

# **FASEB Summer Research Conference**

## **Posttranscriptional Control of Gene Expression**

**Copper Mountain, Colorado**

**July 16 - July 21, 2000**

**Conference Chairman** - Bob Simons \_ University of California, Los Angeles

**Conference Vice Chairman** - Stan Cohen \_ Stanford University School of Medicine, Palo Alto

### **Organizing Committee**

Lynne Maquat \_ Roswell Park Cancer Institute, Buffalo

John McCarthy \_ University of Manchester Institute of Science and Technology (UMIST)

Yoshi Nakamura \_ University of Tokyo

## **PROGRAM**

$\gamma$

### **Sunday, July 16**

#### **ARRIVAL AND RECEPTION**

**6:00 p.m.**      **Informal Reception**

**7:00 p.m.**      **Dinner**

**8:30 p.m.**      **Welcoming Remarks:** Bob Simons and Stan Cohen

# Monday, July 17

7:30 a.m. BREAKFAST

## SESSION 1 - Ribonucleases and multicomponent degradative "machines" (chaired by Murray Deutscher)

- 9:00 a.m. **Probing RNA recognition and cleavage by the RNaseE family using synthetic oligoribonucleotide substrates**  
Kenneth McDowall, University of Leeds
- 9:25 a.m. **Identification of the gene encoding the 5S ribosomal RNA maturase in *Bacillus subtilis* suggests conservation of an RNase E-independent mechanism in low G+C Gram-positive bacteria**  
Ciarán Condon, Institut de Biologie Physico\_Chimique, Paris
- 9:50 a.m. COFFEE
- 10:10 a.m. **RNases in bacterial RNA processing and decay**  
Murray Deutscher, University of Miami School of Medicine
- 10:35 a.m. **Nmd3p directs nuclear export of the 60S ribosomal subunit in yeast**  
Arlen Johnson, University of Texas, Austin
- 11:00 a.m. **Ribonuclease activities on small RNAs in *Bacillus subtilis***  
David H. Bechhofer, Mount Sinai School of Medicine, New York\*
- 11:25 a.m. **The TOR (target of rapamycin) signaling pathway regulates mRNA turnover in the yeast *Saccharomyces cerevisiae*.**  
Carolyn J. Decker, Washington State University, Pullman\*

12:00-1:30 p.m. LUNCH

6:00 p.m. DINNER

## SESSION 2 - More Enzymes and "machines" (chaired by A.J. Carpousis)

- 7:00 p.m. **Going in circles: Circular *rpsT* mRNA and a looping model for degradosome action**  
George Mackie, University of British Columbia, Vancouver
- 7:30 p.m. **Intercalating drugs as probes of the ribonuclease III mechanism of action**  
Allen Nicholson, Wayne State University, Detroit
- 8:00 p.m. **A role for yeast RNase III in the control of stress-induced gene expression**  
Guillaume Chanfreau, University of California, Los Angeles
- 8:30 p.m. **The ATPase and helicase activities of the *E. coli* RNA degradosome are coordinated by the interaction between RhlB and RNase E**  
A.J. Carpousis, CNRS, Toulouse
- 9:00 p.m. **RNA degradosome proteins in *E. coli* cells**  
Sue Lin-Chao, Academia Sinica, Taiwan
- 9:30 p.m. **Post-transcriptional regulation of thymidylate synthetase gene expression by LSF**  
Lee Johnson, Boston University\*

# Tuesday, July 18

7:30 a.m. BREAKFAST

## SESSION 3 - Regulation of mRNA decay (chaired by Joel Belasco)

9:00 a.m. **Control of mRNA longevity in *E. coli* by stem-loop structures within the 5' untranslated region: influence on the susceptibility of mRNA to degradation by RNase E and RNase G**

Joel Belasco, New York University School of Medicine

9:25 a.m. **Post-transcriptional Regulation of DNA Replication Genes during the Cell Cycle in *Crithidia fasciculata***

Dan S. Ray, University of California, Los Angeles\*

9:50 a.m. COFFEE

10:10 a.m. **Hfq (HF1) stimulates *ompA* mRNA decay by interfering with ribosome binding**

Alex von Gabain, University of Vienna

10:35 a.m. **Regulation of mRNA abundance by receptor signaling pathways**

TJ Murphy, Emory University, Atlanta\*

11:00 a.m. **Regulation of ARE-mediated mRNA turnover in *Saccharomyces cerevisiae***

Stuart W. Peltz, Robert Wood Johnson Medical School-University of Medicine and Dentistry of New Jersey, Piscataway\*

11:25 a.m. **Engineering mRNA stabilizing elements to achieve coordinated differential expression of two genes**

Christina D. Smolke, University of California, Berkeley\*

12:00-1:30 p.m. LUNCH

## SESSION 4 - Posters - 2:00 - 4:00 p.m.

6:00 p.m. DINNER

## SESSION 5 - Translation: From the beginning (chaired by Mathias Springer)

7:00 p.m. **The Structure and Function of Mammalian Initiation Factors**

John Hershey, University of California, Davis

7:30 p.m. **Translation initiation by internal ribosome binding in cellular and viral mRNAs**

Peter Sarnow, Stanford University School of Medicine, Palo Alto

8:00 p.m. **Alternate Readouts of the Genetic Code**

Ray Gesteland, University of Utah, Salt Lake City

8:30 p.m. **A link between programmed +1 translational frameshifting and the accuracy of translational initiation**

Phil Farabough, University of Maryland, Baltimore

9:00 p.m. **New modulatory features of the yeast translation factor eIF4G**

John McCarthy, University of Manchester Institute of Science and Technology (UMIST)

9:30 p.m. OPEN

# Wednesday, July 19

7:30 a.m. BREAKFAST

## SESSION 6 - Translation: To the end and back (chaired by Ray Gesteland)

9:00 a.m. SsrA-mediated *trans*-translation of the *E.coli lacI* mRNA and its physiological significance  
Hiroji Aiba, Nagoya University

9:25 a.m. The mysterious roles of IF3 during initiation of protein synthesis in bacteria  
Mans Ehrenberg, Uppsala University

9:50 a.m. COFFEE

10:10 a.m. Probing ribosomal P-site function with mutations and drugs  
Bob Simons, University of California, Los Angeles

10:35 a.m. The mechanism and accuracy for deciphering stop codons by tripeptide 'anticodon' of polypeptide release factors  
Yoshi Nakamura, University of Tokyo

11:00 a.m. Inhibitors of the RRF (ribosome recycling factor) reaction. It's significance in the action of RRF, a near perfect tRNA mimic  
Akira Kaji, University of Pennsylvania, Philadelphia\*

11:25 a.m. Estradiol up-regulates estrogen receptor mRNA via discrete sequences of the message  
Nancy H. Ing, Texas A&M University, College Station\*

12:00-1:30 p.m. LUNCH

## SESSION 7 - Afternoon Round-Table Discussion - 2:00-3:30 p.m. - "To be announced"

6:00 p.m. DINNER

## SESSION 8 - Regulating translation by diverse mechanisms (chaired by Alan Hinnebusch)

7:00 p.m. Quantity surveying at the post-transcriptional level: the need for numbers to understand translational control  
Maartin de Smit, Erasmus University, Rotterdam

7:30 p.m. Mechanism of translational control in yeast by phosphorylation of initiation factor 2  
Alan Hinnebusch, National Institutes of Health, Bethesda

8:00 p.m. Mimicry between mRNA and tRNA recognition by *E. coli* threonyl-tRNA synthetase  
Mathias Springer, Institut de Biologie Physico-Chimique, Paris

8:30 p.m. *fhfA* antisense regulation by OxyS RNA  
Shoshy Altuvia, Hebrew University-Hadassah Medical School, Jerusalem

9:00 p.m. The translational regulation of RpoS in response to some environmental signals is mediated by two small RNAs: DsrA and RprA  
Nadim Majdalani, National Institutes of Health, Bethesda\*

9:30 p.m. Cold-temperature reversal of polynucleotide phosphorylase translational repression  
Rudy Beran, University of California, Los Angeles\*

# Thursday, July 20

7:30 a.m. BREAKFAST

## SESSION 9 - The complex roles of 3'-polyadenylation (chaired by Philippe Regnier)

9:00 a.m. **Polyadenylation in *Escherichia coli* is an integral feature of mRNA decay**  
Sydney Kushner, University of Georgia, Athens

9:30 a.m. **Metabolism of bacterial poly(A) tails and mRNA stability**  
Philippe Regnier, Institut de Biologie Physico\_Chimique, Paris

9:50 a.m. COFFEE

10:10 a.m. **Polyadenylation and Degradation of mRNA in the Chloroplast and Bacteria**  
Gadi Schuster, Technion\_Israel Institute of Technology, Haifa

10:35 a.m. **The Chloroplast mRNA 3'-End Nuclease Complex: Structure, Function and Regulation**  
Sacha Baginsky, University of California, Berkeley

11:00 a.m. **Three stories about RNA processing and decay**  
Stan Cohen, Stanford University, Palo Alto

11:25 a.m. **The functions and targets of yeast PUF proteins: Puf5p binds to and activates *DHH1* mRNA in *S. cerevisiae***  
Jeff Collier, University of Wisconsin, Madison

12:00-1:30 p.m. LUNCH

## SESSION 10 - Afternoon Round Table Discussion - 2:00-3:30 p.m. - "To be announced"

6:00 p.m. DINNER

## SESSION 11 - Connections between translation and decay (chaired by Lynn Maquat)

7:00 p.m. **Interactions between mRNA and decapping factors in the mRNP complex at the time of decapping**  
Sundaresan Tharun, University of Arizona, Tucson

7:30 p.m. **Regulation of events in translation termination by components of the nonsense-mediated mRNA decay pathway**  
Allan Jacobson, University of Massachusetts Medical School, Worcester

8:00 p.m. **Search for factors required for nonsense-mediated mRNA decay in mammalian cells: identification and characterization of splicing factors that constitute mRNP and human orthologues to *S. cerevisiae* Upf2p and *S. cerevisiae* Upf3p/*C. elegans* SMG4**  
Lynn Maquat, Roswell Park Cancer Institute, Buffalo

8:30 p.m. **Interplay between translation and mRNA decay in *E. coli* and T7 bacteriophage**  
Marc Dreyfus, CNRS, Paris

9:00 p.m. **The relation between bacterial transcriptional and post-transcriptional factors in the regulation of cell growth and survival**  
Cecilia Maria Arraiano, Universidade Nova de Lisboa, Oeiras

9:30 p.m. OPEN

# **Friday, July 21**

**7:30 BREAKFAST**

## **SESSION 12 - Emerging themes (chaired by Pam Green)**

- 9:00 a.m. Cold Shock Protein CsdA, a DEAD-Box Protein, Positively Affects Heat Shock Protein Synthesis at Low Temperatures**  
Pamela Jones, University of Georgia, Athens
- 9:25 a.m. Characterization of the developmental regulation and functional properties of Drosophila ribonucleases**  
Sarah Newbury, University of Oxford\*
- 9:50 a.m. COFFEE**
- 10:10 a.m. Application of Genetic and Genomic Approaches to the Study of mRNA Stability in Arabidopsis**  
Pam Green, Michigan State University, East Lansing
- 10:35 a.m. Emerging features of mRNA degradation in bacteria revealed by the filamentous phage genomic mRNAs**  
Deborah A Steege, Duke University Medical Center, Durham\*
- 11:00 a.m. FRAP/mTOR signaling to translation initiation**  
Brian Raught, McGill University, Montreal

## **DEPARTURE**

\*Speakers chosen from submitted abstracts.