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Articles of Significant Interest Selected from This Issue by the Editors

Deciphering Function of New Gonococcal Vaccine Antigens Using Phenotypic Microarrays

Innovative approaches are prerequisites for developing vaccines against prevalent sexually transmitted infections such as gonorrhea. Baarda et al. (e00037-17) utilized phenotype microarrays in the first such investigation into *Neisseria gonorrhoeae* to probe the function of seven proteome-derived vaccine candidates in cell envelope homeostasis. Phenomes associated with lack of these antigens in a laboratory strain were also observed in a highly antibiotic-resistant contemporary clinical isolate, validating their inclusion in a future vaccine. These studies can feed to the vaccine candidate decision tree by giving insights into the roles these proteins play in membrane permeability, integrity, and overall *N. gonorrhoeae* physiology.

Electron Cryotomography Reveals New Macromolecular Structures in Bacteria

Many bacterial mysteries have remained concealed due to limitations of imaging technology and preservation methods. Electron cryotomography is a technique used to reveal the native structure and arrangement of macromolecular complexes inside intact cells. Dobro et al. (e00100-17) conducted a visual survey of more than 15,000 cryotomograms from 88 species and uncovered structures that either were completely novel or expanded the species range of known structures. These structures included new appendages, cytoplasmic nanospheres, filaments, bundles, chains, meshes, tubes, and vesicles. It is hoped that the presentation of these structures will lead to their identification.

A New Mechanism of *Staphylococcus aureus* Survival of *Pseudomonas aeruginosa*-Mediated Interbacterial Antagonism

Pseudomonas aeruginosa produces factors, such as pyocyanin, that inhibit *Staphylococcus aureus* growth. Yet, *P. aeruginosa* and *S. aureus* sustain polymicrobial infections including infection of the cystic fibrosis lung. The respiration-deficient small-colony variant (SCV) phenotype is thought to render *S. aureus* resistant to pyocyanin. However, Noto et al. (e00221-17) demonstrate that pyocyanin inhibits the growth of *S. aureus* SCVs through reactive oxygen species generation. Pyocyanin resistance is achieved though inactivation of QsrR, a repressor of quinone detoxification. Derepression of the QsrR regulon accelerates pyocyanin inactivation and enhances *S. aureus* growth. Together, these findings provide a mechanism by which *S. aureus* overcomes *P. aeruginosa*-mediated interbacterial antagonism.

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