

# RNA

A PUBLICATION OF THE RNA SOCIETY

VOL. 20, NO. 4



APRIL 2014

## CONTENTS

### Reports

A stem-loop structure directs *oskar* mRNA to microtubule minus ends 429<sup>OA</sup>  
*Helena Jambor, Sandra Mueller, Simon L. Bullock, and Anne Ephrussi*

Polypyrimidine tract binding protein inhibits IgM pre-mRNA splicing by diverting U2 snRNA base-pairing away from the branch point 440  
*Xuexiu Zheng, Sunghee Cho, Heegyum Moon, Tiing Jen Loh, Huyn Kyung Oh, Michael R. Green, and Haihong Shen*

### Articles

An RNA aptamer possessing a novel monovalent cation-mediated fold inhibits lysozyme catalysis by inhibiting the binding of long natural substrates 447  
*Camille S. Padlan, Vladimir N. Malashkevich, Steve C. Almo, Matthew Levy, Michael Brenowitz, and Mark E. Girvin*

Distinctive kinetics and substrate specificities of plant and fungal tRNA ligases 462  
*Barbara S. Remus and Stewart Shuman*

Phosphorylation of SRSF1 by SRPK1 regulates alternative splicing of tumor-related Rac1b in colorectal cells 474  
*Vânia Gonçalves, Andreia Henriques, Joana Pereira, Ana Neves Costa, Mary Pat Moyer, Luís Ferreira Moita, Margarida Gama-Carvalho, Paulo Matos, and Peter Jordan*

An atlas of chromatoid body components 483  
*Oliver Meikar, Vasily V. Vagin, Frédéric Chalmel, Karin Sõstar, Aurélie Lardenois, Molly Hammell, Ying Jin, Matteo Da Ros, Kaja A. Wasik, Jorma Toppari, Gregory J. Hannon, and Noora Kotaja*

Distinct functional classes of *ram* mutations in 16S rRNA 496  
*Sean P. McClory, Aishwarya Devaraj, and Kurt Fredrick*

Splicing factor hnRNP A2 activates the Ras-MAPK-ERK pathway by controlling A-Raf splicing in hepatocellular carcinoma development 505  
*Asaf Shilo, Vered Ben Hur, Polina Denichenko, Ilan Stein, Eli Pikarsky, Jens Rauch, Walter Kolch, Lars Zender, and Rotem Karni*

(continued)

---

Cover Illustration: Crystal structure of human Argonaute-1 (hAgo1) in complex with *let-7* guide RNA (Protein Data Bank code: 4krf; Faehnle CR, Elkayam E, Haase AD, Hannon GJ, Joshua-Tor L. 2013. The making of a slicer: Activation of human Argonaute-1. Cell Rep 3: 1901–1909). Image details show protein—cartoon representation, blue; RNA—ribbon-plate representation, green; only nucleotides 1–10 and 21–22 are shown; for nucleotides 11–19, weak electron density is observed. The image was generated with PyMOL (DeLano Scientific LLC). Cover image provided by the Jena Library of Biological Macromolecules—JenaLib (jenalib.fli-leibniz.de).

**Contents** (*continued*)

Principles of ion recognition in RNA: insights from the group II intron structures <i>Marco Marcia and Anna Marie Pyle</i>	516
Association of a peptoid ligand with the apical loop of pri-miR-21 inhibits cleavage by Drosha <i>Jason P. Diaz, Rachel Chirayil, Sara Chirayil, Martin Tom, Katie J. Head, and Kevin J. Luebke</i>	528
The roles of SSU processome components and surveillance factors in the initial processing of human ribosomal RNA <i>Katherine E. Sloan, Markus T. Bohnsack, Claudia Schneider, and Nicholas J. Watkins</i>	540 <sup>OA</sup>
Rat1p maintains RNA polymerase II CTD phosphorylation balance <i>Silvia Jimeno-González, Manfred Schmid, Francisco Malagon, Line Lindegaard Haaning, and Torben Heick Jensen</i>	551
A single inhibitory upstream open reading frame (uORF) is sufficient to regulate <i>Candida albicans</i> GCN4 translation in response to amino acid starvation conditions <i>Arunkumar Sundaram and Chris M. Grant</i>	559
RNase E forms a complex with polynucleotide phosphorylase in cyanobacteria via a cyanobacterial-specific nonapeptide in the noncatalytic region <i>Ju-Yuan Zhang, Xue-Mei Deng, Feng-Pu Li, Li Wang, Qiao-Yun Huang, Cheng-Cai Zhang, and Wen-Li Chen</i>	568
<b>Method</b> Simple and nonradioactive detection of microRNAs using digoxigenin (DIG)-labeled probes with high sensitivity <i>Wei Wu, Pengtao Gong, Jianhua Li, Ju Yang, Guocai Zhang, He Li, Zhengtao Yang, and Xichen Zhang</i>	580
<b>RNA: Instructions for contributors</b>	585

<sup>OA</sup>Open Access paper