

RNA

A PUBLICATION OF THE RNA SOCIETY

VOL. 26, NO. 12



DECEMBER 2020

CONTENTS

Bioinformatics

- Hierarchical natural move Monte Carlo refines flexible RNA structures into cryo-EM densities 1755
Jeng-Yih Chang, Zhicheng Cui, Kailu Yang, Jianhua Huang, Peter Minary, and Junjie Zhang

Reports

- The crystal structure of a Poliovirus exoribonuclease-resistant RNA shows how diverse sequences are integrated into a conserved fold 1767
Anna-Lena Steckelberg, Quentin Vicens, David A. Costantino, Jay C. Nix, and Jeffrey S. Kieft

- Human disease-associated single nucleotide polymorphism changes the orientation of DROSHA on pri-mir-146a 1777^{OA}
Cong Truc Le, Thuy Linh Nguyen, Trung Duc Nguyen, and Tuan Anh Nguyen

Articles

- Folding heterogeneity in the essential human telomerase RNA three-way junction 1787^{OA}
Christina Palka, Nicholas M. Forino, Jendrik Hentschel, Rhiju Das, and Michael D. Stone

- Processing of Alu small RNAs by DICER/ADAR1 complexes and their RNAi targets 1801^{OA}
Yusuke Shiromoto, Masayuki Sakurai, Helen Qu, Andrew V. Kossenkov, and Kazuko Nishikura

- Phosphodiester modifications in mRNA poly(A) tail prevent deadenylation without compromising protein expression 1815^{OA}
Dominika Strzelecka, Mirosław Smietanski, Paweł J. Sikorski, Marcin Warminski, Joanna Kowalska, and Jacek Jemielity

- A rare bacterial RNA motif is implicated in the regulation of the *purF* gene whose encoded enzyme synthesizes phosphoribosylamine 1838
Sarah N. Malkowski, Ruben M. Atilho, Etienne B. Greenlee, Christina E. Weinberg, and Ronald R. Breaker

(continued)

Cover Illustration: Mango-III (A10U) aptamer bound to TO1-Biotin (PDB id: 6e8u; Trachman III RJ, Autour A, Jeng SCY, Abdolahzadeh A, Andreoni A, Cojocar R, Garipov R, Dolgosheina EV, Knutson JR, Rycckelynck M, et al. 2019. Structure and functional reselection of the Mango-III fluorogenic RNA aptamer. *Nat Chem Biol* **15**: 472–479). Mango-III binds the thiazole orange derivative TO1-Biotin with high affinity and fluoresces brightly (quantum yield 0.55). RNA is displayed as a red ribbon; block bases use NDB colors: A—red, C—yellow, G—green, U—cyan. Biotin ligand is shown as spheres. The image was generated using 3DNA/blocview and PyMol software. Cover image provided by the Nucleic Acid Database (ndbserver.rutgers.edu).

Contents (continued)

| | |
|--|--------------------------|
| In vitro studies provide insight into effects of Dicer-2 helicase mutations in <i>Drosophila melanogaster</i> | 1847 |
| <i>Helen M. Donelick, Loïc Talide, Matthieu Bellet, P. Joseph Aruscavage, Emilie Lauret, Eric R.G.R. Aguiar, Joao T. Marques, Carine Meignin, and Brenda L. Bass</i> | |
| Site-specific and substrate-specific control of accurate mRNA editing by a helicase complex in trypanosomes | 1862 |
| <i>Vikas Kumar, Alasdair Ivens, Zachary Goodall, Joshua Meehan, Pawan Kumar Doharey, Andrew Hillhouse, Daniel Osorio Hurtado, James J. Cai, Xiuren Zhang, Achim Schnauffer, and Jorge Cruz-Reyes</i> | |
| Interrogation of highly structured RNA with multicomponent deoxyribozyme probes at ambient temperatures | 1882 |
| <i>Adam J. Reed, Ryan J. Sapia, Charles Dowis, Sheila Solarez, and Yulia V. Gerasimova</i> | |
| Resolution of polycistronic RNA by SL2 trans-splicing is a widely conserved nematode trait | 1891 |
| <i>Marius Wenzel, Christopher Johnston, Berndt Müller, Jonathan Pettitt, and Bernadette Connolly</i> | |
| RNA-seq accuracy and reproducibility for the mapping and quantification of influenza defective viral genomes | 1905 |
| <i>Jeremy Boussier, Sandie Munier, Emna Achouri, Bjoern Meyer, Bernadette Crescenzo-Chaigne, Sylvie Behillil, Vincent Enouf, Marco Vignuzzi, Sylvie van der Werf, and Nadia Naffakh</i> | |
| The shift from early to late types of ribosomes in zebrafish development involves changes at a subset of rRNA 2'-O-Me sites | 1919 |
| <i>Sowmya Ramachandran, Nicolai Krogh, Tor Erik Jørgensen, Steinar Daae Johansen, Henrik Nielsen, and Igor Babiak</i> | |
| NineTeen Complex-subunit Salsa is required for efficient splicing of a subset of introns and dorsal–ventral patterning | 1935 |
| <i>Om Singh Rathore, Rui D. Silva, Mariana Ascensão-Ferreira, Ricardo Matos, Célia Carvalho, Bruno Marques, Margarida N. Tiago, Pedro Prudêncio, Raquel P. Andrade, Jean-Yves Roignant, Nuno L. Barbosa-Morais, and Rui Gonçalo Martinho</i> | |
| Comparative patterns of modified nucleotides in individual tRNA species from a mesophilic and two thermophilic archaea | 1957^{OA} |
| <i>Philippe Wolff, Claire Villette, Julie Zumsteg, Dimitri Heintz, Laura Antoine, Béatrice Chane-Woon-Ming, Louis Droogmans, Henri Grosjean, and Eric Westhof</i> | |
| Physiologic RNA targets and refined sequence specificity of coronavirus EndoU | 1976 |
| <i>Rachel Ancar, Yize Li, Eveline Kindler, Daphne A. Cooper, Monica Ransom, Volker Thiel, Susan R. Weiss, Jay R. Hesselberth, and David J. Barton</i> | |
| The origin of the high stability of 3'-terminal uridine tetrads: contributions of hydrogen bonding, stacking interactions, and steric factors evaluated using modified oligonucleotide analogs | 2000 |
| <i>Witold Andrałojć, Karol Pasternak, Joanna Sarzyńska, Karolina Zielińska, Ryszard Kierzek, and Zofia Gdaniec</i> | |
| Alternative conformations and motions adopted by 30S ribosomal subunits visualized by cryo-electron microscopy | 2017 |
| <i>Dushyant Jahagirdar, Vikash Jha, Kaustuv Basu, Josue Gomez-Blanco, Javier Vargas, and Joaquin Ortega</i> | |
| Solution structure and RNA-binding of a minimal ProQ-homolog from <i>Legionella pneumophila</i> (Lpp1663) | 2031 |
| <i>Carina Immer, Carolin Hacker, and Jens Wöhnert</i> | |

Methods

| | |
|--|--------------------|
| Termi-Luc: a versatile assay to monitor full-protein release from ribosomes <i>Denis Susorov, Shawn Egri, and Andrei A. Korostelev</i> | 2044 ^{OA} |
| Chemical shifts-based similarity restraints improve accuracy of RNA structures determined via NMR <i>Chad Lawrence and Alexander Grishaev</i> | 2051 |
| Single-pass transcription by T7 RNA polymerase <i>Luiz F.M. Passalacqua, Armine I. Dingilian, and Andrej Lupták</i> | 2062 |
| RNA: Reviewers for Volume 26, 2020 | 2072 |
| RNA: Author Index for Volume 26, 2020 | 2075 |
| RNA: Instructions for contributors | 2079 |

^{OA}Open Access paper