

# The Journal of Pharmacology and Experimental Therapeutics

A Publication of the American Society for Pharmacology and Experimental Therapeutics

Founded by John J. Abel - 1908

**Beverley Greenwood-Van Meerveld** *Editor*

**Joe Blumer** *Minireviews Editor*

## ASSOCIATE EDITORS

Michael Frohman  
James Gallo  
Yuichi Hattori

Lawrence H. Lash  
Roberto Levi

Gary O. Rankin  
Kent Vrana

Raymond J. Winquist  
Susan K. Wood

## EDITORIAL ADVISORY BOARD

Geoffrey W. Abbott  
Thomas J. Abbruscato  
François Alhenc-Gelas  
Bradley T. Andresen  
Thomas M. Argentieri  
John Auchampach  
Jack Bergman  
Andrea Cignarella  
Gregory T. Collins

Ann Daly  
Piyali Dasgupta  
Annarita Di Lorenzo  
Frederick J. Ehlert  
Steven J. Feinmark  
Stephen F. Flaim  
Hiroyuki Fukui  
Eric R. Gross  
Paul Heerdt

James K. Hennan  
Edwin K. Jackson  
Emily M. Jutkiewicz  
Mark R. Kelley  
Lewis B. Kinter  
M.N.V. Ravi Kumar  
Giorgio Minotti  
Daniel J. Morgan  
Mahmood S. Mozaffari

Nazareno Paolucci  
Andreas Papapetropoulos  
D. Samba Reddy  
Gaetano Santulli  
Roger D. Spealman  
David A. Taylor  
Sandra P. Welch  
Jack Yalowich

## PUBLICATIONS COMMITTEE

Laura Bohn, Lynette Daws, Xinxin Ding, Beverley Greenwood-Van Meerveld, Michael F. Jarvis, J. Steven Leeder, Adriano Marchese, Kathryn E. Meier, Gary O. Rankin, Susan Wood, and Mohamed Ghonim, *ex officio Young Scientist Representative*

**ASPET EXECUTIVE OFFICER:** Dave Jackson

*Publications Director:* Maria Pasho *Sr. Journal Operations Manager:* Jacqueline Perry

**The Journal of Pharmacology and Experimental Therapeutics** (ISSN 1521-0103) is published monthly online only by the American Society for Pharmacology and Experimental Therapeutics, 1801 Rockville Pike, Suite 210, Rockville, MD 20852-1633. E-mail: [subscriptions@aspet.org](mailto:subscriptions@aspet.org). ASPET web site: [aspet.org](http://aspet.org). Journal web site: [jpet.aspetjournals.org](http://jpet.aspetjournals.org). Subscription rates at [aspet-journals.org/site/subscriptions/index.xhtml](http://aspet-journals.org/site/subscriptions/index.xhtml). GST Tax Number for Canadian subscribers: BN:13489 2330 RT.

**Indexed or abstracted by:** *Biochemistry & Biophysics Citation Index*®, *Biological Abstracts*, *BIOSIS Previews Database*, *Bio-Sciences Information Services*, *Current Awareness in Biological Sciences*, *Current Contents*®/*Life Sciences*, *EMBASE/Excerpta Medica*, *Index Medicus*, *Medical Documentation Service*®, *PsycINFO*, *Reference Update*®, *Research Alerts*®, *Science Citation Index*®, *SciSearch*®, and *SIIC Data Bases*.

**Journal and ASPET office:** 1801 Rockville Pike, Suite 210, Rockville, MD 20852-1633. Telephone: 301-634-7060. Fax: 301-634-7061. E-mail: [info@aspet.org](mailto:info@aspet.org). ASPET web site: [aspet.org](http://aspet.org). Journal web site: [jpet.aspetjournals.org](http://jpet.aspetjournals.org).

**Editorial matters** should be addressed to Dr. Beverley Greenwood-Van Meerveld, Editor, *The Journal of Pharmacology and Experimental Therapeutics*, at the above address.

**Instructions to Authors:** See [jpet.aspetjournals.org](http://jpet.aspetjournals.org) for the Instructions to Authors and information on ASPET Authorship Responsibility, Financial Disclosure, and Chemical Structure policies.

**Subscriptions:** Contact the ASPET Subscriptions Dept., 1801 Rockville Pike, Suite 210, Rockville, MD 20852-1633. Telephone: 301-634-7782. Fax: 301-634-7061. E-mail: [subscriptions@aspet.org](mailto:subscriptions@aspet.org). See [aspetjournals.org/site/subscriptions/index.xhtml](http://aspetjournals.org/site/subscriptions/index.xhtml) for rates.

**Change of IP addresses:** ASPET will help institutional subscription administrators update IP address ranges as requested. Subscription administrators

can make these changes at the journal site using their account user name and password.

**Reprints of individual articles** are available from the journal web site using the pay-per-view option for nonsubscribers.

**Reprints in large quantities** for commercial or academic use may be purchased from ASPET. For information and prices, call 301-634-7063.

**Copyright information:** *The Journal of Pharmacology and Experimental Therapeutics* is copyrighted by the American Society for Pharmacology and Experimental Therapeutics. All permissions requests are processed through the Copyright Clearance Center (CCC), Inc. at <https://www.copyright.com/get-permissions>. Photocopying or printing articles beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law is allowed, provided that the \$35.00-per-copy fee is paid through the CCC. Classroom photocopying is permitted at no fee, provided that students are not charged more than the cost of duplication. This consent does not extend to other kinds of copying. Reproduction of any portion of an article for subsequent republication requires permission of ASPET.

**Disclaimer:** The statements and opinions contained in the articles of *The Journal of Pharmacology and Experimental Therapeutics* are solely those of the individual authors and contributors and not of the American Society for Pharmacology and Experimental Therapeutics. The appearance of advertisements in the journal is not a warranty, endorsement, or approval of the products or their safety. The American Society for Pharmacology and Experimental Therapeutics disclaims responsibility for any injury to persons or property resulting from any ideas or products referred to in any article or advertisement.

**Copyright** © 2022 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved.