

A novel peptide inhibits the influenza virus replication by preventing the viral attachment to the host cells.

ABSTRACT

Avian influenza viruses (AIV), the causative agent of avian flu or bird flu, cause widespread morbidity and mortality in poultry. The symptoms of the disease range from mild flu like symptoms to death. These viruses possess two important surface glycoproteins, namely hemagglutinin (HA) and neuraminidase (NA) against which neutralizing antibodies are produced. Due to the highly mutative nature of the genes which encode these proteins, the viruses often confer resistance to the current anti-viral drugs making the prevention and treatment of infection challenging. In our laboratory, we have recently identified a novel anti-viral peptide (P1) against the AIV H9N2 from a phage displayed peptide library. This peptide inhibits the replication of the virus in ovo and in vitro by its binding to the HA glyco-protein. In the current study, we demonstrate that the peptide inhibits the virus replication by preventing the attachment to the host cell but it does not have any effect on the viral fusion. The reduction in the viral nucleoprotein (NP) expression inside the host cell has also been observed during the peptide (P1) treatment. This novel peptide may have the potential to be developed as a therapeutic agent for the treatment and control of avian influenza virus H9N2 infections.

Keyword: Flow cytometry; Fluorescence microscopy; Influenza; Peptide inhibitors.