



POSTDOCTORAL POSITION IN BIOINFORMATICS APPLIED TO THE FIELD OF SPACE IMMUNOLOGY

The 'Stress, Immunity, Pathogens' unit (University of Lorraine, Nancy, France) and the 'Epôle de Génoinformatique' (Institut Jacques Monod, Paris, France) are searching for a postdoctoral fellow to develop a joint research project in the framework of CNES and ESA projects.

The aim is to develop a software to mimic the genetic process that creates functional antibody and TCR genes (the so-called V(D)J recombination process) during B- and T-cell development, respectively. Indeed, our knowledge of that genetic process, coupled to NGS sequencing data of the murine and human repertoire of B- and T-cell receptors (results already obtained by the 'Stress, Immunity, Pathogens' unit) should allow creating an algorithm that virtually generates this gene repertoire. After validation of the algorithm, comparison of the results produced using the software with those already obtained experimentally in control subjects (human and mice) will allow identifying autoimmune sequences removed during natural selection processes. Once autoimmune sequences are known, comparison between data generated using this software with those obtained experimentally (NGS sequencing) with control subjects and astronauts will allow determining if extreme conditions encountered during a stay in the International Space Station increase autoimmunity (is there more autoimmune sequences in astronauts than in controls?). Later on, this strategy could be applied to human beings subjected to other extreme conditions, such as hypoxia, confinement and circadian rhythm misalignment during a stay of several months in the Concordia station, Antarctica.

The 'Stress, Immunity, Pathogens' unit has a well established reputation in the field of space immunology (<http://simpa.univ-lorraine.fr/>) and will help the candidate with the immunological part of this project. The 'Epôle de Génoinformatique' will provide its expertise in bioinformatics software design and conception (<https://www.ijm.fr/889/epole-genoinformatique.htm>). These two laboratories have already successfully worked together as attested by a recent paper published in FASEB Journal (doi: 10.1096/fj.201800969R).

Candidates should have a PhD and strong knowledge in bioinformatics attested by publications in the field. Some understanding in immunology would be a plus but is not mandatory. This project involves regular travels (maximum once a month) between Nancy and Paris (1h30 by train).

Duration of the contract: 2 years (one year renewable once).

Beginning: October 2020.

Funding agency: CNES (Centre National d'Etudes Spatiales). The selected candidate will have to defend the project at CNES headquarters, Paris, in May 2020.

Monthly gross salary: € 2360.

If interested, please send a detailed CV and a motivation letter before January 31, 2020 to Prof Jean-Pol Frippiat (jean-pol.frippiat@univ-lorraine.fr), Dr Stéphanie Ghislin (stephanie.ghislin@univ-lorraine.fr) and Prof Anne Vanet (anne.vanet@univ-paris-diderot.fr).