

Dear all,

We have **one PhD position** available between the lab of [Nicolas Wolff](#) - Signalling and Molecular Interactions group, and the one of [Anna Sartori-Rupp](#) at the [Nanolmaging cryo-EM facility](#) of [Institut Pasteur](#) in Paris for ***“In situ imaging of the protein complex Usher 2 involved in hearing and vision in intact Cochlea stereocilia”*** by *correlative 3D cryo-microscopy techniques* (cryo-super-resolution light microscopy, cryo-electron tomography and cryo-soft X-ray tomography) on **native tissue samples**.

The project aims to address the general structure in situ of the native protein complex Usher 2, needed for the development of the cochlea, the organ of hearing, and to elucidate the impact of deafness mutations in pathological processes. The Usher 2 syndrome is the most common form of hereditary hearing-vision loss in humans. We propose to combine cutting edge imaging approaches using cryo-electron tomography (**cryoET**), cryo-soft-X-ray tomography (**cryoSXT**), cryo-correlative light/X-rays and electron microscopy (**cryoCLEXM**) and super-resolution fluorescence microscopy (**STED**) on mouse cochlea samples to dissect the 3D organization of the Usher 2 complex in its native tissue environment. Combined with the atomic resolution structures already obtained in the lab by integrative approaches (Cryo-EM, NMR and X-ray diffraction), we will then be able to provide a comprehensive view of the Usher 2 complex in situ. Altogether, our structural results from the micro-microscale (cochlea) to the nano- and atomic scale (protein domains) will lead us to propose a model on how Usher 2 proteins and partners get organised in situ to form a protein network essential for the correct Cochlea development. This molecular characterization will have a potential impact on Usher 2 syndrome diagnosis and provide a deeper understanding of its physiopathology.

For more information about the project please follow these links:

<https://www.pasteur.fr/en/ppu/RT#2022-proposed-scientific-projects>

&

<https://research.pasteur.fr/fr/team/group-nicolas-wolff/>

<https://research.pasteur.fr/fr/member/anna-sartori-rupp/>

<https://research.pasteur.fr/fr/team/nanoimaging/>

The project is fully funded by Horizon Europe under the Marie Skłodowska-Curie Actions Doctoral Network (MSCA-DN) programme **CLEXM**. We have one out of nine PhD positions to offer in the field of correlative cryo-microscopy (**Project 9**, <https://clxm.eu/>). It will be carried out in close collaboration with the partners in Barcelona, Heidelberg, Dublin and Aalen with the aim of developing multimodal correlative imaging pipelines to ultimately help understanding disease and develop effective therapies.

Apply and join us on this exciting project in a unique scientific environment in the very heart of Paris!

**Application deadline for our project is January 31<sup>st</sup>, 2024.**

**To apply, please directly send your CV**, including personal contact details, **and a cover letter** including the contact details of **2 referees to:**

[nicolas.wolff@pasteur.fr](mailto:nicolas.wolff@pasteur.fr), [anna.sartori-rupp@pasteur.fr](mailto:anna.sartori-rupp@pasteur.fr)