Regulation of hyper-T cells in humans

A key unresolved question in immunology is: why do some individuals mount a balanced immune response that eliminates infection with no harm to host cells, whereas others have exaggerated immune responses that can cause significant tissue injury and precipitate autoimmunity? This question raises an unprecedented need to better understand the host mechanisms involved in fine-tuning immune responses in humans. T cells play a critical role in shaping a balanced immune response to antigens by directly recognizing molecules expressed on the cell surface and secreting factors that drive or dampen the inflammatory responses. Signal regulatory protein gamma (SIRPγ) is an immunomodulatory protein that is uniquely expressed on the cell surface of human T cells. Variants in the *SIRPG* gene have been associated with type 1 diabetes, relapsing remitting multiple sclerosis and maintaining a vaccine response long-term. However, how SIRPγ mechanistically contributes to inflammation remains unclear because we do not fully understand its function in the immune system. The focus of this talk is to demonstrate a novel role for SIRPγ as a checkpoint regulator in human T cells.