POSTDOCTORAL POSITION at IBMC and IGBMC (Strasbourg)

Our groups "Viral ribonucleoproteins, incorporation of the genome and assembly" at the Institute de Biologie Moléculaire et Cellulaire (IBMC, Strasbourg) and "Chromatin stability and DNA mobility" at the Institut de Génétique, Biologie Moléculaire et Cellulaire (IGBMC, Illkirch) are searching for a postdoc with experience in STRUCTURAL BIOLOGY to join us on a research project on the role of HIV-1 Pr55Gag precursor in the encapsidation of the viral genomic RNA (gRNA). This project is funded by ANRS (Agence Nationale de Recherches sur le Sida et les hépatites virales).

RESEARCH and AIM of the PROJECT

HIV-1 must specifically select and package its gRNA from a large excess of cellular and viral spliced RNAs. Packaging of HIV-1 gRNA is a key step for the production of infectious virus, yet, surprisingly, how HIV-1 preferentially recognizes its gRNA is poorly understood. Deciphering the molecular mechanisms governing HIV-1 gRNA packaging would further the development of innovative antiretroviral strategies and enable the design of improved retroviral vectors that could be potentially useful in the treatment of HIV-1 and other human diseases.

HIV-1 gRNA packaging is thought to be mainly mediated by specific interactions occurring between the viral Pr55Gag precursor and a region in the gRNA, termed Psi. However, to date, high resolution structural information on the Pr55Gag/Psi RNA complex is lacking.

Our groups are interested in the structure of the Pr55Gag precursor of HIV-1 in association with a viral RNA fragment containing the Psi by cryo-EM and X-ray crystallography. We also plan to obtain the structure of the Pr55Gag-Psi complex in the presence of the cellular and viral ligands of the p6 domain of Pr55Gag by the same methods.

This work will contribute to define the structural and biophysical properties governing the encapsidation of HIV-1 gRNA by Pr55Gag precursor.

REQUIREMENTS / QUALIFICATIONS

We are looking for a Postdoc with demonstrated expertise in biochemistry, molecular and structural biology. Experience in protein expression and purification, in vitro protein-RNA interaction analyses (e.g. by gel filtration, ITC etc.), preparation of the grids for cryo-EM, and resolution of protein structure (e.g. by X-ray crystallography and/or Cryo-EM) is required. Experience in RNA production is advantageous.

Candidates should have obtained their PhD within the last 5 years, and must be less than 40. They should have published at least one first-author peer-reviewed research paper. Good English communication skills are expected. Great emphasis will be placed on personal qualities such as

organization, creativity, motivation, flexibility and ability to work in a team. Candidates should also have a good ability to conduct independent research, and to supervise technicians and students.

DURATION & STARTING DATE

The grant is for 3 years. The starting date is 3rd of January 2023. Reviewing of applications will begin immediately and will continue until a suitable candidate is found. Please send your application by e-mail to Serena Bernacchi (s.bernacchi@ibmc-cnrs.unistra.fr).

Please provide a CV and a brief statement of research interests, qualifications and if possible, include at least one letter of recommendation.

RESEARCH ENVIRONMENT

Strasbourg is a center for research in Life Sciences and a beautiful and lively city in the east of France, close to Germany. IBMC and IGBMC offer an innovative and scientifically stimulating environment with access to state-of-the-art infrastructure, including equipment for protein biochemistry, and molecular biology and structure biology laboratories, which are part of the French Infrastructure for Integrated Structural Biology (FRISBI).