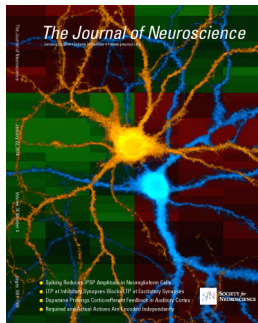


The Journal of Neuroscience

January 22, 2014 • Volume 34 Number 4 • www.jneurosci.org



Cover legend: Composite image of immunofluorescence-labeled cultured neurons from *lethargic* ($Ca_v \beta_4$ -null mutant) mice reconstituted with specific splice variants of the calcium channel β_4 subunit (shown on the background of a gene expression heat map). β_{4b} (blue) and β_{4e} (orange) both functionally interact with calcium channels in the membrane but possess strikingly different abilities to target into the nucleus and to regulate expression of neuronal genes including that of $Ca_v2.1$, the primary channel partner of β_4 subunits in cerebellar synapses. For more information, see the article by Etemad et al. (pages 1446–1461).

i This Week in The Journal

Journal Club

- 1081 **Neutrophil Contribution in Facilitating Optic Nerve Regeneration**
Bhagat Singh and Jason R. Plemel

Brief Communications

- 1127 **A Hierarchy of Responses to Auditory Regularities in the Macaque Brain**
Lynn Uhrig, Stanislas Dehaene, and Béchir Jarraya
- 1133 **GABAergic Neurogliaform Cells Represent Local Sources of Insulin in the Cerebral Cortex**
Gábor Molnár, Nóra Faragó, Ágnes K. Kocsis, Márton Rózsa, Sándor Lovas, Eszter Boldog, Rita Báldi, Éva Csajbók, János Gardi, László G. Puskás, and Gábor Tamás
- 1475 **Visual Spatial Attention Has Opposite Effects on Bidirectional Plasticity in the Human Motor Cortex**
Marc R. Kamke, Alexander E. Ryan, Martin V. Sale, Megan E. J. Campbell, Stephan Riek, Timothy J. Carroll, and Jason B. Mattingley

Articles

CELLULAR/MOLECULAR

- 1148 **The Electrogenic Sodium Bicarbonate Cotransporter NBCe1 Is a High-Affinity Bicarbonate Carrier in Cortical Astrocytes**
Sheféeq M. Theparambil, Iván Ruminot, Hans-Peter Schneider, Gary E. Shull, and Joachim W. Deitmer
- 1280 **Firing of Hippocampal Neurogliaform Cells Induces Suppression of Synaptic Inhibition**
Gengyu Li, Robert Stewart, Marco Canepari, and Marco Capogna
- 1325 **Functional Regulation of the SLC26-Family Protein Prestin by Calcium/Calmodulin**
Jacob Pearson Keller, Kazuaki Homma, Chongwen Duan, Jing Zheng, Mary Ann Cheatham, and Peter Dallos
- 1446 **Differential Neuronal Targeting of a New and Two Known Calcium Channel β_4 Subunit Splice Variants Correlates with Their Regulation of Gene Expression**
Solmaz Etemad, Gerald J. Obermair, Daniel Bindreither, Ariane Benedetti, Ruslan Stanika, Valentina Di Biase, Verena Burtscher, Alexandra Koschak, Reinhard Kofler, Stephan Geley, Alexandra Wille, Alexandra Lusser, Veit Flockerzi, and Bernhard E. Flucher

- 1462 **Ca_v2.1 Channels Control Multivesicular Release by Relying on Their Distance from Exocytotic Ca²⁺ Sensors at Rat Cerebellar Granule Cells**
Shin'Ichiro Satake and Keiji Imoto
- 1494 **TREK2 Expressed Selectively in IB4-Binding C-Fiber Nociceptors Hyperpolarizes Their Membrane Potentials and Limits Spontaneous Pain**
Cristian Acosta, Laiche Djouhri, Roger Watkins, Carol Berry, Kirsty Bromage, and Sally N. Lawson
- 1542 **p140Cap Regulates Memory and Synaptic Plasticity through Src-Mediated and Citron-N-Mediated Actin Reorganization**
Daniele Repetto, Paola Camera, Riccardo Melani, Noemi Morello, Isabella Russo, Eleonora Calcagno, Romana Tomasoni, Federico Bianchi, Gaia Berto, Maurizio Giustetto, Nicoletta Berardi, Tommaso Pizzorusso, Michela Matteoli, Paola Di Stefano, Markus Missler, Emilia Turco, Ferdinando Di Cunto, and Paola Defilippi

DEVELOPMENT/PLASTICITY/REPAIR

- 1083 **Inhibitory Plasticity Dictates the Sign of Plasticity at Excitatory Synapses**
Lang Wang and Arianna Maffei
- 1115 **Hippocampal Pyramidal Neurons Switch from a Multipolar Migration Mode to a Novel "Climbing" Migration Mode during Development**
Ayako Kitazawa, Ken-ichiro Kubo, Kanehiro Hayashi, Yuki Matsunaga, Kazuhiro Ishii, and Kazunori Nakajima
- 1224 **Working Memory Load-Dependent Brain Response Predicts Behavioral Training Gains in Older Adults**
Stephan Heinzel, Robert C. Lorenz, Wolf-Rüdiger Brockhaus, Torsten Wüstenberg, Norbert Kathmann, Andreas Heinz, and Michael A. Rapp
- 1258 **Large-Scale Somatotopic Refinement via Functional Synapse Elimination in the Sensory Thalamus of Developing Mice**
Yuichi Takeuchi, Hidetsugu Asano, Yoko Katayama, Yoshihiro Muragaki, Keiji Imoto, and Mariko Miyata
- 1333 **Expression of Proteolipid Protein Gene in Spinal Cord Stem Cells and Early Oligodendrocyte Progenitor Cells Is Dispensable for Normal Cell Migration and Myelination**
Danielle E. Harlow, Katherine E. Saul, Cecilia M. Culp, Elisa M. Vesely, and Wendy B. Macklin
- 1370 **CLAC-P/Collagen Type XXV Is Required for the Intramuscular Innervation of Motoneurons during Neuromuscular Development**
Tomohiro Tanaka, Tomoko Wakabayashi, Hiroaki Oizumi, Shu Nishio, Takashi Sato, Akihiro Harada, Daisuke Fujii, Yuko Matsuo, Tadafumi Hashimoto, and Takeshi Iwatsubo
- 1481 **E2F1 Coregulates Cell Cycle Genes and Chromatin Components during the Transition of Oligodendrocyte Progenitors from Proliferation to Differentiation**
Laura Magri, Victoria A. Swiss, Beata Jablonska, Liang Lei, Xiomara Pedre, Martin Walsh, Weijia Zhang, Vittorio Gallo, Peter Canoll, and Patrizia Casaccia
- 1510 **A Novel Function for *Foxm1* in Interkinetic Nuclear Migration in the Developing Telencephalon and Anxiety-Related Behavior**
Xiaojing Wu, Xiaochun Gu, Xiaoning Han, Ailing Du, Yan Jiang, Xiaoyun Zhang, Yanjie Wang, Guangliang Cao, and Chunjie Zhao
- 1530 **Involvement of Bcl-2-Associated Transcription Factor 1 in the Differentiation of Early-Born Retinal Cells**
Gaël Orioux, Laura Picault, Amélie Slembrouck, Jérôme E. Roger, Xavier Guillonnet, José-Alain Sahel, Simon Saule, J. Peter McPherson, and Olivier Goureau

SYSTEMS/CIRCUITS

- 1195 **Active Dendrites Regulate Spectral Selectivity in Location-Dependent Spike Initiation Dynamics of Hippocampal Model Neurons**
Anindita Das and Rishikesh Narayanan
- 1234 **Dopamine-Modulated Recurrent Corticoefferent Feedback in Primary Sensory Cortex Promotes Detection of Behaviorally Relevant Stimuli**
Max F. K. Happel, Matthias Deliano, Juliane Handschuh, and Frank W. Ohl
- 1306 **Suboptimal Use of Neural Information in a Mammalian Auditory System**
Laurel H. Carney, Muhammad S. A. Zilany, Nicholas J. Huang, Kristina S. Abrams, and Fabio Idrobo
- 1314 **Short-Term Synaptic Depression Is Topographically Distributed in the Cochlear Nucleus of the Chicken**
Stefan N. Oline and R. Michael Burger
- 1344 **Rapid Dynamic Changes of Dendritic Inhibition in the Dentate Gyrus by Presynaptic Activity Patterns**
Yu-Chao Liu, Jen-Kun Cheng, and Cheng-Chang Lien
- 1432 **Functional Reorganization of a Prefrontal Cortical Network Mediating Consolidation of Trace Eyeblick Conditioning**
Shoai Hattori, Taejib Yoon, John F. Disterhoft, and Craig Weiss

BEHAVIORAL/COGNITIVE

- 1158 **Decoding the Dynamics of Action, Intention, and Error Detection for Conscious and Subliminal Stimuli**
Lucie Charles, Jean-Rémi King, and Stanislas Dehaene
- 1171 **Electroencephalography Correlates of Spatial Working Memory Deficits in Attention-Deficit/Hyperactivity Disorder: Vigilance, Encoding, and Maintenance**
Agatha Lenartowicz, Arnaud Delorme, Patricia D. Walshaw, Alex L. Cho, Robert M. Bilder, James J. McGough, James T. McCracken, Scott Makeig, and Sandra K. Loo
- 1183 **Active Vision in Marmosets: A Model System for Visual Neuroscience**
Jude F. Mitchell, John H. Reynolds, and Cory T. Miller
- 1212 **Vigor of Movements and the Cost of Time in Decision Making**
Jennie E. S. Choi, Pavan A. Vaswani, and Reza Shadmehr
- 1248 **Sensory Cortical Population Dynamics Uniquely Track Behavior across Learning and Extinction**
Anan Moran and Donald B. Katz
- 1271 **Reward-Related Activity in Ventral Striatum Is Action Contingent and Modulated by Behavioral Relevance**
Thomas H. B. FitzGerald, Philipp Schwartenbeck, and Raymond J. Dolan
- 1358 **δ -Opioid and Dopaminergic Processes in Accumbens Shell Modulate the Cholinergic Control of Predictive Learning and Choice**
Vincent Laurent, Jesus Bertran-Gonzalez, Billy C. Chieng, and Bernard W. Balleine
- 1380 **Reward Inference by Primate Prefrontal and Striatal Neurons**
Xiaochuan Pan, Hongwei Fan, Kosuke Sawa, Ichiro Tsuda, Minoru Tsukada, and Masamichi Sakagami
- 1397 **The Limits of Human Stereopsis in Space and Time**
David Kane, Phillip Guan, and Martin S. Banks

- 1523 **Hemispheric Asymmetry in Auditory Processing of Speech Envelope Modulations in Prereading Children**
Sophie Vanvooren, Hanne Poelmans, Michael Hofmann, Pol Ghesquière, and Jan Wouters
- 1554 **Temporal Windows in Visual Processing: “Prestimulus Brain State” and “Poststimulus Phase Reset” Segregate Visual Transients on Different Temporal Scales**
Andreas Wutz, Nathan Weisz, Christoph Braun, and David Melcher

NEUROBIOLOGY OF DISEASE

- 1094 **Ministrokes in Channelrhodopsin-2 Transgenic Mice Reveal Widespread Deficits in Motor Output Despite Maintenance of Cortical Neuronal Excitability**
Eitan Anenberg, Pamela Arstikaitis, Yoichi Niitsu, Thomas C. Harrison, Jamie D. Boyd, Brett J. Hilton, Wolfram Tetzlaff, and Timothy H. Murphy
- 1105 **Rapid Eye Movement Sleep and Hippocampal Theta Oscillations Precede Seizure Onset in the Tetanus Toxin Model of Temporal Lobe Epilepsy**
Madineh Sedigh-Sarvestani, Godfrey I. Thuku, Sridhar Sunderam, Anjum Parkar, Steven L. Weinstein, Steven J. Schiff, and Bruce J. Gluckman
- 1138 **Prefrontal Deficits in a Murine Model Overexpressing the Down Syndrome Candidate Gene *Dyrk1a***
Aurore Thomazeau, Olivier Lassalle, Jillian Iafrazi, Benoit Souchet, Fayçal Guedj, Nathalie Janel, Pascale Chavis, Jean Delabar, and Olivier J. Manzoni
- 1293 **The Regulation of Autophagosome Dynamics by Huntingtin and HAP1 Is Disrupted by Expression of Mutant Huntingtin, Leading to Defective Cargo Degradation**
Yvette C. Wong and Erika L. F. Holzbaur
- 1409 **Propagation of Epileptiform Activity Can Be Independent of Synaptic Transmission, Gap Junctions, or Diffusion and Is Consistent with Electrical Field Transmission**
Mingming Zhang, Thomas P. Ladas, Chen Qiu, Rajat S. Shivacharan, Luis E. Gonzalez-Reyes, and Dominique M. Durand
- 1420 **Cell Type-Specific Expression Analysis to Identify Putative Cellular Mechanisms for Neurogenetic Disorders**
Xiaoxiao Xu, Alan B. Wells, David R. O'Brien, Arye Nehorai, and Joseph D. Dougherty

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).

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.