

Regular Wednesday IMG seminar



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“Harnessing TCR discoveries for the next generation of immunotherapies”

Recent advances in synthetic immunology and CAR T cell engineering have highlighted the critical importance of signaling diversity for optimizing anti-tumor responses. Our work outlines the design of innovative cell-based cancer immunotherapies rooted in a molecular understanding of T cell activation via the T cell receptor complex (TCR–CD3). I will discuss how modulating receptor signaling interfaces and precisely recruiting kinases and adaptors can advance both fundamental immunology and translational therapies. Key noncanonical interactions between specific components of the TCR–CD3 complex and the Src-kinase Lck fine-tune T cell activation; when implemented in chimeric antigen receptors (CARs), these mechanisms improved in vivo tumor control and reduced T cell exhaustion. Supporting our rational design of next-generation CAR T cells, we demonstrated that harnessing CD3 chain diversity, rather than simply increasing signaling strength, enabled the generation of CAR T cells with enhanced anti-tumor efficacy and safety profiles.

The seminar will be held

on Wednesday 4 February 2026 at 15:00

in the Milan Hašek Auditorium at IMG

(Institute of Molecular Genetics of the Czech Academy of Sciences, Vídeňská 1083, Prague 4)
