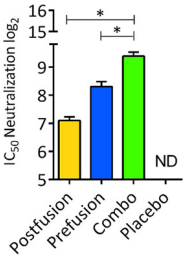
AMERICAN SOCIETY FOR MICROBIOLOGY | Clinical and Vaccine Immunology

SPOTLIGHT

Articles of Significant Interest Selected from This Issue by the Editors

Novel Respiratory Syncytial Virus-Like Particle Vaccine

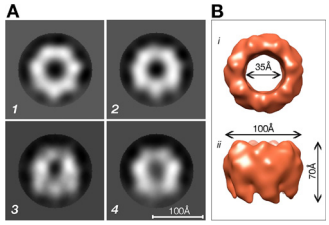
Respiratory syncytial virus (RSV) is the leading cause of severe respiratory disease in infants globally. Cimica et al. (p. 451–459) developed a novel RSV-like particle (RSV VLP) vaccine assembled with human metapneumovirus (hMPV) matrix protein as the structural scaffold and RSV fusion glycoprotein (F) as the main immunogen in postfusion, prefusion, or postfusion-plus-prefusion conformation. Immunization with alternative RSV VLP vaccine formulations afforded full protection and was safe in the mouse model of RSV disease; however, the RSV VLP vaccine composition combining postfusion and prefusion F elicited the highest level of neutralizing antibody and stimulated a greater Th1-mediated immune response.



A combination RSV VLP vaccine containing prefusion and postfusion conformations of F induces the highest level of neutralizing antibodies.

Heptameric *Staphylococcus aureus* Alpha-Hemolysin and Immune Responses

To evaluate the structural, functional, and immunogenic characteristics of both monomeric and heptameric *Staphylococcus aureus* alpha-hemolysin (Hla), Fiaschi et al. (p. 442–450) engineered and detoxified the pore-forming toxin by removing the membrane-spanning stem domain. The monomer of this mutated protein, HlaPSGS, forms heptamers in aqueous solution and resembles the cap of the wild-type cytolytic Hla pore. Antibody responses against *S. aureus*, both in humans and in mice, were found directed primarily against epitopes present only in the heptameric Hla toxin. These are important observations for the understanding of the immunology of *S. aureus* infections as well as for developing innovative vaccines.



Typical HlaPSGS class averages showing the seven identical protomers (A) and top (i) and side (ii) surface views of the HlaPSGS electron density map (B).

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