

# The Journal of Pharmacology and Experimental Therapeutics

A Publication of the American Society for Pharmacology and Experimental Therapeutics

Founded by John J. Abel - 1908

**Kenneth D. Tew** *Editor*  
**Joe Blumer**, *Minireviews Editor*

## ASSOCIATE EDITORS

Salvatore Cuzzocrea	Yuichi Hattori	Roberto Levi	Kent Vrana
Michael Frohman	John Hayes	Gerard Marek	Raymond J. Winquist
James Gallo	Lawrence H. Lash	Gary O. Rankin	Susan K. Wood

## EDITORIAL ADVISORY BOARD

Geoffrey W. Abbott	Mark J. Crabtree	Eric R. Gross	Mahmood S. Mozaffari
Thomas J. Abbruscato	Ann Daly	Paul Heerdt	S. Jamal Mustafa
François Alhenc-Gelas	Piyali Dasgupta	James K. Hennen	Nazareno Paolucci
Bradley T. Andresen	Annarita Di Lorenzo	Edwin K. Jackson	Andreas Papapetropoulos
Thomas M. Argentieri	Frederick J. Ehler	Mark R. Kelley	Roger D. Spealman
John Auchampach	Steven J. Feinmark	Lewis B. Kinter	David A. Taylor
Jack Bergman	Stephen F. Flaim	M.N.V. Ravi Kumar	Sandra P. Welch
Andrea Cignarella	Hiroyuki Fukui	Giorgio Minotti	Jack Yalowich
			Bryan K. Yamamoto

## BOARD OF PUBLICATIONS TRUSTEES

Emily E. Scott, *Chair*; Eric L. Barker, Jack Bergman, Lynette Daws, Beverley Greenwood-Van Meerveld, Michael F. Jarvis, J. Steven Leeder, Kathryn E. Meier, Gary O. Rankin, Jeffrey C. Stevens, Kenneth D. Tew, Judith A. Siuciak, *ex officio*; and Joseph Jilek, *ex officio Young Scientist Representative*

**ASPET EXECUTIVE OFFICER:** Judith A. Siuciak

*Journals Director:* Richard Dodenhoff *Peer Review Manager:* Jacqueline Perry *Senior Peer Review Coordinator:* Cassie Wood

**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. Kenneth Tew, 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 the ASPET Authorship Responsibility, Financial Disclosure, and Chemical Structure Statement forms.

**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. For permission to photocopy entire articles from *The Journal of Pharmacology and Experimental Therapeutics*, see [www.copyright.com](http://www.copyright.com) or contact the Copyright Clearance Center (CCC), Inc., 222 Rosewood Dr., Danvers, MA 01923. Telephone: 978-750-8400. For permission to reprint portions of articles such as figures and tables or to reprint entire articles in a thesis or dissertation, see <https://www.aspet.org/aspetjournals/journals-information/permissions-request>. 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** © 2019 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved.