Abstract ID : **66**

Fusion peptides mediate influenza viral fusion via two sequential mechanisms

Content

Cell entry by influenza virus is mediated by the hemagglutinin protein. Longstanding mutagenesis experiments indicate that, while refolding of hemagglutinin into a coiled-coil structure is required for fusion, intramembrane activity of the fusion peptides is also required. However, the mechanism for this and precisely how fusion peptides act within membranes to drive viral fusion has been elusive. Using a combination of single-virus fusion kinetics from fluorescence microscopy and molecular dynamics simulations, we are able to explain the activity of hemagglutinin fusion peptides via two sequential mechanisms, one primarily affecting fusion stalk formation and one affecting fusion pore formation. Additional data allows us to assign the deficiencies of commonly described fusion-peptide mutants to one or the other mechanism. This study for the first time yields atomic-resolution models of fusion pore formation by influenza and a predictive model for how fusion peptide mutants act.

Choose primary session

Visualising Flu

Choose secondary Session

Virus host cell interaction

Contribution Type : Oral presentation