

# JN Neurosci

THE JOURNAL OF NEUROSCIENCE

## EDITOR-IN-CHIEF

Marina Picciotto

## SENIOR EDITORS

Greg DeAngelis  
Paul J. Kenny  
Jeanne Nerbonne  
David Perkel  
Dan H. Sanes  
Ruth S. Slack  
Ivan Toni  
Catherine S. Woolley

## REVIEWING EDITORS

Jose Manuel Alonso  
Bruno Averbeck  
Anne Baron-Van Evercooren  
James Bisley  
Roshan Cools  
Jonathan Demb  
Ruth Anne Eatock  
Paul Frankland  
Fabrizio Gabbiani  
Miriam B. Goodman  
Jay A. Gottfried  
Richard Henson  
Jenny Hsieh  
Patricia Janak  
Artur Kania  
Ege T. Kavalali  
Christoph Kayser  
Jon D. Levine  
Mark P. Mattson  
BethAnn McLaughlin  
Gavan McNally  
Pieter Medendorp  
Suzanne M. Moenter  
Jonas Obleser  
Hans Op de Beeck  
Takeshi Sakurai  
Kevin J. Staley  
Jane M. Sullivan

## ASSOCIATE EDITORS

Woo-Young Ahn  
Bernard Balleine  
Tallie Z. Baram  
Diana Bautista  
Michael Beauchamp  
Til Ole Bergmann  
H. Tad Blair  
Donna Calu  
Jianhua Cang  
Yu-Qing Cao  
Manuel Castro-Alamancos  
Joseph F. Cheer  
Marlene Cohen  
Bevil Conway  
Floris de Lange  
Mauricio R. Delgado  
Hanneke den Ouden  
Mingzhou Ding  
Joseph El Khoury  
Abdeljabbar El Manira  
James Fawcett  
Lesley K. Fellows  
Alfredo Fontanini  
Alex Fornito  
Christie D. Fowler  
Michael J. Frank  
Jack Gallant  
Jonathan Godbout  
Shannon Gourley  
Christina Gremel  
Saskia Haegens  
Simon Hanslmayr  
Matthew R. Hayes

Biyu He  
Jens-Max Hopf  
Ru-Rong Ji  
Sheena A. Josselyn  
Thorsten Kahnt  
Baljit Khakh  
Hackjin Kim  
Marlies Knipper  
Conny Kopp-Scheinpflug  
Rohini Kuner  
Mark Laubach  
Michael S. Levine  
Ifat Levy  
Andrew Lieberman  
Angelika Lingnau  
Mary Kay Lobo  
David M. Lovinger  
Qiufu Ma  
Arianna Maffei  
Lori McMahon  
Hugo Merchant  
Courtney Miller  
Marisela Morales  
Maria Concetta Morrone  
Gabe Murphy  
Timothy H. Murphy  
John Murray  
Vishnu Murty  
Maiken Nedergaard  
Bernd Nilius  
John O'Doherty  
Christopher Pack  
Luiz Pessoa  
Gina R. Poe  
Gabriela Popescu  
Lucas Pozzo-Miller  
Theodore Price  
Antonio Rangel  
Margaret E. Rice  
Erik D. Roberson  
Edward S. Ruthazer  
Jorg B. Schulz  
Hyojung Seo  
Barry Setlow  
Wayne S. Sossin  
William C. Stacey  
Thomas A. Stalnaker  
Carla Tavecchia  
Gregor Thut  
Philippe N. Tobler  
Kuei Y. Tseng  
Matthijs van der Meer  
Rufin VanRullen  
Timothy J. Vickery  
Rufin Vogels  
Henrique Von Gersdorff  
Kate Wassum  
Nicole Wenderoth  
Donna M. Wilcock  
Catharine Antonia Winstanley  
Teresa L. Wood  
Lawrence Wrabetz  
Ulf Ziemann

## FEATURES EDITOR

Teresa Esch

## EDITORIAL STAFF

Suzanne Rosenzweig  
Kelly Newton  
Blythe Alexander  
Adam Buck  
Zachary Dourafei  
Vicente Carmona  
Mary Collins  
Lesley Hillis  
Eric Hoffmaster  
Kara O'Leary

*The Journal of Neuroscience* (ISSN-0270-6474) is an official journal of the Society for Neuroscience, 1121 14th Street, NW, Suite 1010, Washington, DC 20005. It is published weekly by the Society, fifty weeks a year, one volume a year.

**Subscriptions** are on a volume basis beginning with the January 2 issue. The Volume 39 (2019) Institutional subscription rates are available online at <http://jneurosci.org/content/subscriptions/cost>. Single copies for the U.S. are \$120. Institutional subscribers should direct subscription orders, back issue requests, claims, and changes of address to *The Journal of Neuroscience*, Subscription Services, 1121 14th St., NW, Suite 1010, Washington, DC 20005, [subscriptions@sfn.org](mailto:subscriptions@sfn.org). Claims will be honored if received within four (4) months of the month of issue. A maximum of three (3) single-issue claims will be honored per volume per subscriber. Society for Neuroscience members interested in subscribing to *The Journal of Neuroscience* at a reduced rate should contact the Society's Membership Department (phone 202-962-4911, [membership@sfn.org](mailto:membership@sfn.org)). Society members should also direct back issue requests to [subscriptions@sfn.org](mailto:subscriptions@sfn.org).

**Advertising** inquiries should be addressed to The Society for Neuroscience, 1121 14th St., NW, Suite 1010, Washington, DC 20005, phone 202-962-4000, [adsales@sfn.org](mailto:adsales@sfn.org).

**Reprints** of a single copy of an individual article are available from Infotrieve at <http://www.infotrieve.com>.

**Photocopies:** *The Journal of Neuroscience* is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. Authorization to photocopy items for the internal or personal use of specific clients is granted by the Society for Neuroscience provided that the copier pay to the Center the \$15 copy fee stated in the code on the first page of each article. Special requests, such as for general distribution, resale, advertising, and promotional purposes or for creating new works, should be directed to Journal Permissions, Society for Neuroscience, 1121 14th St., NW, Suite 1010, Washington, DC 20005, [jnpermissions@sfn.org](mailto:jnpermissions@sfn.org).

**Postmaster:** Send address changes to *The Journal of Neuroscience*, Society for Neuroscience Membership Department, 1121 14th St., NW, Suite 1010, Washington, DC 20005. Periodicals postage paid at Washington, DC, and additional mailing offices. Canada Post International Publications Mail (Canadian Distribution) Sales Agreement No. 0895369. *The Journal of Neuroscience* is indexed by BIOSIS, Chemical Abstracts, Current Contents, EMBASE/Excerpta Medica, Index Medicus/Medline, PubMed, PubMed Central, and PsycINFO. © *The Journal of Neuroscience* is printed on acid-free paper that meets the minimum requirements of ANSI Standard Z39.48-1984 (Permanence of Paper). Copyright © 2019 Society for Neuroscience. All rights reserved.

The ideas and opinions expressed in *The Journal of Neuroscience* do not necessarily reflect those of the Society for Neuroscience or the Editors of *The Journal of Neuroscience*. Publication of an advertisement or other product mention in *The Journal of Neuroscience* should not be construed as an endorsement of the manufacturer's claims. The Society for Neuroscience does not assume any responsibility for any injury and/or damage to persons or property arising from or related to any use of any material contained in *The Journal of Neuroscience*.