

# Journal of Cellular Biochemistry

## EXECUTIVE EDITORS

In the United States: **C. Fred Fox** • Department of Microbiology and Molecular Genetics, University of California, Los Angeles, CA 90024-1489

**Gary S. Stein** • Department of Cell Biology, University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, MA 01655

In Europe: **Max M. Burger** • Friedrich-Miescher Institut, Postfach 2543, CH-4002 Basel, Switzerland

## FIELD EDITORS

**Garth L. Nicolson** • Department of Tumor Biology (108), MD Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030

**W. Jackson Pledger** • Department of Cell Biology, Vanderbilt University School of Medicine, Nashville, TN 37232

**James Watson** • Department of Pathology, University of Auckland School of Medicine, Auckland, New Zealand

## EDITORIAL BOARD

**Jorge E. Allende**  
Universidad de Chile  
Santiago, Chile

**Richard G.W. Anderson**  
University of Texas Health Science Center  
Dallas, TX

**J. Bar-Tana**  
The Hebrew University  
Jerusalem, Israel

**Mina J. Bissell**  
Lawrence Berkeley Laboratory  
Berkeley, CA

**Rodrigo Bravo**  
Bristol-Myers Squibb  
Princeton, NJ

**Judith Campisi**  
Boston University Medical School  
Boston, MA

**Kermit L. Carraway**  
University of Miami School of Medicine  
Miami, FL

**Moses V. Chao**  
Cornell Medical School  
New York, NY

**Richard A. Clark**  
State University of New York at Stony Brook  
Health Science Center  
Stony Brook, NY

**David R. Clemmons**  
University of North Carolina  
Chapel Hill, NC

**Carl M. Cohen**  
St Elizabeth's Hospital  
Boston, MA

**Dennis D. Cunningham**  
University of California  
Irvine, CA

**Michael P. Czech**  
University of Massachusetts Medical Center  
Worcester, MA

**Benoit De Crombrughe**  
University of Texas  
M.D. Anderson Cancer Center  
Houston, TX

**Pierre De Meyts**  
Hagedorn Research Laboratory  
Gentofte, Denmark

**Edward A. Dennis**  
University of California-San Diego  
La Jolla, CA

**Edward M. De Robertis**  
University of California  
Los Angeles, CA

**Rik Derynck**  
University of California  
San Francisco, CA

**William N. Drohan**  
American Red Cross  
Rockville, MD

**John H. Elder**  
Research Foundation of Scripps Clinic  
La Jolla, CA

**Charles H. Evans**  
National Cancer Institute  
National Institutes of Health  
Bethesda, MD

**Gerald D. Fasman**  
Brandeis University  
Waltham, MA

**Carl M. Feldherr**  
University of Florida  
College of Medicine  
Gainesville, FL

**John H. Fessler**  
University of California  
Los Angeles, CA

**Richard Firtel**  
Center for Molecular Genetics  
University of California-San Diego  
La Jolla, CA

**Donald A. Fischman**  
Cornell University Medical College  
New York, NY

**Ian Gibbons**  
Kewalo Laboratory  
Honolulu, HI

**David W. Golde**  
Memorial Sloan Kettering Cancer Center  
New York, NY

**Ira D. Goldfine**  
Mt. Zion Hospital and Medical Center  
San Francisco, CA

**Eugene Goldwasser**  
University of Chicago  
Chicago, IL

**Curtis C. Harris**  
National Cancer Institute  
National Institutes of Health  
Bethesda, MD

**Mark R. Haussler**  
University of Arizona College of Medicine  
Tucson, AZ

**Norman B. Hecht**  
Tufts University  
Medford, MA

**Brian Herman**  
University of North Carolina  
Chapel Hill, NC

**Harvey Herschman**  
University of California  
Los Angeles, CA

**Richard A. Houghten**  
Torrey Pines Institute for Molecular Studies  
San Diego, CA

**R. Colin Hughes**  
National Institute for Medical Research  
London, United Kingdom

**Tony Hunter**  
Salk Institute  
San Diego, CA

**Maria Imachenetsky**  
Universidad de Concepcion  
Concepcion, Chile

**Gary R. Jacobson**  
Boston University  
Boston, MA

**Gary L. Johnson**  
National Jewish Medical Center  
Denver, CO

**Michael Klagsbrun**  
The Children's Hospital  
Harvard Medical School  
Boston, MA

**Jane B. Lian**  
University of Massachusetts Medical Center  
Worcester, MA

**Marc E. Lippman**  
Lombardi Cancer Center  
Georgetown University  
Washington, DC

**Bruce E. Magun**  
School of Medicine  
Oregon Health Science University  
Portland, OR

**Harold L. Moses**  
Vanderbilt University School of Medicine  
Nashville, TN

**Marit Nilsen-Hamilton**  
Iowa State University  
Ames, IA

**Anthony W. Norman**  
University of California  
Riverside, CA

**Dale L. Oxender**  
Warner-Lambert Company  
Ann Arbor, MI

**Richard G. Painter**  
University of Texas Health Center  
Tyler, TX

**Roger Patient**  
King's College  
London, United Kingdom

**Sheldon Penman**  
Massachusetts Institute of Technology  
Cambridge, MA

**Paul F. Pilch**  
Boston University School of Medicine  
Boston, MA

**Archie W. Prestayko**  
Liphomed  
Rosemont, IL

**Phillips W. Robbins**  
Massachusetts Institute of Technology  
Cambridge, MA

**Gideon A. Rodan**  
Merck Sharp & Dohme Research Labs  
West Point, PA

**Russell Ross**  
University of Washington, Seattle, WA

**E. Helene Sage**  
University of Washington  
Seattle, WA

**Milton H. Saler**  
University of California-San Diego  
La Jolla, CA

**Alan R. Sattiel**  
Parke-Davis  
Ann Arbor, MI

**Eric M. Shooter**  
Stanford University School of Medicine  
Stanford, CA

**Justin Silver**  
Hadassan Medical Organization  
Kiryat Hadassah  
Jerusalem, Israel

**Robert H. Singer**  
University of Massachusetts Medical School  
Worcester, MA

**Gail E. Sonenshein**  
Boston University Medical School  
Boston, MA

**Thomas C. Spelsberg**  
Mayo Clinic and Graduate School of Medicine  
Rochester, MN

**Eric J. Stanbridge**  
University of California-Irvine College of Medicine  
Irvine, CA

**E. Richard Stanley**  
Albert Einstein College of Medicine  
Bronx, NY

**Donald F. Steiner**  
University of Chicago  
Chicago, IL

**Charles D. Stiles**  
Harvard Medical School  
Boston, MA

**Tatsuo Suda**  
Showa University  
Tokyo, Japan

**Marvin L. Tanzer**  
University of Connecticut Health Center  
Farmington, CT

**Steven L. Teitelbaum**  
Jewish Hospital at Washington University Medical Center  
St. Louis, MO

**Jean Paul Thiery**  
Laboratoire de Physiopathologie du Développement  
CNRS - ENS  
Paris, France

**George Todaro**  
Fred Hutchinson Cancer Research Center  
Seattle, WA

**Milan R. Uskoković**  
Hoffman-La Roche Inc  
Nutley, NJ

**Klaus Von Der Mark**  
MIPG Gruppe Rheumatologie/Bindegewebsforschung  
Erlangen, Germany

**D. Martin Watterson**  
Vanderbilt University  
Nashville, TN

**Sherman Weisman**  
Yale University School of Medicine  
New Haven, CT

**Karel W.A. Wirtz**  
State University of Utrecht  
Utrecht, Netherlands

© 1993 Wiley-Liss, Inc. All rights reserved. No part of this publication may be reproduced in any form or by any means, except as permitted under section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the publisher, or authorization through the Copyright Clearance Center, 27 Congress Street, Salem, MA 01970, (508) 744-3350, fax (508) 745-9379. Requests to the publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc.

**Journal of Cellular Biochemistry** (ISSN 0730-2312) is published monthly by Wiley-Liss, Inc., a division of John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012. **Send subscription inquiries to:** John Wiley & Sons, Inc., Subscription Department, 9th Floor, 605 Third Avenue, New York, NY 10158 (212) 850-6543.

**Advertising inquiries** should be addressed to Roberta Frederick, Advertising Sales Manager, Wiley-Liss, Inc., 605 Third Avenue, New York, NY 10158-0012, (212) 850-8832.

**Subscription Price:** Volumes 51, 52, and 53, (12 issues) plus Supplement 17 (7 parts), 1993: \$1,255 in US; \$1410 in Canada and Mexico; \$1455 outside North America. **Special Personal Subscription Rate:** 1993: \$125 within North America; \$185 outside North America. (Individual price does not include Supplements.) All subscriptions outside the U.S. will be sent by air. Payment must be made in US dollars drawn on a US bank. **Change of Address:** Please forward to the subscriptions address listed above six weeks prior to move; enclose present mailing label with change of address. **Claims for Missing Issues:** Claims for undelivered copies will be accepted only after the following issue has been received. Please enclose a copy of the mailing label or cite your subscriber reference number in order to expedite handling. Missing copies will be supplied when losses have been sustained in transit and where reserve stock permits. Send claims to John Wiley & Sons, Inc., Customer Service, 605 Third Avenue, New York, NY 10158. If claims are not resolved satisfactorily, please write to Susan Malawski, Director, Subscriptions Fulfillment and Distribution, John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158. **Cancellations:** Subscription cancellations will not be accepted after the first issue has been mailed. **Postmaster:** Send address changes to **Journal of Cellular Biochemistry**, Susan Heaney, Subscription Fulfillment and Distribution, John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158.

**Indexed by:** Current Contents/Life Sciences • Science Citation Index • Scisearch • Chemical Abstracts • In Medica • BIOSIS Data Base • Excerpta Medica • Information Retrieval, Ltd. • Cambridge Scientific Abstracts • Institute for Scientific Information-Soviet Union • Current Opinion in Orthopedics • Current Opinion in Pediatrics • Current Opinion in Cell Biology • Current Opinion in Rheumatology • Reference Update. Printed in the United States of America. Copyright © 1993 Wiley-Liss, Inc.

This journal is printed on acid-free paper.