MICROBIOME AND ALLERGY, ONE ASPECT OF A COMPLEX NETWORK

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Allergy prevalence has dramatically increased in developed countries over the last decades. The reasons for this increase continues to be unsolved. Simultaneous changes introduced in the past century that included among others, vaccination programs, use of antibiotics, elimination of parasites, extreme hygiene,… are thought to have caused progressive epigenetic modifications in the population. Besides the increase in prevalence, the severity of allergy related pathologies have suffered a parallel increase. Microbiome, understood as the microorganisms that live inside our body, are known to have a critical role in our wellbeing. For example it is estimated that almost a third of our circulating metabolome, has a xenobiotic origin.

The gut microbiome constitutes a highly complex ecosystem whose composition is progressively established during the first year of life. Mother microbiome, transferred during birth, might thus play a critical role in the formation during early life. Mother intervention strategies has been proved to be effective in the prevention of allergy. For example, living in a farm during pregnancy, has a beneficial effect in allergy prevention, while similar studies performed after birth have not proved to be effective.

We know as well that allergic inflammation cause a progressive structural change in epithelia barriers that many times is associated to chronic infections. Recently we have proved, that respiratory allergy induce extensive structural changes in oral mucosa, and thus if a similar change is produced in the gut mucosa, could promote a change in the gut microbiome, that could be pivotal to understand the role of dysbiosis in the evolution of allergy. We are currently planning to conduct dietary intervention is food allergic patients, aiming to rebalance altered microbiome. Knowing the influence of microbiome in the onset of allergy will be critical to define new prevention and intervention strategies.