FROM SPIRONUCLEOSIDES TO NATURAL KILLERS: MY JOURNEY IN THE WORLD OF CHEMICAL BIOLOGY

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In this talk, I will share my scientific journey, starting with the synthesis of spironucleosides during my early career, through the development of a successful ERC grant application that enabled me to establish my own research lab, to my current work on modified natural killer cells for cancer immunotherapy. Along the way, I will discuss the challenges, opportunities, and lessons learned, aiming to provide insights and inspiration for early-career researchers aspiring to build their own paths in science.

Since 2014, Milan Vrabel has led the Chemistry of Bioconjugates group at IOCB Prague. His research focuses on developing and applying bioorthogonal reactions to study, image, and modulate biological systems. The group's work lies at the intersection of chemistry and biology, using chemical tools to deepen our understanding of biological processes. The lab is also committed to translating the discoveries into practical applications. Milan was awarded an ERC Starting Grant to develop innovative tools for labeling and studying bioconjugates, which culminated in a highly efficient methodology for chemically re-engineering cell surfaces and modulating their properties. The potential of this methodology in immunotherapy and related fields was further explored through an ERC Proof of Concept grant. The team continues to advance the developed methods and investigate their broader applications.