

The 10th Anniversary 2009 RiboClub Program In partnership with the 50th Anniversary of the Gairdner Foundation

Hotel Chéribourg, Magog

Monday, September 21, 2009 (Day 1)

08:00 - 10:00 Registration

Public session: The Societal Impact of RNA Research (Moderator: Benoit Chabot)

10:00 - 10:10 Sherif Abou Elela, Université de Sherbrooke
Ten Years of RiboClub: Introduction

10:10 - 10:20 John Dirks, The Gairdner Foundation
RNA centric view of Gairdner's 50 years

10:20 - 10:30 Luce Samoisette, Rector of the Université de Sherbrooke
Université de Sherbrooke Strategic Views of RNA Research

10:30 - 10:40 Canadian Institute of Health Research (CIHR) representative

10:40 - 11:00 **"What is a RNA?"** Jean-Pierre Perreault and Gilles Boire, Université de Sherbrooke

11:00 - 11:30 **"Designing Life"**

Jack Szostak, Harvard Medical School
A. H. Heineken Prize 2008, Lasker Award 2006
(Introduction by Peter Unrau, Simon Fraser University)

11:30 - 12:00 **"Ribonucleotides in Life"**

Phillip Sharp, Massachusetts Institute of Technology
Gairdner Award 1986, Nobel Prize in Medicine 1993
(Introduction by Andrew MacMillan, University of Alberta)

12:00 - 12:30 Question Period

12:30 – 12:40 End of public session and departure of unregistered guests

Beginning of the scientific meeting

12:40 - 14:00 Lunch for registered guests

14:00 - 14:10 **Welcome Notes**, Sherif Abou Elela

14:10 - 14:30 **Timothy W. Nilsen**, Case Western Center for RNA Molecular Biology

Overview of the current state of RNA based research

(Introduction by François Bachand, Université de Sherbrooke)

Session 1: RNA evolution and its impact on the function of modern cells

14:30 - 14:40 Introduction by Session Chair Jack Szostak

14:40 - 15:05 Jack Szostak, Harvard Medical School

The Origin of Life and the Emergence of Darwinian Evolution

15:05 - 15:30 Peter Unrau, Simon Fraser University

RNA catalyzed RNA polymerization

15:30 - 15:55 Benoit Cousineau, McGill University

Trans-splicing versatility of the LI.LtrB group II intron from *Lactococcus lactis*: experimental support for the “five easy pieces” theory

15:55 - 16:20 Kenneth Hastings, McGill University

High-throughput sequence analysis of the trans-spliced mRNAs/genes of the simple chordate *Ciona intestinalis*

16:20 - 16:45 Ford Doolittle, Dalhousie University

Why are molecular machines such as the editosome, the spliceosome and the ribosome so ridiculously complex?

16:45 - 17:00 Coffee Break



Session 2: RNA Processing and Degradation - The Ubiquitous Activities

17:00 - 17:10 Introduction by Session Chair David Tollervey

17:10 - 17:35 Sandra Wolin, Yale University

One ring to find them: A bacterial Ro protein adapts an exoribonuclease for stress-induced RNA decay

17:35 - 18:00 Roy Parker, University of Arizona

The Eukaryotic mRNA Cycle: Movement of yeast mRNAs between polysomes, stress granules, and P-bodies and its role in the control of translation and degradation

18:00 - 18:25 David Tollervey, University of Edinburgh

Some Cracking Results with RNA: Cross-linking and analysis of cDNAs identifies sites and novel targets for RNA-binding proteins

18:25 - 18:40 Ghada Ghazal, Abou Elela Lab, Université de Sherbrooke, Canada

Double Stranded RNA Binding Proteins: A General Signal for Selective Gene Silencing

18:40 - 18:55 François Bachand, Université de Sherbrooke, Canada

Processing of Noncoding RNAs by a Poly(A)-Binding Protein

18:55 – 19:20 Gideon Dreyfuss, University of Pennsylvania

RNP Biogenesis and Global Splicing Regulation

19:20 - 21:00 **Poster Session I** + Concomitant Wine and Cheese Tasting

21:00 - 22:00 Dinner



21:30 - 22:30 Dinner Speaker:

Paul Griffiths, University Professorial Research Fellow, University of Sydney
Professor of Philosophy of Science, ESRC Center for Genomics in Society,
University of Exeter.

The Evolving Concept of Homology

(Introduction by Daniel Lafontaine, Université de Sherbrooke)



Tuesday September 22, 2009 (Day 2)

07:00 - 08:30 Breakfast

Session 3: Splicing: The exception that became the rule

08:30 - 08:40 Introduction by Tom Maniatis

08:40 - 09:05 Robert Darnell, Rockefeller University
RNA maps in vivo

09:05 - 09:30 Chris Burge, Massachusetts Institute of Technology
Functions of splicing regulators and alternative protein isoforms

09:30 - 09:55 Sherif Abou Elela, Université de Sherbrooke
High-content functional analysis of cancer associated alternative splicing events

09:55 - 10:20 Mariano Garcia Blanco, Duke University Medical Center
Imaging splicing reveals phenotypic transitions in cancer cells

10:20 - 10:45 Tom Maniatis, Harvard University
A possible role of RNA metabolism in ALS disease mechanisms

10:45 – 11:00 Coffee Break

Session 4: Translation: targets and impact

11:00 - 11:10 Introduction by Session Chair Nahum Sonenberg

11:10 - 11:35 Allan G. Hinnebusch, National Institutes of Health
Structural elements in eIF1A regulate AUG selection by controlling distinct modes of initiator binding to the preinitiation complex

11:35 - 11:50 Martin Bisailon, Université de Sherbrooke
Nucleotide analogs and molecular modeling studies reveal key interactions involved in substrate recognition by enzymes involved in the synthesis of the RNA cap structure.

11:50 - 12:15 Tom Steitz, Yale University

Understanding function from structures of elongation factors, tRNAs and antibiotics bound to the 70S ribosome

12:15 - 12:30 Kevin Wilson, University of Alberta

Regulation of bacterial Ribosomes by GTPases and antibiotics

12:30 - 14:00 Lunch

Session 4: Translation: targets and impact (Continued)

14:00 - 14:25 Nahum Sonenberg, McGill University

Translational Control of Cell Proliferation by the 4E-Binding Proteins

14:25 - 14:40 Martin Simard, Laval University

Interaction between the Argonaute and the ribosome is important for the microRNA pathway

Session 5: RNA and regulation of gene expression

14:40 - 14:45 Introduction by Session Chair Victor Ambros

14:45 - 15:10 Victor Ambros, University of Massachusetts Medical School

MicroRNA Pathways in Animal Development

15:10 - 15:30 Véronique Lisi, Francois Major Lab, Université de Montréal

Regulatory loops involving transcription factors and miRNAs

15:30 - 15:50 Marc Fabian, Nahum Sonenberg Lab, McGill University

Uncovering a link between PABP and GW182 in miRNA-mediated deadenylation

15:50 – 16:35 Coffee Break



Session 5: RNA and regulation of gene expression (continued)

14:35 - 17:00 Joan Steitz, Yale University

Regulating the Activity of MicroRNAs in Vertebrate Cells

17:00 - 17:25 Lynne Maquat, University of Rochester Medical Center

Regulation of gene expression through quality-control and condition-dependent mechanisms of mRNA decay

17:25 - 17:50 Shiv Grewal, National Cancer Institute NIH

RNAi-mediated Epigenetic Control of the Genome

17:50 – 18:15 Robin Allshire, University of Edinburgh

Synthetic heterochromatin can bypass RNAi to form heterochromatin and functional centromeres

18:15 - 20:15 **Poster Session II** + A little taste of the Eastern Townships

20:15 - 21:25 Dinner

21:25 - 21:55 10 years of Riboclub

Raymund Wellinger, Université de Sherbrooke

21:55 - 22:10 The Watch: Honoring the distinguished achievements of a Canadian RNA biologist

Benoit Chabot, Sherbrooke RNA group

Wednesday September 23, 2009 (Day 3)

07:00 - 08:45 Breakfast

Session 6: The functional diversity of RNA

08:45 - 08:55 Introduction by Session Chair Ronald R. Breaker

08:55 - 09:20 Jeff Boeke, Johns Hopkins University School of Medicine
Building *Saccharomyces cerevisiae* v2.0: The Synthetic Yeast Genome Project

09:20 - 09:45 Ronald R. Breaker, Yale University
Large Noncoding RNAs in Bacteria

09:45 - 10:10 Allan Lambowitz, University of Texas at Austin
Mobile group II introns: site-specific integration into DNA and applications in gene targeting

10:10 - 10:30 Raymund Wellinger, Université de Sherbrooke
Structure-function analyses on the budding yeast telomerase RNA

10:30 - 10:45 Jonathan Perreault, Breaker Lab, Yale University
Numerous hammerhead ribozymes are present in archaea and eubacteria

10:45 - 11:00 Neil Dixon, University of Manchester
New riboswitch-based tools for orthogonal genetic regulation

11:00 - 11:30 Coffee Break

Session 7: RNA as a drug or drug target

11:30 - 11:55 Introduction by the Session Chair Allan Jacobson

11:55 - 12:20 Allan Jacobson, University of Massachusetts Medical School
Genetic nonsense: from bench to bedside

12:20 - 12:45 Muthiah Manoharan, Alnylam Pharmaceuticals
Making siRNAs into drugs using chemistry

12:45 - 13:00 Group Photo

13:00 - 14:30 Lunch

Session 7: RNA as a drug or drug target (Continued)

14:30 - 14:55 Peter J. Campochiaro, Johns Hopkins University School of Medicine
Toll-like Receptor 3 is Falsely Accused

14:55 - 15:15 Imed Gallouzi, McGill University
Inhibiting the Function of the Translational Initiation Factor eIF-4A Delays Cytokine Induced Muscle Wasting

15:15 - 15:30 Jérôme Mulhbacher, Lafontaine Lab, Université de Sherbrooke
Novel antibiotics as selective inhibitors of guanine-related metabolic pathways

15:30 – 15:55 Coffee break

15:55 - 16:00 Introduction and Presentation of "Best RiboClub Students Seminar Award 2008-2009"
Mathieu Lavoie and Laetitia Michelle, Université de Sherbrooke

16:55 - 16:15 **Winner's Presentation**
"Best RiboClub Students Seminar Award 2008-2009"

16:15 - 16:20 Introduction of the "Student Choice Speaker 2009"
Mathieu Lavoie and Laetitia Michelle

16:20 - 16:45 Student Choice Speaker 2009:

Robert Landick University of Wisconsin at Madison

Control of RNA synthesis by a complex molecular machine

16:45 - 18:30 **Poster Session III**

19:00 - 21:00 Gala Dinner

20:00 - 21:00 Dinner Speaker:

Alexander Rich, Massachusetts Institute of Technology

“The Structural Biology of RNA: The Early Years”

(Introduction by Sherif Abou Elela, Université de Sherbrooke)

21:00 - 21:10 Prizes for Best Poster Presentations
Martin Bisailon and Raymund Wellinger, Université de Sherbrooke

21:10 - 21:55 Introduction to Neo-Traditional Quebec Music; Alain-François.

22:35 - 00:00 Dance

Thursday September 24, 2009 (Day 4)

07:00 - 09:00 Breakfast

Departure