

Universal flu vaccine study yields success in mice

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Soldiers handing out face masks in Mexico City during the outbreak of H1N1 (swine flu) in 2009.

(PhysOrg.com) -- Adelaide researchers have taken a step closer to the development of a universal flu vaccine, with results of a recent study showing that a vaccine delivered by a simple nasal spray could provide protection against influenza.

University of Adelaide researcher Dr Darren Miller and colleagues have successfully trialled a synthetic universal [flu vaccine](#) in mice. The results have appeared this month in a paper in the [Journal of General Virology](#).

"Current flu vaccines rely on health authorities being able to predict what the forthcoming viral strain is going to be, and reformulating the vaccines each year accordingly. This is extremely time consuming,

labour intensive and expensive, and it's something that a universal vaccine could overcome," Dr Miller says.

"A simple and totally synthetic universal vaccine - one that is not derived from an [influenza virus](#) and does not require annual reformulation - would have clear advantages in health clinics to control and prevent the spread of flu."

Dr Miller and colleagues used specific peptides delivered to the noses of mice. The peptides trigger an immune response to a tiny region of the [flu virus](#) that is present in all influenza A and B viruses, which effectively neutralises the virus.

The test vaccine provided mice with 100% protection against a laboratory strain of virus (H3N2) and 20% protection against a highly pathogenic virus (H5N1, known as "[bird flu](#)"), which is consistent with the protection levels achieved with commercially available anti-influenza drugs.

"This is a positive response and one that shows promise for further testing both in laboratory and clinical settings," Dr Miller says.

He says that while the universal vaccine could be given as an injection, using a [nasal spray](#) has a number of advantages: "It is non-invasive and would be a preferred option for people afraid of needles. Importantly, a nasal spray stimulates local immune responses at the natural site of virus entry.

"This vaccine would also reduce the allergy risk for many patients - because current flu vaccines are grown in eggs, those who are hypersensitive to eggs can't be vaccinated. Such a universal vaccine may also, of course, do away with the need for annual re-vaccinations, which is the situation many patients face today."

Dr Miller conducted his research at IMVS/SA Pathology while completing a PhD in Microbiology and Immunology at the University of Adelaide. He is now a researcher with the Robinson Institute at the University.

More information: vir.sgmjournals.org/cgi/content/act/vir.0.028985-0v1

Provided by University of Adelaide

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