Webinars of the Vaccinology Club of the French Society of Immunology

TRAINED IMMUNITY AND VACCINATION

Organizers:

Dr Anne-Sophie Beignon (CEA)
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Background

Trained immunity is a state of the innate immune response associated with long-term epigenetic reprogramming of innate immune cells. This concept originated in the field of infectious diseases and vaccination.

In the field of vaccination, epidemiological data suggested that vaccination with live attenuated vaccines, and BCG in particular, had a beneficial impact on the occurrence of infections with different pathogens.

Studies carried out to understand this effect have shown that, following such vaccinations, an epigenetic reprogramming of innate immune cells, such as monocytes, macrophages and/or natural killer cells (known as trained peripheral immunity), can be observed. It has been shown that this reprogramming can also be observed in immune progenitor cells in the bone marrow (i.e. trained central immunity).

Webinars

The French Society of Immunology's Vaccinology Club is organizing *3 webinars* to provide a better understanding of this subject and its potential impact/interest in vaccination. The different webinars will focus on 1) Molecular mechanisms of Trained immunity 2) Central training of HSPCs and local training of tissue-resident innate cells 3) Trained immunity in clinical practice

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FIRST WEBINAR: MOLECULAR MECHANISMS OF TRAINED IMMUNITY

"Immune variation across different geographical areas and vaccine hypo-responsiveness"

Dr Maria Yazdanbakhsh

Maria Yazdanbakhsh heads the Leiden University Center of Infectious Diseases (LUCID) in the Netherlands, which engages in basic and clinical research. One of the research lines of LUCID focuses on the development and testing of vaccines against parasitic, bacterial and viral infections. The group of Yazdanbakhsh has worked on the profiling of the immune system in populations living in areas endemic for parasitic (co)infections and in controlled human parasitic infection models. The studies have led to in depth characterization of highly specialized molecules that interact with the human host leading to immune modulation and metabolic change. This knowledge is being used to combat the problem of vaccine hyporesponsiveness.

"Trained immunity: a memory for innate host defense"

Pr Mihai Netea

Mihai Netea was born and studied medicine in Cluj-Napoca, Romania. He completed his PhD at the Radboud University Nijmegen, The Netherlands, on studies investigating the cytokine network in sepsis. After working as a post-doc at the University of Colorado, he returned to Nijmegen where he finished his clinical training as an infectious diseases specialist, and where he currently heads the division of Experimental Medicine, Department of Internal Medicine, Nijmegen University Nijmegen Medical Center. He is mainly interested in understanding the memory traits of innate immunity (trained immunity), the factors influencing variability of human immune responses, and the immune dysregulation during bacterial and fungal infections. He is the recipient of the Spinoza Prize 2016 and an ERC Advanced grant in 2019, and since 2016 he is a member of the Netherlands Royal Academy of Sciences (KNAW

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