



The 25th Annual Meeting of the RNA Society May 26th-31st, 2020



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RNA 2020 On-Line

The 25th Annual Meeting of the RNA Society



May 26th - 31st, 2020

Ling-Ling Chen, Shanghai Institute of Biochemistry and Cell Biology, China Michaela Frye, DKFZ - Deutsches Krebsforschungszentrum, Germany Alain Laederach, University of North Carolina - Chapel Hill, USA Oliver Mühlemann, University of Bern, Switzerland Stephen Rader, University of Northern British Columbia, Canada Sarah Woodson, Johns Hopkins University, USA





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NO UNAUTHORIZED REPRODUCTION OF ANY MATTER PRESENTED DURING THE ON-LINE MEETING: To encourage sharing of unpublished data at the RNA Society Meeting, taking of screen shots and/or videos, or downloading material, <u>is strictly</u> <u>prohibited</u>.

USE OF SOCIAL MEDIA: The official hash tag of the 25th Annual Meeting of the RNA Society is **#RNA2020**. The organizers encourage attendees to Tweet about the amazing science they experience during the meeting. However, please respect these few simple rules when using the #RNA2020 hash tag, or when referring to the meeting on Twitter and other social media:

- 1. Be polite and respectful of others in all of your messages.
- 2. Do not transmit screen shots of slides or posters under any circumstances.
- 3. Tweeters <u>must</u> adhere to requests from presenters who ask attendees to refrain from Tweeting the content of their talks or posters.

Front Cover Image by Clayton Gauthier, Artist in Residence at the University of Northern British Columbia. The Raven is a teacher and a messenger. Raven gifts us the messages that guide us in life... all the lessons we have been through bring us wisdom. Inside the Raven's wing is a Salmon design. Salmon bring us wealth and prosperity. "Let us be open to the gifts, lessons and guidance we need in this life to bring us the wealth we need to live a prosperous life."



Clayton Gauthier Cree/Dakelh Artist

Walking this journey as an artist, I have learned a lot about myself and the arts. My bloodline is Cree and Dakelh. The art I produce revolves around traditional teachings that we have learned from our Elders, from the Spirit within and from our Mother Earth.

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Molecular Biology

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RNA 2021

The 26th Annual Meeting of the RNA Society will be held in Singapore, from June 1st - 6th, 2021, at the Suntec Singapore Convention and Exhibition Centre.

2021 Organizers

Gene Yeo, Univ of California at San Diego, USA Katrin Karbstein, Scripps Research Inst, USA V. Narry Kim, Seoul National Univ, South Korea Anna Marie Pyle, Yale Univ, USA Xavier Roca, Nanyang Technological Univ, Singapore Jörg Vogel, Inst for Molecular Infection Biology, Germany

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May 19, 2020

Dear Participants:

Welcome to RNA 2020 at Home! Although your couch is less scenic than Vancouver, the scientific content of RNA 2020 will not disappoint. Your enthusiastic response to the virtual meeting has resulted in an outstanding program filled with great talks and poster presentations, along with opportunities for discussion and networking with colleagues. Our members were undeterred by the online format, signing up in greater numbers than ever. This will be the largest RNA Society meeting in history, with more than 3000 registrants compared to the usual 1100, thereby expanding the community of people who will have the opportunity to learn about the frontiers of RNA science and exchange ideas.

So fire up your coffee maker, stash some beers and ribotinis in your fridge and get some excellent snacks ready, as there is a lot of great science coming your way. Be well, be safe, and enjoy RNA 2020 On-line.

With best wishes to all of you,

Anna Marie Pyle, President, RNA Society













2020 SCIENTIFIC CONFERENCES

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Seventh JCA-AACR Special Joint Conference on the Latest Advances in Pancreatic Cancer **Research: From Basic Science to Therapeutics**

Organizing Committee: Kohei Miyazono, Masanobu Oshima, Hiroshi Seno, Elizabeth M. Jaffee, Anirban Maitra, and Rosalie C. Sears June 9-11, 2020 | Kyoto, Japan

Second AACR International Meeting: Advances in Malignant Lymphoma: **Maximizing the Basic-Translational** Interface for Clinical Application In cooperation with the International Conference on Malignant Lymphoma (ICML) Scientific Committee Chair: Ari M. Melnick June 25-28, 2020 | Boston, MA

Tumor Heterogeneity:

From Single Cells to Clinical Impact Conference Cochairs: Nicholas E. Navin, Kornelia Polyak, Alexander K. Shalek, and Charles Swanton September 10-13, 2020 | Philadelphia, PA

CRI-ENCI-AACR Sixth International Cancer Immunotherapy Conference: Translating Science into Survival Conference Cochairs: Özlem Türeci, E. John Wherry, and Jedd D. Wolchok September 14-17, 2020 | New York, NY

13th Biennial Ovarian Cancer Research Symposium

Conference Cochairs: Douglas A. Levine, Ursula A. Matulonis, Barbara Norquist, and Kunle Odunsi September 26-28, 2020 | Seattle, WA

Pancreatic Cancer

Conference Cochairs: Dafna Bar-Sagi, Elizabeth M. Jaffee, Ben Z. Stanger, and Brian M. Wolpin September 29-October 2, 2020 | Philadelphia, PA

Mveloma and Plasma Cell Dvscrasias

Conference Cochairs: Kenneth C. Anderson and Irene Ghobrial October 2-5, 2020 | Boston, MA

13th AACR Conference on The Science of Cancer Health Disparities in Racial/ **Ethnic Minorities and the Medically Underserved** Conference Chair: John D. Carpten October 2-5, 2020 | Miami, FL

Advances in Breast Cancer Research

Conference Cochairs: Jason Carroll, Jenny C. Chang, and Jane E. Visvader October 9-12, 2020 | San Diego, CA

Epigenetics and Metabolism

Conference Cochairs: Chi Van Dang, Kimberly Stegmaier, Craig B. Thompson, and Matthew G. Vander Heiden October 15-18, 2020 | Baltimore, MD

Tumor Immunology and Immunotherapy

Conference Cochairs: Timothy A. Chan, Charles G. Drake, Marcela V. Maus, and Arlene H. Sharpe October 16-19, 2020 | Boston, MA

Learn more and register at AACR.org/Calendar

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RNA 2020 • On-line



Invitation to Membership

The RNA Society was established in 1993 to facilitate sharing and dissemination of experimental results and emerging concepts in RNA science. The Society is an interdisciplinary, cohesive intellectual home for those interested in all aspects of RNA research. We welcome new members from all scientific disciplines and we look forward to sharing the new perspectives they bring to the Society.

Our members work in numerous areas of RNA science including but not limited to:

RNAi and miRNA	Noncoding RNA
Ribosomes and Translation Regulation	Splicing Mechanisms
Splicing Regulation and Alternative Splicing	3'End Formation & Riboregulation of Development
RNA Turnover and Surveillance	RNA Transport and Localization
Integration of Nuclear Gene Expression Processes	RNP Biosynthesis and Function
RNA Regulation in Neurons and Specialized Cells	RNP Structure and RNA-Protein Interactions
RNA Structure and Folding	RNA Catalysis
RNA and Disease: Therapeutic Strategies	Heterochromatin Silencing
Viral RNA Mechanisms	Telomerases
Methods in RNA and RNP Research	Bioinformatics

Benefits of RNA Society membership include:

- Print or on-line subscription to the RNA Society journal, RNA (IF 6.05)
- Reduced charges for those who publish in RNA
 - o A \$500 discount on the manuscript publication fee (\$1000 instead of \$1500)
 - o An additional \$500 discount for those members who wish to provide Open Access to their articles immediately upon publication (\$1500 instead of \$2000)
 o Free color figures
- Reduced registration fees for the annual meeting of the RNA Society (a savings of ~\$200)
- Access to the RNA Society Newsletter, a biannual forum for disseminating information to members and discussing issues affecting the Society and RNA science
- Numerous professional development opportunities for junior scientists and the potential for greater involvement in the RNA Society
- Access to a Directory of Members (available on-line)
- Free job postings on the RNA Society website
- Opportunities to request Travel Fellowships to the RNA Society Annual Meeting, financial support for RNArelated conferences and events organized by you, and sponsorship for your local RNA events (through the RNA Salon program)

These benefits more than offset the cost of a one-year RNA Society membership. Additionally, two and three year memberships (as well as lifetime membership) are also available at a discounted rate. Please see our on-line membership registration system for full details.

Please take a moment to start or renew your RNA Society membership at http://rnasociety.memberclicks.net/membership The RNA Society, 7918 Jones Branch Drive, Suite 300 McLean, VA 22102 USA Tel: 301-634-7120, Fax: 703-506-3266; E-mail: rna@rnasociety.org

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PROGRAM-RNA 2020 ON-LINE

The 25th Annual Meeting of the RNA Society May 26th – 31st, 2020

The meeting will open on-line on Tuesday, May 26th at 00:01 GMT and close on Sunday, May 31st at 23:59 GMT. All videos and posters will be viewable to pre-registered attendees continuously for the full six days of the meeting.

Opening Session: Welcome and Keynotes

Welcome from the Meeting Organizers: Sarah Woodson, Johns Hopkins University

Greeting from the RNA Society President: Anna Marie Pyle, Yale University

IUBMB Special Jubilee Lecture 1: Jack Szostak, Harvard Medical School Introduced by Peter Unrau, Simon Fraser University

IUBMB Special Jubilee Lecture 2: Melissa Moore, Moderna Therapeutics Introduced by Aaron Hoskins, University of Wisconsin, Madison

The RNA Society thanks IUBMB for partnering with us to promote science world-wide and to sponsor our Keynote speakers for RNA 2020 On-line. The International Union of Biochemistry and Molecular Biology unites biochemists and molecular biologists in 79 countries around the world. Its mission is to promote interactions across the diversity of endeavours in the molecular life sciences, create networks that transcend barriers of ethnicity, culture, gender and economic status, create pathways for young scientists to fulfill their potential, provide evidence-based advice on public policy, and promote the values, standards and ethics of science and the free and unhampered movement of scientists of all nations.

Industry Sponsored Seminar

Presented by Oxford Nanopore

Plenary Session 1: RNA Processing

Sponsored by Lexogen Chair: Soo-Chen Cheng, Institute of Molecular Biology, Academia Sinica Abstracts: 341, 281, 29, 121, 26, 124, 370, 191

Concurrent Session 1: Regulation of Translation

Chair: Carla Oliveira, University of Sao Paulo Abstracts: 268, 197, 65, 314, 237, 90

Concurrent Session 2: RNA Structure, Folding, Regulation

Chair: Ming Lei, Shanghai Jiao Tong University School of Medicine Abstracts: 74, 259, 127, 233, 179, 312

Workshop 1: High-throughput Discovery

Sponsored by Moderna Chair: Li Yang, CAS-MPG Partner Institute for Computational Biology Abstracts: 83, 337, 175, 8

Workshop 2: Origins of Life

Sponsored by Moderna Chair: Peter Unrau, Simon Fraser University Abstracts: 200, 359, 169, 374, 198

Industry Sponsored Seminar

Presented by Lexogen

Plenary Session 2: Interconnected Processes

Sponsored by Lexogen Chair: Marina Chekulaeva, Max Delbrück Centre for Molecular Medicine Abstracts: 102, 227, 116, 313, 207, 98, 27, 344, 310, 393

Workshop 3: Targeting RNA for Therapy and Diagnostics

Sponsored by Moderna Chair: Yiliang Ding, John Innes Centre Abstracts: 398, 49, 62

Workshop 4: Bioinformatics and Genomics

Sponsored by Moderna Chair: Sharon Aviran, University of California, Davis Abstracts: 122, 105, 174, 376, 199, 477

Workshop 5: New Technologies

Sponsored by Moderna Chair: Carika Weldon, Oxford Genomics Centre, Wellcome Centre for Human Genetics Abstracts: 345, 163, 125, 327, 329

Industry Sponsored Seminar

Presented by Eclipse BioInnovations

Plenary Session 3: RNA Modification, Condensation and Granules

Sponsored by Lexogen Chair: Ute Kothe, University of Lethbridge Abstracts: 85, 94, 293, 154, 131, 188, 316, 11, 106

Concurrent Session 3: Alternative Splicing and Regulation

Chair: Juan Valcarcel, ICREA and Centre for Genomic Regulation (CRG) Abstracts: 272, 275, 78, 15, 211, 260

Concurrent Session 4: Ribosome Biogenesis and Modification

Chair: Traci Hall, NIH, National Institute of Environmental Health Sciences Abstracts: 120, 149, 84, 319, 72, 228, 254, 276

Plenary Session 4: Ribosomes and Translation

Sponsored by Lexogen Chair: Franck Martin, Université de Strasbourg - CNRS Abstracts: 401, 298, 38, 10, 34

Plenary Session 5: Non-coding RNA

Sponsored by Lexogen Chair: Jeremy Wilusz, University of Pennsylvania Abstracts: 366, 12, 364, 63, 372, 285, 578, 54, 47, 14, 55

Concurrent Session 5: RNA Biology and Disease

Sponsored by Storm Therapeutics Chair: Anastasia Khvorova, RNA Therapeutics Institute, UMass Medical School Abstracts: 264, 13, 50, 186, 325, 266, 302, 304

Concurrent Session 6: RNA Turnover

Chair: Olivia Rissland, University of Colorado School of Medicine Abstracts: 215, 97, 75, 240, 358, 212

Concurrent Session 7: Viral RNA

Chair: Nicholas Conrad, University of Texas Southwestern Medical Center Abstracts: 386, 103, 234, 361, 96, 42

Poster Sessions

Poster Session 1: Bioinformatics and High-throughput Technology

Abstract topic categories: Bioinformatics & Genomics High Through-put Discovery New Technologies

Poster Session 2: Interconnected Processes

Abstract topic categories: Transcription: Mechanism & Biology Chromatin & Epigenetics Interconnected RNA Processes RNA Transport & Localization

Poster Session 3: Non-coding RNA & Circular RNA

Abstract topic categories: Long Non-coding RNAs & Circular RNAs Small Non-coding RNAs in Eukaryotes Extracellular RNA

Poster Session 4: Disease and Therapeutics

Abstract topic categories: RNA & Cellular Immunity RNA & Disease Targeting RNA for Therapy & Diagnostics

Poster Session 5: RNA Modification and Condensation

Abstract topic categories: RNA Modification & Editing tRNA: Processing & Function Granules & Condensates

Poster Session 6: Origins of Life and Synthetic Biology

Abstract topic categories: Chemical Biology of RNA RNA Synthetic Biology & Systems Biology Origins of Life and Evolution

Poster Session 7: Structure, Folding and Regulation

Abstract topic categories: RNA Structure, Folding & Modeling Regulatory RNAs in Bacteria & Archaea Ribozymes & Riboswitches RNA Nanotechnology

Poster Session 8: RNP Biogenesis and Modification

Abstract topic categories: RNPs: Biogenesis, Structure & Function Ribosome Biogenesis & Modification

Poster Session 9: Splicing and Polyadenylation

Abstract topic categories: Splicing Mechanism Splicing Regulation & Alternative Splicing Polyadenylation & 3' End Formation

Poster Session 10: Translation

Abstract topic categories: Translation Mechanism Translation Regulation

Poster Session 11: RNA Turnover

Abstract topic categories: RNA Turnover

Poster Session 12: Viral RNAs

Abstract topic categories: Viral RNAs

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RNA 2020 AWARDS

The RNA Society Lifetime Achievement Award



The RNA Society Lifetime Achievement Award acknowledges the impact of an outstanding RNA scientist on the general scientific community. Each year beginning in 2003, the Board of Directors has selected the recipient who receives a lifetime membership in the RNA Society in recognition of their outstanding contributions. The award is presented at the Annual RNA Meeting, where the recipient gives a special address to the RNA Society.

Previous winners include Joan Steitz (2003), Harry Noller (2004), John Abelson (2005), Christine Guthrie (2006), Walter Keller (2007), Norm Pace (2008), Thomas Cech (2009), Fritz Eckstein (2010), Witold Filipowicz (2011), Olke Uhlenbeck (2012), Phillip Sharp (2013), Reinhard Lührmann (2014), Anita Hopper (2015), Eric Westhof (2016), Lynne Maquat (2017), Jean Beggs (2018), and Adrian Krainer (2019).

Congratulations to **Matthias Hentze**, of the European Molecular Biology Laboratory, who is the winner of the 2020 RNA Society Lifetime Achievement Award.

The RNA Society Service Award



The RNA Society Service Award is given in appreciation of outstanding service to the RNA community. The overall mission of the RNA Society is to facilitate sharing and dissemination of experimental results and emerging concepts in RNA research. Each year, the Board of Directors identifies the recipient of this award who has made exemplary contributions to these goals.

Previous winners include Tim Nilsen (2003), Chris Greer (2004), Jean Beggs (2005), Olke Uhlenbeck (2006), Marvin Wickens (2007), Eric Westhof (2008), Anita Hopper (2009), Lynne Maquat (2010), Evelyn Jabri (2011), Brenda Peculis (2012), Ann Marie Micenmacher (2014), David Lilley (2015), Andrea Barta (2016), Andrew Feig (2017), Elizabeth Tran (2018), and Jim McSwiggen (2019).

Congratulations to **Sarah Woodson**, of Johns Hopkins University, who is the winner of the 2020 RNA Society Service Award.

The RNA Society Elisa Izaurralde Award



The RNA Society Elisa Izaurralde Award was established in 2019 to celebrate the life and achievements of Dr. Elisa Izaurralde, former Director of the Department of Biochemistry at the Max Planck Institute for Developmental Biology in Tubingen, Germany, and a generous friend and colleague to the RNA community. The award is presented to an early career researcher who embodies Elisa's dedication to science and employs innovative approaches to their research, teaching and service. This award is open to scientists who are 5-15 years post-PhD and who hold an independent research position at an academic institution. Successful applicants are selected by members of the RNA Society Board of Directors.

This is the first year this Award has been presented.

Congratulations to *Lori Passmore*, *MRC Laboratory of Molecular Biology, University of Cambridge, who is the winner of the 2020 Elisa Izaurralde Award.*

The RNA Society Mid-Career Award



The RNA Society Mid-Career Award is given in recognition of a scientist who has made significant contributions to their field in the first 15 years of their career as an independent investigator.

Previous winners include Karla Neugebauer (2017), Nils Walter (2017), Erik Sontheimer (2018), and Ailong Ke (2019).

Congratulations to Jernej Ule, of The Francis Crick Institute, who is the winner of the 2020 RNA Society Mid-Career Award.

The RNA Society Early-Career Award

The RNA Society Early-Career Award is given in recognition of a scientist who has made significant contributions to their field in the first 7 years of their career as an independent investigator.

Previous winners include Wendy Gilbert (2017), Gene Yeo (2017), Andrei Korostelev (2018), and Maria Barna (2019).

Congratulations to **Igor Ulitsky**, of the Weizmann Institute of Science, who is the winner of the 2020 RNA Society Early-Career Award.

The RNA Society Scaringe Award



The RNA Society Scaringe Young Scientist Award was established to recognize the achievement of young scientists engaged in RNA research and to encourage them to pursue a career in the field of RNA. In 2004 and 2005, the RNA Society Scaringe Award was made to the student author(s) of the best paper, as selected by the editors, published during the previous year in RNA. The winners of the 2004 and 2005 awards were Stefano Marzi and Ramesh Pillai, respectively. In 2006, this award was revamped and opened to all junior scientists (graduate students and postdoctoral fellows) from all regions of the world who have made a significant contribution to the broad area of RNA. The award is no longer restricted to authors who have published in the RNA journal. The award includes a cash prize and support for travel and registration costs for the awardee(s) to attend the annual RNA Society meeting.



Previous graduate student winners include: Jeff Barrick (2006), Malte Beringer (2007), Qi Zhang (2008), Jeremey Wilusz (2009), John Calarco (2010), Jasmine Supporting the Future Perez (2011), Chenguang Gong (2012), Tatjana Trcek Pulisic (2012), Wenwen Fang (2013), David Weinberg (2014), Samuel Sternberg (2015), Katherine Warner (2015),

Ryan Flynn (2016), Nian Liu (2016), Malik Chaker-Margot (2017), Madeline Sherlock (2018), Boxuan Zhao (2018), Michael Chen (2019), and Max Wilkinson (2019).

Previous postdoctoral fellow winners include Megan Talkington (2006), Zefeng Wang (2007), Alexei Aravin (2008), Shobha Vasudevan (2009), Luciano Marraffini (2010), Hani Zaher (2011), Kotaro Nakanishi (2012), Dipali Sashital (2012), Je-Hyun Yoon (2013), Jinwei Zhang (2014), Olga Anczukow-Camarda (2015), Schraga Schwartz (2015), Basil Greber (2016), Thi Hoang Duong Nguyen (2016), Zhipeng Lu (2017), Fuguo Jiang (2018), and Xuebing Wu (2019).

Congratulations to the winners of the 2020 RNA Society Scaringe Awards: Graduate student Robert Battaglia, of Cornell University, and postdoctoral fellows Furgan Fazal, of Stanford University School of Medicine, and Sebastian Fica, of the MRC Laboratory of Molecular Biology, University of Cambridge.

