ImmunoTools *special* Award 2015

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New biomarkers of the asthma disease

In our team, we research the different phenotypes of the asthma disease. Studies carried out in Spain show that between 3 to 7% of the adult population has asthma. Asthma is a chronic respiratory disease characterized by hyper-responsive bronchia and an obstruction of the airways due to a chronic inflammation. The most common symptoms are coughing, shortness of breath, chest tightness and wheezing. Even though there have been therapeutic improvements, a high percentage of patients do not achieve to control its disease.

Because of this, it is spreading in the medical world the idea of considering the asthma disease, a syndrome in which multiple "endotypes" can be included and are responsible for the clinical heterogeneity and the differences in the treatment. Therefore, to control the disease it is essential to be able to diagnose correctly the cause that originates it: in more than half of the asthmatic adults and in 80% of the children, asthma has an allergic origin.

The allergic diseases, adverse reactions of the immune system against innocuous substances, are widely extended all over the World (in Spain, a prevalence of 20% is estimated). These types of pathologies have a marked multifactor character, their appearance and symptoms depend on genetic and environmental factors. Allergy symptoms will also vary depending on the type of allergen that causes it. There is therefore a need of developing new studies that analyze genetic and environmental factors, with the aim of discovering new predictive biomarkers of these pathologies. This way, the prevention, diagnosis and treatment of these diseases will be much improved.

The profile analysis of the molecular expression, in populations with allergic asthmatic and non-allergic asthmatic patients, combined with the analysis of epigenetic modifications associated with changes in the gene expression, could allow us find key elements in the differences and similarities of these type of responses and improve the diagnosis and also, the correct modulation of them.

Given all this data, our goal is to characterize and validate molecular biomarkers that can distinct the different asthmatic phenotypes (diagnose biomarkers) and the regulatory mechanisms implicated in them (therapeutic targets).

Considering the objectives of this project, we believe that certain reagents of ImmunoTools would be useful to achieve our purpose. We have found potential genes for this matter and the next step would be to see their expression at a protein level. ImmunoTools reagents would help in the correct classification of the phenotypes of the asthma disease by measuring the levels of the selected proteins in different subsets of the blood's cells when considering receptor molecules, or in plasma when looking for soluble molecules.

ImmunoTools *special* AWARD for **Selene Baos Muñiz** includes 25 reagents

FITC - conjugated anti-human CD56, CD80, CD86 (isotypes IgG1) and Control-IgG1.

PE - conjugated anti-human anti-human CD4, CD8, CD14, CD19 (isotypes IgG1) CD40 and Control-IgG1.

human ELISA-set for 96 wells: human IFN-gamma, human IL-4, human IL-8, human IL-10 and human TNF-a (each 3 reagents)   DETAILS   more AWARDS