



LECTURE

Maria Mittelbrunn, PhD

02.07.2025

 House of BioHealth
Meeting room (-1 floor)
27 Rue Henri Koch
L-4354 Esch-sur-Alzette, Lux 11:00_{am} - 12:30_{pm}

* Please register by sending an email to: Florence.Henry@lih.lu

Unlocking Healthy Aging Through the Immune System

Immunosenescence not only increases susceptibility to infections, cancer, autoimmune diseases, and reduces vaccine efficacy in the elderly, but also contributes to chronic low-grade inflammation (inflammaging), thereby elevating the risk of multiple age-associated disorders. Our previous research demonstrated that a mouse model with premature immunosenescence exhibits signs of accelerated aging, cardiovascular and metabolic dysfunction and cognitive decline, underscoring the pivotal role of T cells in preserving systemic homeostasis. These findings position T cells at the intersection of inflammation, senescence, and age-related diseases.

In this presentation, I will discuss the molecular mechanisms by which aged immune cells fuel inflammaging and age-related pathologies, and we will explore emerging therapeutic strategies aimed at promoting healthy aging by targeting the immune system. By integrating genetic, cellular, pharmacological, and nutritional interventions, we seek to restore T cell functionality and reverse immunosenescence with the ultimate goal of enhancing immune competence to support healthy aging.

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**SPEAKER:****Maria Mittelbrunn**

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