

Post-doctoral position " Use of nasal epithelial cells to investigate the relationship between CF mutations, clinical phenotype and CFTR dysfunction in cystic fibrosis"

A post-doctoral position is currently available for 12 months in the team "Chanellopathies: cystic fibrosis and other diseases", of Research Center "Institut Necker Enfants Malades", INSERM U1151, Faculté Necker, Paris, France. <https://www.institut-necker-enfants-malades.fr/>

Salary: 55,686 €/year

Mission:

Cystic Fibrosis (CF) is caused by mutations in CFTR, an anion channel with complex regulation that plays a pivotal role in transepithelial ion transport. Because of the technical difficulty of studying the single-channel properties of CFTR, heterologous cells are routinely used to investigate the molecular basis of CFTR dysfunction in CF. These studies have contributed greatly to our understanding of CF mutations. However, genotype-phenotype-CFTR activity relationships in CF are notoriously complex. They are influenced not only by the nature of the CF mutation, but also by polymorphisms in the *CFTR* gene, modifier genes and environmental factors.

The present project aims to better understand genotype-phenotype relationships in CF by studying CFTR in native cells, relating the behaviour of individual CFTR Cl⁻ channels studied *ex vivo* to the activity of a population of CFTR channels investigated *in vivo*.

The post-doctoral project aims to study CFTR in the human nasal epithelium. Namely,

- (i) to establish genotype-phenotype-CFTR functional relationships using native cells expressing endogenous CFTR based on the patch-clamp technique
- (ii) to determine the impact of cell culture on CFTR expression and function by studying CFTR in freshly isolated nasal cells, primary cultures of nasal epithelia and reprogrammed nasal epithelia with patch-clamp, Ussing chamber and immunocytochemistry techniques.

Profile:

Candidates for this project should have a solid background in electrophysiology (patch clamp and Ussing Chamber technique), cell culture, molecular biology (transfection). Experience in biochemistry would be an advantage.

Candidates:

Interested candidates should e-mail a letter of application, including a CV and the names and addresses of at least two referees to:

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Keywords: Cystic fibrosis, CFTR, Patch Clamp , Ussing chamber