

RNA

ISSN 1355-8382

A PUBLICATION OF THE RNA SOCIETY



EDITORS

Javier F. Caceres
MRC Human Genetics Unit

Kathleen Collins
University of California, Berkeley

Elena Conti
Max Planck Institute of Biochemistry,
Martinsried

Adrian R. Ferré-D'Amaré
National Heart, Lung and Blood Institute

Brenton R. Graveley
University of Connecticut Health Center

Rachel Green
Johns Hopkins University

Elisa Izaurralde
Max Planck Institute for Developmental Biology, Tuebingen

Daniel Kolakofsky
University of Geneva

Rob Singer
Albert Einstein School of Medicine

REVIEWS EDITOR

Thomas R. Cech
Howard Hughes Medical Institute

Erik Sontheimer
Northwestern University

Peter F. Stadler
Leipzig University

Gisela Storz
National Institute of Child Health and
Human Development

Eric Westhof
CNRS, Strasbourg

EDITORIAL BOARD

John N. Abelson
California Institute of Technology

Sidney Altman
Yale University

Manuel Ares
University of California, Santa Cruz

David P. Bartel
Massachusetts Institute of Technology

Brenda L. Bass
University of Utah

Philip C. Bevilacqua
Pennsylvania State University

Douglas L. Black
University of California, Los Angeles

Thomas Blumenthal
University of Colorado

Ronald R. Breaker
Yale University

Chris Burge
Massachusetts Institute of Technology

James E. Dahlberg
University of Wisconsin, Madison

David R. Engelke
University of Michigan

Martha J. Fedor
The Scripps Research Institute

Witold Filipowicz
Friedrich Miescher Institute

Mariano A. Garcia-Blanco
Duke University

Christine Guthrie
University of California, San Francisco

Matthias W. Hentze
EMBL, Heidelberg

Daniel Herschlag
Stanford University

Allan Jacobson
University of Massachusetts

Walter Keller
University of Basel

Adrian R. Krainer
Cold Spring Harbor Laboratory

Alan M. Lambowitz
University of Texas at Austin

David M.J. Lilley
University of Dundee

Reinhard Lührmann
Max Planck Institute for Biophysical
Chemistry, Göttingen

Thomas Maniatis
Harvard University

James Manley
Columbia University

Lynne E. Maquat
University of Rochester

Iain W. Mattaj
EMBL, Heidelberg

William H. McClain
University of Wisconsin, Madison

Andrew Newman
MRC Laboratory of Molecular Biology

Harry F. Noller
University of California, Santa Cruz

Norman R. Pace
University of Colorado

Richard A. Padgett
Lerner Research Institute, Cleveland Clinic

Roy Parker
University of Colorado, Boulder

Marina V. Rodnina
Universität Witten/Herdecke

Michael Rosbash
Brandeis University

Phillip A. Sharp
Massachusetts Institute of Technology

Joan A. Steitz
Yale University

Scott Strobel
Yale University

David Tollervey
University of Edinburgh

Thomas Tuschl
The Rockefeller University

Olke C. Uhlenbeck
Northwestern University

Juan Valcárcel
ICREA and Centre de Regulació Genòmica

Alan M. Weiner
University of Washington

Marvin Wickens
University of Wisconsin, Madison

James R. Williamson
The Scripps Research Institute

Sandra L. Wolin
Yale University

Sarah A. Woodson
Johns Hopkins University

Robert Zimmermann
University of Massachusetts

PRODUCTION MANAGER

Linda Sussman
Cold Spring Harbor Laboratory Press

PRODUCTION EDITOR

Michael Henigman
Cold Spring Harbor Laboratory Press

ASSISTANT PRODUCTION

EDITOR Mary Mulligan
Cold Spring Harbor Laboratory Press

EDITORIAL ASSISTANT

Ann Marie Micenmacher
Case Western Reserve University

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 Authors: Instructions for authors are published in each issue of RNA and are available online (<http://www.majournal.org>).

Books for Review: Publications should be sent to Timothy Nilsen, Center for RNA Molecular Biology, Room W127, School of Medicine, Case Western Reserve University, Cleveland, OH 44106-4973, USA. Readers are encouraged to draw to his attention publications that may be of interest to other readers of RNA.

Subscriptions: Published monthly. Subscribers have a choice of "online only" or "print + online" subscriptions for this journal. For 2014 institutional pricing, visit <http://majournal.cshlp.org/site/subscriptions/cost.dtl>. Personal rate (must be paid by check, credit card, or money order): Online only: \$245; Print + Online: U.S. \$320, Canada and Mexico \$405, R.O.W. \$435. Contact Kathleen Cirone, Subscription Manager, Fulfillment Department, 500 Sunnyside Boulevard, Woodbury, New York 11797-2924. Telephone: Continental U.S. and Canada 1-800-843-4388; all other locations 516-422-4100. Fax: 516-422-4097. 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, 9650 Rockville Pike, Bethesda, MD 20814-3998, USA. Telephone: 301-530-7120; fax: 301-530-7049; e-mail: ma@faseb.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://majournal.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.

FORTHCOMING PAPERS

Reports

The MID-PIWI module of Piwi proteins specifies nucleotide- and strand-biases of piRNAs

Elisa Cora, Radha R. Pandey, Jordi Xiol, Josh Taylor, Ravi Sachidanandam, Andrew A. McCarthy, and Ramesh S. Pillai

miR-19b inhibits tumor growth and metastasis via targeting TP53

Yu Fan, Shenyi Yin, Yang Hao, Junyu Yang, Hanshuo Zhang, Changhong Sun, Ming Ma, Qing Chang, and Jianzhong Jeff Xi

Articles

Post-transcriptional regulation of meiotic genes by a nuclear RNA-silencing complex

Emily D. Egan, Craig R. Braun, Steven P. Gygi, and Danesh Moazed

Structural dynamics of a single-stranded RNA–helix junction using NMR

Catherine D. Eichhorn and Hashim M. Al-Hashimi

Translation control of TAK1 mRNA by hnRNP K modulates LPS-induced macrophage activation

Anke Liepelt, Jana C. Mossanen, Bernd Denecke, Felix Heymann, Rebecca De Santis, Frank Tacke, Gernot Marx, Dirk H. Ostareck, and Antje Ostareck-Lederer

RNA secondary structure modeling at consistent high accuracy using differential SHAPE

Greggory M. Rice, Christopher W. Leonard, and Kevin M. Weeks

Methods

Chemical synthesis of the 5-taurinomethyl-(2-thio)uridine modified anticodon arm of the human mitochondrial tRNA^{Leu(UUR)} and tRNA^{Lys}

Grazyna Leszczynska, Piotr Leonczak, Karolina Wozniak, and Andrzej Malkiewicz

A TALEN-based strategy for efficient bi-allelic miRNA ablation in human cells

Claudia Uhde-Stone, Nandita Sarkar, Travis Antes, Nicole Otoc, Young Kim, Yan J. Jiang, and Biao Lu