels to the Membrane**  
Christopher J. Groten and Neil S. Magoski
- 2803 **Spillover Transmission Is Mediated by the Excitatory GABA Receptor LGC-35 in *C. elegans***  
Meghan A. Jobson, Chris M. Valdez, Jann Gardner, L. Rene Garcia, Erik M. Jorgensen, and Asim A. Beg

#### DEVELOPMENT/PLASTICITY/REPAIR

- 2344  **$\alpha 2$ -Chimaerin Is Required for Eph Receptor-Class-Specific Spinal Motor Axon Guidance and Coordinate Activation of Antagonistic Muscles**  
Tzu-Jen Kao, Georgina C.B. Nicholl, Jamie A. Johansen, Artur Kania, and Asim A. Beg
- 2432 **Norepinephrine Is Necessary for Experience-Dependent Plasticity in the Developing Mouse Auditory Cortex**  
Kathryn N. Shepard, L. Cameron Liles, David Weinschenker, and Robert C. Liu
- 2452 **Secreted Ectodomain of Sialic Acid-Binding Ig-Like Lectin-9 and Monocyte Chemoattractant Protein-1 Promote Recovery after Rat Spinal Cord Injury by Altering Macrophage Polarity**  
Kohki Matsubara, Yoshihiro Matsushita, Kiyoshi Sakai, Fumiya Kano, Megumi Kondo, Mariko Noda, Noboru Hashimoto, Shiro Imagama, Naoki Ishiguro, Akio Suzumura, Minoru Ueda, Koichi Furukawa, and Akihito Yamamoto
- 2596 **Control of Axon Guidance and Neurotransmitter Phenotype of dB1 Hindbrain Interneurons by Lim-HD Code**  
Ayelet Kohl, Till Marquardt, Avihu Klar, and Dalit Sela-Donenfeld
- 2657 **Sensory Deprivation Disrupts Homeostatic Regeneration of Newly Generated Olfactory Sensory Neurons after Injury in Adult Mice**  
Shu Kikuta, Takashi Sakamoto, Shin Nagayama, Kaori Kanaya, Makoto Kinoshita, Kenji Kondo, Koichi Tsunoda, Kensaku Mori, and Tatsuya Yamasoba
- 2817 **The JAK/STAT3 Pathway Is a Common Inducer of Astrocyte Reactivity in Alzheimer's and Huntington's Diseases**  
Lucile Ben Haim, Kelly Ceyzériat, Maria Angeles Carrillo-de Sauvage, Fabien Aubry, Gwennaëlle Auregan, Martine Guillermier, Marta Ruiz, Fanny Petit, Diane Houitte, Emilie Faivre, Matthias Vandesquille, Romina Aron-Badin, Marc Dhenain, Nicole Déglon, Philippe Hantraye, Emmanuel Brouillet, Gilles Bonvento, and Carole Escartin

#### SYSTEMS/CIRCUITS

- 2329 **Characteristic Patterns of Dendritic Remodeling in Early-Stage Glaucoma: Evidence from Genetically Identified Retinal Ganglion Cell Types**  
Rana N. El-Danaf and Andrew D. Huberman

- 2384 **G-Protein-Coupled Estrogen Receptor 1 Is Anatomically Positioned to Modulate Synaptic Plasticity in the Mouse Hippocampus**  
Elizabeth M. Waters, Louisa I. Thompson, Parth Patel, Andreina D. Gonzales, Hector (Zhiyu) Ye, Edward J. Filardo, Deborah J. Clegg, Jolanta Gorecka, Keith T. Akama, Bruce S. McEwen, and Teresa A. Milner
- 2398 **Responses to Conflicting Stimuli in a Simple Stimulus–Response Pathway**  
Pieter Laurens Baljon and Daniel A. Wagenaar
- 2423 **Photoreceptor Ablation Initiates the Immediate Loss of Glutamate Receptors in Postsynaptic Bipolar Cells in Retina**  
Felice A. Dunn
- 2547 **The Nucleus Prepositus Hypoglossi Contributes to Head Direction Cell Stability in Rats**  
William N. Butler and Jeffrey S. Taube
- 2636 **Behavioral Relevance Helps Untangle Natural Vocal Categories in a Specific Subset of Core Auditory Cortical Pyramidal Neurons**  
Kathryn N. Shepard, Frank G. Lin, Charles L. Zhao, Kelly K. Chong, and Robert C. Liu
- 2689 **Gain Modulation of Synaptic Inputs by Network State in Auditory Cortex *In Vivo***  
Ramon Reig, Yann Zerlaut, Ramiro Vergara, Alain Destexhe, and Maria V. Sanchez-Vives
- 2717 **Prospective Coding of Dorsal Raphe Reward Signals by the Orbitofrontal Cortex**  
Jingfeng Zhou, Chunying Jia, Qiru Feng, Junhong Bao, and Minmin Luo
- 2766 **A Functional Link between MT Neurons and Depth Perception Based on Motion Parallax**  
HyungGoo R. Kim, Dora E. Angelaki, and Gregory C. DeAngelis
- 2778 **Adult Cortical Plasticity Studied with Chronically Implanted Electrode Arrays**  
Hiroshi Abe, Justin N.J. McManus, Nirmala Ramalingam, Wu Li, Sally A. Marik, Stephan Meyer zum Alten Borgloh, and Charles D. Gilbert

#### BEHAVIORAL/COGNITIVE

- 2372 **Loss of Cyclin-Dependent Kinase 5 from Parvalbumin Interneurons Leads to Hyperinhibition, Decreased Anxiety, and Memory Impairment**  
Andrii Rudenko, Jinsoo Seo, Ji Hu, Susan C. Su, Froylan Calderon de Anda, Omer Durak, Maria Ericsson, Marie Carlén, and Li-Huei Tsai
- 2407 **Reversal Learning and Dopamine: A Bayesian Perspective**  
Vincent D. Costa, Valery L. Tran, Janita Turchi, and Bruno B. Averbeck
- 2465 **Memory Retrieval Requires Ongoing Protein Synthesis and NMDA Receptor Activity-Mediated AMPA Receptor Trafficking**  
Joëlle Lopez, Karine Gamache, Rilla Schneider, and Karim Nader
- 2476 **Revisiting the Evidence for Collapsing Boundaries and Urgency Signals in Perceptual Decision-Making**  
Guy E. Hawkins, Birte U. Forstmann, Eric-Jan Wagenmakers, Roger Ratcliff, and Scott D. Brown
- 2572 **Circadian Modulation of Dopamine Levels and Dopaminergic Neuron Development Contributes to Attention Deficiency and Hyperactive Behavior**  
Jian Huang, Zhaomin Zhong, Mingyong Wang, Xifeng Chen, Yicheng Tan, Shuqing Zhang, Wei He, Xiong He, Guodong Huang, Haiping Lu, Ping Wu, Yi Che, Yi-Lin Yan, John H. Postlethwait, Wenbiao Chen, and Han Wang
- 2588 **Differential Magnetic Resonance Neurofeedback Modulations across Extrinsic (Visual) and Intrinsic (Default-Mode) Nodes of the Human Cortex**  
Tal Harmelech, Doron Friedman, and Rafael Malach

- 2703 **Basal Ganglia Outputs Map Instantaneous Position Coordinates during Behavior**  
Joseph W. Barter, Suellen Li, Tatyana Sukharnikova, Mark A. Rossi,  
Ryan A. Bartholomew, and Henry H. Yin
- 2791 **Single-Unit Recordings in the Macaque Face Patch System Reveal Limitations of fMRI MVPA**  
Julien Dubois, Archy Otto de Berker, and Doris Ying Tsao
- 2830 **Behavioral Oscillation in Priming: Competing Perceptual Predictions Conveyed in Alternating Theta-Band Rhythms**  
Yan Huang, Lin Chen, and Huan Luo

#### NEUROBIOLOGY OF DISEASE

- 2358 **Life Extension Factor Klotho Prevents Mortality and Enhances Cognition in hAPP Transgenic Mice**  
Dena B. Dubal, Lei Zhu, Pascal E. Sanchez, Kurtresha Worden, Lauren Broestl,  
Erik Johnson, Kaitlyn Ho, Gui-Qiu Yu, Daniel Kim, Alexander Betourne,  
Makoto Kuro-o, Eliezer Masliah, Carmela R. Abraham, and Lennart Mucke
- 2485 **Inspiration Is the Major Regulator of Human CSF Flow**  
Steffi Dreha-Kulaczewski, Arun A. Joseph, Klaus-Dietmar Merboldt,  
Hans-Christoph Ludwig, Jutta Gärtner, and Jens Frahm
- 2508 **Anatomical Changes at the Level of the Primary Synapse in Neuropathic Pain: Evidence from the Spinal Trigeminal Nucleus**  
Sophie L. Wilcox, Sylvia M. Gustin, Paul M. Macey, Chris C. Peck,  
Greg M. Murray, and Luke A. Henderson
- 2516 **Dysregulation of Glutamine Transporter SNAT1 in Rett Syndrome Microglia: A Mechanism for Mitochondrial Dysfunction and Neurotoxicity**  
Lee-Way Jin, Makoto Horiuchi, Heike Wulff, Xiao-Bo Liu, Gino A. Cortopassi,  
Jeffrey D. Erickson, and Izumi Maezawa
- 2612 **Posttraumatic Stress Disorder-Like Induction Elevates  $\beta$ -Amyloid Levels, Which Directly Activates Corticotropin-Releasing Factor Neurons to Exacerbate Stress Responses**  
Nicholas J. Justice, Longwen Huang, Jin-Bin Tian, Allysa Cole, Melissa Pruski,  
Albert J. Hunt, Jr., Rene Flores, Michael X. Zhu, Benjamin R. Arenkiel,  
and Hui Zheng
- 2838 **Retraction:** The article “Induced Alpha Rhythms Track the Content and Quality of Visual Working Memory Representations with High Temporal Precision”, by David E. Anderson, John T. Serences, Edward K. Vogel, and Edward Awh, appeared on pages 7587–7599 of the May 28, 2014 issue. A retraction for this article appears on page 2838.

---

Persons interested in becoming members of the Society for Neuroscience should contact the Membership Department, Society for Neuroscience, 1121 14th St., NW, Suite 1010, Washington, DC 20005, phone 202-962-4000.

Instructions for Authors are available at <http://www.jneurosci.org/misc/itoa.shtml>. Authors should refer to these Instructions online for recent changes that are made periodically.

*Brief Communications* Instructions for Authors are available via Internet ([http://www.jneurosci.org/misc/ifa\\_bc.shtml](http://www.jneurosci.org/misc/ifa_bc.shtml)).

Submissions should be submitted online using the following url: <http://jneurosci.msubmit.net>. Please contact the Central Office, via phone, fax, or e-mail with any questions. Our contact information is as follows: phone, 202-962-4000; fax, 202-962-4945; e-mail, [jn@sfn.org](mailto:jn@sfn.org).