

**3-years postdoctoral fellowship in the CIIL-  
Team OpInFIELD  
Starting in September 2020 at Pasteur Institute (Lille- France)**

**Description of the Topic:**

Lung inflammatory disorders such as chronic obstructive pulmonary disease (COPD) are associated with an increased susceptibility to respiratory infections which trigger episodes of exacerbation, a phenomenon that is clinically of increasing importance. Nevertheless, COPD is a multifactorial disease involving environmental, genetic and epigenetic factors. This is probably a key factor explaining that less than 30% smokers develop the disease. Indeed, physiopathologic mechanisms of COPD are still poorly understood and particularly, little is known about gene–environment interactions. We identified a genetic polymorphism ( $\alpha$ 5SNP) present on nicotinic acetylcholine receptor (nAChR) that might directly contribute to COPD pathology, sensitizing the lung to oxidative stress action, and altering lung defense mechanisms.

In this context, the overall goal of this proposal is to demonstrate that  $\alpha$ 5SNP is involved in COPD development and progression (through exacerbation episodes) and secondary that  $\alpha$ 5SNP signaling modulation might be used as a personalized therapeutic solution. For this, we will analyze a) the association between  $\alpha$ 5SNP expression and COPD clinical phenotype in patients, b) physiopathologic mechanisms by which  $\alpha$ 5SNP interferes with COPD and AE-COPD in murine models, c) its modulation by new drug. The recruited person will evaluate the impact of  $\alpha$ 5SNP on the immune system and particularly on antigen-presenting cells.

**The candidate** should have a PhD and the desire to undertake a first or second post-doctoral fellowship. You should already have a validated experience in experimental models (animal experimentation accreditation is required) and in immunology. Some knowledge about the mechanisms involved in lung inflammation and infectious diseases will be appreciated. This project implicating the collaboration of 3 french teams, a good ability of the candidate to interact with the members of our team and with our collaborators is required. We seek autonomous, enthusiastic and energetic people with strong teamwork skills.

At the end of this project, the postdoctorant should have demonstrated the association between  $\alpha$ 5SNP expression and a COPD clinical phenotype in patients, a new physiopathologic mechanisms by which  $\alpha$ 5SNP interferes with COPD and AE-COPD in murine models and the interest to develop personalized medicine for the patients having this SNP.

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<http://www.ciil.fr/research-teams/opportunistic-infection-immunity-environment-lung-diseases/>