

EDITOR IN CHIEF (2015)

Louis B. Rice
Brown University, Providence, R.I.

EDITORS

Paul G. Ambrose, *Editor* (2017)
*Institute for Clinical Pharmacodynamics,
Latham, N.Y.*

David R. Andes, *Editor* (2017)
University of Wisconsin, Madison, Wisc.

Sevtav Arikian-Akdagli, *Editor* (2015)
*Hacettepe University Medical School,
Ankara, Turkey*

Robert A. Bonomo, *Editor* (2016)
*Louis Stokes Cleveland VA Medical Center,
Cleveland, Ohio*

Henry F. Chambers, *Editor* (2014)
*San Francisco General Hospital,
San Francisco, Calif.*

Barry I. Eisenstein, *Editor* (2014)
*Cubist Pharmaceuticals, Inc.,
Lexington, Mass.*

Robert L. LaFemina, *Editor* (2015)
Schwensville, Pa.

Wilbur K. Milhous, *Editor* (2017)
*University of South Florida,
Tampa, Fla.*

Eric Nuermberger, *Editor* (2017)
*Johns Hopkins University,
Baltimore, Md.*

Gian M. Rossolini, *Editor* (2014)
University of Siena, Siena, Italy

David M. Shlaes, *Editor* (2015)
*Anti-Infectives Consulting,
Stonington, Conn.*

Thomas E. Shenk, *Chairman, Publications
Board*

Barbara M. Goldman, *Director, Journals*

Noel Y. Lin, *Production Editor*

Ellie Ghatineh, *Assistant Production Editor*

EDITORIAL BOARD

Mark D. Adams (2015)
Jeffrey D. Alder (2015)
Michael N. Alekshun (2014)
Peter L. Anderson (2014)
Yoshichika Arakawa (2013)
Gordon L. Archer (2013)
Cesar A. Arias (2014)
Michel Arthur (2014)
Dale L. Barnard (2013)
Larry A. Bauer (2013)
Adolf Bauernfeind (2014)
Arnold S. Bayer (2013)
Jeffrey M. Becker (2014)
Albert Berghuis (2015)
Jonathan D. Berman (2015)
Joseph S. Bertino, Jr. (2014)
Sujata M. Bhavnani (2014)
John A. Bosso (2013)
Helen Boucher (2013)
Patricia Bradford (2015)
Frederick S. Buckner (2013)
Jürgen B. Bulitta (2014)
David M. Burger (2015)
Karen Bush (2013)
Edmund V. Capparelli (2014)
Alessandra Carattoli (2015)
Guy Carter (2014)
W. LaJean Chaffin (2015)
Joseph W. Chow (2014)
Karl V. Clemons (2013)
Joseph M. Colacino (2014)
Kenneth Coleman (2014)
Marc S. Collett (2015)
William Couet (2014)
Michael H. Cynamon (2013)
T. M. E. Davis (2014)
Charles R. Dean (2013)
Boudewijn de Jonge (2015)
Sunita M. deSousa (2015)
Roberto Docampo (2013)
Jean-Denis Docquier (2014)
Yohei Doi (2015)
Curtis J. Donskey (2015)
Thomas J. Dougherty (2014)
Cameron Douglas (2013)
Stephen Douthwaite (2015)
Karl Drlaca (2015)
Michael N. Dudley (2013)
Paul M. Dunman (2015)
Mira Edgerton (2013)
Christopher A. Elkins (2015)
Evelyn Ellis-Grosse (2014)
Andrea Endimiani (2013)
Alan N. Engelman (2015)
Paul D. Fey (2013)
Raina N. Fichorova (2015)
David A. Fidock (2013)
Scott G. Filler (2015)
L. Mark Fisher (2014)
Annette W. Fothergill (2014)
Jean-Marie Frère (2015)
Niels Frimodt-Møller (2015)
Moreno Galleni (2015)
Dale N. Gerding (2015)
Mahmoud Ghannoum (2013)

Marek Gniadkowski (2013)
Howard S. Gold (2014)
Maureen M. Goodenow (2014)
Matthias Götte (2013)
Elena Govorkova (2014)
M. Lindsay Grayson (2014)
David C. Griffith (2013)
Andreas H. Groll (2013)
Larisa V. Gubareva (2015)
Paul Gubbins (2014)
Tawanda Gumbo (2015)
Robert E. Hancock (2013)
Johnny He (2014)
Henry S. Heine III (2013)
Paul S. Hoffman (2015)
Stephen Hughes (2014)
Yasuyoshi Ike (2014)
Frederick Immermann (2014)
Clark B. Inderlied (2013)
Yoshikazu Ishii (2014)
Susan E. Jensen (2015)
James H. Jorgensen (2014)
William R. Kirkpatrick (2015)
Herbert A. Kirst (2014)
Thilo Kohler (2015)
Dimitrios Kontoyiannis (2014)
Fred C. Krebs (2015)
Mark R. Krystal (2014)
Bart-Jan Kullberg (2013)
Daniel R. Kuritzkes (2013)
Joseph Kuti (2015)
Marie Thérèse Labro (2014)
James E. Leggett (2014)
Russell E. Lewis (2014)
Catherine Liu (2015)
David Livermore (2013)
Thomas Lodise (2014)
Olga Lomovskaya (2014)
Jose L. Lopez-Ribot (2014)
Arnold Louie (2015)
Alasdair MacGowan (2015)
Luis Martinez-Martinez (2014)
Paul M. McNicholas (2014)
Joseph Meletiadiis (2015)
Steven Meshnick (2015)
Vivi Miriagou (2014)
Shahriar Mobashery (2013)
John F. Mohr III (2015)
Sheldon L. Morris (2013)
Lawrence I. Mortin (2015)
Roger L. Nation (2015)
Wright Nichols (2013)
Charles H. Nightingale (2014)
Angela M. Nilius (2013)
Patrice Nordmann (2015)
Pablo C. Okhuysen (2013)
Eric Oldfield (2015)
Antonio Oliver (2015)
Luis Ostrosky-Zeichner (2014)
Timothy G. Palzkill (2014)
Annalisa Pantosti (2014)
Sally R. Partridge (2014)
Amy K. Patick (2014)
John R. Perfect (2014)
Michael A. Pfaller (2015)

Johann Pitout (2014)
Laurent Poirer (2015)
John H. Powers III (2015)
Steven J. Projan (2015)
Michael J. Pucci (2014)
Anne Marie Queenan (2013)
Philip N. Rafter (2015)
Adrian S. Ray (2014)
Michael Robek (2014)
Keith A. Rodvold (2015)
Mary-Claire Roghmann (2013)
Philip J. Rosenthal (2014)
Siddhartha Roychoudhury (2014)
Christopher M. Rubino (2015)
Ethan Rubinstein (2013)
Helio S. Sader (2015)
George Sakoulas (2015)
Dominique Sanglard (2015)
Stefan Sarafanos (2015)
Stefan Schwarz (2014)
Alberto Severini (2013)
Robert W. Shafer (2013)
William M. Shafer (2015)
Dee Shortridge (2013)
Thomas R. Shryock (2013)
Lynn L. Silver (2014)
Jared A. Silverman (2014)
Shabbir Simjee (2014)
Marion J. Skalweit (2014)
Judith Steenbergen (2014)
Daniel S. Stein (2013)
Usha Stiefel (2015)
Joyce A. Sutcliffe (2013)
Deanna A. Sutton (2014)
Vincent H. Tam (2015)
Joel Tarning (2015)
Daniel J. Tenney (2013)
Fred C. Tenover (2015)
Ursula Thuretzbacher (2014)
Clyde Thornsberrry (2013)
Marcelo E. Tolmasky (2013)
Paul M. Tulkens (2015)
Julio A. Urbina (2013)
Sergei Vakulenko (2015)
Hugo Van den Bossche (2013)
Pietro E. Valardo (2014)
Jonathan L. Venerstrom (2013)
Mark A. Wainberg (2014)
David G. White (2014)
Nicholas J. White (2013)
Richard J. Whitley (2014)
Brian Wigdahl (2014)
Malcolm E. Winkler (2014)
Gary Woodnutt (2013)
Gerard D. Wright (2013)
Jim Z. Wu (2013)
Wing Cheong Yam (2014)
S. Steve Yan (2013)
Michael Zasloff (2014)
E. Lynn Zechiedrich (2015)
Steven L. Zeichner (2013)
Helen I. Zgurskaya (2013)
George G. Zhanel (2014)
Fabien Zoulim (2013)

Antimicrobial Agents and Chemotherapy (ISSN 0066-4804), an interdisciplinary publication of the American Society for Microbiology (ASM), 1752 N St., N.W., Washington, DC 20036-2904, is devoted to the dissemination of knowledge relating to all aspects of antimicrobial, antiviral, and antiparasitic agents and chemotherapy. Instructions to Authors are no longer published in the first issue of the year but can be found at <http://aac.asm.org/site/misc/ifafora.xhtml> and are updated throughout the year. Reprints are available online and from the Journals Department. *Antimicrobial Agents and Chemotherapy* is published monthly, one volume per year. Nonmember print subscription prices (per year) are: \$1,144, U.S.; \$1,204, Canada (plus GST/HST where applicable); \$1,231, Europe; \$1,260, Latin America; \$1,264, rest of world. Member print subscription prices (per year) are: \$207, U.S.; \$222 (including GST) or \$238 (including HST), Canada; \$235, Europe; \$268, Latin America; \$269, rest of world. Single copies are: \$100, nonmember; \$50, member (Canadians add GST or HST where applicable). For prices of electronic versions, contact the Subscriptions Unit, ASM. Correspondence relating to subscriptions, defective copies, missing issues, and availability of back issues should be directed to the Subscriptions Unit, ASM; correspondence relating to reprint orders should be directed to the Reprint Order Unit, ASM; and correspondence relating to disposition of submitted manuscripts, proofs, and general editorial matters should be directed to the Journals Department, American Society for Microbiology, 1752 N St., N.W., Washington, DC 20036-2904. Phone: (202) 737-3600.

Claims for missing issues from residents of the United States, Canada, and Mexico must be submitted within 3 months after publication of the issues; residents of all other countries must submit claims within 6 months of publication of the issues. Claims for issues missing because of failure to report an address change or for issues "missing from files" will not be allowed.

Periodicals postage paid at Washington, DC 20036, and at additional mailing offices.

POSTMASTER: Send address changes to *Antimicrobial Agents and Chemotherapy*, ASM, 1752 N St., N.W., Washington, DC 20036-2904.

Made in the U.S.A. Printed on acid-free paper.

Copyright © 2013, American Society for Microbiology. All Rights Reserved.

CODEN: AMACCC

The code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal use or for personal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per-copy fee through the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, for copying beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.