

M1-Molecular and Cellular Biology (MCB)
Internship Proposal Form
Chemistry-Biology Department

Laboratory/Company Address and Affiliation:

Institut de Biologie Structurale - UMR5075 CEA-CNRS-UGA
71 avenue des Martyrs; 38042 Grenoble Cedex 9

Laboratory/Team Research/Company area (Keyword)

Influenza virus, replication, nucleoprotein, RNA pathway, antivirals, electron microscopy

Summary of the Proposed Internship Project (10 lines)

Characterization of inhibitors targeting the genome of influenza virus.

Influenza virus is a major human pathogen. Its genome is organized into ribonucleoprotein (RNP) complexes composed of multiple RNA molecules. Both 5' and 3' termini are bound to the viral polymerase, while the intervening RNA is encapsidated by multiple copies of the nucleoprotein (NP), resulting in a double-helical nucleocapsid structure. Our team recently solved the helical organization of the nucleocapsid (1,2), providing the first structural evidence of RNA accommodation by NP. Based on these findings, *in silico* analyses have identified candidate molecules predicted to interfere with the RNA-binding pathway on NP. The aim of this project is to purify NP and evaluate the effect of these molecules on the NP-RNA interaction. This work is expected to pave the way for the development of novel antiviral inhibitors.

1 - Chenavier *et al.*, Science advances

2 - Chenavier *et al.*, Nucleic Acids Research

Methodologies and/or Techniques to be used

Molecular biology for DNA sequences cloning, microbiology for proteins expression, biochemistry for proteins purification, biophysics for protein-RNA characterization and electron microscopy for structural analysis.

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Additional information

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