

Studying Human Immune Responses to Build Better Flu Vaccines



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[Nearly 36 million people have gotten the flu since 2010, according to the Centers for Disease Control and Prevention \(CDC\).](#) Though vaccines are the best way to control a flu epidemic, the 2016-2017 flu vaccine strains did not prevent as many cases of the flu as usual.

Washington University's Ali Ellebedy, PhD, and University of Pennsylvania's Scott Hensley, PhD, want to figure out why this year's vaccines were less effective and use these findings to create better vaccines for flu seasons to come.

Most types of flu vaccines are produced in hens' eggs before being turned into the shots you get at the doctor's office. But Ellebedy and Hensley suspect that this very technique is what made the 2016-2017 vaccine less effective. When vaccine strains are grown in eggs, substitutes for amino acids—or the molecules that form proteins—can occur, changing the structure of the vaccine strains that cause the immune system to make antibodies against it. Ellebedy and Hensley believe that this makes it easier for the flu viruses to escape the immune system's responses triggered by current vaccines.

They will test this hypothesis and determine the impact that eggs' adaptation has on how well the flu vaccine works. Their findings could help improve our flu vaccines and help prevent infection by new flu viruses.

Project title: Interrogation of Human B Cell Responses Following Influenza Virus Infection and Vaccination

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