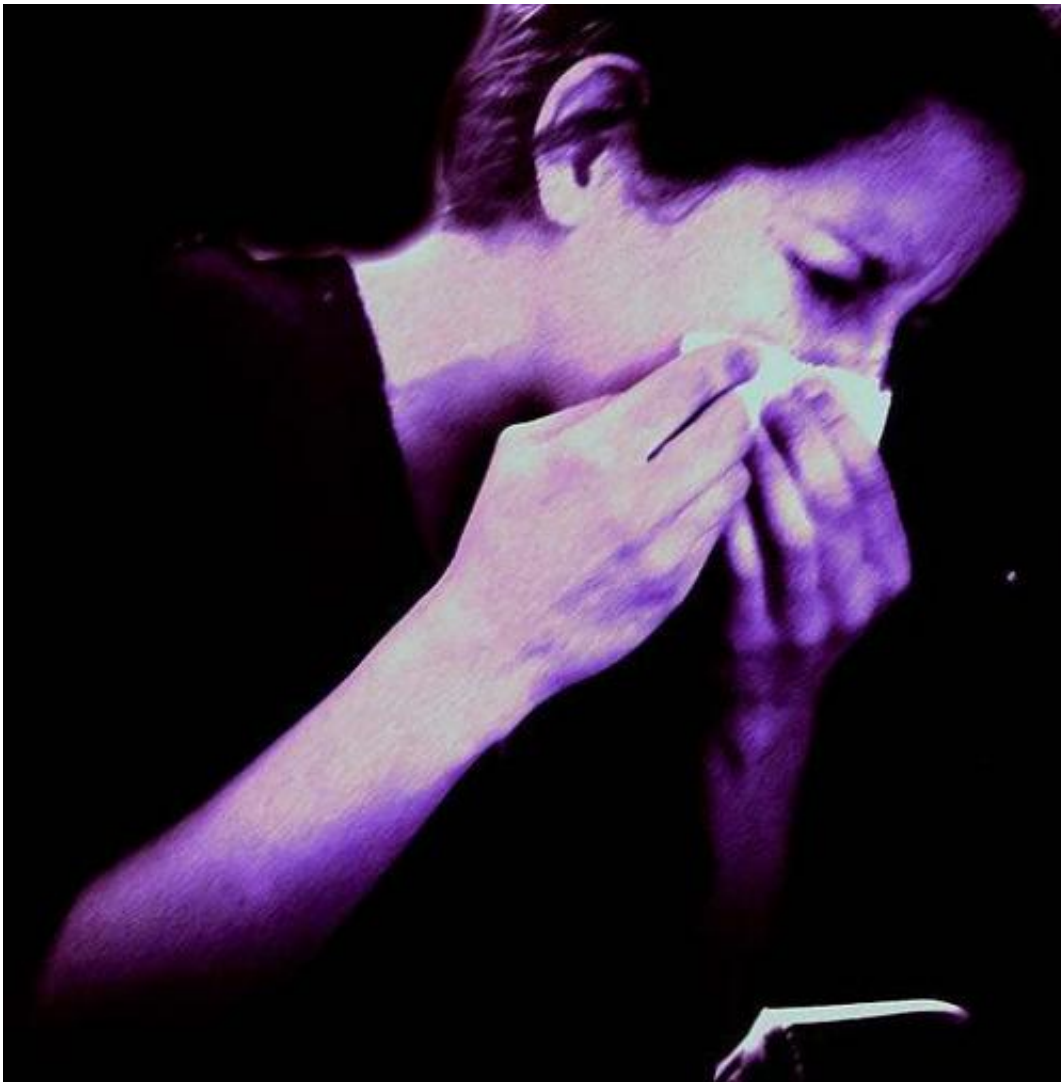


Prediction of seasonal flu strains improves chances of universal vaccine

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(Medical Xpress)—Researchers have determined a way to predict and protect against new strains of the flu virus, in the hope of improving immunity against the disease.

Influenza is a rapidly spreading acute respiratory disease. Worldwide, annual seasonal epidemics of the flu result in 3-5 million cases of severe illness, and up to 500 000 deaths. A newly emerged virus can spread across 74 countries in 2 months.

The study led by the University of Melbourne with Monash University and international colleagues has found how to predict and potentially stop the mutating cells of the influenza virus, which escape our bodies' white blood cells (T cell) immunity.

Senior author, Associate Professor Katherine Kedzierska from the Department of Microbiology and Immunology at the University of Melbourne said the finding may lead to a new universal influenza vaccine to better protect against both seasonal and pandemic outbreaks.

This research, published in *PNAS* today, will also help researchers understand T [cell immunity](#) against other viral infections such as HIV, Hepatitis C and tumours.

"The introduction of a new influenza strain into human circulation leads to a rapid global spread of the virus due to minimal antibody immunity," Assoc Prof Kedzierska said.

"[White blood cells](#) called T cells are highly efficient in fighting [influenza virus infection](#). Thus, established T cell immunity towards particular viral regions can provide 'universal' immunity against distinct seasonal and [pandemic influenza](#) strains.

"However, influenza viruses can mutate their genes to escape efficient T

cells. This constitutes a major problem for a design of a universal vaccine.

In the current paper, researchers have unraveled how [influenza viruses](#) evade T cell immunity by introducing specific mutations within the viral proteins.

Professor Peter Doherty, a lead author of the study from the University of Melbourne said predicting and designing vaccines to protect against such mutants can promote T cell immunity.

"The studies suggested that an influenza vaccine that targets T cells and recognizes distinct virus strains could provide universal immunity against any future [influenza strain](#)," he said.

Provided by University of Melbourne

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