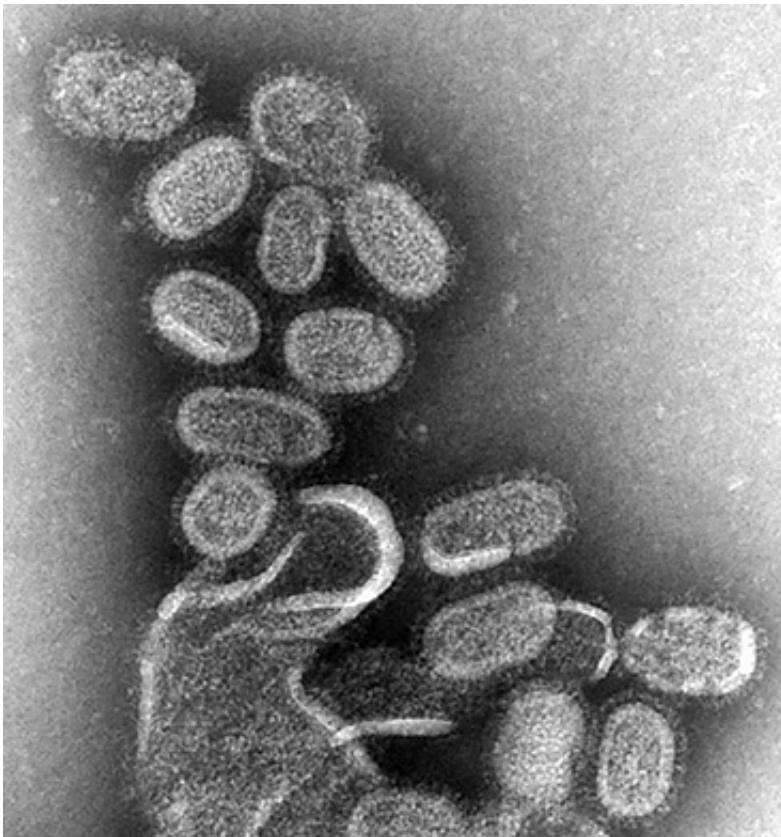


New mechanism identified for influenza-induced bacterial superinfections

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Electron microscopy of influenza virus. Credit: CDC

Researchers have described a new mechanism by which influenza A viruses (IAV) alter the host immune system and make them more or less susceptible to often deadly co-occurring bacterial infections. The role of the PDZ-binding motif of IAV in susceptibility to bacterial

superinfections (BSI) is presented in an article published in *Viral Immunology*.

The Centers for Disease Control and Prevention (CDC) estimates that influenza kills 12,000-56,000 Americans each year. A major complication of influenza is the development of secondary bacterial infections, which exacerbate the severity of the disease.

A team of researchers led by Kelly Shepardson and Agnieszka Rynda-Applé, Montana State University, Bozeman, and Victor C. Huber, Sanford School of Medicine, University of South Dakota, Vermillion, demonstrated that the PDZ-bm determines the hosts susceptibility to BSI by controlling production of the cytokines IFN- α/β . This newly identified mechanism of action for manipulating host immunity and controlling BSI severity specifically involves the regulation of IFN- β . It is described in detail in the article titled "A Novel Role for PDZ-Binding Motif of Influenza A Virus Nonstructural Protein 1 in Regulation of Host Susceptibility to Postinfluenza Bacterial Superinfections."

"In the current issue of *Viral Immunology*, Shepardson and colleagues show that the non-structural-1 protein (NS1) of the virus can regulate innate immunity and susceptibility to secondary bacterial infections. Deletion of a key section of the NS1 from the virus resulted in 100% survival and decreased bacterial burden in superinfected mice," says David L. Woodland, Ph.D., Editor-in Chief of *Viral Immunology* and Adjunct Member of the Trudeau Institute in Saranac Lake, NY. "These findings suggest that NS1 regulates the time dependent type I interferon response during [influenza](#) virus [infection](#), which in turn determines [susceptibility](#) to secondary bacterial infections."

More information: Kelly Shepardson et al. A Novel Role for PDZ-Binding Motif of Influenza A Virus Nonstructural Protein 1 in Regulation of Host Susceptibility to Postinfluenza Bacterial

Superinfections, *Viral Immunology* (2019). DOI: [10.1089/vim.2018.0118](https://doi.org/10.1089/vim.2018.0118)

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