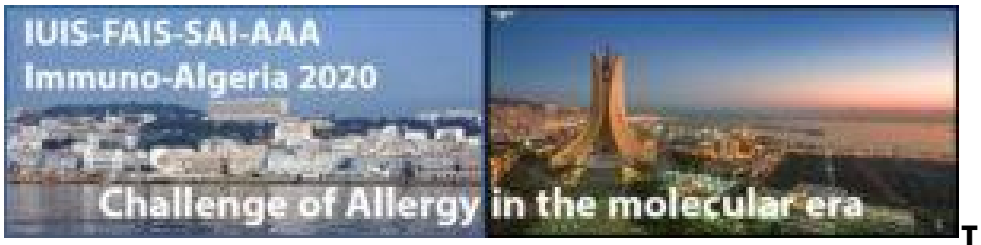
Immuno-Algeria: Microbial dysfunction & allergy



IUIS-FAIS-SAI-AAA Immuno-Algeria course took place remotely between 11th May -12th June. The theme of the course was *"Challenge of Allergy in the Molecular Era"*. To ensure that all attendees had the immunological knowledge required for advanced content that was going to be discussed during the meeting, weekly immunology refresher lectures were provided during the month of May. This was followed by a 2 week long meeting focused on allergy content. This week we highlight a lecture by Yasmine Belkaid (Adjunct Professor at the University of Pennsylvania and NIH Distinguished Investigator in Mucosal Immunology Section) on *"The control of immunity and allergy by Microbiota."*

She first talked about the role of the immune system and that its dysfunction leads to many diseases including allergies. Humans have co-evolved with microbiota, and we are a composite of not only bacteria but fungi, viruses and many others microbes. The microbiota is responsible for controlling host physiology including metabolism, and the change of microbiota composition due to lifestyle, infections, age, genetics…etc. can influence behaviour and cognitive function.

She then mentioned the most important features of microbiota and mechanisms by which they can promote, control the development and function of the immune system. The quality of hematopoiesis is also related to the quality of microbiota. She described a study which isolated skin microbes, sequenced them and then associated microbial profile with the pathologies of the skin, this study detected immune signatures associated with homeostasis and disease.

She also highlighted the role of microbiota in allergies and gave the example of atopic dermatitis. She described how data from skin microbiome sequencing in association with immune signature from homeostasis and disease models can be used to identify microbes associated with disease. *S.aureus* for example can sometimes become pathogenic and cause severe atopic dermatitis when patients are mono-colonised by inducing Th2 and Th17 responses.

She ended her lecture by discussing the relationship between early life microbiota and allergic responses. Maternal factors and postnatal factors affect the composition and quality of microbes, overuse of antibodies could create a massive dysregulation of microbiota leading to allergic and inflammatory disorders.

https://www.immunopaedia.org.za/wp-content/uploads/2020/06/8th%20June%20Yasmine%20Belkaid%20part%201.mp4
More videos available: Online Lectures – Week 2

Summary by Khaoula Attia