

Postdoc position in immunology (Inflammasome Biology)

18th of July 2023

There is a new postdoc position available in the laboratory of Romeo Ricci at the IGBMC in Strasbourg, France (www.igbmc.fr/en; <https://www.igbmc.fr/en/recherche/teams/signal-transduction-in-metabolism-and-inflammation>). Our institute is a leading research institution in Europe currently hosting 46 teams with researchers from all over the world. It is a facility-driven institute with state-of-the-art equipment and core expertise covering all experimental techniques of the project. The postdoc will be integrated in a core team of PhD students and a senior postdoc working on different aspects of the project. Strasbourg is located in the beautiful, wine-growing area of Alsace, in proximity of Germany and Switzerland.

Project description

The inflammasome is an intracellular multiprotein complex that senses sterile tissue damage and infectious agents to initiate innate immune responses. Distinct inflammasomes containing specific sensing molecules exist. The NLRP3 inflammasome is unique as it detects a broad range of cellular stress signals but a primary and converging sensing mechanism initiating inflammasome assembly remains ill-defined. We found that NLRP3 binds altered endomembranes because of disruption of inter-organelle contact sites in response to danger signals. However, little is known about this fundamentally new mechanism of pattern recognition linking organelle spatial organization and innate immunity. The organelle-generated signals sensed by NLRP3 and the mechanisms underlying membrane recruitment and activation of the inflammasome remain largely unexplored and thus will be subject of this proposal. The major limit hampering their identification is the difficulty to disentangle the complex cell response to the variety of stimuli leading to NLRP3 activation. We aim to push this limit through an unprecedented combination of approaches ranging from *in vitro* reconstitution studies with isolated organelles and artificial liposomes and proteo-lipidomics, to cryo-FIB and cryo-ET imaging, molecular modelling, and *in vivo* testing of the physiological relevance of *in vitro* findings. This project will lay the foundation for how altered endomembranes serve as danger-associated molecular patterns to trigger innate immune responses.

We initially offer a one-year postdoc position according to French salary schemes and experience. Prolongation for two more years will be possible. However, applications for competitive fellowships will be strongly encouraged during the first year of recruitment. Ideally, the recruitment should be accomplished by the end of 2023 or beginning of 2024. Candidates shortly after their PhD thesis with experience in innate immunity (inflammasome biology) and/or cell biology (endosome biology and membrane contact site field) are particularly welcome to apply. Female scientists are particularly encouraged to submit their application. Disabled applicants will be preferentially considered in case of equivalent qualification.

Applications including cover letter, detailed CV, copies of certificates, and contact information of two referees, should be sent latest 30th of September 2023 as a single pdf file (no more than 10 MB) via email to: ricci@igbmc.fr.