Université de Strasbourg	Call for Post-doc	

JOB DESCRIPTION

Job Title: ***Deciphering the nuclear export mechanisms of cellular and viral mRNAs in Arabidopsis***

Job Summary:

In plants, the mRNA nuclear export pathways remain poorly described and even never characterized until very recently for viral mRNAs. We have shown that the pararetrovirus CaMV hijacks the cellular TREX export pathway in order to get its mRNAs out of the nucleus. Moreover, two viral proteins, the reverse transcriptase P5 and the capsid protein P4, have been identified as being involved in this export, and their cellular partners in the export machinery have been highlighted. Finally, an important and complex secondary structure, present in the leader region of the viral mRNAs, was identified as the element recognized by the viral and cellular export proteins. The project that we propose to the future postdoctoral fellow aims to characterize not only a viral mechanism that is very little known at present (the nuclear export of mRNAs) but also to better understand the process at the level of the host organism. This objective will be achieved, in a first step, by identifying the nuclear protein interactome of the 35S mRNA mRNA of CaMV, and especially that of the leader region that is recognized by the cellular export machinery.

Job Description :

Research lab: Institut de biologie moléculaire des plantes (IBMP_CNRS UPR2357), team "Export and translation of RNA under TOR signaling control"
Group leader: Lyubov RYABOVA
Research supervisor: Maria DIMITROVA

The research project will be conducted along 2 axes:
- *in vitro*, by affinity co-precipitation experiments of the CaMV 35S mRNA leader region with nuclear extracts of *A. thaliana*.
- *in vivo*: by affinity co-precipitation of ribonucleoprotein complexes from Arabidopsis protoplasts expressing the CaMV 35S RNA or its leader region. A detailed analysis of the proteome, linked to the 35S RNA, but also of the exact sequences involved in these interactions will be carried out by the PAR or i-CLIP (Cross-Linking Immuno-Precipitation) technique.

Expected results and outcomes: The study of the nuclear export of CaMV mRNAs that we have initiated is a pioneering work in plant virology, which not only allows completing our knowledge of the CaMV infection cycle but will also contribute to the deciphering of the export pathways of plant mRNAs. The project we propose to identify and characterize the nuclear interactome involved in the export of viral mRNAs will provide valuable information on the composition of the export complex(es) that remain so poorly characterized at present. Identified proteins may include major pathway exporters not yet identified in Arabidopsis, as well as specific partners of viral transcripts that may allow the development of antiviral control strategies.

Main research field :

Biological sciences

Offer Requirements: **The ideal candidate will be a highly motivated young scientist with relevant PhD in Plant Virology or related areas and will have experience with research in Arabidopsis and CaMV. Expertise in IP and CLIP will be highly valuable.**
Eligibility criteria: **Applicants must have defended their PhD after January 2016. An institution other than the University of Strasbourg must have awarded the PhD diploma. In case the PhD has been obtained at the University of Strasbourg, a minimum of two-year international post-doctoral experience is required. The application file consists of a detailed CV, a copy of the doctoral diploma, thesis report, a cover letter and two recommendation letters.**

JOB DETAIL

Type of contract: One-year contract (CDD)
Status: Post-doctoral researcher
Company / Institute: Université de Strasbourg/IBMP
Country: France
City: Strasbourg
Postal Code: 67000
Street: 12, rue du general Zimmer

APPLICATION DETAILS (mandatory)

Provisional start date: 01/01/2021
Application deadline: 20/11/2020
Application e-mail : **m.dimitrova@unistra.fr**