INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES

Heli Glebko and Ran Taube

The Shraga Segal Department of Microbiology, Immunology and Genetics, Faculty of Health Sciences, Ben Gurion University, Beer Sheva, Israel

The Role of Rab31 in the Regulation of HIV Gene Expression and Viral Latency

Abstract: Modern antiretroviral therapy (ART) effectively suppresses HIV infection, but fails to completely eradicate the virus due to the persistence of a latent reservoir, mainly in resting CD4+ T cells. Lifelong ART is required but unsustainable due to side effects and the risk of drug resistance. To effectively manage HIV infection and eliminate the latent reservoir, it is crucial to understand where and how the virus persists in the body during therapy and to uncover the molecular mechanisms that control viral latency.

Rab GTPases are a large family of small GTPases that switch between active and inactive states based on whether they are bound to GTP or GDP. These proteins regulate the trafficking of cellular cargo between membranous organelles and act as master regulators of intracellular membrane trafficking, determining the specificity and directionality of vesicular transport. Rab31 is a member of the Rab GTPases and acts as a key regulator in the biogenesis of exosomes, particularly through an ESCRT-independent mechanism. In its active state, Rab31 interacts with effector proteins to regulate the formation and secretion of exosomes. Rab proteins are involved in the late stages of the viral life cycle, such as the assembly and release of viral particles. Specifically, it was reported that Rab5 and Rab7 play a role in influenza viral entry, while Rab11 is essential for the assembly of HSV-1 or HCMV. Moreover, Rab11 and its adaptor proteins (Rab11-FIPs) also play a crucial role in the trafficking of the HIV-1 envelope glycoprotein. Here in, we report that Rab31 plays a role in the regulation of HIV gene expression and viral latency. CRISPR-knockout of Rab31 expression in HIV-infected T cells results in increased levels of latent cells, suggesting that Rab31 is an important regulator in HIV gene expression and viral latency.

Keywords: HIV latency, Rab GTPases, Rab 31, Viral life cycle.

Biography: Heli Glebko is a master's student at Ben Gurion University. She has been dedicated to Microbiology research, especially virology. She worked at various healthcare and now researching HIV latency to contribute to translational research

ISBN: 978-1-0685851-5-9