

Insect cells provide the key to alternative swine flu vaccination

January 4 2010

Scientists in Vienna have developed a new technique for producing vaccines for H1N1, 'swine flu', based on insect cells. The research, published today in the *Biotechnology Journal*, reveals how influenza vaccines can be produced faster than through the traditional method of egg-based production, revealing a new strategy for the fight against influenza pandemics.

"Recent outbreaks of influenza highlight the importance of a rapid and sufficient vaccine supply for pandemic and inter pandemic strains," said co-author Florian Krammer from the University of Natural Resources and Applied Life Science in Vienna. "However, classical manufacturing methods for vaccines fail to satisfy this demand."

Traditional influenza vaccines, which are produced in embryonated chicken eggs, can be manufactured in the quantities needed for seasonal strains of influenza. Yet because of limited egg supply this method may be insufficient in a pandemic scenario, such as the current H1 N1 'swine flu' pandemic.

The team's new method turns to insect cell based technology to create recombinant influenza virus-like particles (VLPs), which resemble virus particles but lack the viral nucleic acid, so they are not infectious.

The Austrian team took just ten weeks to produce swine-origin pandemic H1N1 influenza VLPs for immunological study in mice. This shows that production of a mock-up vaccine is feasible in this time

range, outcompeting conventional production methods which take months.

Using insect cells also bypasses the disadvantages of egg-based production, such as limited production capacity, allergic reactions to egg proteins and biosafety issues.

"Our work demonstrates that recombinant influenza virus-like particles are a very fast, safe and efficient alternative to conventional influenza vaccines and represents a significant new approach for newly emerging influenza strains like swine-origin [H1N1](#) or H5N1" concluded Krammer.

"Virus-like particles will be one solution to tackle the biological variability of [influenza](#) pandemics," said journal editor Professor Alois Jungbauer. "Mutated strains can be quickly engineered. So in this respect the teams' work is an extremely valuable contribution to modern vaccine production."

Provided by Wiley

Citation: Insect cells provide the key to alternative swine flu vaccination (2010, January 4) retrieved 18 April 2024 from

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