



## 2014 RiboClub Program

*The ever-expanding diversity of RNA functions*

**22-24 September**

**In partnership with the Yale RNA Center**

*Hôtel et Villégiature Chéribourg*

*2603 Chemin du Parc*

*Orford (Magog) Québec*

### **Sunday, September 21<sup>st</sup>, 2014**

15:00 – 18:00      Registration for early arrivals

### **Monday, September 22<sup>nd</sup>, 2014**

08:00 – 09:00      Registration

09:00 – 09:10      Welcoming notes (Sherif Abou Elela)

09:10 – 09:15      Presentation of Keynote speaker (Jean-Pierre Perreault)

09:15 – 10:15      **Keynote presentation**

Mobile Group II Introns: Mechanisms, Evolution, and Biotechnological Applications

**Alan Lambowitz**, The University of Texas, Austin

10:15 – 10:40      Coffee break

### **Session 1:**

RNAs as sensors

Chair: Ron Breaker (Host: Michelle Scott)

10:40 – 10:45      Introduction

10:45 – 11:10      Prospects for Ribozyme Discovery and Analysis

**Ronald Breaker**, Yale University, New Haven

11:10 – 11:35      Gene control by bacterial mRNA leaders.

**Eduardo Groisman**, Yale University, New Haven

11:35 – 11:50      Junk RNA fragments act as sRNA sponge in prokaryotes

**Eric Massé**, Université de Sherbrooke, Sherbrooke



- 11:50 – 12:05 Discontinuous transcription elongation dictates riboswitch sensing and regulation mechanisms  
**Daniel Lafontaine**, Université de Sherbrooke, Sherbrooke
- 12:05 – 12:20 Understanding ligand binding by the cocaine-binding aptamer. A combined NMR, calorimetry and SAXS approach  
**Philip Johnson**, York University, York
- 12:20 – 13:45 Lunch

### **Session 2:**

RNA and chromatin

Chair: Haifan Lin (Host: Brendan Bell)

- 13:45 – 13:50 Introduction
- 13:50 – 14:15 Retrotransposons and pseudogenes regulate mRNAs and lincRNAs via the piRNA pathway in the germline  
**Haifan Lin**, Yale University, New Haven
- 14:15 – 14:40 Insight into lincRNA function and mechanism using capture hybridization analysis  
**Matthew Simon**, Yale University, New Haven
- 14:40 – 15:05 Histone deacetylase and RNA splicing  
**James Davie**, University of Manitoba, Winnipeg
- 15:05 – 15:20 Widespread Inducible Transcription Downstream of Human Genes  
**Anna Vilborg**, Yale University, New Haven
- 15:20 – 16:00 Coffee Break

### **Session 3:**

RNA enzymes

Chair: Philip Bevilacqua (Host: Raymund Wellinger)

- 16:00 – 16:05 Introduction
- 16:05 – 16:30 Combining experiments with theory to obtain deeper insight into ribozyme mechanism  
**Philip Bevilacqua**, Pennsylvania State University, University Park
- 16:30 – 16:55 Telomerase biogenesis, stability and regulation in fission yeasts and other fungi  
**Peter Baumann**, Stowers, Institute for Medical Research, Kansas



- 16:55 – 17:20 Divergent structure and mechanism of telomerase ribonucleoprotein  
**Julian Chen**, Arizona State University, Tempe
- 17:20 – 17:35 Analysis of conformational exchange of functional RNA molecules by  
19F NMR  
**Nancy Greenbaum**, University of New York, New York
- 17:35 – 17:50 Structural insights into the III/IV/V junction of the Neurospora VS  
ribozyme  
**Eric Bonneau**, Université de Montréal, Montréal
- 17:50 – 18:00 Nucleobase Phosphorylation by an RNA Enzyme  
**Raghav Poudyal**, University of Missouri, Columbia
- 18:00 – 18:10 Probing the Origins of Catalysis with an RNA-Cleaving Deoxyribonucleic  
Acid (DNA) System  
**Rachel Gysbers**, McMaster University, Hamilton
- 18:10 – 18:20 Chemically modified RNase A mimic DNA enzymes against all-RNA  
substrate developed by in vitro selection and evolution  
**Yajun Wang**, University of British Columbia, Vancouver
- 18:20 – 19:20 Poster competition IA: (Odd numbers)
- 19:20 – 20:20 Poster competition IB: (Even numbers)
- 20:20 – 21:20 Dinner
- 21:20 – 21:25 Presentations of the travel awards  
**Eric Massé**, Université de Sherbrooke, Sherbrooke
- 21:25 – 21:30 Presentation of the after dinner speaker  
**Benoit Chabot**, Université de Sherbrooke, Sherbrooke
- 21:30 – 22:30 **After-dinner general presentation**  
Scientific Utopia: Improving Openness and Reproducibility in Scientific  
Research  
**Brian Nosek**, Department of Psychology, University of Virginia



**Tuesday, September 23<sup>rd</sup>, 2014**

07:00 – 08:40 Breakfast

**Session 4:**

Assembling ribonucleoprotein machines

Chair: Susan Baserga (Host: Daniel Lafontaine)

08:40 – 08:45 Introduction

08:45 – 09:10 Specialized Ribosomes: A new frontier in gene regulation, organismal development, & evolution

**Maria Barna**, Stanford University, Palo Alto

09:10 – 09:35 Progress towards a defined, recombinant splicing reaction  
**Stephen Rader**, University of Northern British Columbia, Prince George

09:35 – 09:50 Assembly, Transition, and Catalysis within the Spliceosome  
**Andrew MacMillan**, University of Alberta, Edmonton

09:50 – 10:05 New Guys on the Block: Non-canonical Translational NTPases and the Ribosome

**Hans-Joachim Wieden**, University of Lethbridge, Lethbridge

10:05 – 10:50 Coffee break

**Session 5:**

Regulating mRNA translation

Chair: Antonio Giraldez (Host: Martin Bisailon)

10:50 – 10:55 Introduction

10:55 – 11:20 Gene regulation during embryonic development from microRNAs to micropeptides

**Antonio Giraldez**, Yale University, New Haven

11:20 – 11:45 Pseudouridine profiling (Pseudo-seq) reveals widespread regulated mRNA pseudouridylation in yeast and human cells

**Wendy Gilbert**, MIT, Cambridge

11:45 – 12:00 mRNP reorganization during microRNA-mediated repression

**Olivia Rissland**, The Hospital for Sick Children Research Institute, Toronto



- 12:00 – 12:15 Translation repression and P-body components are involved in induced defenses against viruses in plants  
**Peter Moffett**, Université de Sherbrooke, Sherbrooke
- 12:15 – 12:30 2014 Group Photo
- 12:30 – 14:25 Lunch and social time
- 14:25 – 14:50 Special presentation: NSERC News and Information Session  
**Sylvie Roy**, NSERC
- 14:50 – 15:15 **Student's Best Seminar Award**  
Introduced by students representatives

### **Session 6:**

RNA maturation and decay

Chair: Joan Steitz (Host: Benoit Chabot)

- 15:15 – 15:20 Introduction
- 15:20 – 15:45 Coupled pri-miR-17~92 processing and pre-miRNA stabilization in cancer  
**Thomas Duchaine**, McGill University, Montreal
- 15:45 – 16:00 Diverse Mechanisms Regulating MicroRNA Expression  
**Richard Fahlman**, University of Alberta, Edmonton
- 16:00 – 16:45 Coffee Break
- 16:45 – 17:10 RNA splicing: still in Plato's cave?  
**Ian Eperon**, University of Leicester, Leicester
- 17:10 – 17:35 The versatility of RNA helicases highlighted by the Exon Junction Complex  
**Hervé Le Hir**, Institut de Biologie de l'École Normale Supérieure, Paris
- 17:35 – 18:00 Structural Insights into the Stabilization of MALAT1 Noncoding RNA by Formation of a Bipartite Triple Helix  
**Joan Steitz**, Yale University, New Haven
- 18:00 – 19:00 Poster competition IIA (Odd numbers)
- 19:00 – 20:00 Poster competition IIB: (Even numbers)
- 20:15 – 21:20 Banquet



- 21:20 – 21:50 Musical Interlude (Part 1)
- 21:50 – 22:10 Poster prizes  
**François Bachand**, Université de Sherbrooke
- 22:10 – 22:15 RNA Group and Blue jacket award  
**Benoit Chabot**, Université de Sherbrooke
- 22:15 – 23:00 Musical Interlude (Part 2)
- 23:00 – ..... Dance

### Wednesday, September 24<sup>th</sup>, 2014

- 07:00 – 09:00 Breakfast

#### Session 7A:

Ever-expanding diversity of RNA functions

Chair: Sandra Wolin (Host: Eric Massé)

- 09:00 – 09:05 Introduction
- 09:05 – 09:30 A new class of bacterial noncoding RNAs that are tRNA mimics  
**Sandra Wolin**, Yale University, New Haven
- 09:30 – 09:55 RNA binding proteins interact specifically with transposable element sequence in human genes  
**John Rinn**, Harvard University, Boston
- 09:55 – 10:20 Regulatory RNAs  
**Nikolaus Rajewsky**, Max Delbrueck Center for Molecular Medicine, Berlin
- 10:20 – 10:50 Coffee break



## **Session 7B:**

Ever-expanding diversity of RNA functions

Chair: Sandra Wolin (Host: Eric Massé)

- 10:50 – 11:15      Molecular Mechanism of an Essential Targeting Machine  
**Shu-ou Shan**, California Institute of Technology, Pasadena
- 11:15 – 11:40      Intramolecular phenotypic capacitance within a modular RNA  
molecule  
**Eric Hayden**, Boise State University, Boise
- 11:40 – 12:40      **Student Choice Seminar**  
Introduction by the student's representatives  
Designing synthetic regulatory RNAs: new tools for temporal and  
spatial control in biological systems  
**Christina Smolke**, Stanford University, Palo Alto
- 12:40 – 13:40      Lunch

**Departure**