

RNA

A PUBLICATION OF THE RNA SOCIETY

VOL. 27, NO. 4



APRIL 2021

CONTENTS

Obituary

Neocles B. Leontis (1955–2020)

vii

Peter B. Moore, Anton Petrov, Eric Westhof, and Craig L. Zirbel

Reviews

A mark of disease: how mRNA modifications shape genetic and acquired pathologies

367^{OA}

Eliana Destefanis, Güllben Avşar, Paula Groza, Antonia Romitelli, Serena Torrini, Pinar Pir, Silvestro G. Conticello, Francesca Aguilo, and Erik Dassi

The emerging structural complexity of G-quadruplex RNAs

390^{OA}

Michael T. Banco and Adrian R. Ferré-D'Amaré

Letter to the Editor

Circulating SNORD57 rather than piR-54265 is a promising biomarker for colorectal cancer: common pitfalls in the study of somatic piRNAs in cancer

403

Juan Pablo Tosar, María Rosa García-Silva, and Alfonso Cayota

Report

Dynamic association of human Ebp1 with the ribosome

411^{OA}

Varun Bhaskar, Jessica Desogus, Alexandra Graff-Meyer, Andreas D. Schenk, Simone Cavadini, and Jeffrey A. Chao

Articles

Disease-associated mutations in mitochondrial precursor tRNAs affect binding, m1R9 methylation, and tRNA processing by mtRNase P

420

Agnes Karasik, Catherine A. Wilhelm, Carol A. Fierke, and Markos Koutmos

(continued)

Cover Illustration: Mouse endonuclease V in complex with 23mer RNA (PDB id: 6OZO; Wu J, Samara NL, Kuraoka I, Yang W. 2019. Evolution of inosine-specific endonuclease V from bacterial DNase to eukaryotic RNase. Mol Cell 76: 44). Endonuclease V cleaves the second phosphodiester bond 3' to a deaminated adenosine (inosine). Although highly conserved, EndoV change substrate preference from DNA in bacteria to RNA in eukaryotes. RNA backbone is displayed as red and yellow ribbons; block bases use NDB colors: A—red, C—yellow, G—green, U—cyan; protein is displayed as a white ribbon. Cover image provided by the Nucleic Acid Database (ndbserver.rutgers.edu). Image generated using DSSR and PyMOL (Lu XJ. 2020. Nucleic Acids Res 48: e74).

Fluorogenic aptamers resolve the flexibility of RNA junctions using orientation-dependent FRET	433
<i>Sunny C.Y. Jeng, Robert J. Trachman III, Florian Weissenboeck, Lynda Truong, Katie A. Link, Mette D.E. Jepsen, Jay R. Knutson, Ebbe S. Andersen, Adrian R. Ferré-D'Amaré, and Peter J. Unrau</i>	
Human Pumilio proteins directly bind the CCR4-NOT deadenylase complex to regulate the transcriptome	445
<i>Isioma I.I. Enwerem, Nathan D. Elrod, Chung-Te Chang, Ai Lin, Ping Ji, Jennifer A. Bohn, Yevgen Levdansky, Eric J. Wagner, Eugene Valkov, and Aaron C. Goldstrohm</i>	
Alternative RNA degradation pathways by the exonuclease Pop2p from <i>Saccharomyces cerevisiae</i>	465
<i>Xuan Ye, Armend Axhemi, and Eckhard Jankowsky</i>	
Comprehensive annotation and characterization of planarian tRNA and tRNA-derived fragments (tRFs)	477^{OA}
<i>Vairavan Lakshmanan, T.N. Sujith, Dhiru Bansal, Padubidri V. Shivaprasad, Dasaradhi Palakodeti, and Srikar Krishna</i>	
High-resolution structure of eukaryotic Fibrillarin interacting with Nop56 amino-terminal domain	496
<i>Simone Höfler, Peer Lukat, Wulf Blankenfeldt, and Teresa Carlomagno</i>	
Optimization of a bacterial three-hybrid assay through in vivo titration of an RNA–DNA adapter protein	513^{OA}
<i>Clara D. Wang, Rachel Mansky, Hannah LeBlanc, Chandra M. Gravel, and Katherine E. Berry</i>	
Method	
Identification of m⁶A residues at single-nucleotide resolution using eCLIP and an accessible custom analysis pipeline	527^{OA}
<i>Justin T. Roberts, Allison M. Porman, and Aaron M. Johnson</i>	
RNA: Instructions for contributors	542

^{OA}Open Access paper