

RNA

A PUBLICATION OF THE RNA SOCIETY

VOL. 28, NO. 12



DECEMBER 2022

CONTENTS

Tribute

Christine Guthrie (1945–2022): a tribute from her trainees ix

Perspective

The daunting task of modifying ribosomal RNA 1555^{OA}
U. Thomas Meier

Bioinformatics

iSnoDi-LSGT: identifying snoRNA-disease associations based on local similarity constraints and global topological constraints 1558
Wenxiang Zhang and Bin Liu

Report

HITS-CLIP analysis of human ALKBH8 reveals interactions with fully processed substrate tRNAs and with specific noncoding RNAs 1568
Ivana Cavallin, Marek Bartosovic, Tomas Skalicky, Praveenkumar Rengaraj, Martin Demko, Martina Christina Schmidt-Dengler, Aleksej Drino, Mark Helm, and Stepanka Vanacova

Articles

Antisense pairing and SNORD13 structure guide RNA cytidine acetylation 1582
Supuni Thalalla Gamage, Marie-Line Bortolin-Cavaillé, Courtney Link, Keri Bryson, Aldema Sas-Chen, Schraga Schwartz, Jérôme Cavaillé, and Jordan L. Meier

(continued)

Cover Illustration: Fluorescent RNA aptamer cationic chromophore complex (Chili) (PDB id: 7OA3; Mieczkowski M, Steinmetzger C, Bessi I, Lenz AK, Schmiedel A, Holzapfel M, Lambert C, Pena V, Hobartner C. 2021. Large Stokes shift fluorescence activation in an RNA aptamer by intermolecular proton transfer to guanine. Nat Commun 12: 3549). Fluorogenic RNA aptamers are synthetic functional RNAs that specifically bind and activate conditional fluorophores. The Chili RNA aptamer shown here mimics large Stokes shift fluorescent proteins and exhibits high affinity for 3,5-dimethoxy-4-hydroxybenzylidene imidazolone (DMHBI) derivatives to elicit green or red fluorescence emission. RNA backbone is displayed as a red ribbon; block bases use NDB colors: A—red, C—yellow, G—green, U—cyan; cationic chromophore is shown as spheres. 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).

Methylation guide RNAs without box C/D motifs	1597
<i>Jiayin Wang, Zuxiao Yang, and Keqiong Ye</i>	
Yeast U6 snRNA made by RNA polymerase II is less stable but functional	1606
<i>Karli A. Lipinski, Jing Chi, Xin Chen, Aaron A. Hoskins, and David A. Brow</i>	
Ribosome-bound Upf1 forms distinct 80S complexes and conducts mRNA surveillance	1621 ^{OA}
<i>Robin Ganesan, Kotchaphorn Mangkalaphiban, Richard E. Baker, Feng He, and Allan Jacobson</i>	
<i>E. coli</i> 6S RNA complexed to RNA polymerase maintains product RNA synthesis at low cellular ATP levels by initiation with noncanonical initiator nucleotides	1643
<i>Christopher D. Bonar, Jonathan Han, Robert Wang, Shanker Shyam Sundhar Panchapakesan, and Peter J. Unrau</i>	
Experimental evidence for the correlation between RNA structural fluctuations and the frequency of beneficial mutations	1659
<i>Yutaro Maeda, Ryo Mizuuchi, Shuji Shigenobu, Atsushi Shibai, Hazuki Kotani, Chikara Furusawa, and Norikazu Ichihashi</i>	
RNA: Reviewers for Volume 28, 2022	1668
RNA: Author Index for Volume 28, 2022	1670
RNA: Instructions for Contributors	1673

^{OA}Open Access paper