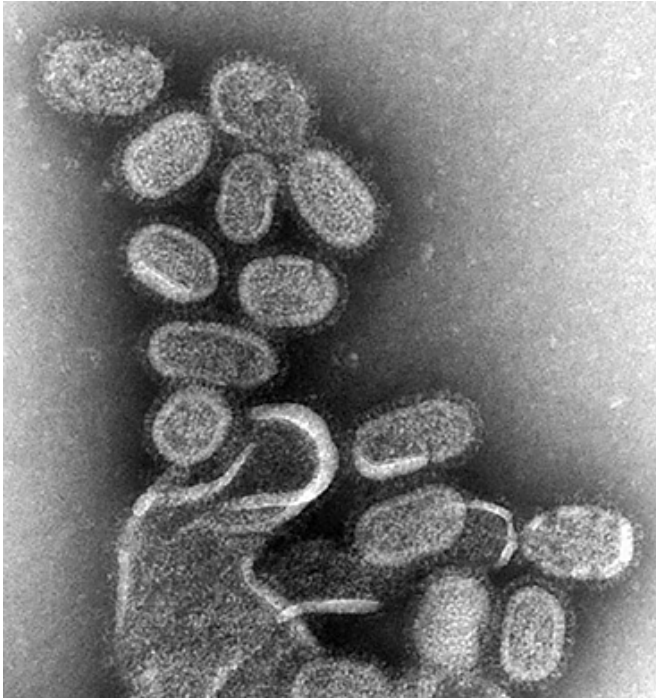


More effective influenza vaccine begins US clinical trials

1 July 2019



Electron microscopy of influenza virus. Credit: CDC

A more effective seasonal flu vaccine is about to be tested in clinical trials across the US.

The flu shot was working well early in the season with effectiveness around 47% in February. But this decreased substantially during a second wave of a tougher flu strain, with effectiveness at just 9%, as reported by the U.S. Centers for Disease Control and Prevention.

Dr. Nikolai Petrovsky, Flinders University Professor and Research Director of Vaxine Pty Ltd, says current flu vaccines do provide some protection, but his team have demonstrated a lot can be done to improve their effectiveness.

"Despite currently available vaccines, flu remains a

very major global health problem."

"During the 2017-18 Northern hemisphere flu season, the Centers for Disease Control and Prevention estimated that the US had 49 million cases of flu, 960,000 hospitalizations due to influenza complications and 79,000 deaths."

Dr. Petrovsky developed the technology behind this vaccine using adjuvants- substances which act as a turbocharger to enhance their ability to protect against infection.

The technology behind this improved flu shot is believed to be the first human drug in the world to be completely designed by artificial intelligence (AI).

"This represents the start of a new era where [artificial intelligence](#) is going to play an increasingly dominant role in [drug discovery](#) and design", says Professor Petrovsky.

Although computers have been used in the past to help in drug design, this vaccine technology was independently designed by an AI program called SAM (Search Algorithm for Ligands), created by the Flinders-based team.

Associate Professor Dr. Dimitar Sajkov, says a number of influenza patients seen this year had received the 2019 vaccine, highlighting the need to develop a better [flu shot](#)

"It is tremendous to see such a promising vaccine that we developed with the very first human trials being done at Flinders, progressing onto the world stage,"

"In 2009 the team at Flinders were the first in the world to develop a new swine flu vaccine to combat the 2009 pandemic. The Flinders [trials](#) confirmed both the effectiveness and speed with which this new vaccine could be delivered, resulting in many

awards including the AMP National Innovation Award at the Telstra Business Awards.

The US clinical trial will take about 12 months to complete and aims to recruit 240 healthy volunteers.

The trial is sponsored by the National Institute of Allergy and Infectious Diseases, part of the US National Institutes of Health.

Dr. Petrovsky expressed gratitude to the US government for providing long term funding for research that led to this breakthrough.

"It takes decades to develop a new human [vaccine](#) and this is extremely hard to achieve under Australian funding models which tend to be short term."

Provided by Flinders University

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