

05 October
2023

Thursday
LECTURE

MEET & EAT *
Light lunch provided

11.00 - 12.00 pm

12.30 - 2 pm



Regulatory proteins of mitophagy restrict cell death for mounting memory CD8+ T cell formation

ABSTRACT

Mitophagy, a central process guarding mitochondrial quality, is commonly impaired in human diseases such as Parkinson's disease, but its impact in adaptive immunity remains unclear. The differentiation and survival of memory CD8+ T cells relies on oxidative metabolism, a process that requires robust mitochondrial quality control. Here, we found that Parkinson's disease patients have a reduced frequency of CD8+ memory T cells compared to healthy donors and failed to form memory T cells upon vaccination against COVID-19, highlighting the importance of mitochondrial quality control for memory CD8+ T cell formation. We further uncovered that regulators of mitophagy, including Parkin and NIX, were upregulated in response to interleukin-15 (IL-15) for supporting memory T cell formation. Mechanistically, Parkin suppressed VDAC1-dependent apoptosis in memory T cells. In contrast, NIX expression in T cells counteracted ferroptosis by preventing metabolic dysfunction resulted from impaired mitophagy. Together, our results indicate that the mitophagy machinery orchestrates survival and metabolic dynamics required for memory T cell formation, as well as highlight a deficit in T cell-mediated antiviral responses in Parkinson's disease patients.



SPEAKER

Prof Ping-Chih Ho

Professor at University of Lausanne,
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HOST:

Department of Infection and Immunity (LIH)

RESPONSIBLE SCIENTIST:

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* Please note that registration is mandatory by sending an email to carole.weis@lih.lu or michelle.roderes@lih.lu

Locations:

Lecture:
House of BioHealth
Conference Room
(ground floor 0)
29, rue Henri Koch,
L-4354 Esch-sur-Alzette

Meet & eat:
House of BioHealth
Salle Françoise Barré Sinoussi
Registration mandatory