

## Research Engineer for 36 months on Embryonic Lymph Node Development

Laboratory of Serge van de Pavert, Centre d'Immunologie Marseille Luminy (CIML), Marseille, France

### Project

Lymph nodes are important organs for the organization of the adaptive immunity to battle against invading pathogens and cancers. How these organs are formed, and what defines their initiation of formation within the embryo are unknown. We have suspected that nearby neurons could be involved (van de Pavert et al., Nature Immunology 2009; van de Pavert et al., Nature 2014; Simic et al., Cell Reports 2020). In this project, we will analyze different mouse models in which the early nervous system development is affected, and will determine whether this will affect the location and shape of the initial position and clusters of cells involved in lymph node formation. Light-sheet microscopy on complete embryos is necessary in order to properly assess the relative position of the initial cell-clusters relative to the nearby neurons, which we have setup in our lab. In cooperation with the group of Dr. A. Pattyn (INM, Montpellier), an expert on embryonic neurogenesis, we will study the relation between the outgrowth of the nervous system and the localization of the cell-clusters. Furthermore, the engineer will be in close collaboration with the group of Dr. L. Guignard (LIS, Marseille) which are developing an automated image analysis pipeline to quantify the positioning of the initial cell-clusters in whole-mount acquired embryos.



*E13.5 mouse embryo stained for neurons and hematopoietic cells*

The engineer will be involved in the maintenance of the mouse lines and the collection of the embryos from these mouse models. The engineer will genotype and analyze these embryos on the localization of the first cell-clusters in relation to the outgrowing nervous system, by staining whole embryos and analyzing the data in 3D.

### Activities.

- Genotyping of the mouse lines and embryos
- Preparation on embryos; sectioning (cryostat, vibratome), and immunofluorescence for confocal microscopy
- Whole-mount embryo immunofluorescence staining and acquisition using the Lightsheet microscope
- Analysis of the immunofluorescence data (using Zen, Image J/ACE, Imaris for 3D imaging, Qpath); presentation of the data in regular lab meetings.
- Participation to the general lab management (cleaning, ordering, stock maintenance)

**Expertise.**

- General knowledge on Immunofluorescence
- Good knowledge on English
- Mouse breeding and genotyping; practice of animal experimentation
- Essential proficiency in Office programs
- Desired proficiency in confocal microscopy

**Skills.**

- Prerequisites: rigor, motivation, dynamism, team spirit
- Desirable: organizational skills, initiative

**Job specifics/constraints.**

- Work on mouse models
- Multi-team project requiring a high degree of adaptability and social interaction

**Background.**

- Master 2, Master Pro, EPHE or equivalents
- Operator level animal experimentation diploma would be a plus

**Salary.**

Basic salary for an engineer with less than 3 years' professional experience according to the university's guidelines.

**Procedure:**

Any questions can be addressed to Serge van de Pavert (vandepavert@ciml.univ-mrs.fr). To apply, please send your CV, a cover letter with your motivation and the contact details of 2 referees (previous supervisors/employers) to vandepavert@ciml.univ-mrs.fr by **28-August-2023**.