LECTURE SERIES & WORKSHOPS 2020

INFECTION & IMMUNITY

LUXEMBOURG INSTITUTE OF HEALTH
RESEARCH DEDICATED TO LIFE

05
NOV 2020
Thursday

WEBINAR
via Webex*
45' *(talk)* + 30' *(discussion)*

09.00-10.15am

9 10 11 12 1 2 3 4

Transcriptional and metabolic regulation of long-term T cell responses in chronic infection

ABSTRACT

Antigen-specific CD8+ T cells in chronic viral infections and in tumours functionally deteriorate, a process known as exhaustion. We and others have shown that exhausted T cell responses are sustained by a subset of precursors of exhausted (TPEX) cells that self-renew while continuously generating exhausted effector T (TEX) cells. However, it remains poorly understood how TPEX cells maintain their proliferative potential and functionality. Here, we explore the molecular and metabolic regulation of T cell differentiation during chronic infection and demonstrate that TPEX cells in response to high amounts of antigen are the first to acquire features of exhaustion, which they propagate to their effector T cell progeny. Furthermore, we show that TPEX in contrast to TEX cells exhibited superior metabolic characteristics, including mitochondrial fitness, including active oxidative phosphorylation and high spare respiratory capacity, and explore mechanisms that preserve cellular metabolism and thus contribute to the maintenance of long-term T cell responses during chronic infection.

SPEAKER

Prof Axel KALLIES

Head of Molecular Immunology Laboratory, The University of Melbourne, Honorary Principal Fellow, The Walter and Eliza Hall Institute of Medical Research, Senior NHMRC Research Fellow

HOST:
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Supported by:

Fonds National de la Recherche Luxembourg

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