

SENIOR EDITOR Javier F. Caceres

MRC Human Genetics Unit

REVIEWS EDITOR Thomas R. Cech

Howard Hughes Medical Institute

SENIOR EDITOR Eric M. Phizicky University of Rochester RNA THERAPEUTICS EDITOR Michelle L. Hastings

University of Michigan

SPECIAL ISSUES EDITOR Timothy W. Nilsen Case Western Reserve University

EDITORS

Benjamin Blencowe

Maria Carmo-Fonseca Instituto de Medicina Molecular, University of Lisbon

Ling-Ling Chen Chinese Academy of Sciences Adrian R. Ferré-D'Amaré National Heart, Lung and Blood Institute

Fátima Gebauer Centre for Genomic Regulation (CRG)

Britt Glaunsinger University of California, Berkeley

Marina V. Rodnina Max Planck Institute for Biophysical Chemistry Mikiko C. Siomi The University of Tokyo

Erik Sontheimer University of Massachusetts Medical School

Peter F. Stadler Leipzig University

Jörg Vogel University of Würzburg

Eric Westhof CNRS, Strasbourg

John Woolford Carnegie Mellon University

ISSN 1355-8382

Mihaela Zavolan Biozentrum, University of Basel

EDITORIAL BOARD

Manuel Ares ersity of California, Santa Cruz

David P. Bartel sachusetts Institute of Technology

Brenda L. Bass University of Utah

Philip C. Bevilacqua Pennsylvania State University

Douglas L. Black University of California, Los Angeles

Ronald R. Breaker Yale University

Chris Burge Massachusetts Institute of Technology

Witold Filipowicz Friedrich Miescher Institute

Kurt Fredrick The Ohio State University

Mariano A. Garcia-Blanco

Wendy Gilbert

Matthias W. Hentze

Daniel Herschlag Stanford Universit

PRODUCTION

Jane E. Jackman The Ohio State University Allan Jacobson

University of Massachusetts Medical School

Martin Jinek University of Zurich

Katrin Karbstein Scripps Research

Magda Konarska Warsaw University

Andrei Korostelev University of Massachusetts Medical School

Adrian R. Krainer Cold Spring Harbor Laboratory

Alain Laederach

David M.J. Lilley University of Dundee

Reinhard Lührmann Max Planck Institute for Biophysical Chemistry, Göttingen

Kristen W. Lynch University of Pennsylvania School of Medicine

James Manley

Lynne E. Maquat

Gunter Meister University of Regensburg Harry F. Noller

University of California, Santa Cruz

Tao Pan University of Chicago

Roy Parker University of Colorado, Boulder

Lori Passmore MRC Laboratory of Molecular Biology

Ramesh Pillai University of Geneva

Anna Marie Pyle Yale University

Frank Rigo

Ionis Pharmaceuticals

Donald Rio University of California, Berkeley

Michael Rosbash Brandeis University

Guido Sanguinetti University of Edinburgh

Schraga Schwartz Weizmann Institute of Science

Geraldine Seydoux Johns Hopkins University

Phillip A. Sharp Massachusetts Institute of Technology

EDITORIAL

Stewart Shuman

emorial Sloan Kettering Cancer Center

Haruhiko Siomi

Keio University School of Medicine

Jonathan Staley University of Chicago Joan A. Steitz

Yale University

Gisela Storz National Institute of Child Health and Human Development

David Tollervey University of Edinburgh

Yukihide Tomari The University of Tokyo

Jernej Ule UCL Institute of Neurology

Juan Valcárcel ICREA and Centre de Regulació Genòmica

Yanli Wang Institute of Biophysics, Chinese Academy of Sciences

Marvin Wickens University of Wisconsin, Madison

Sandra L. Wolin National Cancer Institute

Sarah A. Woodson Johns Hopkins University

Gene Yeo

University of California, San Diego

Cold Spring Harbor

Laboratory Press

ONLINE CONTENT COORDINATOR MANAGER **EDITOR** COORDINATOR **Denise Weiss** Marie Cotter Mary Mulligan Cold Spring Harbor Cold Spring Harbor Cold Spring Harbor Laboratory Press Laboratory Press Laboratory Press

PRODUCTION

Ann Marie Micenmacher Case Western Reserve University MANAGER, DIGITAL CONTENT DISTRIBUTION Kevin-John Black

Editorial Office: RNA, Center for RNA Molecular Biology, Room W127, School of Medicine, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106-4973, USA. Telephone: 216-368-1852; fax: 216-368-2010; e-mail: majournal@case.edu.

Publishing and Advertising Offices: Cold Spring Harbor Laboratory Press, 1 Bungtown Road, Cold Spring Harbor, New York 11724-2203. For advertising rates and data, contact Marcie Siconolfi, Advertising Manager, at 516-422-4010 (telephone) or 516-422-4092 (fax).

Instructions for Contributors: Instructions for contributors are published in each issue of RNA and are available online (http://www.rnajournal.org).

Subscriptions: Kathleen Cirone, Subscription Manager. For 2024 institutional prices, go to http://rnajournal.cshlp.org/site/subscriptions/cost.dtl. Orders may be sent to Cold Spring Harbor Laboratory Press, Fulfillment Department, 500 Sunnyside Boulevard, Woodbury, New York 11797-2924. Telephone: Continental U.S. and Canada 1-800-843-4388; all other locations 1-516-422-4100. Fax: 1-516-422-4094. Claims for missing issues must be received within four months of issue date.

Member Subscriptions: Members of the RNA Society automatically receive RNA as part of their annual membership dues.

The RNA Society: Membership information and application forms may be obtained from: The RNA Society, 1660 International Drive, Suite 600, McLean, VA 22102, USA. Telephone: 301-634-7166; fax: 703-506-3266; e-mail: ma@masociety.org.

COPYRIGHT INFORMATION: Authors of articles published in RNA retain copyright of the articles (except US Government employees) but grant Cold Spring Harbor Laboratory Press exclusive right to publish the articles for a period of 12 months following full-issue publication. This includes the rights to publish, reproduce, distribute, display, and store the article in all formats; to translate the article into other languages; to create adaptations, summaries, extracts, or derivations of the article; and to license others to do any or all of the above. Authors can reuse their articles in their work as long as RNA is credited as the place of original publication. Twelve months following publication, these articles are made available under a CC-BY-NC 4.0 Creative Commons license. Articles that carry the Open Access designation are available immediately under a CC-BY 4.0 or CC-BY-NC 4.0 Creative Commons license. Detailed copyright terms are online at http://rnajournal.cshlp.org/site/misc/terms.xhtml. Permission information is online at http://majournal.cshlp.org/site/misc/permissions_landing.xhtml.

RNA (ISSN 1355-8382) is published monthly by Cold Spring Harbor Laboratory Press, 500 Sunnyside Blvd., Woodbury, NY 11797-2924. Periodicals paid at Woodbury, NY, and additional mailing offices. POSTMASTER: Send address changes to Cold Spring Harbor Laboratory Press, Journals Fulfillment Dept., 500 Sunnyside Blvd., Woodbury, NY 11797-2924.