

2009 H1N1 vaccine protects against 1918 influenza virus

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Researchers at Mount Sinai School of Medicine have determined people who were vaccinated against the 2009 H1N1 influenza virus may also be protected against the lethal 1918 Spanish influenza virus, which killed more than 50 million people worldwide. The new findings are published in the current issue of *Nature Communications*.

"While the reconstruction of the formerly extinct Spanish [influenza](#) virus was important in helping study other pandemic viruses, it raised some concerns about an accidental lab release or its use as a bioterrorist agent," said Adolfo Garcia-Sastre, PhD, Professor, Microbiology, Mount Sinai School of Medicine, lead investigator on the study. "Our research shows that the 2009 H1N1 influenza [vaccine](#) protects against the Spanish [influenza virus](#), an important breakthrough in preventing another devastating [pandemic](#) like 1918." Other Mount Sinai School of Medicine groups involved in the study include the laboratories of Dr. Palese and Dr. Basler. The study was also done in collaboration with the group of Dr. Belshe, at St. Louis University, who provided the human vaccination samples.

The researchers administered to three groups of mice either the 2009 H1N1 influenza vaccine, the seasonal influenza vaccine, or no vaccine at all. Twenty-one days later, the mice were exposed to a lethal dose of the 1918 Spanish influenza virus. The mice receiving the H1N1 vaccine were the only ones to survive, while also exhibiting limited morbidity following the vaccination.

Additionally, Dr. Garcia-Sastre's team injected the mice with blood serum taken from humans who had been vaccinated against 2009 H1N1 influenza. Later, the mice were given a potent dose of the 1918 Spanish influenza virus. Researchers found that the antibodies in the blood produced by the 2009 H1N1 vaccine may also protect against the 1918 Spanish influenza virus.

"Considering the millions of people who have already been vaccinated against 2009 H1N1 influenza, cross-protection against the 1918 influenza virus may be widespread. Our research indicates that people who were exposed to the virus may also be protected," said Dr. Garcia-Sastre. "We look forward to conducting further research on the benefits of the 2009 H1N1 influenza vaccine in protecting against the deadly 1918 Spanish influenza virus."

Provided by The Mount Sinai Hospital

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