



Barcelona BioMed Conference

Gene Translation: Fidelity and Quality Control

December 2-4, 2013

Programme

Monday, December 2, 2013

8.30 Registration

9.00 Welcome by Joan J. Guinovart, IRB Barcelona Director

9.10 Introduction by Lluís Ribas de Pouplana

9:15 Plenary talk: **Paul Schimmel**
Linking Mistranslation to DNA Damage and Auto-immunity in Vertebrates

09.50-10.20 Coffee break and poster session

Session I: Translation Fidelity

Chair: **Ignacio Luque**

10.20 **Karin Musier-Forsyth**
Homologous trans-editing factors with broad substrate specificity prevent global mistranslation

10.45 **Manuel A. S. Santos**
Statistical proteomes: can they shake current concepts of the gene?

11.10 Selected abstract: **Jiqiang Ling**
Protein mistranslation and oxidative stress

11.35 **Susan A. Martinis**
Leucyl-tRNA Synthetase Fidelity Mechanisms and Antibiotic Target

12.00 Selected abstract: **Eric Westhof**
Ribosome decoding fidelity: Constraints and Limits due to Geometric Selection and Tautomerism

12.20 - 14.00 Lunch (FresCo, C/ Carme, 16)

Session II: Modifications and new tRNA functions I

Chair: Henri Grosjean

14.00 Selected abstract: **Henri Grosjean**

Deciphering the genetic code in organisms with reduced genomes:
the case of Mollicutes and Insect Symbionts/Evolutionary aspect

14.25 **M. Eugenia Armengod**

Bacterial and mitochondrial enzymatic pathways involved in the modification of the anticodon wobble uridine: Regulation and response to stress conditions

14.50 Selected abstract: **Danny Nedialkova**

tRNA wobble uridine hypomodification disrupts protein homeostasis by decreasing decoding efficiency in vivo

15.15 **Damien Hermand**

A coordinated codon-dependent regulation of translation by Elongator

15.45-16.10 Coffee break and poster session

16.10 **Eric Phizicky**

tRNA quality control: What's a tRNA and what's not

16.35 **Peter C. Dedon**

Eukaryotes and prokaryotes respond to stress by reprogramming tRNA modifications for codon-biased translation of response proteins: A code of codons for cellular stress response

17.00 **Anders S. Byström**

Wobble uridine modifications in eukaryotes

17.25 Poster session

Tuesday, December 3, 2013

Session III: Modifications and new tRNA functions II

Chair: Xiang-Lei Yang

9.00 **Paul J. Anderson**

Neuroprotective effects of angiogenin-induced tRNA cleavage

09.25 **Jonathan W. Yewdell**

Generating MHC class I Peptide Ligands for Immunosurveillance: Exceptions or Rules?

09.50 Selected abstract: **Sandra Blanco**

Cytosine-5 methylation of tRNAs couples cellular stress to neuro-developmental disorders

10.15 **Tao Pan**

Adaptive translation as a potential, new mechanism of adaption and stress response

10.40-11.10 Coffee break and poster session

11.10 Selected abstract: **Babak Javid**

Mycobacterial mistranslation is necessary and sufficient for rifampicin phenotypic resistance

11.35 **Susan L. Ackerman**

Transfer RNA, Defective Translation Elongation, and Neurodegeneration

12.00 **Albena Jordanova**

Unraveling the role of aminoacyl-tRNA synthetases in the peripheral nervous system - insights from human and Drosophila

12.25 Selected abstract: **Patrick C. Thiaville**

Cellular Responses to t6A Deficiency in *Saccharomyces cerevisiae*

12.50 - 14.00 Lunch (FresCo, C/ Carme, 16)

Session IV: tRNA in disease

Chair: Susan A. Martinis

14.00 **Sunghoon Kim**

Control of Translation Rate and Fidelity via tRNA Synthetases

14.25 **Xiang-Lei Yang**

How mutations in tRNA synthetases are linked to CMT?

14.50 Selected abstract: **Salvador Meseguer**

The role of miR-9/9* in the pathogenesis of MELAS disease

15.15 **Adrian Gabriel Torres**

Characterization of the human Adenosine Deaminase Acting on tRNA (ADAT)

15.40-16.10 Coffee break and poster session

16.10 **Hubert D. Becker**

Expression and assembly of the mitochondrial energy-transducing apparatus is synchronized by a cytosolic multisynthetase complex

16.35 **Michael Ibba**

Oxidation of cellular amino acid pools leads to cytotoxic mistranslation of the genetic code

17:00 Selected abstract: **Alexandre David**

The Cancerous Translation Initiation Step: tRNA^{iMet} Methylation Sustains Oncogenic Transformation

17.25 Poster session

20.30 Speakers dinner

Wednesday, December 4, 2013

Session V: tRNA in cell regulation and homeostasis

Chair: Thomas J. Begley

09.00 Magali Frugier

Malaria Sporozoites import exogenous tRNAs

09.25 Philippe Pierre

Impact of tRNA modifying enzymes on immune functions

09.50 Selected abstract: Andreas Czech

The CCA-tail of tRNAs: a rapid on/off switch of tRNAs

10.15 Thomas J. Begley

Translational Fidelity and the Wobble Uracil: Potential and Identified Changes in Both during the Cell Cycle and Stress Responses

10.40-11.10 Coffee break and poster session

11.10 Javier Martinez

tRNA metabolism: Mechanisms, Biology and Disease

11.35 Eva María Novoa

Deciphering the role of codon usage bias in translation efficiency and accuracy

12.00 Selected abstract: Paul L. Fox

Programmed translational readthrough of VEGFA mRNA generates anti-angiogenic VEGF-Ax

12.25 Concluding remarks: Peter C. Dedon