

INFLUENZA VIRUS MIGHT HAVE MARINE ORIGIN WITH FISH AS EARLY HOST

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A new study posted as a preprint (which is yet to be peer-reviewed) in *bioRxiv* has found that the order *Articulavirales*, which includes the influenza viruses, first emerged in aquatic ecosystems, and fish might have been the earliest hosts of influenza virus. The study found that invertebrates rather than fish might have likely been among the first hosts of influenza virus.

The study found that influenza viruses can infect all classes of fish, and Siberian sturgeon (*Acipenser baeri*) may have served as early, if not the first, hosts of influenza virus before it spilled over into mammals.

Besides aquatic origin, the researchers say that the order *Articulavirales* may have persisted since about 640 million years ago when corals branched off to form other members of *Articulavirales* in other animals.

As per *Nature News* report, Mary Petrone, a virologist at the University of Sydney, Australia and the first author of the preprint, analysed the RNA from two coral species and found evidence of infection with the viruses. The discovery of the virus in corals gave the first hint that the influenza viruses might have been born at sea.

A 2018 identification of a distant relative of influenza in hagfish only strengthened the possibility of a marine origin of the virus.

Having found the virus in two coral species, the researchers turned their attention to Siberian sturgeon, and surprisingly found evidence of the virus in sturgeon fish. "Phylogenetic analysis of the three polymerase segments revealed that the sturgeon-associated virus consistently falls within the influenza clade but is basal to all known influenza viruses," they write.

"The discovery of the two early lineages of influenza suggests that influenza probably infected aquatic animals, including fish, before moving onto land," Dr. Petrone told *Nature News*.

The researchers stress this point about fish serving as the early host to influenza virus in the preprint. They say: "Our findings do suggest that influenza viruses can infect all classes of fish such that these animals may have served as early, if not the first, hosts of influenza virus before it spilled over into mammals."

The virus in the *Articulavirales* order “utilises a large repertoire of transmission routes”. If influenza virus spreads via respiratory droplets in the case of mammals and faeces among birds, the transmission of the virus from one fish to another is thought to be through the respiratory route.

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