



# *Molecular & Cellular* **PROTEOMICS**

PUBLISHED BY THE AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY, INC.

## **Co-editors**

Ralph A. Bradshaw  
University of California, San Francisco

Alma L. Burlingame  
University of California, San Francisco

## **Associate Editors**

Ruedi Aebersold, Institute for Molecular Systems Biology, Federal Institute of Technology (ETH) Zürich, Faculty of Natural Sciences, University of Zürich, Zürich and Institute for Systems Biology, Seattle

Patricia C. Babbitt, University of California, San Francisco

Steven A. Carr, Broad Institute, Cambridge

Julio E. Celis, Institute of Cancer Biology and DCTB, Copenhagen

Raymond J. Deshaies, HHMI, California Institute of Technology, Pasadena

Kevan Shokat, HHMI, University of California, San Francisco

## **Editorial Board Members**

Natalie G. Ahn  
Leigh Anderson  
Roland S. Annan  
Terri Attwood  
Ronald Beavis  
John J. M. Bergeron  
Matthew Bogoy  
Nils Brunner  
Vern Carruthers  
Robert Chalkley  
Andrew Chantry  
Jyoti Choudhary  
Karl R. Clauser  
Catherine Costello  
Pamela F. Crain  
Craig M. Crews  
James De Voss  
Michel Desjardins  
Norman J. Dovichi  
Ian Fearnley  
Stanley Fields  
Bruce Futcher  
Jerome Garin  
Simon J. Gaskell  
Anne-Claude Gavin  
Robert L. Geahlen  
Brad W. Gibson  
Jeffrey J. Gorman  
Gerald W. Hart  
Fuchu He

Albert J. R. Heck  
Preston Hensley  
Hubert Hondermarck  
Lan Huang  
Ian J. Jacobs  
Ole N. Jensen  
Dominique Job  
Richard Johnson  
Peter Juhasz  
Eugene A. Kapp  
Barry Karger  
Karl-Anders Karlsson  
Randall Wharton King  
Elizabeth A. Komives  
Jeff Kowalak  
John W. Kozarich  
Bernhard Küster  
Rick Lathrop  
Hakon Leffler  
Kathryn S. Lilley  
Matthias Mann  
Katalin F. Medzihradzsky  
Jeremy Minshull  
Judith Murray-Rust  
Takemichi Nakamura  
Tom Neubert  
Ann L. Oberg  
Torben Ørntoft  
Darrell Pappin  
Peter J. Parker

Eric M. Phizicky  
Thierry Rabilloud  
Carol V. Robinson  
David Rocke  
Peter Roepstorff  
Andrej Sali  
Andrej Shevchenko  
Kai Simons  
A. Ian Smith  
Michael Snyder  
Kenneth G. Standing  
John Stults  
Shankar Subramaniam  
Marc E. Surette  
Pierre Thibault  
Mike Tyers  
Alain Van Dorsselaer  
Jan Van Oostrum  
Klaas Van Wijk  
Marc Vidal  
Kenneth W. Walker  
Michael Waterfield  
Anthony Whetton  
Julian P. Whitelegge  
Jiarui Wu  
Michael B. Yaffe  
Rong Zeng  
Roman A. Zubarev

## **Editorial Consultant**

David Eisenberg

## Editorial Office

Barbara Gordon, *Executive Director*  
Nancy J. Rodnan, *Director of Publications*  
American Society for Biochemistry and  
Molecular Biology  
9650 Rockville Pike  
Bethesda, MD 20814-3996  
Phone: 301-634-7145  
Fax: 301-634-7126  
E-mail: [mcp@asbmb.org](mailto:mcp@asbmb.org)

## Office of the Co-editor

Erin A. Schalles, *Manager*  
University of California, Irvine  
Department of Physiology and Biophysics  
346-D Medical Science I  
Irvine, CA 92697-4560  
Phone: 949-824-7173 Fax: 949-824-8036  
E-mail: [eschalles@asbmb.org](mailto:eschalles@asbmb.org)

## Office of the Co-editor

Candy Stoner, *Manager*  
University of California, San Francisco  
Department of Pharmaceutical Chemistry  
San Francisco, CA 94143-0446  
Phone: 415-476-5641  
Fax: 415-476-0688  
E-mail: [cstoner@asbmb.org](mailto:cstoner@asbmb.org)

## Data Set Advisory Committee

Patricia C. Babbitt (Chair)  
University of California, San Francisco  
[babbitt@cgl.ucsf.edu](mailto:babbitt@cgl.ucsf.edu)  
Kenneth H. Buetow  
NCI Center for Bioinformatics, NIH, Rockville  
Karl Clauser  
Millennium Pharmaceuticals, Cambridge  
David J. Erle  
University of California, San Francisco  
Christine Hoogland  
Swiss Institute of Bioinformatics, Geneva  
Christopher Hogue  
Samuel Lunenfeld Research Institute, Toronto  
Kenneth C. Parker  
Applied BioSystems, Framingham

## Clinical Proteomics Advisory Committee

Julio E. Celis (Chair)  
Institute of Cancer Biology and DCTB, Copenhagen  
[jec@cancer.dk](mailto:jec@cancer.dk)  
John A. Kessler  
Northwestern University, Chicago  
Murray Korc  
University of California, Irvine  
Jeffrey S. Ross  
Millennium Pharmaceuticals, Cambridge  
Richard J. Havel  
University of California, San Francisco  
Nils Br nner  
Royal Veterinary and Agriculture University, Frederiksberg

## GENERAL INFORMATION

This publication is available on-line at <http://www.mcponline.org>. Inquire about availability through your subscription agent or contact: MOLECULAR & CELLULAR PROTEOMICS, P.O. Box 830399, Birmingham, AL 35283-0399, U.S.A., Phone: 800-633-4931 or 205-995-1567, Fax: 205-995-1588.

Submit all manuscripts via the web to: [www.mcponline.org/submit](http://www.mcponline.org/submit). All correspondence should be addressed to:

**Editor, Molecular & Cellular Proteomics**  
9650 Rockville Pike  
Bethesda, MD 20814, U.S.A.

Accepted manuscripts will be published with the implicit understanding that the author(s) will pay a \$65 charge per page. Under exceptional circumstances, when no source of grant or other support exists, the author(s) may apply, at the time of submission, for a grant-in-aid to Chairman, Publications Committee, American Society for Biochemistry and Molecular Biology, Inc., 9650 Rockville Pike, Bethesda, MD 20814. All such applications must be countersigned by an appropriate institutional official stating that no funds are available for page charges.

Queries on matters of general editorial policy should be directed to the Journal Editorial Office in Bethesda, telephone 301-634-7150; fax 301-634-7126; E-mail [mcp@asbmb.org](mailto:mcp@asbmb.org). *Molecular & Cellular Proteomics* publishes papers on a broad range of topics of interest to scientists working in the field of proteomics. The views expressed are those of the author(s) and not of *Molecular & Cellular Proteomics* or the American Society for Biochemistry and Molecular Biology.

*Molecular & Cellular Proteomics* is copyrighted by the American Society for Biochemistry and Molecular Biology, Inc. ASBMB grants use without requiring your copyright permission request for: original authors wanting to reproduce up to two figures or tables from their own work to publish in not-for-profit formats or venues, provided that full acknowl-

edgment of the source is provided in the new work. For all other permissions to photocopy or use material electronically from *Molecular & Cellular Proteomics*, ISSN 1535-9476, please access [www.copyright.com](http://www.copyright.com) or contact Copyright Clearance Center, Inc. (CCC) 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of users.

*Molecular & Cellular Proteomics* (ISSN 1535-9476) is published monthly by the American Society for Biochemistry and Molecular Biology, 9650 Rockville Pike, Bethesda, MD 20814. **2008 Institutional Subscription Rates & Information (volume 7):** United States \$500 (print), \$780 (online), \$1,280 (print + online); Canada \$583 (print), \$780 (online), \$1,363 (print + online); International \$553 (print), \$780 (online), \$1,333 (print + online). Institutional rates are for single site only. For multi-site quotes please contact ASBMB at [subscriptions@asbmb.org](mailto:subscriptions@asbmb.org). Address all correspondence and subscription orders to *Molecular & Cellular Proteomics*, P.O. Box 830399, Birmingham, AL 35283-0399, phone 800-633-4931 or 205-995-1567. Subscriptions are entered on a calendar year basis only. Allow at least six weeks for address changes. Claims for replacement copies must be received within three months of the issue date. For additional subscription information please visit our website at [www.mcponline.org](http://www.mcponline.org).

Maryland residents must add 5% sales tax on print subscriptions unless a tax-exempt certificate number is provided. Canada print rates include 6% GST; if you are tax-exempt, please include a copy of the Sales Tax Exemption Certificate with your order. The GST number for Canadian subscribers is 13037 0018 RT. C.P.C Int'l Pub Mail #0060119. Periodicals postage paid at Bethesda, MD 20814 and at additional mailing offices. Printed in the USA. POSTMASTER: send address changes to *Molecular & Cellular Proteomics* at P.O. Box 830399, Birmingham, AL 35283-0399.