

EDITOR IN CHIEF (2017)

Ferric C. Fang
University of Washington School of Medicine

EDITORS

John H. Adams, *Editor* (2019)
University of South Florida

Helene L. Andrews-Polymenis,
Minireview Editor (2019)
Texas A&M University System Health Science Center

Judith A. Appleton, *Editor* (2018)
Cornell University

Andreas J. Bäumlner, *Editor* (2017)
University of California at Davis

Steven R. Blanke, *Editor* (2017)
University of Illinois

Andrew Camilli, *Editor* (2016)
Tufts University School of Medicine

George S. Deepe, Jr., *Editor* (2019)
University of Cincinnati College of Medicine

Sabine Ehrh, *Editor* (2019)
Weill Cornell Medical College

Anthony T. Maurelli, *Minireview Editor*
(2019)
Uniformed Services University of the Health Sciences

Beth A. McCormick, *Editor* (2017)
University of Massachusetts Medical School

Richard P. Morrison, *Editor* (2015)
University of Arkansas for Medical Sciences

Shelley M. Payne, *Editor* (2019)
University of Texas at Austin

Liise-anne Pirofski, *Editor* (2017)
Albert Einstein College of Medicine

Craig R. Roy, *Editor* (2018)
Yale University School of Medicine

Vincent B. Young, *Editor* (2019)
University of Michigan

Thomas E. Shenk, *Chairman, Journals Board*

Barbara M. Goldman, *Director, Journals*

Jessica Kanotz, *Production Editor*

Stefanie Kowalski, *Assistant Production Editor*

Laurie Webby, *Editorial Coordinator*

EDITORIAL BOARD

David W. K. Acheson (2016)
Luis Actis (2015)

Toni Aebischer (2017)

Darrin R. Akins (2015)

Klaus Aktories (2017)

Holly Algood (2016)

Julio Aliberti (2017)

Lee-Ann Allen (2015)

Andrew Alspaugh (2017)

Craig Altier (2015)

David Andes (2016)

Juan Anguita (2016)

Robert M. Anthony (2016)

Rui Appelberg (2016)

Glen D. Armstrong (2016)

Sandra K. Armstrong (2017)

Bernard Arulanandam (2015)

David Askew (2017)

Abdu F. Azad (2017)

Lauren Bakaletz (2016)

Jimmy D. Ballard (2017)

Jeff Banas (2016)

Joseph Barbieri (2016)

David Beenhouwer (2015)

Jorge A. Benitez (2016)

Elke Bergmann-Leitner (2016)

Luiz E. Bermudez (2015)

Jon Blevins (2017)

James Bliska (2017)

Christian Bogdan (2015)

Helena Boshoff (2017)

Catherine Bosio (2015)

Kenneth L. Bost (2015)

Michael Brennan (2015)

Paul Brett (2016)

Volker Briken (2015)

David Briles (2015)

Igor Brodsky (2017)

Charles Brown (2017)

Eric L. Brown (2016)

Jeremy Brown (2017)

Wendy Brown (2016)

Juliane Bubeck Wardenburg
(2017)

James Burns (2016)

Dirk Hans Busch (2015)

Gerald Byrne (2015)

Melissa J. Caimano (2015)

Anthony A. Campagnari (2015)

Michael Cappello (2016)

Nicholas Carbonetti (2017)

Jason Carlyon (2017)

James Carroll (2016)

Jean Celli (2015)

Kris Chadee (2017)

Sandra P. Chang (2017)

Ashok K. Chopra (2015)

Nicholas P. Cianciotto (2016)

Jeffrey D. Cirillo (2016)

Steven Clegg (2017)

Jenifer L. Coburn (2017)

Paul Cohen (2017)

Terry D. Connell (2015)

Paul Converse (2016)

Cynthia Cornelissen (2015)

Peggy Cotter (2015)

Timothy L. Cover (2017)

Robert Cramer (2017)

Alison Criss (2017)

Christopher W. Cutler (2015)

Charles J. Czuprynski (2016)

Johanna Daily (2017)

Andrew Darwin (2015)

Frank DeLeo (2015)

Donald R. Demuth (2015)

Eric Y. Denkers (2017)

Albert Descoteaux (2015)

Corrella Detweiler (2015)

Hazel Dockrell (2017)

Charles Dozois (2016)

Peter Dube (2017)

Jean-François Dubremetz (2016)

Malcolm Duthie (2017)

Roman Dziarski (2017)

Kathryn A. Eaton (2016)

Karen Elkins (2016)

David Elliott (2016)

Masashi Emoto (2016)

Christian Engwerda (2016)

Peter B. Ernst (2017)

Robert Ernst (2016)

Marta Feldmesser (2016)

J. Christopher Fenno (2015)

Paul Fidel (2015)

Ken Fields (2015)

Joshua Fierer (2017)

Scott Filler (2016)

James Fleckenstein (2015)

Suzanne Fleiszig (2017)

Sarah Fortune (2015)

Timothy Foster (2016)

James Fox (2017)

Dara Frank (2016)

Nancy E. Freitag (2017)

Francisco Garcia-del Portillo (2017)

Nisha Garg (2016)

Beth Garvy (2016)

Caroline Genco (2016)

Jorge Giron (2015)

Michael Glickman (2016)

Joanna B. Goldberg (2017)

Channe Gowda (2015)

Bruce Green (2016)

Marc-Jan Gubbels (2015)

Patricia Guerry-Kopecko (2017)

Paul A. Gulig (2017)

John S. Gunn (2016)

Carlos A. Guzman (2015)

Ted Hackstadt (2017)

Anders Hakansson (2015)

Sven Hammerschmidt (2017)

Eric J. Hansen (2016)

Phillip Hardwidge (2017)

William Harnett (2017)

Nicola Harris (2017)

Alan R. Hauser (2016)

Robert Heinzen (2016)

Laura Hendrix (2017)

David Hendrixson (2016)

Michael Hensel (2017)

DeBroski Herbert (2017)

Sarah K. Highlander (2016)

Tobias Hohl (2017)

Margaret Hostetter (2017)

Daniel Howe (2017)

Bryan Hurley (2017)

Christopher Huston (2016)

Kris Huygen (2015)

Lars Hviid (2015)

Howard Jenkinson (2015)

Ann Jerse (2015)

Samithamby Jeyaseelan (2016)

Bradley D. Jones (2017)

Ann-Beth Jonsson (2015)

Bernhard Kaltenboeck (2015)

Laszlo Kari (2017)

Thomas H. Kawula (2016)

Arina Keestra (2015)

Shabaana Abdul Khader (2015)

Imtiaz Khan (2015)

Samantha King (2015)

Robert Kingsley (2017)

Bruce Klein (2015)

Karl Klose (2017)

Laura Knoll (2017)

Andrew Koh (2017)

Dennis J. Kopecko (2016)

Eric Krukonis (2017)

Meta Kuehn (2015)

Nirbhay Kumar (2015)

Roman Dziarski (2017)

Eric Lafontaine (2016)

Richard J. Lamont (2016)

Wyndham Latham (2015)

Chia Y. Lee (2016)

John Leong (2016)

Cammie Lesser (2017)

Stuart Levitz (2017)

Stephen Libby (2017)

Philana Lin (2016)

Jose Lopez-Ribot (2016)

Philip LoVerde (2017)

Crystal Loving (2016)

Adrian Luty (2016)

David M. Lyerly (2015)

Barbara J. Mann (2015)

Nicholas Mantis (2016)

Richard T. Marconi (2017)

Helene Marquis (2015)

Mark McClain (2017)

Bruce A. McClane (2016)

Larry McDaniel (2015)

David McGee (2016)

Bradford McGwire (2017)

Kevin S. McIver (2016)

David N. McMurray (2015)

Joan Meccas (2017)

Tod Merkel (2017)

D. Scott Merrell (2017)

Dennis Metzger (2015)

F. Chris Minion (2015)

Tim J. Mitchell (2015)

Hans-Willi Mitruecker (2017)

Harry L. T. Mobley (2016)

Jeremy Mogridge (2016)

Denise Monack (2015)

Rodney A. Moxley (2016)

Matthew Mulvey (2017)

Timothy Murphy (2015)

Moon H. Nahm (2017)

Elizabeth Nardin (2015)

James P. Nataro (2017)

Gerard J. Nau (2017)

William Navarre (2017)

Melody Neely (2015)

David Nelson (2017)

Mihai Netea (2017)

Olivier Neyrolles (2015)

Frank C. Nichols (2015)

Tracy Nicholson (2017)

Matthew Nilles (2015)

EDITORIAL BOARD (continued)

Gregory V. Plano (2016)	Larry S. Schlesinger (2015)	Victor Torres (2017)	Alison Weiss (2017)
Alice Prince (2015)	Patrick Schlievert (2016)	Jean-Nicolas Tournier (2017)	David Weiss (2016)
Justin Radolf (2016)	Dirk Schnappinger (2016)	Renee Tsois (2015)	Louis Weiss (2016)
Manuela Raffatellu (2015)	Michael J. Schurr (2016)	Takafumi Tsuboi (2015)	Michael R. Wessels (2016)
Sanjay Ram (2016)	Alan Scott (2017)	Cagla Tukul (2016)	Lee M. Wetzler (2015)
Kyle Ramsey (2015)	W. Evan Secor (2016)	Elaine Tuomanen (2016)	Robert Wheeler (2017)
Roger G. Rank (2016)	Janakiram Seshu (2015)	Joanne Turner (2017)	A. Clinton White, Jr. (2015)
Chad Rappleye (2017)	William Shafer (2015)	Rodney K. Tweten (2017)	Brenda A. Wilson (2015)
Rino Rappuoli (2017)	Terez Shea-Donohue (2016)	Jude Uzonna (2015)	Emma Wilson (2017)
Adam Ratner (2015)	Hai Ning Shi (2015)	Raphael Valdivia (2017)	Nathalie Winter (2015)
Jyothi Rengarajan (2017)	Jerry Simecka (2016)	Miguel Valvano (2015)	Sebastian Winter (2017)
Laurent Renia (2017)	Upinder Singh (2017)	Peter van der Ley (2015)	Jeffrey Withey (2017)
Richard F. Rest (2017)	Eric P. Skaar (2016)	Adrianus van der Velden (2015)	Christiane Wolz (2017)
Joon Haeng Rhee (2017)	Jon Skare (2017)	Thomas E. Van Dyke (2016)	David Wood (2015)
Eleanor Riley (2016)	Mark Smeltzer (2015)	Jos van Putten (2017)	Floyd Wormley (2017)
Amariliz Rivera (2016)	Brad Spellberg (2016)	Jos van Strijp (2015)	Hui Wu (2015)
Daniel Rockey (2016)	Vanessa Sperandio (2015)	Michael L. Vasil (2017)	Marcel Wüthrich (2017)
Luigina Romani (2017)	Chad Steele (2016)	Andrés Vazquez-Torres (2015)	Thomas A. Wynn (2016)
Roy Martin Roop II (2017)	Ivo Steinmetz (2015)	Anna Vecchiarelli (2015)	Timothy Yahr (2017)
David Sacks (2017)	Brian Stevenson (2016)	Jorge Vidal (2017)	George S. Yap (2015)
Padmini Salgame (2017)	Bradley Gene Stiles (2015)	Joseph M. Vinetz (2016)	Hongwei Yu (2016)
Nita H. Salzman (2016)	Joy Sturtevant (2016)	Joseph Vogel (2015)	Thomas C. Zahrt (2016)
James Samuel (2016)	W. Edward Swords (2017)	Martin Voskuil (2017)	Dietmar M. Zaiss (2016)
Scott Samuels (2016)	Herbert Tanowitz (2016)	Daniel E. Voth (2017)	Guangming Zhong (2017)
Karla Fullner Satchell (2017)	Phillip Tarr (2017)	Honorine Ward (2017)	Daoguo Zhou (2017)
Charles Scanga (2016)	Christopher Taylor (2016)	Paula Watnick (2017)	Richard Zuerner (2016)
Frank Scannapieco (2016)	Vernon Tesh (2017)	Janis Weis (2015)	Arturo Zychlinsky (2017)
Dieter M. Schifferli (2017)	Alfredo G. Torres (2015)		

Infection and Immunity (ISSN 0019-9567), a publication of the American Society for Microbiology (ASM), 1752 N St., N.W., Washington, DC 20036-2904, is devoted to the advancement and dissemination of fundamental knowledge concerning infections caused by pathogenic bacteria, fungi, and parasites. Instructions to Authors can be found at <http://journalitas.asm.org/t/49542> and are updated throughout the year. *Infection and Immunity* is published monthly, one volume per year. Nonmember print subscription prices (per year) are: \$1,418, U.S.; \$1,509, Canada (plus GST or HST where applicable); \$1,513, Europe; \$1,543, Latin America; \$1,547, rest of world. Member print subscription prices (per year) are: \$216, U.S.; \$271, Canada (plus GST or HST where applicable); \$280, Europe; \$303, Latin America; \$306, rest of world. Single copies are: \$100, nonmember; \$50, member (Canadians add 5% GST, or 13% HST where applicable). For prices of electronic versions or for correspondence relating to subscriptions, defective copies, missing issues, and availability of back issues, contact the Subscriptions Unit, ASM (asmjournals@subscriptionoffice.com). Correspondence relating to reprint orders should be directed to ASM Author Services (ASM.AuthorServicesSupport@cenveo.com), 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 (see <http://journals.asm.org/site/misc/staffcontacts.xhtml>).

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 *Infection and Immunity*, ASM, 1752 N St., N.W., Washington, DC 20036-2904.

Made in the United States of America. Printed on acid-free paper. CODEN: INFIBR

doi:10.1128/IAI.masthead.83-3

Copyright © 2015, American Society for Microbiology. All Rights Reserved.

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.