



## Flu vaccine emerges from caterpillar cells

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By Anita Manning, USA TODAY

A flu vaccine made in insect cells instead of chicken eggs is safe and at least as effective as standard flu shots, a study reports. Scientists say the experimental vaccine marks an advance toward the development of a faster method of making flu vaccine.

For half a century, vaccine manufacturers have relied on fertilized hens' eggs to grow the flu virus strains included in each year's vaccine. The process takes six months and is subject to variations in yield, depending on how rapidly each virus strain can grow. Federal health officials have made finding new flu vaccine technologies that are fast and reliable a priority.

In today's *Journal of the American Medical Association*, John Treanor of the University of Rochester, N.Y., tested an experimental vaccine made by using an insect virus, baculovirus, to produce flu virus proteins in cells taken from caterpillars. The finished vaccine included the three strains used in regular flu shots given during the 2004-05 flu season.

Several companies are working on flu vaccines grown in cell cultures, using human or animal kidney cells. The advantage of using the insect virus, Treanor says, is that it produces a lot of the needed flu virus protein. "The combination of baculoviruses and the insect cells they grow in turns out to be an efficient system for producing the protein in cell culture," he says.

In the study, financed by the vaccine maker,

Protein Sciences Corp. of Meriden, Conn., Treanor and colleagues at Cincinnati Children's Hospital and the University of Virginia assigned 460 volunteers to receive either a placebo or the vaccine in one of two dose strengths.

Both doses prompted an immune response to all three flu strains, but the higher-dose vaccine prompted the stronger immunity. During the flu season that followed, flu was confirmed in seven volunteers in the placebo group and two in the low-dose vaccine group, but no flu occurred in those given the higher-dose vaccine.

Vaccine researcher Tom Talbot of Vanderbilt University, who was not involved in the research, called the finding "interesting. It looks very promising." Earlier studies have been done using the baculovirus technology, he says, "but this is the first that took all three strains in seasonal vaccine and showed this technology is safe, induced the proper immune response" and appeared effective, not only in lab tests but also in a real flu season. The numbers in the study, however, are too small to draw conclusions, he says.

Also of interest, Talbot says, is that the vaccine was given in a year when one of the circulating strains was slightly different from those in the vaccine, and it still appeared to offer protection.

Treanor says the company will launch studies involving thousands of patients, which are needed before the vaccine can be considered for Food and Drug Administration approval.