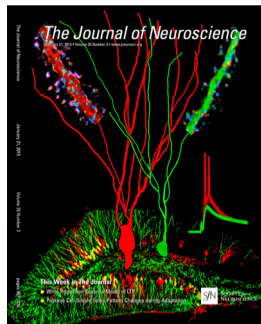


# The Journal of Neuroscience

January 21, 2015 • Volume 35 Number 3 • www.jneurosci.org



**Cover legend:** Retroviral injections label control neurons (green) and neurons lacking the autism-associated gene *Pten* (red) in the mouse dentate gyrus. Neuronal reconstructions and images of dendritic spines with labeled synapses demonstrate that *Pten* knockout increases cell size and synapse number, resulting in neuronal hyperactivity. Parallel morphological and physiological analyses underscore the tight coupling of neuronal structure to function. For more information, see the article by Williams et al. (pages 943–959).

## i This Week in The Journal

### Editorial

- 867 A Message from the Editor-in-Chief  
Dora Angelaki

### Journal Club

- 868 The Functional Role of Astrocyte Calcium Signaling in Cortical Blood Flow Regulation  
Kyle R. Biesecker and Anja I. Sienc
- 871 Friend or Foe? Perceptual Categorization across Species  
Guy E. Hawkins

### Brief Communications

- 873 Autocrine Boost of NMDAR Current in Hippocampal CA1 Pyramidal Neurons by a PMCA-Dependent, Perisynaptic, Extracellular pH Shift  
Huei-Ying Chen and Mitchell Chesler
- 936 The Spinal Muscular Atrophy with Pontocerebellar Hypoplasia Gene *VRK1* Regulates Neuronal Migration through an Amyloid- $\beta$  Precursor Protein-Dependent Mechanism  
Hadar Vinograd-Byk, Tamar Sapir, Lara Cantarero, Pedro A. Lazo, Sharon Zeligson, Dorit Lev, Tally Lerman-Sagie, Paul Renbaum, Orly Reiner, and Ephrat Levy-Lahad
- 1038 NLP-12 Engages Different UNC-13 Proteins to Potentiate Tonic and Evoked Release  
Zhitao Hu, Amy B. Vashlishan-Murray, and Joshua M. Kaplan
- 1211 Patterned, But Not Tonic, Optogenetic Stimulation in Motor Thalamus Improves Reaching in Acute Drug-Induced Parkinsonian Rats  
Sonja Seeger-Armbruster, Clémentine Bosch-Bouju, Shane T.C. Little, Roseanna A. Smither, Stephanie M. Hughes, Brian I. Hyland, and Louise C. Parr-Brownlie

### Articles

#### CELLULAR/MOLECULAR

- 906 Oligodendroglial Maturation Is Dependent on Intracellular Protein Shuttling  
Peter Göttele, Jennifer K. Sabo, André Heinen, Gene Venables, Klinty Torres, Nevena Tzekova, Carlos M. Parras, David Kremer, Hans-Peter Hartung, Holly S. Cate, and Patrick Küry
- 972 BDNF Stimulation of Protein Synthesis in Cortical Neurons Requires the MAP Kinase-Interacting Kinase MNK1  
Maja Genheden, Justin W. Kenney, Harvey E. Johnston, Antigoni Manousopoulou, Spiros D. Garbis, and Christopher G. Proud

- 985 **ATP Binding to Synapsin IIa Regulates Usage and Clustering of Vesicles in Terminals of Hippocampal Neurons**  
Yoav Shulman, Alexandra Stavsky, Tatiana Fedorova, Dan Mikulincer, Merav Atias, Igal Radinsky, Joy Kahn, Inna Slutsky, and Daniel Gitler
- 1250 **HDAC2 Selectively Regulates FOXO3a-Mediated Gene Transcription during Oxidative Stress-Induced Neuronal Cell Death**  
Shengyi Peng, Siqi Zhao, Feng Yan, Jinbo Cheng, Li Huang, Hong Chen, Qingsong Liu, Xunming Ji, and Zengqiang Yuan
- 1260 **Dysregulation of Kv3.4 Channels in Dorsal Root Ganglia Following Spinal Cord Injury**  
David M. Ritter, Benjamin M. Zemel, Tamara J. Hala, Michael E. O'Leary, Angelo C. Lepore, and Manuel Covarrubias

#### DEVELOPMENT/PLASTICITY/REPAIR

- 943 **Hyperactivity of Newborn Pten Knock-out Neurons Results from Increased Excitatory Synaptic Drive**  
Michael R. Williams, Tyrone DeSpensa Jr, Meijie Li, Allan T. Gullledge, and Bryan W. Luikart
- 1011 **Signal Transducer and Activator of Transcription-3 Maintains the Stemness of Radial Glia at Mid-Neurogenesis**  
Seulgi Hong and Mi-Ryoung Song
- 1136 **Stimulation of Monocytes, Macrophages, and Microglia by Amphotericin B and Macrophage Colony-Stimulating Factor Promotes Remyelination**  
Axinia Döring, Scott Sloka, Lorraine Lau, Manoj Mishra, Jan van Minnen, Xu Zhang, David Kinniburgh, Serge Rivest, and V. Wee Yong
- 1291 **Motoneurons Derived from Induced Pluripotent Stem Cells Develop Mature Phenotypes Typical of Endogenous Spinal Motoneurons**  
Jeremy S. Toma, Basavaraj C. Shettar, Peter H. Chipman, Devanand M. Pinto, Joanna P. Borowska, Justin K. Ichida, James P. Fawcett, Ying Zhang, Kevin Eggan, and Victor F. Rafuse
- 1319 **Synaptic Consolidation: From Synapses to Behavioral Modeling**  
Lorric Ziegler, Friedemann Zenke, David B. Kastner, and Wulfram Gerstner

#### SYSTEMS/CIRCUITS

- 1024 **Distribution and Function of HCN Channels in the Apical Dendritic Tuft of Neocortical Pyramidal Neurons**  
Mark T. Harnett, Jeffrey C. Magee, and Stephen R. Williams
- 1052 **Role of Parafacial Nuclei in Control of Breathing in Adult Rats**  
Robert T.R. Huckstepp, Kathryn P. Cardoza, Lauren E. Henderson, and Jack L. Feldman
- 1068 **Decoding a Wide Range of Hand Configurations from Macaque Motor, Premotor, and Parietal Cortices**  
Stefan Schaffelhofer, Andres Agudelo-Toro, and Hansjörg Scherberger
- 1089 **Contributions of Diverse Excitatory and Inhibitory Neurons to Recurrent Network Activity in Cerebral Cortex**  
Garrett T. Neske, Saundra L. Patrick, and Barry W. Connors
- 1106 **Changes in Purkinje Cell Simple Spike Encoding of Reach Kinematics during Adaption to a Mechanical Perturbation**  
Angela L. Hewitt, Laurentiu S. Popa, and Timothy J. Ebner

- 1160 **Functional Mapping of Face-Selective Regions in the Extrastriate Visual Cortex of the Marmoset**  
Chia-Chun Hung, Cecil C. Yen, Jennifer L. Ciuchta, Daniel Papoti, Nicholas A. Bock, David A. Leopold, and Afonso C. Silva
- 1181 **Corticospinal Tract Development and Spinal Cord Innervation Differ between Cervical and Lumbar Targets**  
Tsutomu Kamiyama, Hiroshi Kameda, Naoyuki Murabe, Satoshi Fukuda, Noboru Yoshioka, Hiroaki Mizukami, Keiya Ozawa, and Masaki Sakurai
- 1217 **Interplay of Inhibition and Excitation Shapes a Premotor Neural Sequence**  
Georg Kosche, Daniela Vallentin, and Michael A. Long
- 1240 **Musical Training Orchestrates Coordinated Neuroplasticity in Auditory Brainstem and Cortex to Counteract Age-Related Declines in Categorical Vowel Perception**  
Gavin M. Bidelman and Claude Alain

#### BEHAVIORAL/COGNITIVE

- 878 **Audition-Independent Vocal Crystallization Associated with Intrinsic Developmental Gene Expression Dynamics**  
Chihiro Mori and Kazuhiro Wada
- 920 **Sex-Dependent Dissociation between Emotional Appraisal and Memory: A Large-Scale Behavioral and fMRI Study**  
Klara Spalek, Matthias Fastenrath, Sandra Ackermann, Bianca Auschra, David Coynel, Julia Frey, Leo Gschwind, Francina Hartmann, Nadine van der Maarel, Andreas Papassotiropoulos, Dominique de Quervain, and Annette Milnik
- 960 **Prefrontal Neuronal Responses during Audiovisual Mnemonic Processing**  
Jaewon Hwang and Lizabeth M. Romanski
- 1082 **Metacognitive Mechanisms Underlying Lucid Dreaming**  
Elisa Filevich, Martin Dresler, Timothy R. Brick, and Simone Kühn
- 1125 **Slack Channels Expressed in Sensory Neurons Control Neuropathic Pain in Mice**  
Ruirui Lu, Anne E. Bausch, Wiebke Kallenborn-Gerhardt, Carsten Stoetzer, Natasja Debruin, Peter Ruth, Gerd Geisslinger, Andreas Leffler, Robert Lukowski, and Achim Schmidtke
- 1173 **Aging Impairs Protein-Synthesis-Dependent Long-Term Memory in *Drosophila***  
Ayako Tonoki and Ronald L. Davis
- 1192 **Vestibulo-Ocular Reflex Suppression during Head-Fixed Saccades Reveals Gaze Feedback Control**  
Pierre M. Daye, Dale C. Roberts, David S. Zee, and Lance M. Optican
- 1228 **Cerebellar Cortex and Cerebellar Nuclei Are Concomitantly Activated during Eyeblink Conditioning: A 7T fMRI Study in Humans**  
Markus Thürling, Fabian Kahl, Stefan Maderwald, Roxana M. Stefanescu, Marc Schlamann, Henk-Jan Boele, Chris I. De Zeeuw, Jörn Diedrichsen, Mark E. Ladd, Sebastiaan K.E. Koekkoek, and Dagmar Timmann
- 1307 **Neural Dynamics Underlying Attentional Orienting to Auditory Representations in Short-Term Memory**  
Kristina C. Backer, Malcolm A. Binns, and Claude Alain

#### NEUROBIOLOGY OF DISEASE

- 890 **A53T Human  $\alpha$ -Synuclein Overexpression in Transgenic Mice Induces Pervasive Mitochondria Macroautophagy Defects Preceding Dopamine Neuron Degeneration**  
Linan Chen (陈), Zhiguo Xie, Susie Turkson, and Xiaoxi Zhuang

- 999 **Evidence for Consolidation of Neuronal Assemblies after Seizures in Humans**  
Mark R. Bower, Matt Stead, Regina S. Bower, Michal T. Kucewicz, Vlastimil Sulc, Jan Cimbalk, Benjamin H. Brinkmann, Vincent M. Vasoli, Erik K. St. Louis, Fredric B. Meyer, W. Richard Marsh, and Gregory A. Worrell
- 1043 **The Full-Length Form of the *Drosophila* Amyloid Precursor Protein Is Involved in Memory Formation**  
Isabelle Bourdet, Thomas Preat, and Valérie Goguel
- 1149 **Desynchronization of Fast-Spiking Interneurons Reduces  $\beta$ -Band Oscillations and Imbalance in Firing in the Dopamine-Depleted Striatum**  
Sriraman Damodaran, John R. Cressman, Zbigniew Jedrzejewski-Szmek, and Kim T. Blackwell
- 1199 **The Potent BACE1 Inhibitor LY2886721 Elicits Robust Central A $\beta$  Pharmacodynamic Responses in Mice, Dogs, and Humans**  
Patrick C. May, Brian A. Willis, Stephen L. Lowe, Robert A. Dean, Scott A. Monk, Patrick J. Cocke, James E. Audia, Leonard N. Boggs, Anthony R. Borders, Richard A. Brier, David O. Calligaro, Theresa A. Day, Larry Ereshefsky, Jon A. Erickson, Hykop Gevorkyan, Celdon R. Gonzales, Douglas E. James, Stanford S. Jhee, Steven F. Komjathy, Linglin Li, Terry D. Lindstrom, Brian M. Mathes, Ferenc Martényi, Scott M. Sheehan, Stephanie L. Stout, David E. Timm, Grant M. Vaught, Brian M. Watson, Leonard L. Winneroski, Zhixiang Yang, and Dustin J. Mergott
- 1274 **Chronic Oligodendrogenesis and Remyelination after Spinal Cord Injury in Mice and Rats**  
Zoe C. Hesp, Evan Z. Goldstein, Carlos J. Miranda, Brian K. Kaspar, and Dana M. McTigue
- 1335 **Correction:** The article "Paired Related Homeobox Protein 1 is a Regulatory of Stemness in Adult Neural Stem/Progenitor Cells" by Koji Shimosaki, Gregory D. Clemenson, Jr., and Fred H. Gage appeared on pages 4066 – 4075 of the February 27, 2013 issue. A correction for that article appears on page 1335.

---

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).