



UNIVERSITÀ  
DI TRENTO

Dipartimento di  
Biologia Cellulare, Computazionale e Integrata



SIBBM  
Società Italiana di Biofisica  
e Biologia Molecolare

# SIBBM Lecture Edouard Bertrand

Imaging single mRNPs  
reveals new insights into RNA  
localization and translation

10<sup>th</sup> December 2019, 13.30 - 18.00

Room A204, Polo Ferrari 1  
Via Sommarive 9, Povo - Trento

Local translation of mRNAs is thought to play an important role in many cellular processes. However, only a few studies have analyzed mRNA localization in a systematic manner, and none analyzed it with respect to the location of the encoded protein. Thus, we still have a limited understanding of mRNA localization and local translation in human cells. To provide a broader view of these processes, we performed a dual mRNA/protein localization screen, in which the localization of about 500 mRNAs and their protein were simultaneously analyzed in HeLa cells. A total of 32 mRNAs displayed specific cytoplasmic localizations, and we observed local translation at unexpected locations, including cytoplasmic protrusions, cell edges, endosomes, Golgi, the nuclear envelope and centrosomes, the latter being cell-cycle dependent.

To directly image translation, we used the SunTag to develop an approach that can visualize single polysomes in live cells. This approach shows that translation of single mRNAs is a stochastic process, and it is also very useful to determine the meaning of some RNA localization patterns. In particular, we could demonstrate that some mRNAs accumulate in cytoplasmic foci that function as specialized translation factories. These novel structures uniquely regulate nascent protein metabolism, and they reveal an unexpected degree of compartmentalization of translation.

- 13.30-14.00 Welcome
- 14.15-14.30 SIBBM Lecture presentation  
**Tiziana Bonaldi**, European Institute of Oncology
- 14.30-15.30 SIBBM LECTURE:  
*Imaging single mRNPs reveals new insights into RNA localization and translation*  
**Edouard Bertrand**, CNRS and Montpellier University
- 15.30-16.00 Coffee break
- 16.00-16.30 *Investigating the dynamics of TERRA to decipher its roles in human cancer cells*  
**Nicole Bettin**, PhD Student Cell Biology and Molecular Genetics, CIBIO
- 16.30-17.00 *pre-miRNAs: novel transport route and function in developing axons*  
**Eloina Corradi**, Postdoc Armenise-Harvard Axonal Neurobiology, CIBIO
- 17.00-17.30 *SMN-primed ribosomes modulate the translation of transcripts related to Spinal Muscular Atrophy*  
**Fabio Lauria**, Postdoc Laboratory of Translational Architectomics - Institute of Biophysics CNR

Free entrance according to place availability

#### Information and contacts

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