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SPOTLIGHT

Articles of Significant Interest Selected from This Issue by the Editors

Immune Responses to Urinary Tract Infection Summarized with an Eye toward Vaccination

Urinary tract infection (UTI) caused by uropathogenic *Escherichia coli* (UPEC) is an arduous public health issue for which no vaccine exists. In contrast to our understanding of UPEC virulence, the innate and adaptive immune responses to UTI are not mechanistically defined. In an effort to collectively disseminate the results of previous UTI vaccine studies and research on the immunological factors involved in UPEC infection, Sivick and Mobley (p. 568–585) have assembled a comprehensive minireview on this topic. This review is intended to stimulate new ideas and avenues of research toward the goal of developing an efficacious vaccine.

Transitions in the Composition of Oral and Intestinal Microflora and Innate Immune Receptor-Dependent Stimulation during Murine Development

Commensals possess immunostimulatory activities that can modulate host responses to affect development and homeostasis in the intestine. Hasegawa and colleagues (p. 639–650) characterize the ability of the oral and intestinal microflora to stimulate individual pattern recognition receptors. This work demonstrates dynamic changes in the immunostimulatory activity of the commensal microflora, which was associated with the presence of different bacterial populations during mouse development. These findings will facilitate the study of the interactions between the microbiota and the host as well as the mechanism commensals use to regulate immune development and homeostasis.

A Semisynthetic Conjugate Vaccine Confers Protection against Diverse Bacterial Pathogens

Poly-β-(1→6)-*N*-acetyl-D-glucosamine (PNAG) is a surface polysaccharide expressed by a variety of Gram-positive and Gram-negative bacterial pathogens, including *Staphylococcus aureus, Staphylococcus epidermidis, Escherichia coli, Acinetobacter baumannii,* and others. Optimal opsonic and protective immunity against PNAG-producing pathogens requires that the PNAG antigen have a low degree of N acetylation. Gening et al. (p. 764–772) used a variety of synthetic N-acetylated and nonacetylated β(1→6)-oligoglucosamine ligands as haptens in conjugate vaccines. Optimal opsonic killing activity was induced with the conjugates incorporating the fully non-N-acetylated oligoglucosamine hapten. These antibodies passively protected mice against *S. aureus* skin abscesses and *E. coli* lethal peritonitis.