Position for a postdoctoral fellow in molecular virology

Project title: The functional interplay between flaviviruses and mitochondria

Institution: INRS–Institut Armand-Frappier Research Center, 531 boul. des Prairies, Laval (QC) CANADA H7V 1B7

Research area: Dengue virus, Zika virus, virus/host interactions, mitochondria, cellular/molecular biology.

Project description: Infections with flaviviruses represent a major public health concern. For instance, dengue virus (DENV) causes the most prevalent arthropod-borne viral disease with an estimated 400 million individuals infected each year. More recently, the closely related Zika virus (ZIKV) emerged as a global priority since its infection can cause Guillain-Barré syndrome and a severe microcephaly in newborns while it is transmissible both sexually and congenitally in addition to infection by mosquito bites. DENV and ZIKV are of particular interest both at the fundamental and clinical levels. Indeed, the mechanistic details of their life cycle remain misunderstood and as a result, no antivirals are available against these important emerging diseases.

With the aim to better understand the pathogeneses of DENV and ZIKV and to identify novel antiviral targets, the Chatel-Chaix lab' focuses its research on discovering novel virus/host interactions engaged in the functional and morphological hijacking of specific cellular machineries by the viral replication factories. Notably, we have recently shown that DENV and ZIKV perturb the morphology of mitochondria which make physical contact with virus-induced endoplasmic reticulum-derived ultrastructures. This results in a downregulation of their function in antiviral innate immunity. Hence, we believe that this mitochondrial “reprogramming” contributes to generate a cytoplasmic environment which is favorable to virus replication. The proposed postdoctoral project aims at identifying new mitochondrial processes which are modulated and co-opted by DENV and ZIKV notably through the analysis of proteome and metabolic activity of mitochondria during the infection.

Relevant publications: Chatel-Chaix et al., Cell Host & Microbe, 2016; Chatel-Chaix et al., Journal of Virology, 2015; Chatel-Chaix et al., Journal of Virology, 2014.

Starting date: Fall 2018

Research advisor: Prof Laurent Chatel-Chaix

Profile: The candidate should have a PhD degree (ideally for less than three years), a strong publication record and a solid background in virology and cell biology. Experience in mitochondrial biology, mass spectrometry and/or in vivo murine models of infection will be considered as an asset.

Deadline for application: August 15th, 2018

Questions? Laurent Chatel-Chaix, PhD
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How to apply: Interested candidates must submit their curriculum, a motivation letter and the name and contact information of three references. Applications should be sent by e-mail to laurent.chatel-chaix@iaf.inrs.ca.