

# DRUG METABOLISM AND DISPOSITION

A Publication of the American Society for Pharmacology and Experimental Therapeutics

Founded by Kenneth C. Leibman—1973

**Edward T. Morgan, Editor**

## ASSOCIATE EDITORS

Wayne L. Backes, Deepak K. Dalvie, Xinxin Ding, Chantal Guillemette, Nina Isoherranen, Laurence S. Kaminsky, J. Steven Leeder, Mary Paine, John D. Schuetz, Bill J. Smith, Jeffrey C. Stevens, Peter W. Swaan, Donald J. Tweedie, and Steven A. Wrighton

## SCIENTIFIC ADVISORY BOARD

M.W. Anders, Minor J. Coon, Frederick P. Guengerich, James R. Halpert, Eric F. Johnson, Anthony Y. Lu, Bettie Sue Masters, and Paul R. Ortiz De Montellano

## EDITORIAL BOARD MEMBERS

|                     |                       |                          |                         |                      |
|---------------------|-----------------------|--------------------------|-------------------------|----------------------|
| Lauren Aleksunes    | Uwe Christians        | Magnus Ingelman-Sundberg | Lois D. Lehman-McKeeman | John Gregory Slatter |
| Shelby Anderson     | William J. Ehlhardt   | Philip B. Inskip         | Xingrong Liu            | Jeffrey Staudinger   |
| Tommy B. Andersson  | Raymond Evers         | Margaret O. James        | Peter Ian Mackenzie     | Bruno Stieger        |
| Pieter P.J. Annaert | Moshe Finel           | Jeffrey P. Jones         | Don Mager               | Craig Svensson       |
| Pavel Anzenbacher   | Michael B. Fisher     | Amit S. Kalgutkar        | Qingcheng Mao           | Yun K. Tam           |
| Upendra Argikar     | Robert Foti           | Richard Kim              | Swati Nagar             | Mitchell E. Taub     |
| Thomas Baillie      | Bruno Hagenbuch       | Thomas Kocarek           | R. Scott Obach          | Ronald E. White      |
| Namandje Bumpus     | Robert Hanzlik        | Thomas Kocarek           | K. Sandy Pang           | Larry C. Wienkers    |
| Michael Cameron     | Kathleen Hillgren     | Dennis R. Koop           | Anna Radominska-Pandya  | Paul Wissel          |
| Thomas K.H. Chang   | Ronald N. Hines       | Wojciech Krzyzanski      | Allan Rettie            | Wen Xie              |
| Cuiping Chen        | Paul F. Hollenberg    | Hiroyuki Kusuvara        | David S. Riddick        | Aiming Yu            |
| Nathan Cherrington  | J. Brian Houston      | Lawrence H. Lash         | Melissa Runge-Morris    | Su Zeng              |
| Arthur K. Cho       | Min Huang             |                          | Emily E. Scott          | Donglu Zhang         |
| David D. Christ     | W. Griffith Humphreys |                          |                         | Xiao-bo Zhong        |

## BOARD OF PUBLICATIONS TRUSTEES

Mary Vore, *Chair*; Randy A. Hall, Michael F. Jarvis, Kathryn E. Meier, Edward T. Morgan, Kim A. Neve, David R. Sibley, Stephen F. Traynelis, Jeffrey M. Witkin, and Judith A. Siuciak, *ex officio*

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

*Journals Director:* Richard Dodenhoff

*Peer Review Manager:* Dianne King-McGavin

*Editorial Coordinator:* Mary Blackwood

*Drug Metabolism and Disposition* (ISSN 1521-009X) is published monthly (one volume per year) online only by the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20814-3995. E-mail: [subscriptions@aspet.org](mailto:subscriptions@aspet.org). ASPET web site: [aspet.org](http://aspet.org). Journal web site: [dmd.aspetjournals.org](http://dmd.aspetjournals.org). Subscription rates at [aspetjournals.org/site/subscriptions/index.xhtml](http://aspetjournals.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*, *International Pharmaceutical Abstracts*, *Medical Documentation Service*®, *Reference Update*®, *Research Alerts*®, *Science Citation Index*®, *SciSearch*®, and *SIIC Data Bases*.

**Journal and ASPET office:** 9650 Rockville Pike, Bethesda, MD 20814-3995. 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: [dmd.aspetjournals.org](http://dmd.aspetjournals.org).

**Editorial matters** should be addressed to Dr. Edward T. Morgan, Editor, *Drug Metabolism and Disposition*, at the above address.

**Instructions to Authors:** See [dmd.aspetjournals.org](http://dmd.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., 9650 Rockville Pike, Bethesda, MD 20814-3995. 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:** *Drug Metabolism and Disposition* is copyrighted by the American Society for Pharmacology and Experimental Therapeutics. For permission to photocopy entire articles from *Drug Metabolism and Disposition*, 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 [www.aspet.org/webforms.aspx?ekfm=84](http://www.aspet.org/webforms.aspx?ekfm=84). Photocopying or printing articles beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law is allowed, provided that the \$25.00-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 *Drug Metabolism and Disposition* 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** © 2014 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved.