ID der Kurzfassung : **101**

Phosphorylation of tyrosine 132 of influenza A virus matrix protein 1 is essential for efficient viral genome packaging and particle assembly

Inhalt

Rapid development of resistance of influenza A viruses (IAV) to currently available drugs emphasizes the urgent need for novel therapeutics. The highly conserved matrix protein 1 (M1) is a master regulator of the virus life cycle and its multifunctionality is most likely regulated by posttranslational modifications. Phosphorylation of M1 tyrosine 132 (Y132) was previously suggested to be essential for virus fitness, as viruses carrying a mutation at this site could not be rescued. Based on overexpression data, it was hypothesized that this might be due to defective nuclear entry of M1. In the present study, we were able to rescue a virus mutant carrying an alanine at Y132 allowing for analysis of the role of this phosphorylation site during genuine infection.
WSN M1 Y132A showed strongly decreased viral replication compared to wild type. While we did not detect any reduced nuclear import, coarse M1 protein clusters were observed at the plasma membrane in late stages of infection. Interestingly, M1 Y132A association to membranes was not altered, but deeper characterization revealed a defect in M1 recruitment to IAV assembly sites in lipid raft domains, which resulted in a diminished structural stability of viral progeny and the presence of filamentous particles. Importantly, WSN M1 Y132A showed random defects in viral genome packaging, resulting in an increased production of non-infectious progeny.
These findings indicate that phosphorylation of M1 Y132 is crucial at late stages of IAV replication, and that efficient particle assembly including genome packaging is triggered by Y132 of the M1 protein.

Choose primary session

Viral Replication

Choose secondary Session

Virus host cell interaction

Typ des Beitrags : Oral presentation