

# JNeurosci

THE JOURNAL OF NEUROSCIENCE

January 2, 2019 • Volume 39 Number 1 • www.jneurosci.org



**Cover legend:** This image shows superposed axonal reconstructions of the four interneuron populations found in mouse neocortical layer 1: canopy cells (orange), neurogliaform cells (green), a7 cells (purple), and VIP cells (blue). For more information, see the article by Schuman et al. (pages 125–139).

## i This Week in The Journal

### Editorial

- 1 **Considerations for Experimental Design of Behavioral Studies Using Model Organisms**

### Viewpoints

- 3 **The Cognitive Thalamus as a Gateway to Mental Representations**  
Mathieu Wolff and Seralynne D. Vann

### Journal Club

- 15 **Nodal Dynamics after *In Vivo* Rescue of  $\beta$ IV Spectrin Expression**  
Clara Maria Bacmeister and Michael Andrew Thornton

### Research Articles

#### CELLULAR/MOLECULAR

- 18 **An Alternative Exon of CAPS2 Influences Catecholamine Loading into LDCVs of Chromaffin Cells**  
Olga Ratai, Claudia Schirra, Elvin Rajabov, Irene Brunk, Gudrun Ahnert-Hilger, Praneeth Chitirala, Ute Becherer, David R. Stevens, and Jens Rettig
- 28 **Voltage-Independent SK-Channel Dysfunction Causes Neuronal Hyperexcitability in the Hippocampus of *Fmr1* Knock-Out Mice**  
Pan-Yue Deng, Dan Carlin, Young Mi Oh, Leila K. Myrick, Stephen T. Warren, Valeria Cavalli, and Vitaly A. Klyachko
- 44 **The Transcriptional Regulator SnoN Promotes the Proliferation of Cerebellar Granule Neuron Precursors in the Postnatal Mouse Brain**  
Xiaoying Chen, Ayan Chanda, Yoshiho Ikeuchi, Xiaoqing Zhang, Jared V. Goodman, Naveen C. Reddy, Shahriyar P. Majidi, Dennis Y. Wu, Sarah E. Smith, Abigail Godec, Anna Oldenborg, Harrison W. Gabel, Guoyan Zhao, Shirin Bonni, and Azad Bonni

#### DEVELOPMENT/PLASTICITY/REPAIR

- 63 **Glial Sulfatides and Neuronal Complex Gangliosides Are Functionally Interdependent in Maintaining Myelinating Axon Integrity**  
Rhona McGonigal, Jennifer A. Barrie, Denggao Yao, Mark McLaughlin, Madeleine E. Cunningham, Edward G. Rowan, and Hugh J. Willison

## SYSTEMS/CIRCUITS

- 78 **Molecular Fingerprinting of On–Off Direction-Selective Retinal Ganglion Cells Across Species and Relevance to Primate Visual Circuits**  
Onkar S. Dhande, Benjamin K. Stafford, Katrin Franke, Rana El-Danaf, Kumiko A. Percival, Ann H. Phan, Peichao Li, Bryan J. Hansen, Phong L. Nguyen, Philipp Berens, W. Rowland Taylor, Edward Callaway, Thomas Euler, and Andrew D. Huberman
- 96 **Structure, Activity and Function of a Singing CPG Interneuron Controlling Cricket Species-Specific Acoustic Signaling**  
Pedro F. Jacob and Berthold Hedwig
- 112 **The Transfer Characteristics of Hair Cells Encoding Mechanical Stimuli in the Lateral Line of Zebrafish**  
Paul Pichler and Leon Lagnado
- 125 **Four Unique Interneuron Populations Reside in Neocortical Layer 1**  
Benjamin Schuman, Robert P. Machold, Yoshiko Hashikawa, János Fuzik, Gord J. Fishell, and Bernardo Rudy

## BEHAVIORAL/COGNITIVE

- 140 **The Social Brain Automatically Predicts Others' Future Mental States**  
Mark A. Thornton, Miriam E. Weaverdyck, and Diana I. Tamir
- 149 **The Relationship between Age, Neural Differentiation, and Memory Performance**  
Joshua D. Koen, Nedra Hauck, and Michael D. Rugg
- 163 **Computing Value from Quality and Quantity in Human Decision-Making**  
Archy O. de Berker, Zeb Kurth-Nelson, Robb B. Rutledge, Sven Bestmann, and Raymond J. Dolan

## NEUROBIOLOGY OF DISEASE

- 177 **CTCF Governs the Identity and Migration of MGE-Derived Cortical Interneurons**  
Adrienne Elbert, Daniel Vogt, Ashley Watson, Michael Levy, Yan Jiang, Emilie Brûlé, Megan E. Rowland, John Rubenstein, and Nathalie G. Bérubé

---

Persons interested in becoming members of the Society for Neuroscience should contact the Membership Department at [membership@sfn.org](mailto:membership@sfn.org) or 202-962-4911.

For current submission policies and manuscript preparation guidelines, authors should refer to our Information for Authors at <http://www.jneurosci.org/content/information-authors>.

Manuscripts should be submitted online at <http://jneurosci.msubmit.net>. Please contact the Central Office with any questions at [jn@sfn.org](mailto:jn@sfn.org) or 202-962-4000.