

Position description

1. Position identification

Title of post : Postdoctoral researcher on the ANR project NanoLipoVirus

Type of contract : fixed-term contract "CDD contrat postdoctoral »

Category (A,B or C) : A

Contract/project period : 2 years

Expected date of employment : June 1st, 2025

Proportion of work : 100%

Workplace : Laboratory of Bioimaging and Pathologies, UMR7021 CNRS, Faculty of Pharmacy - Team MPB

Desired level of education : PhD

Experience required : PhD

Contact(s) for information on the position (identity, position, e-mail address, telephone) :

André KLYMCHENKO, Directeur de recherche CNRS, umr7021-mpb-recrutement@unistra.fr

Date of publication : 31/03/2025

Closing date for the receipt of applications : 28/04/2025

2. Research project or operation

A post-doctoral position is available from 1 June, 2025 for 2 years in the frame of collaborative ANR-DGF project NanoLipoVirus. In this project, we aim to develop new fluorescent molecular probes for sensing organization of the lipid envelope of viruses and their interactions with biological membranes. Viruses are major public threat when propagating in animal and human populations at high level and they have the potential to create pandemics that cause major public health and economic issues. Human pathogens such as enveloped viruses enter and exit host cells by interacting with the cell membrane. In addition, they acquire their lipid envelop from the host cell. Understanding the role of lipids in organization of viral envelope and viral cell entry and assembly in cells is crucial in the search for new efficient ways to fight against viruses.

3. Activities

➤ Description of the research activities :

In this project, we will first develop new fluorescent tools for observing host-lipid interactions during virus infection, which includes fluorescent SARS-CoV-2 virus-like particles, fluorescent molecular probes for ER/ERGIC/Golgi and virus assembly and adapted advanced fluorescence microscopy tools. The work will first include synthesis of new fluorescent dyes and their functionalization into probes for targeting different organelles. On the second step, the obtained new probes will be characterized by optical spectroscopy in solutions and model lipid membranes. Finally, they will be tested in cell lines using fluorescence microscopy in order to evaluate their capacity to label specific compartments of the cells and sense their properties. Then, these probes will be provided to our collaborators for studies of viral assembly and virus-membrane interactions: Delphine Muriaux (IRIM-CNRS, Montpellier, France) and Christian Eggeling (Leibniz Institute of Photonic Technology, Jena, Germany). This project will result in a new molecular toolkit for viral research and for studies of biological membranes of cells in general. The post-doctoral fellow will gain multidisciplinary knowledge and skills in organic chemistry, bioorganic chemistry, chemical biology, membrane biophysics, advanced fluorescence spectroscopy and microscopy, bioimaging, cell culture, etc. The fellow will be also exposed to highly interdisciplinary environment of the host team, composed of chemists and biophysicists as well as within the consortium partners - experts in biology and photonics.

➤ Related activities :

4. Skills

➤ Qualifications/knowledge :

- Conduct research at the interface of chemistry and biology
- Conduct organic synthesis and characterization of new dyes
- Fluorescence characterization of new dyes in solutions and in live cells.

➤ Operational skills/expertise :

Organic chemistry, bioorganic chemistry, chemical biology, fluorescence spectroscopy

➤ Personal qualities :

Motivation, communication, emotional intelligence, team spirit, adaptability, critical thinking

5. Environment and context of work

Presentation of the laboratory/unity :

The postdoctoral fellow will join the MPB Team headed by Dr. André Klymchenko of the LBP (UMR 7021, CNRS/University of Strasbourg, <https://lbp.unistra.fr/>) which offers a dynamic interdisciplinary work environment. The laboratory is equipped with organic chemistry laboratory and platform for characterization of new compounds (NMR/Mass), advanced spectroscopy and microscopy platforms (<https://piq.unistra.fr/>), a chemistry laboratory and rooms dedicated to cell culture.

Hierarchical relationship :

André KLYMCHENKO

Special conditions of practice (notice attached): /

To apply, please send your CV, cover letter and diploma to :

André KLYMCHENKO, umr7021-mpb-recrutement@unistra.fr