

5th World Congress on

Virology

December 07-09, 2015 Atlanta, USA

Knockdown of NS1 protein by small interfering RNA suppressed NS1 but did not change levels of IFN mRNAs in the cells and mice infected with influenza A virus

Tatiana Betakova, Petra Svancarova, Veronika Lachova and Darina Svetlikova Slovak Academy of Sciences, Slovakia

Monostructural protein 1 (NS1) is an important virulence factor encoded by influenza A virus and exerts its function through interacting with viral/cellular RNAs and proteins. NS1 interferes with the host innate immune response and promotes effective viral replication. In this study, we demonstrated the effect of shRNAs targeting the *NS1* gene to treat an established infection of IAV. The level of mRNAs of NS1, IFN-α, IFN-β, IP-10, IFN-λ and RIG-1 were compare in cells and in the lungs of infected mice. In cells treated with shRNAs was significantly reduced NS1 mRNA while the levels of RIG-1, IFN-α, IFN-β and IP-10 mRNAs were not altered. NS1 mRNA was significantly reduced in the lungs treated with shRNAs and prolonged the survival of infected mice. IFN-α, IFN-α, IFN-λ mRNAs were radically increased on the third day after infection. On the other hand, levels of IFN- β mRNAs were reduced by half. Injection of IFN-α and IP-10 mRNAs compared to positive controls. Levels of IFN-β mRNAs ranged from 36% to 74% and were lower than mRNAs in controls. IFN-λ mRNA was repeatedly increased in the lungs treated with some shRNAs. The level of RIG-1 mRNA decreased after infection with IAV. However, RIG-1 was strongly induced in infected mice injected with transfection reagent or control shRNA. Percentage changes of all tested shRNAs were lower and did not exceed the level reached in positive control.

Biography

Tatiana Betakova has completed her Doctor of Sciences (DSc) in 2015 and PhD from Institute of Virology and Postdoctoral studies from NIH, Bethesda, USA and NIMR, London, UK. She is Principal Investigator and Scientific Secretary of Institute of Virology, Slovak Academy of Sciences. She has published more than 40 papers in reputed journals and has been serving as an Editorial Board Member of repute.

virubeta@savba.sk

Notes: