

EDITOR-IN-CHIEF

NICHOLAS O. DAVIDSON
Washington University, St. Louis

EDITOR-IN-CHIEF

KERRY-ANNE RYE
University of New South Wales, Australia

ASSOCIATE EDITORS

Alan D. Attie

Univ. of Wisconsin-Madison

Karin Bornfeldt

University of Washington

George M. Carman

Rutgers University

W. Sean Davidson

University of Cincinnati

Paul A. Dawson

Emory University School of Medicine

Russell Debose-Boyd

UT-Southwestern Med. Ctr., Dallas

Kenneth Feingold

Univ. of California, San Francisco

Henry N. Ginsberg

Columbia University

Ira J. Goldberg

NYU Medical Center

Xianlin Han

UT Health Science Center, San Antonio

Stanley L. Hazen

Cleveland Clinic Foundation

Jay D. Horton

UT-Southwestern Med. Ctr., Dallas

Alice H. Lichtenstein

Tufts University

Aldons J. Lusis

Univ. of California, Los Angeles

Alfred H. Merrill, Jr.

Georgia Institute of Technology

Yury Miller

Univ. of California, San Diego

Jean Schaffer

Washington Univ. School of Med.

Michael J.O. Wakelam

Babraham Institute, Cambridge, UK

Joseph L. Witztum

Univ. of California, San Diego

Stephen G. Young

Univ. of California, Los Angeles

JUNIOR ASSOCIATE EDITORS

Raymond Blind

Vanderbilt Univ. School of Medicine

Rotonya Carr

University of Pennsylvania

Brandon Davies

University of Iowa Health Care

Gissette Reyes-Soffer

Columbia University

Jesus Balsinde - *Valladolid, Spain*

Suzanne Barbour - *Athens, GA*

Hugh Barrett - *Perth, Australia*

David A. Bernlohr - *Minneapolis, MN*

Erhard Bieberich - *Lexington, KY*

William S. Blaner - *New York, NY*

Wendy Bollag - *Augusta, GA*

Alan R. Brash - *Nashville, TN*

J. Mark Brown - *Cleveland, OH*

Henri Brunengraber - *Cleveland, OH*

Charles Burant - *Ann Arbor, MI*

Laura Calabresi - *Milano, Italy*

Germán Camejo - *Molndal, Sweden*

Ta-Yuan Chang - *Hanover, NH*

M. John Chapman - *Paris, France*

Jonathan Cohen - *Dallas, TX*

Sheila Collins - *Nashville, TN*

Lauren A. Cowart - *Richmond, VA*

Sergio Fazio - *Portland, OR*

Maria Febbraio - *Edmonton, Canada*

Brian Finck - *St. Louis, MO*

Edward Fisher - *New York, NY*

Steven J. Fliesler - *Buffalo, NY*

Alan M. Fogelman - *Los Angeles, CA*

David A. Ford - *St. Louis, MO*

Joel Goodman - *Dallas, TX*

William J. Griffiths - *Swansea, United Kingdom*

Albert K. Groen - *Amsterdam, The Netherlands*

EDITORIAL BOARD

Carl Grunfeld - *San Francisco, CA*

Rana K. Gupta - *Dallas, TX*

Robert Hegele - *Toronto, Canada*

Yoshio Hirabayashi - *Saitama, Japan*

Akira Honda - *Tokyo, Japan*

Murray Huff - *London, Canada*

David Y. Hui - *Cincinnati, OH*

Philip Hylemon - *Richmond, VA*

Xian-Cheng Jiang - *Brooklyn, NY*

Anatol Kontush - *Paris, France*

Fredric Kraemer - *Stanford, CA*

Gerard Liebisch - *Regensburg, Germany*

MacRae F. Linton - *Nashville, TN*

Andrew Morris - *Lexington, KY*

Richard Morton - *Cleveland, OH*

Deborah Muoio - *Durham, NC*

Mohamad Navab - *Los Angeles, CA*

Joseph Nickels - *Hamilton, NJ*

Gunilla Olivecrona - *Umea, Sweden*

Tae-Sik Park - *Inchon, Korea*

John S. Parks - *Winston-Salem, NC*

Sampath Parthasarathy - *Orlando, FL*

Bruce Patterson - *St. Louis, MO*

Eugene Podrez - *Cleveland, OH*

Anthony Postle - *Southampton, United Kingdom*

Loredana Quadro - *New Brunswick, NJ*

Oswald Quehenberger - *La Jolla, CA*

Daniel Raben - *Baltimore, MD*

Arun Radhakrishnan - *Dallas, TX*

Gavin Reid - *Victoria, Australia*

Alan Remaley - *Bethesda, MD*

Joyce J. Repa - *Dallas, TX*

Karen Reue - *Los Angeles, CA*

Neale Ridgway - *Halifax, Canada*

Roger Sandhoff - *Heidelberg, Germany*

Wolf-Hagen Schunck - *Berlin, Germany*

Clay F. Semenkovich - *St. Louis, MO*

Thomas N. Seyfried - *Chestnut Hill, MA*

James A. Shayman - *Ann Arbor, MI*

Takao Shimizu - *Tokyo, Japan*

Silvia Sookoian - *Buenos Aires, Argentina*

Mary G. Sorci-Thomas - *Milwaukee, WI*

Arthur A. Spector - *Iowa City, IA*

Sarah Spiegel - *Richmond, VA*

Papasan V. Subbiah - *Chicago, IL*

Hei-Sook Sul - *Berkeley, CA*

M. Cameron Sullards - *Atlanta, GA*

Dmitri Sviridov - *Melbourne, Australia*

Peter Tontonoz - *Los Angeles, CA*

Sotirios Tsimikas - *La Jolla, CA*

Tomas Vaisar - *Seattle, WA*

Cheryl Wellington - *Vancouver, Canada*

Marcus Wenk - *Singapore, Singapore*

C-L Eric Yen - *Madison, WI*

Rudolf Zechner - *Graz, Austria*

Darryl Zeldin - *Research Triangle Park, NC*

PAST EDITORS-IN-CHIEF:

Donald B. Zilversmit
Daniel Steinberg
Edward H. Ahrens, Jr.
Maurice M. Rapport
Richard J. Havel
Erwin H. Mosbach
Donald M. Small
Julian B. Marsh

Michael C. Phillips
Alan M. Fogelman
Scott M. Grundy
Arthur A. Spector
Trudy M. Forte
Joseph L. Witztum
Edward A. Dennis
William L. Smith

EDITORIAL OFFICE:

Barbara A. Gordon, *Executive Director*
Nancy J. Rodnan, *Senior Director of Publications*
Jeanne Gladfelter, *Publications Manager*

GENERAL INFORMATION

This publication is available online at <http://www.jlr.org>. Inquire about availability through your subscription agent or contact: JOURNAL OF LIPID RESEARCH, P.O. Box 830399, Birmingham, AL 35283-0399, U.S.A., Phone: 800-633-4931 or 205-995-1567.

Submit all manuscripts via the web to: <http://submit.jlr.org>
All correspondence should be addressed to:

Editor, Journal of Lipid Research
11200 Rockville Pike, Suite 302
Rockville, MD 20852-3110, U.S.A.

Accepted manuscripts will be published with the implicit understanding that the author(s) will pay the associated publication charges as outlined in the instructions to authors (<http://www.jlr.org/site/misc/ifora.xhtml#charges>). Corresponding authors who are ASBMB Regular Members are eligible for discounted rates.

Queries on matters of general editorial policy should be directed to the Journal Editorial Office in Rockville, telephone 240-283-6609; fax 301-881-2458; E-mail: jlr@asbmb.org. The Journal of Lipid Research publishes papers on a broad range of topics of interest to scientists working in the field of lipids. The views expressed are those of the author(s) and not of The Journal of Lipid Research or the American Society for Biochemistry and Molecular Biology.

The Journal of Lipid Research 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 acknowledgment of the

source is provided in the new work. For all other permissions to photocopy or use material electronically from The Journal of Lipid Research, ISSN 0022-2275 (print) or ISSN 1539-7262 (electronic), please access 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.

The Journal of Lipid Research (ISSN 0022-2275) is published monthly by the American Society for Biochemistry and Molecular Biology, 11200 Rockville Pike, Suite 302, Rockville, MD 20852-3110. **2020 Institutional Subscription Rates & Information** (Volume 61): United States \$835 (online), \$1,450 (print + online); Canada \$835 (online), \$1,708 (print + online); International \$835 (online), \$1,635 (print + online). Institutional rates are for single site only. For multi-site quotes please contact ASBMB at subscriptions@asbmb.org. Address all correspondence and subscription orders to Turpin Distribution Services LLC, The Bleachery, 143 West Street, New Milford, CT 06776, USA; phone 1-860-350-0041; turpinppf@turpin-distribution.com. Subscriptions are entered on a calendar-year basis only. Allow at least six weeks for address changes. For additional subscription information please visit our website at www.jlr.org.

Maryland residents must add 6% sales tax on print subscriptions unless a tax-exempt certificate number is provided. Canada print rate includes 5% 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 Rockville, MD 20852-3110 and at additional mailing offices. Printed in the USA. POSTMASTER: send address changes to Turpin Distribution Services LLC, The Bleachery, 143 West Street, New Milford, CT 06776, USA.