

## **Post-doctorant(e) en Immunologie/Immunothérapie du diabète de type 1**

### **Postdoctoral research fellow in Immunology/Immunotherapy of type 1 diabetes**

Annonce mise en ligne le/ Offer posted on: June, 8<sup>th</sup> 2022

#### **PROJET/RESEARCH PROJECT**

A postdoctoral position is available to work on a project aimed at developing new intranasal immunotherapies for preventing type 1 diabetes (T1D).

**Type 1 diabetes (T1D)** is an autoimmune disease in which insulin-producing pancreatic beta cells are destroyed by self-reactive T cells, and for which the sole treatment consists in life-long insulin replacement. Our team has developed a tolerogenic Fc fusion protein that comprises the key self-antigen **preproinsulin linked to the Fc domain of an IgG (PPI-Fc)**, which increases its bioavailability, half-life, and cellular uptake by immune cells through binding to Fc gamma receptors (FcγRs) and by epithelial cells at mucosal barriers through binding to the neonatal Fc receptor (FcRn). We showed that oral PPI-Fc could partially delay T1D development in the Non-Obese Diabetic (NOD) mouse model, but faced a poor bioavailability due to gastro-intestinal degradation. We therefore moved to an alternative **intranasal route of administration**, which is noninvasive and has already been applied in the clinic in T1D patients. The post-doctoral fellow will have to evaluate the preventative effect of various immunotherapies in NOD mice, comprising several antigen-Fc vaccines, monoclonal anti-CD3 antibodies and a combination of these strategies administered intranasally in NOD mice, and will identify the therapeutic mechanisms at play and the associated biomarkers.

This research will provide the preclinical validation and mechanistic understanding of intranasal therapies, required to move into T1D prevention trials. To this end, insulin allergy models will be explored in parallel, since they may allow to move faster into human trials because of the short-term clinical outcome in this setting.

Parts of the project will be performed in coordination with a PhD student.

The Postdoc will design and set up experiments for the progression of the project. He/she will critically analyze the data obtained, generate reports, and use this information to fine-tune the starting hypotheses and design new experiments.

Applications fulfilling the following criteria will be considered:

- **Knowledge:** A strong expertise in immunology, multiparametric flow cytometry, cell culture and animal experimentation. Fluent English, written and spoken.
- **Professional skills:** The candidate must be highly motivated and use creative thinking in the resolution of scientific questions. He/she will be able to adapt to rapidly evolving technologies and will have a broad interest for biomedical

research. He/she will need to give proof of independent thinking and writing skills and capacity to undertake responsibility as project leader. It is essential that the candidate can work autonomously and as part of a team. Experience in mentoring Master or PhD students.

- **Education:** MD/PhD or PhD in immunology.

#### STRUCTURE D'ACCUEIL/LOCATION

**Our Team** « T-cell tolerance, biomarkers and therapies in type 1 diabetes » is part of the Immunology, Endocrinology and Metabolism axes of the Cochin Institute located in the center of Paris, 22 rue Méchain – 75014 Paris, France 123 boulevard de Port Royal – 75014 Paris, France.

**The Cochin Institute** is one of the largest biomedical research centers in France and provides a multidisciplinary scientific environment and state-of-the-art core facilities. It is affiliated with the French National Institute for Health and Medical Research (INSERM), the University of Paris, the CNRS and the Assistance Publique/Hôpitaux de Paris. Our team is associated with the Clinical Department of Diabetology and Clinical Immunology of the Cochin Hospital. It belongs to different international consortia such as the European IMI2 Innodia ([www.innodia.eu](http://www.innodia.eu)) and the Network for Pancreatic Organ Donors (nPOD; [www.jdrfnpod.org](http://www.jdrfnpod.org)).

We offer a stimulating and productive lab environment of young researchers with strong team spirit. This is an excellent career opportunity, as the candidate will have a senior role within the Laboratory and interact with several international collaborators.

**Further information.** About our Laboratory: [www.dearlab.org](http://www.dearlab.org); about our institute: [www.institutcochin.fr](http://www.institutcochin.fr).

#### CONTRAT/FINANCIAL SUPPORT

**Type:** CDD

**Funding:**

**Début/Beginning:** 1er Octobre 2022

**Durée du contrat/Length of contract:** 12 mois, renouvelables

**Structure employeur/organization**

INSERM

CNRS

UNIVERSITE

Applicants should send their CV, letter of motivation and name of 2 references.

Envoyez votre CV, lettre de motivation et deux contacts de recommandations à :

- Sylvaine YOU et Roberto MALLONE
- Email : [sylvaine.you@inserm.fr](mailto:sylvaine.you@inserm.fr), [roberto.mallone@inserm.fr](mailto:roberto.mallone@inserm.fr)