LUXEMBOURG INSTITUTE OF HEALTH
RESEARCH DEDICATED TO LIFE

LECTURE SERIES & WORKSHOPS

INFECTION & IMMUNITY

12 DEC 2019
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

9 10 11 12 1 2 3 4

*Please register by sending a mail to florence.henry@lih.lu

SPEAKER
Prof Andrew MACPHERSON
Full Professor of Medicine and Director of Gastroenterology, University of Bern, Switzerland

HOST:
Department of Infection and Immunity (LIH)

RESPONSIBLE LIH SCIENTIST:
Prof Mahesh Desai
(mahesh.desai@lih.lu)

DISTINCT MUCOSAL OR SYSTEMIC RESPONSES TO NON-PATHOGENIC INTESTINAL MICROBES BUILD THE BASELINE B CELL REPERTOIRE AND ITS FUNCTIONAL RESPONSIVENESS

ABSTRACT

Microbiota colonization causes profound B cell stimulation and immunoglobulin induction. To understand how the B cell repertoire develops we have used transient reversible microbial exposures in germ-free mice. Distinct oligoclonal responses to all isotypes after intestinal mucosal exposure differ from those after intravenous systemic exposure or germ-free controls. The selective IgA repertoire after intestinal dose escalation becomes progressively restricted and clonally related, whereas the systemic IgG repertoire can be broadened to a range of microbial cytoplasmic as well as cell-surface antigens. There are hierarchical repertoires during different stages of B cell development which are dominantly shaped by microbial exposure at memory and plasma cell stages. Single cell analysis showed that the repertoire specificity was determined by the immunoglobulin heavy chain. Whereas sequential systemic exposure to different taxa broadens the IgG repertoire and multiplies specific responses, sequential mucosal exposure produces limited overlapping repertoires and attrition of initial IgA binding specificities. This shows a contrast between a flexible response to systemic exposure consistent with the need to avoid fatal sepsis and a restricted response to mucosal exposure reflecting the generic nature of mucosal microbial mutualism.

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Supported by:
Fonds National de la Recherche Luxembourg

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