

Antibody may help treat and prevent influenza outbreaks

July 8 2010

Researchers have discovered a monoclonal antibody that is effective against "Avian" H5N1, seasonal H1N1 and the 2009 "Swine" H1N1 influenza. Scientists at Sea Lane Biotechnologies, LLC, in collaboration with Mt. Sinai School of Medicine, St. Jude Research Hospital and the Scripps Research Institute, have shown that this antibody potently prevents and treats the Swine H1N1 influenza in mouse models of the disease. Results are published July 8 in the open-access journal *PLoS Pathogens*.

Previous work on this antibody, A06, demonstrated "first in class" activity against the evolutionarily distant Avian H5N1 and seasonal H1N1 influenzas. The authors believe that the antibody targets a conserved region of the viral coat protein, hemagglutinin, accounting for the extended breadth of activity against multiple, genetically distinct strains.

In this study, the authors isolated A06 from a combinatorial library derived from a survivor of highly pathogenic H5N1 infection. They demonstrate that the antibody is effective against 2009 [pandemic influenza](#) in a cell culture assay and also in mouse models of disease when given before and after lethal influenza infection.

In late 2009, the WHO declared the first influenza pandemic in 40 years due to the 2009 "Swine" H1N1 [influenza virus](#) which swept the globe. Fortunately, the Swine influenza proved to be mild. The pandemic did, however, point out the weaknesses in the current treatment options

available to stop a more virulent pandemic. Vaccines take months to prepare and many strains of influenza are already resistant to small molecule treatments like [Tamiflu](#). Antibodies, like A06, could provide a significant line of defense against a more serious pandemic threat and contribute to efforts to create a universal vaccine.

This study demonstrates the therapeutic potential of monoclonal [antibodies](#) to protect and treat influenza. While the study was limited to mice, the activity is reflective of the potential benefit to humans. Anti-influenza antibody therapeutics could help to fill the current gap in the existing arsenal of treatments against [influenza](#) and could, one day, help to contain a deadly pandemic, according to the authors.

More information: Kashyap AK, Steel J, Rubrum A, Estelles A, Briante R, et al. (2010) Protection from the 2009 H1N1 Pandemic Influenza by an Antibody from Combinatorial Survivor-Based Libraries. PLoS Pathog 6(7): e1000990. [doi:10.1371/journal.ppat.1000990](https://doi.org/10.1371/journal.ppat.1000990)

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