



RNA Canada 2024

The Future of RNA Technology

An event organized by RiboClub in collaboration with RiboWest and TREN D, celebrating 25 years of RiboClub's and 20 years of RiboWest's support for RNA research networks in Canada, and inaugurating the conception of RNA Canada.

September 30 - October 4, Ottawa Convention and Event Centre, Ottawa, Ontario

Day 1 - Monday, September 30th

- 13:30 – 17:00: Registration
Location: Convention Centre Lobby
- morning – 16:00: Voluntary activity celebrating National Day for Truth and Reconciliation (possibility of participating in events taking place in Ottawa)
- 16:00 – 17:00: Welcome reception
Location: Convention Centre Lobby
16:00-16:05: Note of the local host, Jocelyn Cote, University Ottawa
16:05-16:10: Note of the volunteers, Laurence Faucher Giguère and Morgane Da Rocha, Université de Sherbrooke.
- **Opening dinner and public presentations (open to journalists)**
Location: Room 106A-G
Moderator: Tasha Kheiriddin
Session Host: Tommy Alain, University of Ottawa
- 16:55 - 17:32 Opening of meeting by Indigenous community elders and traditional drums and dance.
- 17:35 – 17:50: Welcome note and meeting introduction
Sherif Abou Elela, President of RNA
- 18:00 – 18:40: Dinner buffet (buffet will remain open after the keynote and till the end of the evening)
- 18:40 – 18:45: Introduction of Keynote I (Benjamin Blencowe, University of Toronto, Toronto)
- 18:45 – 19:15: Opening Keynote, RNA Biology to Therapeutics: An Emerging Story



- Phillip Sharp, MIT, Cambridge, Massachusetts Institute of Technology (MIT), Nobel Prize in Physiology or Medicine 1993
- **20:45 – 21:45: Roundtable Discussion (open to journalists):** Revolutionizing RNA research: How Industry and RNA biologists can team up to meet changing needs
(Sponsored by adMare)

Location: Room 106A-G

- **Session host:** Jocelyn Côté, University of Ottawa
- **Moderator:** Tasha Kheiriddin, political analyst, strategist, and thought leader
- **Panelists:**
 - Rahbar Rahimpour (Director, R&D Strategic Partnerships at Moderna Canada)
 - Normand Blais (Senior Director, Development & Innovation, Biologics, BioVectra)
 - Frédéric Lemaître Auger (VP, Investments, adMare)
 - Véronique Dugas (VP scientific affairs, CQDM)
 - Thomas Duchaine (Professor, McGill University, Centre for RNA Sciences)
 - Phillip Sharp (Professor, Koch Institute, MIT, Nobel Laureate)



Day 2 - Tuesday, October 1st

- 07:00 – 08:15: Breakfast
Location: Room 106A-G and 106H

08:15 - 10:00: Plenary session and roundtable: Promises and Challenges of RNA-based Medicines, featuring short presentation by Adrian Krainer and Pieter Cullis (inventors of early RNA drugs and vaccine technologies) followed by a Panel discussion

(Sponsored by BIOVECTRA)

- **Location: Room 106A-G**
- **Session host:** Marc Fabian, McGill University
- **Moderator:** Tasha Kheiriddin, political analyst, strategist, and thought leader

- 08:15 – 08:25: Opening Notes and Announcements (Organizers, **Open for journalists**)
- 08:25 – 08:30: Introduction of session by Tasha Kheireddin
- 08:30 – 08:45: Pieter Cullis, University of British Columbia: The revolutionary potential of personalized RNA therapeutics enabled by lipid nanoparticle
- 08:45 – 09:00: Adrian Krainer, Cold Spring Harbor Laboratory: Shooting the messenger: “Antisense” therapeutics that target mRNA
- 09:00 – 10:00: Roundtable: “Promises and Challenges of RNA-based Medicines”.

- Panelists:
 - Jared Davis (President and CTO of Northern RNA)
 - Rodrigo Arancibia (Director, Life Science Industries Directorate, ISED)
 - Pieter Cullis (Professor, University of British Columbia, Gairdner Awardee)
 - Adrian Krainer (St. Giles Foundation Professor, Cold Spring Harbor Laboratory, Breakthrough Prize winner)
 - Phillip Sharp (Professor, Koch Institute, MIT, Nobel Laureate)

10:00 – 10:20 Coffee Break

(Sponsored by New England Biolabs)

10:20 - 12:30: Concurrent Session 1A: Session 1A: RNA enzymes, aptamers, sensors, and bioengineering (part I)

Location: Room 106AB



Session host: Jonathan Perreault, Institut National de la Recherche Scientifique (INRS)
Chair: Peter Unrau, Simon Fraser University

- **10:20 – 10:25: Introduction by Chair**
- **10:25 – 10:40: Dan Herschlag, Stanford University**
Current-day lessons from decades of ribozyme research
- **10:40 – 10:55: Anna Blakney, University of British Columbia**
Design of next-generation saRNA vectors
- **10:55 – 11:10: Ronald Breaker, Yale University**
Determining the Functions of Large Structured Noncoding RNAs in Bacteria
- **11:10 – 11:25: Saurja DasGupta, University of Notre Dame**
Evolution of RNA-catalyzed RNA assembly: from primordial to modern substrate activation
- **11:25 – 11:40: Kasimir Kienbeck, University of Zurich**
Discovery and Structural Insights of Theta Ribozymes
- **11:40 – 11:55: Juewen Liu, University of Waterloo**
Capture-SELEX of aptamers: revisiting old target molecules
- **11:55 – 12:05: Flash talks**
(Sponsored by University of British Columbia's Canada's Immuno-Engineering and Biomanufacturing Hub (CIEBH))
- **12:05 – 12:30: Panel discussion led by session chair**

10:20 - 12:45: Concurrent Session 1B: RNA processing, maturation, and disease (part I)

Location: Room 106CDE

Session host: John Calarco, University of Toronto

Chair: Hong Han, McMaster University

- **10:20 – 10:25: Introduction by Chair**
- **10:25 – 10:40: Benjamin Blencowe, University of Toronto**
Exon- and Intron-resolution Functional Genomics
- **10:40 – 10:55: Scott Kennedy, Harvard Medical School**
A conserved system that excises transposons from host mRNAs
- **10:55 – 11:10: Sarah Assmann, Penn State University**
RNA structure-function relationships in plant abiotic stress tolerance
- **11:10 – 11:25: Gregg Morin, University of British Columbia**
CDK12 and CDK13, paralogues with specific and common cell type RNA processing function
- **11:25 – 11:40: Pedro Miura, UConn Health**
Long read RNA sequencing reveals alternative exon to 3'UTR connectivity in Neurons
- **11:40 – 11:55: Krysta Coyle, Simon Fraser University**
Evaluating the impact of mutated splicing factors in mature B-cell malignancies
- **11:55 – 12:05: Flash talks**



- **12:05 – 12:30: Panel discussion led by session chair**

10:20 - 12:30: Concurrent Session 1C: RNA modifications (part I)

Location: Room 106FG

Session host: Nehal Thakor, University of Lethbridge

Chair: Ly Vu, University of British Columbia

- **10:20 – 10:25: Introduction by Chair**
- **10:25 – 10:40: Katharina Höfer, MPI for terrestrial microbiology, Marburg**
RNAylation of proteins: Discovery of a molecular glue to link RNA and proteins
- **10:40 – 10:55: Tao Pan, University of Chicago**
Coordination of multiple RNA modifications in mRNA and tRNA
- **10:55 – 11:10: Ryan Hili, York University**
Photochemical approaches to sequence methylated guanine in RNA
- **11:10 – 11:25: Sujin Kim, Boston Children's Hospital, Harvard Medical School**
m³C³² tRNA modification controls serine codon-biased mRNA translation, cell cycle, and DNA-damage response
- **11:25 – 11:40: Yu Zhou, Wuhan University**
Nuclear Retention Coupled with Sequential Polyadenylation Dictates Post-transcriptional m⁶A Modification in the Nucleus
- **11:40 – 11:55: Laurence Faucher-Giguère, Université de Sherbrooke**
SNORA81-Guided Ribosomal RNA Pseudouridylation Reprograms the Translation Profile of High-Grade Ovarian Cancer
- **11:55 – 12:05: Flash talks**
- **12:05 – 12:30: Panel discussion led by session chair**

12:30 – 14:30: Networking and discussion lunch including concurrent sessions:

- 1. Sponsors presentation Lunch**
Location: Room 106AB
Session Host: Jonathan Perreault, Institut National de la Recherche Scientifique
- 2. Career planning, Mentor-Mentee Lunch**
Location: Room 106CDE
Session hosts: Laurence Faucher-Giguère and Morgane Da Rocha, students' representatives
- 3. Open discussion and lunch with heads of funding agencies**
Location: Room 106FG



Session Host: Trushar Patel, University of Lethbridge

- **Moderator: Paul Dufour, University of Ottawa**
- **panelists:**
 - Mohamad Nasser-Eddine (Vice President of Programs and Planning, CFI)
 - Marc Fortin (Vice-President of the Research Grants and Scholarships, NSERC)
 - Frédéric Bouchard (Dean of the Faculty of Arts and Sciences, U Montreal)
 - Christian Baron (Vice President, Research - Programs, CIHR)
 - Lakshmi Krishnan (Vice President of Life Sciences, NRC)
 - Jean-Pierre Perreault (Vice President Research, U Sherbrooke)

14:30 - 16:40: Concurrent Session 2A: RNA, viruses, and manipulation of their hosts (part I)

Location: Room 106AB

Session host: Jennifer Corcoran, University of Calgary

Chair: Selena Sagan, University of British Columbia

- **14:30 – 14:35: Introduction by Chair**
- **14:35 – 14:50: Anne Simon, University of Maryland and Silvec Biologics**
Solving a 25 year Conundrum: Stabilizing hairpin inserts in RNA Virus Vectors Reveals Insights into Parameters Dictating Virus Genome Structure
- **14:50 – 15:05: John Bell, Ottawa Hospital Research Institute**
Development of RNA based viral vectors for cancer therapy
- **15:05 – 15:20: Beatriz Fontoura, UT Southwestern**
Inhibition of mRNA Nuclear Export Promotes SARS-CoV-2 Pathogenesis
- **15:20 – 15:35: Simon Boudreault, University of Pennsylvania**
Innate immune sensing controls EIF4A2 alternative splicing in response to dsRNA and viral infection
- **15:35 – 15:50: Rory Mulloy, University of Calgary**
P-body interaction with coronavirus RNA determines the outcome of an infection
- **15:50 – 16:05: Alex Borodavka, Cambridge University**
How do RNA Viruses Use RNP Granules and RNA Chaperones to Assemble Multi-Segmented Genomes?
- **16:05 – 16:15: Flash talks**
- **16:15 – 16:40: Panel discussion led by session chair**



14:30 - 16:40: Concurrent Session 2B: regulatory RNAs: markers, targets, structure and function (part I)

Location: Room 106CDE

Session host: Juewen Liu, University of Waterloo

Chair: Martin Simard, Centre de Recherche du CHU de Québec-Université Laval

- **14:30 – 14:35: Introduction by Chair**
- **14:35 – 14:50: Alan Lambowitz, The University of Texas at Austin**
TGIRT-seq analysis of FLEXIs and Inflammatory Breast Cancer
- **14:50 – 15:05: John Mattick, UNSW Sydney**
Enhancers are genes
- **15:05 – 15:20: Sean McKenna, University of Manitoba**
A novel non-coding Alu RNA critical for cancer cell survival
- **15:20 – 15:35: Jeannie Lee, Massachusetts General Hospital**
G-quadruplex folding in Xist RNA antagonizes PRC2 activity for step-wise regulation of X-chromosome inactivation
- **15:35 – 15:50: Victor Ambros, University of Massachusetts Medical School**
MicroRNA-mediated gene regulation and developmental robustness
- **15:50 – 16:05: Lara Mahal, University of Alberta**
Upregulation of Protein Expression by direct miRNA:mRNA interactions Is Coordinated in Regulatory Networks
- **16:05 – 16:15: Flash talks**
- **16:15 – 16:40: Panel discussion led by session chair**

14:30 - 16:40: Concurrent Session 2C: RNA-binding proteins

Location: Room 106FG

Session host: Olivier Binda, University of Ottawa

Chair: Mark Bayfield, York University

- **14:30 – 14:35: Introduction by Chair**
- **14:35 – 14:50: Brenton Graveley, Institute for Systems Genomics, UConn Health**
A Comprehensive Binding and Functional Map of Human RNA Binding Proteins
- **14:50 – 15:05: Gene Yeo, University of California, San Diego**
Large-scale map of RNA binding protein interactomes across the mRNA life-cycle
- **15:05 – 15:20: Kristin Hope, University Health Network, University of Toronto**
In Vivo Screening Unveils Pervasive RNA-Binding Protein Dependencies in Leukemic Stem Cells



- **15:20 – 15:35: Debashish Ray, University of Toronto**
Genome-wide analysis of the RNA-binding specificities of human canonical and unconventional RNA-binding proteins
- **15:35 – 15:50: Julie Bourassa, University of Ottawa**
Modulation of HuD RNA binding through CARM1 methylation in neurons
- **15:50 – 16:05: Sarah Hughes, University of Alberta**
Investigating the Post-transcriptional Regulation of the SWI/SNF chromatin remodelling subunit SMARCB1
- **16:05 – 16:15: Flash talks**
- **16:15 – 16:40: Panel discussion led by session chair**

- 16:40: Coffee break and poster session.

- 16:40 – 18:40: Poster competition (Even numbers).

- **Session Host: Jean-Phillippe Brosseau, Université de Sherbrooke.**
Location: Room 118CDE
(Sponsored by Office of Research & Health Science Education, Temerty Faculty of Medicine, University of Toronto)

- 18:40 – 20:30: Dinner with featured speaker **Jack Keene, Duke University**
Location: 106A-G
Session Host and moderator: Katherine Borden, Université de Montréal
(Sponsored by SickKids Research Institute)

- 19:35 – 19:40: Introduction of Speaker by **Katherine Borden, Université de Montréal**
- 19:40 – 20:00: Jack Keene, seminar title: *RNA binding proteins*
- 20:00 – 20:10: Questions

- **20:30 – 21:30: Roundtable Discussion: Stories from the clinic (including Patients, clinicians, and charities, open to journalists)**

- Location: Room 106A-G**
- **Session Hosts and Moderators: Haissi Cui, University of Toronto, and Katherine Borden, Université de Montréal**
- **Panelists:**
 - Teri DeClercq - parent of a patient
 - Lauren Frenz - parent of a patient
 - Terry Hawrysh - patient
 - Florian Kuchenbauer - UBC, physician, adult cancer
 - Kris Noakes - patient



- Aren Marshall - University of Ottawa physician, pediatric genetic diseases
- 21:30 – Free Social Gathering



Day 3 - Wednesday, October 2nd

- 07:00 – 08:15: Breakfast
Locations: Rooms 106AB, 106CDE, 106FG, and 106H

08:15 - 10:40: Concurrent Session 3A: Ribonucleoprotein granules and RNA in motion (part I) (Sponsored by Université de Montréal)

Location: Room 106AB

Session host: Marc Fabian, McGill University

Chair: Maria Vera Ugalde, McGill University

- **08:15 – 08:20: Introduction by Chair**
- **08:20 – 08:35: Daniel Zenklusen, Université de Montréal**
Investigating the role of intron RNP topology in facilitating splicing
- **08:35 – 08:50: Yifan (Eva) Wang, University of Toronto**
RanBP2/Nup358 is required at the nuclear pore to repress cytokine mRNAs
- **08:50 – 09:05: Timothy Audas, Simon Fraser University**
Heat-Sensitive RNA Pol I-mediated Transcription Regulates the Expression of Amyloidogenic Noncoding RNA
- **09:05 – 09:20: Priya R. Banerjee, SUNY Buffalo**
Biomolecular Condensates Can Enhance Pathological RNA Clustering
- **09:20 – 09:35: Eric Lecuyer, IRCM**
Systematic characterization of RNA binding proteins sequestered by disease-associated repeat expansion RNAs
- **09:35 – 09:50: Nils Walter, University of Michigan**
Single molecule tracking reveals nanodomains in biomolecular condensates
- **09:50 – 10:05: Julie Claycomb, University of Toronto**
*Proximity Labeling Identifies New Germ Granule and Germline Small RNA Factors in *C. elegans**
- **10:05 – 10:15: Flash talks**
- **10:15 – 10:40: Panel discussion led by session chair**



08:15 - 10:40: Concurrent Session 3B: mRNA translation and the Ribosome (part I)

Location: Room 106CDE

Session host: Eric Jan, University of British Columbia

Chair: Olena Zhulyn, SickKids Hospital, University of Toronto

- **08:15 – 08:20: Introduction by Chair**
- **08:20 – 08:35: Joseph Puglisi, Stanford University**
Dynamics of translation
- **08:35 – 08:50: Rachel Green, Johns Hopkins University**
Concentration matters: Regulation of ribosome homeostasis during cellular stress
- **08:50 – 09:05: Marlene Oeffinger, Université de Montréal, McGill University**
*Compositionally distinct 5.8S-L rRNA ribosomes function in translation of differential mRNAs in *S. cerevisiae**
- **09:05 – 09:20: Thomas Dever, NIH**
eIF5A is a Sensor and Effector for Polyamine Regulation of Translation
- **09:20 – 09:35: Nehal Thakor, University of Lethbridge**
Establishing preclinical rationale for targeting eukaryotic initiation factor 5B for oral squamous cell carcinoma treatment
- **09:35 – 09:50: William Faller, Netherlands Cancer Institute**
An “alert state” ribosome population acts as a master regulator of cytokine-mediated processes
- **09:50 – 10:05: Laura Hulea, Université de Montréal**
Characterization of the role of eIF4A in the resistance of acute myeloid leukemia to chemotherapy and targeted therapies
- **10:05 – 10:15: Flash talks**
- **10:15 – 10:40: Panel discussion led by session chair**

08:15 - 10:40: Concurrent Session 3C: RNA biology in disease and untapped fields (part I)

Location: Room 106FG

Session host: Juewen Liu, University of Waterloo

Chair: Amanda Hargrove, University of Toronto

- **08:15 – 08:20: Introduction by Chair**
- **08:20 – 08:35: Christine Vande Velde, CRCHUM, Université de Montréal**
TDP-43 and stress granules in ALS/FTD
- **08:35 – 08:50: Katherine L.B. Borden, Université de Montréal**
Disrupted mRNA metabolism in Cancer
- **08:50 – 09:05: Shuo Gu, National Cancer Institute**



Pathogenic DICER1 RNase IIIb hotspot mutation leads to dysregulation of argonaute strand selection

- **09:05 – 09:20: Daniel Kim, University of California Santa Cruz**
Advancing RNA liquid biopsy technology via nanopore sequencing
- **09:20 – 09:35: Didier Stainier, Max Planck Institute for Heart and Lung Research**
Transcriptional adaptation, an RNA-based mechanism for genetic compensation.
- **09:35 – 09:50: Poul Sorensen, University of British Columbia**
Oncogenic ETS fusions promote expression of repeat element rich pericentromeric RNAs that induce proinflammatory responses via dissemination in extracellular vesicles
- **09:50 – 10:05: Catherine Riggs, The Rory Belle Foundation**
Caregiver reported data for NARS1 disorder as described by the patient advocacy organization and RARE-X
- **10:05 – 10:15: Flash talks**
(Sponsored by AReNA and Génome Québec)
- **10:15 – 10:40: Panel discussion led by session chair**

- 10:40 Coffee break and poster session.

- 10:40 – 12:40: Poster competition (Odd numbers)
Location: Room 118CDE
Session Host: Jean-Phillippe Brosseau, Université de Sherbrooke.
(Sponsored by McLaughlin Centre, University of Toronto)

- 12:40 – 14:45: Lunch
Location: Rooms **106ABCDE** (EDI workshop) and **106FG** (if not attending workshop)

- 12:40 – 14:45: Concurrent with lunch: **EDI workshop with Imogen Coe, Toronto Metropolitan University**
Location: Room 106ABCDE
Session Host: Michelle Scott, Université de Sherbrooke
 - 12:40-12:55: Lunch and seating
 - PIs sit in **106AB area**, trainees sit in **106CDE area**
 - 12:55 – 13:15: 20 minute talk by Imogen (trainees and PIs together)
 - 13:15 – 13:20: 5 minute break
 - split the room and organize trainees and PIs for breakout sessions
 - 1:20-1:45: PI session: incorporating EDI into grant writing (**Room 106AB**)
 - 1:20-1:45: Trainee session: discussion of case studies (**Room 106CDE**)
 - 1:45-1:50: 5 minute break
 - remove partition, bring PIs and trainees back together for debrief
 - 1:50-2:30: Debrief, led by Imogen



Public Session and engagement with members of government (Open to Journalists)

Location: Room 106A-G

Session Host: Trushar Patel, University of Lethbridge

- 14:55 – 15:05: Opening of public session (**Trushar Patel, University of Lethbridge**)
- 15:05 – 15:20: Introducing RNA Canada ARN (**Howard Lipshitz, University of Toronto, Chair of board of directors**)
- 15:20 – 15:30: Introduction of speaker (**Anne-Claude Gingras, Lunenfeld-Tanenbaum Research Institute, University of Toronto**)
- 15:30 – 15:55: History and contribution of Canadian Research (**Nahum Sonenberg, Gairdner Awardee, McGill University**)
- 15:55 – 16:15: Coffee break.
- 16:15 – 16:20: Introduction of speaker (**Michael Charette, Brandon University**)
- 16:20 – 16:30: RNA: the epicenter of genetic information (**John Mattick, UNSW Sydney**)
- 16:30 – 16:35: Introduction of speaker (**John Calarco, University of Toronto**)
- 16:35 – 17:05: RNA: A catalyst for public engagement in science (**Thomas Cech, Nobel laureate, University of Colorado Boulder, HHMI**)
- 17:05 – 17:10: Introduction and announcement of the concurrent activities (Trushar Patel, University of Lethbridge and Jonathan Perreault, IRCM).

Concurrent evening activities (open to journalists, cocktails and finger food will be available starting at 7 pm throughout the different activities):

- 17:10 – 18:00: Book signings by John Mattick and Thomas Cech (**side of Room 106FG**)

Concurrent session A:

Location: Room 118AB

Session Hosts: Trushar Patel (University of Lethbridge) and Katherine Borden (Université de Montréal)

- 17:15 – 18:00: Concurrent A: RNA technologies, meet those who would benefit from RNA technologies
- 18:00 – 18:45: Concurrent A: RNA technologies, meet those who will make tomorrow's RNA technologies

Concurrent session B:

Location: Room 118AB

Session Host: Jonathan Perreault, Institute National de la Recherche Scientifique (INRS)



- 17:15 – 18:15: Concurrent B: Networking and future collaborations
- 18:15 – 19:15: Concurrent B: Opportunity for organized meetings in semi-private rooms (**Rooms 215, 216**)

Concurrent session C:

Location: Room 106ABCDE

Session Host: Haissi Cui, University of Toronto

- 17:15 – 19:15: Concurrent C: RNA Canada job fair and job interviews/semi-private meetings (**Rooms 215, 216**)

19:15: Extended time for discussion and social time



Day 4 - Thursday, October 3rd

- 07:00 – 08:15: Breakfast **Room 106A-G and 106H**

8:15 - 10:35: Plenary Session: RNA: A new frontier for agriculture

Location: Room 106A-G

Session host and Chair: Mark Belmonte, University of Manitoba

- **08:15 – 08:20: Introduction by Chair**
- **08:20 – 08:35: Hirbod Bahrani, Agriculture and agri-food Canada (AAFC)**
*Application of RNA-spray as a bio-fungicide to protect canola (*Brassica napus* L.) against blackleg disease*
- **08:35 – 08:50: Steve Whyard, University of Manitoba**
RNA interference technologies to control pest insects
- **08:50 – 09:05: Hailing Jin, UC Riverside**
Nanotechnology enabled spray induced gene silencing for crop protection
- **09:05 – 09:20: Steve Robinson, Agriculture Canada**
Developing RNAi-based fungicides to control fusarium head blight
- **09:20 – 09:35: William Moar, Bayer Crop Science**
Title TBD
- **09:35 – 10:35: Roundtable Discussion:** The future applications of RNA technologies for agriculture and food security

Location: Room 106A-G

- **Session Host and Moderator: Mark Belmonte, University of Manitoba**
- **Panelists:**
 - Chris Manchur (Canola Council of Canada)
 - Steve Whyard (University of Manitoba)
 - Hailing Jin (UC Riverside)
 - Steve Robinson (Agriculture Canada)
 - William Moar (Bayer Crop Science)
 - Emily Hopwood (Health Canada - Pest Management Regulatory Agency)
- 10:35 – 10:55: Coffee break.



10:55 – 13:05: Concurrent Session 4A: RNA enzymes, aptamers, sensors, and bioengineering (part II)

Location: Room 106AB

Session host: Juewen Liu, University of Waterloo

Chair: Yingfu Li, McMaster University

- **10:55 – 11:00: Introduction by Chair**
- **11:00 – 11:15: Hyongsok Tom Soh, Stanford University**
Continuous in vivo Molecular Detection Using Aptamer Switches
- **11:15 – 11:30: Nebojsa Janjic, IND/Somalogic**
Aptamers with base modification. Structural rationale for enhanced molecular recognition of proteins
- **11:30 – 11:45: Yong Wang, Penn State**
Biomaterial Development Through Aptamers
- **11:45 – 12:00: Maureen McKeague, McGill University**
Aptazymes as non-invasive biosensors in live cells and animals
- **12:00 – 12:15: Marc-Antoine Turcotte, Université de Sherbrooke**
Inducing RNA structures with antisense oligonucleotides to repress translation
- **12:15 – 12:30: Eric Hayden, Boise State University**
High-throughput ribozyme assays for RNA innovations
- **12:30 – 12:40: Flash talks**
- **12:40 – 13:05: Panel discussion led by session chair**

10:55 – 13:05: Concurrent Session 4B: RNA, viruses, and manipulation of their hosts (part II)

Location: Room 106CDE

Session host: Jennifer Corcoran, University of Calgary

Chair: Artem Babaian, University of Toronto

- **10:55 – 11:00: Introduction by Chair**
- **11:00 – 11:15: Jeffrey S. Kieft, New York Structural Biology Center**
How viral RNAs use structure and dynamics to manipulate the cellular machinery
- **11:15 – 11:30: Anna Marie Pyle, Yale University**
Panning for gold: Discovering riboregulatory motifs in vast expanses of viral RNA sequence... and finding them in unexpected places
- **11:30 – 11:45: Peter Sarnow, Stanford University**
Virus-derived circular RNAs populate cytoplasmic RNA virus-infected cells
- **11:45 – 12:00: Jessica Tucker, University of Iowa**



Gammaherpesvirus infection triggers the formation of tRNA fragments from premature tRNAs

- **12:00 – 12:15: Clement Mazeaud, Centre Armand-Frappier Santé Biotechnologie, INRS**
Zika virus remodels and hijacks IGF2BP2 ribonucleoprotein complex to promote viral replication organelle biogenesis
- **12:15 – 12:30: Subash Chapagain, University of British Columbia**
Discovery of internal ribosome entry sites driven alternative frame translation through metagenomic data mining
- **12:30 – 12:40: Flash talks**
(Sponsored by NMX solutions)
- **12:40 – 13:05: Panel discussion led by session chair**

10:55 – 13:05: Concurrent Session 4C: AI, computational biology, and emerging approaches in RNA biology

Location: Room 106FG

Session host: Michelle Scott, Université de Sherbrooke

Chair: Davoud Torkamaneh, Université Laval

- **10:55 – 11:00: Introduction by Chair**
- **11:00 – 11:15: Jérôme Waldispühl, McGill University**
Fast and accurate RNA virtual screening using non-canonical RNA base pair interaction networks and graph machine learning
- **11:15 – 11:30: Martin Smith, UNSW Sydney**
Single-molecule (epi)transcriptomics for the real-time diagnosis of complex disease & functional characterization of lncRNAs
- **11:30 – 11:45: Xiao Wang, Broad Institute, MIT**
Deconstruct and reprogram RNA life cycle
- **11:45 – 12:00: Étienne Fafard-Couture, Université de Sherbrooke**
SnoBIRD: Applying machine learning to refine snoRNA annotations across eukaryotes
- **12:00 – 12:15: Michael McGurk, Massachusetts Institute of Technology**
KATMAP: Inferring splicing factor activity and regulatory targets from knockdown data
- **12:15 – 12:30: Lan Lin, The Children's Hospital of Philadelphia and UPenn**
TEQUILA-seq: A versatile and low-cost method for targeted long-read RNA sequencing.
- **12:30 – 12:40: Flash talks**
- **12:40 – 13:05: Panel discussion led by session chair**



- 13:05 – 14:45: Concurrent Lunches (Rooms 106AB (Regulation roundtable), 106CDE (Job opportunities roundtable), and 106FG)
- 13:05 – 14:45: Concurrent Lunch Roundtable Discussion: Regulation and evaluation of RNA-based technologies
Location: Room 106AB
Session Host: Jonathan Perreault, Institut National de la Recherche Scientifique
Moderator: Dan Edgcumbe (Roche)
- **Panelists:**
 - Mélanie Caron, Director, Direction of drug and technologies evaluation, Institut national d'excellence en santé et en services sociaux (INESSS)
 - Omar Tounekti, Manager Cell, Gene Therapies and Radiopharmaceuticals Division, Health Canada
 - Gregory Troiano, Head of cGMP Strategic Supply & Operations, Sanofi
 - Leslie Madden, Sr Director, Regulatory Science, Moderna
- 13:05 – 14:45: Concurrent Lunch Roundtable Discussion: Training and job opportunities in the new era of RNA biology
Location: Room 106CDE
- **Moderators and session hosts: Morgane Da Rocha and Jacob Fine, trainees**
- **Panelists:**
 - Craig Kerr (Inceptive)
 - Tien-Hao Chen (NEB)
 - William Moar (Bayer Crop Science)
 - Catia Perciani (Moderna)

14:45 – 16:55: Concurrent Session 5A: RNA modifications (part II)

Location: Room 106AB

Session host: Marc Fabian, McGill University

Chair: Ryan Hili, York University

- **14:45 – 14:50: Introduction by Chair**
- **14:50 – 15:05: Wendy Gilbert, Yale University**
Unexpected roles of RNA modifying enzymes in health and disease
- **15:05 – 15:20: Ute Kothe, University of Manitoba**
Conserved tRNA modifications globally modulate tRNA maturation, protein synthesis and cellular fitness
- **15:20 – 15:35: Stephen Rader, University of Northern British Columbia**
sisRNAs: an explanation for intron retention in the extremophilic alga Cyanidioschyzon merolae



- **15:35 – 15:50: Lucas Miller, University of Texas at Austin**
Selective 8-oxo-rG stalling occurs in the catalytic core of polynucleotide phosphorylase (PNPase) during degradation
- **15:50 – 16:05: Ruth Glasgow, Karolinska Institutet**
RNA methylation is critical at two distinct stages of mitochondrial gene expression
- **16:05 – 16:20: Favour Oyelami, Australian National University**
Conservation and Functional Insights of the m6A Epitranscriptome Across Mammalian Species
- **16:20 – 16:30: Flash talks**
- **16:30 – 16:55: Panel discussion led by session chair**

14:45 – 16:55: Concurrent Session 5B: mRNA translation and the Ribosome (part II)

Location: Room 106CDE

Session host: Nehal Thakor, University of Lethbridge

Chair: William James Faller, The Netherlands Cancer Institute, Amsterdam

- **14:45 – 14:50: Introduction by Chair**
- **14:50 – 15:05: Maria Barna, Stanford University**
Ribosomes in Gene Regulation: Controlling the diversity of proteins made in specific cells, tissues and organisms
- **15:05 – 15:20: Maria Vera Ugalde, McGill University**
Organism-dependent differences in mRNA sequences regulate the heat shock response
- **15:20 – 15:35: Sarah Svensson, Shanghai Institute of Immunity and Infection / CAS**
*Expression maps in *Vibrio parahaemolyticus* reveal a clade-specific dual-function RNA *RyhB**
- **15:35 – 15:50: Jean-Denis Beaudoin, University of Connecticut Health Center**
NaP-TRAP: a versatile technique to investigate translational control
- **15:50 – 16:05: Xinnian Dong, HHMI/Duke University; Tsinghua University; UNC Chapel Hill**
Pervasive downstream RNA hairpins dynamically dictate start-codon selection in regulation of stress protein translation
- **16:05 – 16:20: Scott Blanchard, St. Jude Children's Research Hospital**
mRNA decoding in human is kinetically and structurally distinct from bacteria
- **16:20 – 16:30: Flash talks**
- **16:30 – 16:55: Panel discussion led by session chair**



14:45 – 16:55: Concurrent Session 5C: Regulatory RNAs: markers, targets, structure and function (part II)

Location: Room 106FG

Session host: Mark Belmonte, University of Manitoba

Chair: Yu Zhou, Wuhan University

- **14:45 – 14:50: Introduction by Chair**
- **14:50 – 15:05: Gisela Storz, National Institute of Child Health and Human Development**
Novel mechanisms of regulation by base pairing small RNAs
- **15:05 – 15:20: David Bartel, Massachusetts Institute of Technology, Whitehead Institute, Howard Hughes Medical Institute**
Regulation of mRNA Translation and Decay
- **15:20 – 15:35: David Baulcombe, Cambridge University**
RNA silencing and disease resistance in plants
- **15:35 – 15:50: Jayoung Ku, Boston Children's Hospital**
Alternative Polyadenylation Determines the Functional Landscape of Inverted Alu Repeats
- **15:50 – 16:05: Zhen Jin, University of British Columbia**
Long Non-coding RNA PAN3-ASI Represents a Novel Therapeutic Target in Acute Myeloid Leukemia
- **16:05 – 16:20: TinTin Luu, University of Toronto**
Targeting and Modulating Positive-Sense Viral RNA Regulatory Structures with Amiloride-Based Small Molecules
- **16:20 – 16:30: Flash talks**
- **16:30 – 16:55: Panel discussion led by session Chair**

Thursday Gala Dinner at the Canadian Museum of History

Transportation organized by Olivier Binda, University of Ottawa

Session Host: Tommy Alain, University of Ottawa

- 16:00 – 18:00: Shuttle buses available for Transfer to the **Canadian Museum of History**
- 16:00 – 18:30: Museum Visit
- 18:30 – 19:05: Networking Cocktail (Opening and Announcements by the local host Tommy Alain, University of Ottawa)
- 19:05 – 19:10 Start of the dinner activity (moderated by Tasha Kheiriddin)



- 19:10 – 19:15: RNA Canada Note, President of RNA Canada
- 19:15 – 19:20: Message from Gold Sponsor of the dinner, Pierre Cossette president of Université de Sherbrooke
- 19:20 – 19:25: Welcome from a representative of the Canadian government (TBD).
- 19:25 – 20:25: Dinner
- 20:25 – 20:30: Introduction of Derrick Rossi by Janet Rossant, President and Scientific Director, The Gairdner Foundation
- 20:30 – 21:00 (25' + 5' questions): Stem cell science and the genesis of new therapeutic paradigms for patients, Derrick Rossi, Co-founder of MODERNA; CEO, New York Stem Cell Foundation
- 21:00 – 21:10: The future of RNA Canada: RNA Canada outreach committee.
- 21:10 – Entertainment - Elisapie and Dance with the Sway band.



Day 5 - Friday, October 4th

- 07:00 – 08:30: Breakfast: **Rooms 106AB, 106CDE, 106FG, and 106H**

Concurrent Session 6A: Ribonucleoprotein granules and RNA in motion (part II)

Location: Room 106AB

Session host: Jocelyn Côté, University of Ottawa

Chair: Eric Lecuyer, Institut de Recherches Cliniques de Montréal

- **08:30 – 08:35: Introduction by Chair**
- **08:35 – 08:50: Iqra Yaseen, Simon Fraser University**
Robust-genetically encoded FRET for In Vitro and In Vivo studies of Cas9-gRNA
- **08:50 – 09:05: James M. Burke, University of Florida Scripps Institute**
Biomolecular condensation regulates cell-autonomous antiviral pathways
- **09:05 – 09:20: Swathi Yadlapalli, University of Michigan**
Post-transcriptional splicing of a single intron at the nuclear speckles controls 24-hour circadian rhythms
- **09:20 – 09:35: Gary Bassell, Emory University**
Association of Muscleblind-like 1 RNA binding protein domains with kinesins and endosomes regulates mrna granule trafficking in neurons
- **09:35 – 09:50: Stephanie Moon, University of Michigan**
Stress-induced gene mRNA condensation and expression are governed by ribosome association and the stress granule proteins G3BP1/2
- **09:50 – 10:00: Flash talks**
- **10:00 – 10:20: Panel discussion led by session chair**

Concurrent Session 6B: RNA processing and maturation (part II)

Location: Room 106CDE

Session host: John Calarco, University of Toronto

Chair: Markus Hafner, National Institute of Arthritis and Musculoskeletal and Skin Diseases

- **08:30 – 08:35: Introduction by Chair**
- **08:35 – 08:50: Thomas Gonatopoulos Pournatzis, National Cancer Institute/NIH**
Genome-Scale Exon Perturbation Screens Uncover Exons Critical for Cell Fitness
- **08:50 – 09:05: Benoit Chabot, Université de Sherbrooke**
Splicing Regulation: From Basic Principles to Disease Applications
- **09:05 – 09:20: Pallavi Pilaka, University of Toronto**



Investigating neuronal-specific repression of alternative splicing by the conserved CELF protein UNC-75 in C. elegans

- **09:20 – 09:35: Raymund J. Wellinger, Université de Sherbrooke**
Lessons from the yeast telomerase RNA: how to assemble something new from recycled parts.
- **09:35 – 09:50: Eric Lai, Sloan Kettering Institute**
Non-canonical role of ALAS1 as an inhibitor of RNA interference
- **09:50 – 10:00: Flash talks**
- **10:00 – 10:20: Panel discussion led by session chair**

Concurrent Session 6C: RNA biology in disease and untapped fields (part II)

Location: Room 106FG

Session host: Eric Jan, University of British Columbia

Chair: Neil Renwick, Queen's University

- **08:30 – 08:35: Introduction by Chair**
- **08:35 – 08:50: Susan L. Ackerman, HHMI/University of California, San Diego**
Transfer RNAs as genetic modifiers of neurological disease
- **08:50 – 09:05: Mardin (Asghar) Fallah, University of Alberta**
Expanding the Horizons of RNA Biology: Direct Cell Reprogramming for Personalized Bone Cell Therapies through Self-Replicating RNA
- **09:05 – 09:20: Davide Ruggero, University of California, San Francisco**
Functional screen for mediators of onco-mRNA translation specificity
- **09:20 – 09:35: Peter Johnson, National Cancer Institute, NIH**
3'UTR-directed, kinase proximal mRNA decay inhibits post-translational activation of C/EBP β to suppress senescence in tumor cells
- **09:35 – 09:50: Janelle Sauvageau, National Research Council**
Synthetic GlycoRNAs generation, analysis and evaluation in Human foreskin fibroblast
- **09:50 – 10:00: Flash talks**
- **10:00 – 10:20: Panel discussion led by session chair**

- **10:20 – 10:40: Coffee break.**
(Sponsored by Remix Therapeutics)

Closing Keynote:

Location: Room 106A-G

Session Host and moderator: Haissi Cui, University of Toronto

- 10:40 – 10:45: Introduction of speaker by Haissi Cui
- 10:45 – 11:15: Closing Keynote, **Lynne Maquat, University of Rochester, Gairdner International Awardee**



Effects of the RNA-binding protein FMRP on mRNA translation and decay

- 11:15 – 11:25: Question period

11:25 – 12:25: Concluding Panel Discussion:

Location: Room 106A-G

Session host: John Calarco, University of Toronto

- **Moderator: Howard Lipshitz, Chair, Board of Directors, RNA Canada ARN & University of Toronto**
- **Panelists:**
 - Cindy Bell (Chair, Diabetes Action Canada & Former Executive Vice President, Genome Canada)
 - Adrian Krainer (Cold Spring Harbor Laboratory)
 - Andre Picard (Journalist & Author, Globe & Mail)
 - Phillip Sharp (Nobel Laureate, MIT)
- 11:25-11:35 Opening remarks, introduction of panelists and summary of roundtables
- 11:35-12:20 Series of questions posed by moderator for discussion by panelists and audience questions
- 12:20-12:25 Summary and next steps (Moderator)
- **12:25: Note from meeting Platinum Sponsor: Moderna**
- **12:30: Light lunch**
(Sponsored by University of Toronto)
- Departure