

NIH Awards \$20.7 Million to Make Smallpox Vaccine Safer

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DENVER — The National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health, has awarded a five-year, \$20.7 million grant to National Jewish Medical and Research Center to lead a consortium of academic medical centers trying to make smallpox vaccines safer for millions of people with atopic dermatitis, also known as eczema.

"People with a history of atopic dermatitis and people who live with them do not receive smallpox vaccines because atopic dermatitis patients and former patients face an increased risk of developing serious and potentially fatal reactions to the vaccine," said Donald Leung, MD, PhD Head of the Division of Pediatric Allergy-Clinical Immunology at National Jewish, and principal investigator for the Clinical Studies Consortium of the Atopic Dermatitis and Vaccinia Network. "Our consortium will seek to understand their susceptibility and develop protocols that will allow them to be vaccinated against this potential bioterrorist threat."

Erwin Gelfand, MD, Chairman of Pediatrics at National Jewish, will conduct animal studies in association with the Animal Studies Consortium of the network.

Long a dreaded scourge of humans, smallpox was wiped out around the world by 1980 due to an aggressive vaccination program. Routine vaccinations in the United States ended in 1972. Although the only known stocks of the smallpox virus are contained in laboratories in the United States and Russia, government and health officials fear that others may have the virus and use it as a terrorist weapon. As a result, military and healthcare professionals have begun receiving smallpox vaccinations for the first time in more than 30 years. In the case of an actual smallpox outbreak, thousands and possibly millions of people would receive the vaccine.

People with atopic dermatitis do not currently receive the vaccine because they are susceptible to developing eczema vaccinatum, a severe and potentially fatal skin disease caused by the vaccine. People who live with atopic dermatitis patients also do not receive vaccines because they could spread the vaccinia virus in the vaccine to patients who might later develop eczema vaccinatum. In the past even patients whose disease had not been active for several years sometimes developed eczema vaccinatum after receiving a vaccine.

Atopic dermatitis is one of the most common chronic skin diseases, an allergic condition characterized by dry red itchy skin and oozing lesions. Lifetime prevalence of the disease is estimated to be between 10% and 15%. Since people living with atopic dermatitis patients also should not receive the vaccine, it is possible that close to 40% of the population are not currently eligible to routinely receive smallpox vaccination. Decisions about whom to vaccinate are complicated by the fact that there are no reliable medical tests that can definitively say if a person currently has or has had atopic dermatitis in the past.

The researchers will conduct both laboratory and clinical studies to understand why atopic dermatitis patients are susceptible to eczema vaccinatum, to find biomarkers that can definitively identify atopic dermatitis patients in general and those who are especially susceptible to eczema vaccinatum, and to develop protocols to safely vaccinate atopic dermatitis patients.

"We expect that our research program will lead to safer smallpox vaccination for atopic dermatitis patients and a more thorough protection of our population against a bioterrorist attack using the smallpox virus," said Dr. Leung. "In addition, it should lead to a better understanding of atopic dermatitis, more effective treatments, and possibly methods to prevent the disease."

In addition to National Jewish Medical and Research Center, the Clinical Studies Consortium of the Atopic Dermatitis and Vaccinia Network will include research teams at Oregon Health & Science University; Boston Children's Hospital; University of California, San Diego; Johns Hopkins Asthma and Allergy Center; and the University of Bonn. Individuals

with atopic dermatitis who have problems with viral infections including herpes simplex and molluscum contagiosum or a previous reaction to the smallpox vaccine are encouraged to contact one of these medical centers.

For more information about the Clinical Studies Consortium of the Atopic Dermatitis and Vaccinia Network call the National Jewish LUNGLINE at 1-800-222-5864.

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