Fiche de proposition de stage de L3 et M1 UFR Chimie et Biologie

Si possible limitez-vous à 1 page (recto)

Une spécialité en M1: Master 1 Chimie du vivant. Pour les licences de chimie, deux mentions : C : Chimie, CB : Chimie et Biologie.

Cochez la spécialité correspondant à ce stage:

☒ M1C

☐ L3C ☐ L3CB

Adresse et appartenance du laboratoire :

Institut de Biologie Structurale
71, avenue des Martyrs, CS 10090 38044 Grenoble

Thématique générale du laboratoire ou du groupe de recherche (**par mots clés**)

Electron Microscopy and Method group directed by Dr. Guy Schoehn
Research area: electron microscopy, negative strand RNA virus, hantavirus, nucleocapsid, RNA polymerase, replication, transcription.

Thème du stage proposé (en 10 lignes, si possible)

TITRE : **Structural characterization of Hantaan virus nucleocapsid by single particle cryo-electron microscopy and/or cellular electron microscopy**

DESCRIPTION :

Hantaviruses belong to the Bunyaviridae family, a large family of viruses that possess a segmented RNA genome of negative sense polarity. Each genome segment is enwrapped with the viral nucleoprotein N forming a ribonucleoprotein complex, called the nucleocapsid. This complex is essential in the viral cycle and protects the viral genetic information from the environment while providing a flexible helical template for viral transcription and replication by the viral RNA polymerase. The proposed Master I project will consist in the structural analysis of Hantaan virus nucleocapsids. Depending on his/her preference and on advances of the project at the time of the internship, the intern will be given two options:

1. express suitable constructs of recombinant Hantaan nucleoproteins, optimize their purification and analyse the resultant recombinant nucleocapsids by single-particle cryo-electron microscopy. We already have results showing that recombinant Hantaan nucleocapsids are straight helices amenable to high-resolution by cryo-EM.
2. Analyse fixed and inactivated Tula hantaviruses (non-pathogenic to humans) by cryo-electron tomography or analyse cells infected by Tula hantaviruses using cellular EM. Inactivated Tula hantaviruses and fixed infected cells will be provided by a collaborator.

Méthodologies et/ou techniques qui seront utilisées

Option1: biochemistry (protein expression, purification), negative stain and cryo-electron microscopy (initiation), image processing.
Option2: cryo-electron tomography, sub-tomogram averaging, cellular electron microscopy.

Personne à contacter (préciser si nécessaire les créneaux horaires) :

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