

**Prof. Thierry ROGER**

## **Improving innate immune defenses through trained immunity**

Sepsis is a leading cause of mortality worldwide. A complementary approach to precision-medicine approaches to fight sepsis is trained immunity. Indeed, trained immunity refers to the capacity of the innate immune system to recall an initial challenge to mount an improved response to a secondary challenge. We recently reported that trained immunity provides powerful protection against bacterial and fungal infections (Ciarlo et al. *J Infect Dis.* 2020; Théroude et al. *Front Immunol.* 2021, Katzmarski et al. *Nat Immunol.* 2021). Our ongoing projects aim to delineate the impact of age on the establishment of trained immunity as well as the persistence and impact on vaccine response of trained immunity. We also decipher cellular, molecular, and metabolic pathways involved in trained immunity. On the long-term, therapies directed at trained immunity might offer new treatment options to improve vaccine efficacy (especially in elderly), normalize or improve host responses in sterile and infectious pathologies including cancer and sepsis.