UNIVERSITÉ PARIS-EST CRÉTEIL VAL DE MARNE

INTITULE DU POSTE

BAP : A
Corps : Chercheur
Catégorie du poste : Postdoctoral Research Fellow
Emploi-type (Referens 3**)** :
Quotité : % 100

AFFECTATION

ETABLISSEMENT : Université Paris-Est Créteil Val de Marne
COMPOSANTE OU DIRECTION : U955 IMRB
SERVICE/DEPARTEMENT/EQUIPE DE RECHERCHE : Equipe Pawlotsky
SITE : Hôpital Henri Mondor

Mission :

Host-Targeted Antiviral Strategies Using Cyclophilin A PROTACs

The **CYP-TAC** project aims to uncover the molecular functions of Cyclophilin A during coronavirus infection through an innovative chemical biology approach. The project combines the development of a highly selective Cyclophilin A inhibitor with a first-in-class Cyclophilin A-targeting PROTAC degrader to selectively eliminate CypA from infected cells. These complementary tools will be used to investigate the role of Cyclophilin A in coronavirus replication, with particular emphasis on viral RNA shielding ("RNA cloaking") mechanisms that enable viruses to evade innate immune sensing. The project will exploit physiologically relevant ex vivo models of differentiated primary human nasal epithelium together with advanced molecular virology, imaging, proteomics, and structural biology approaches. By combining pharmacological inhibition and targeted protein degradation, CYP-TAC will provide fundamental insights into Cyclophilin A biology while validating a novel host-directed antiviral strategy with broad-spectrum therapeutic potential. The project is funded by the French National Research Agency (ANR) and is conducted through a multidisciplinary consortium bringing together internationally recognized experts in medicinal chemistry, structural biology, biophysics, chemoinformatics, chemical biology, and virology. The successful candidate will join the Translational Virology Laboratory (Prof. Jean-Michel Pawlotsky) at INSERM U955 – Institut Mondor de Recherche Biomédicale (IMRB), Université Paris-Est Créteil (UPEC), France. The laboratory has internationally recognized expertise in emerging viruses, host-targeted antivirals, and antiviral drug discovery. It integrates both clinical and translational virology, providing direct access to well-characterized clinical samples and state-of-the-art experimental models.The postdoctoral fellow will work at the interface of virology and chemical biology

Activités principales :

The postdoctoral fellow will contribute to the biological characterization of novel Cyclophilin A inhibitors and PROTAC degraders using a broad range of molecular, cellular, biochemical, and virological approaches. The project will involve advanced human airway epithelial models, reverse genetics, imaging, proteomics, and next-generation sequencing to elucidate the role of Cyclophilin A during coronavirus infection and evaluate its potential as a host-targeted antiviral strategy.

The successful applicant will:

- Characterize the antiviral activity of selective Cyclophilin A inhibitors and PROTAC degraders against human coronaviruses.
- Investigate the molecular mechanisms by which Cyclophilin A supports coronavirus replication.
- Study viral RNA shielding ("RNA cloaking") and host innate immune evasion mechanisms.
- Perform infection experiments using primary human airway epithelial cultures.
- Conduct molecular and cellular biology experiments, including RT-qPCR, immunofluorescence microscopy, confocal imaging, Western blotting, and protein interaction analyses.
- Contribute to mechanistic studies using proteomics, next-generation sequencing, and advanced imaging technologies.
- Analyze and present experimental results at consortium meetings and international conferences.
- Publish findings in high-impact peer-reviewed journals.

Compétences requises :

Connaissances

- Strong background in molecular and cellular virology.
- Experience with mammalian cell culture and viral infection models.
- Expertise in molecular biology techniques (RT-qPCR, cloning, protein analysis, microscopy).

Compétences opérationnelles

- BSL-3 laboratories

Compétences comportementales

- Excellent communication skills in English (written and spoken).
- Ability to work both independently and within a multidisciplinary research consortium.

Formation et expérience professionnelle souhaitables :

- Coronaviruses or other RNA viruses.
- Host-pathogen interactions.
- Chemical biology or targeted protein degradation (PROTACs).
- Proteomics or structural biology.
- Human primary airway epithelial cultures.
- Bioinformatics or transcriptomic analyses.

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Conditions de recrutement :
Doctorat

Applicants should submit:

- A motivation letter.
- A detailed curriculum vitae.
- A summary of previous research achievements.
- Contact information for two or three academic referees.

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