

## INVITATION

Conférence donnée dans le cadre de la procédure de promotion

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**Jeudi, 24 novembre 2022, à 10h30**

**Auditoire 1.100, PER09** – Chemin du Musée 5, 1700 Fribourg

<https://www.unifr.ch/map/fr/plans/perolles.html>

Faculté des Sciences et de Médecine de l'Université de Fribourg

### Analyzing CD8<sup>+</sup> T cell biology in the tissue context

The adaptive immune system protects the host from viruses and cancer, while providing long-lasting immunity after infection or vaccination. A key component of the adaptive immune system are CD8<sup>+</sup> T cells, which become activated by engagement with dendritic cells (DCs). This interaction leads to CD8<sup>+</sup> T cell proliferation and differentiation to cytotoxic effector cells, which eliminate infected or tumorigenic cells. Following clearance, memory CD8<sup>+</sup> T cells act as immune sentinels to rapidly suppress reinfection. While the general principle of such adaptive immune responses is well established, little is known on how this dynamic process unfolds on a single cell level in a tissue-specific microenvironment. Our group is combining transgenic mouse models, multicolor flow cytometry, gene expression analysis, functional *in vitro* assays and high-end microscopy to investigate two key processes that govern cytotoxic CD8<sup>+</sup> T cell biology: first, we examine how CD8<sup>+</sup> T cell integrate activatory and inhibitory signals during their initial activation with DCs, in order to assess their impact on host protection. Second, we explore how organ-specific memory CD8<sup>+</sup> T cells accomplish effective immune surveillance in varying tissue environments. The combination of these approaches permits to unravel the dynamic nature of the adaptive immune system on a single cell level

Fribourg, le 17 novembre 2022

Prof. Ulrich Ultes-Nitsche, Doyen et  
Président de la Commission de promotion