

Ability of Influenza A virus non-structural 1 protein to inhibit the innate immune pathways

Sunday, September 13, 2026 6:20 PM (1 minute)

Influenza A viruses (IAVs) are pathogens that cause mainly respiratory infections in humans, but they can also infect variety of animals. IAVs are also responsible for seasonal epidemic outbreaks in humans, and the zoonotic strains pose a possible pandemic threat. In recent years, the H5N1 avian influenza virus, IAV subtype, has caused unprecedented bird mortality and infections in mammals around the world, raising concerns about adaptation to humans and highlighting the pandemic threat. The objective of this research is to investigate the differences in the IAV non-structural protein 1 (NS1), a multifunctional virus protein primarily affecting the immune response of the host, between different human and avian IAV strains, with a focus on the strains from the H5N1 subtype. The inhibitory effect of thirteen NS1 proteins on the retinoic acid inducible gene 1 (RIG-I) pathway was determined with a luciferase assay, indicating that all NS1 proteins inhibit the pathway. However, some differences between examined NS1 proteins were observed and the biological relevance of these differences is being further studied by revealing the interactions of NS1 proteins with host cell proteins by proximity-dependent labeling method and pull-down assay. This research offers valuable insights into the interactions between NS1 from different IAV strains and the host cell. Characterizing the function of the NS1 protein is important to better understand how IAV strains adapt to new host species.

Keywords

influenza A virus, interactome, NS1, RIG-I

Professional status of the speaker

PhD student

Junior scientist status

Yes, I am a junior scientist.

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INF26-59

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Session Classification: Poster slam

Track Classification: Virus host cell interaction