



LECTURE SERIES & WORKSHOPS

# INFECTION & IMMUNITY

# 16

JAN 2020

Thursday

## LECTURE

*Lycée Guillaume Kroll  
d'Esch/Alzette*  
Salle de Projection \*

**11.00 - 12.00 pm**

## MEET & EAT \*

**light lunch provided**  
*House of BioHealth,  
Room Françoise  
Barré-Sinoussi*

**12.30 - 2.00 pm**



\*Please register by sending a mail to [florence.henry@lih.lu](mailto:florence.henry@lih.lu)



## SPEAKER

### Prof Russell G. JONES

Professor, Center for Cancer and Cell Biology,  
Program Lead, Metabolic and Nutritional  
Programming, Van Andel Institute, Grand  
Rapids, USA

## HOST:

Department of Infection  
and Immunity (LIH)

## RESPONSIBLE LIH SCIENTIST:

Prof Dirk Brenner  
([dirk.brenner@lih.lu](mailto:dirk.brenner@lih.lu))

## MAPPING NUTRIENT UTILIZATION BY T CELLS IN VIVO: IMPLICATIONS FOR IMMUNITY

### ABSTRACT

Metabolic reprogramming is an essential part of the T cell activation program. Upon activation, T cells undergo dramatic rewiring of their metabolic pathways to promote ATP production and biosynthesis sufficient to support the rapid exponential growth of antigen-specific T cells. The metabolic profile of T cells is shaped by both cell-intrinsic factors, such as genetics and receptor-mediated signaling, and environmental conditions, such as nutrient availability. We have combined classical immunological modeling of T cell responses with metabolic analysis (i.e., bioenergetic profiling, stable isotope tracing) to study the impact of

metabolic reprogramming on T cell function. Our results indicate that CD8+ T cells display unique patterns of nutrient utilization in response to bacterial and viral pathogens in vivo, and that T cell metabolism changes over the course of infection. I will discuss how different carbon sources (e.g. glucose and glutamine) and amino acids (e.g. serine and methionine) are used to fuel T cell proliferation and effector function, and will discuss their impact on T cell function and adaptive immunity.

Website: <https://russelljoneslab.vai.org/>

[www.lih.lu](http://www.lih.lu)

Supported by:



\* Opposite Luxembourg Institute of Health, House of BioHealth,  
29, rue Henri Koch, L-4354 Esch/Alzette