



Articles of Significant Interest in This Issue

Functional Determinants of a Small Protein Controlling a Broadly Conserved Bacterial Sensor Kinase

A small membrane protein of 47 amino acids, MgrB, impedes PhoQ sensor kinase activity, thereby affecting the expression of genes that regulate the virulence of pathogenic bacteria. Yadavalli et al. (e00305-20) identified specific amino acids in the cytoplasmic, membrane-spanning, and periplasmic regions of MgrB that are critical for the protein's inhibitory function. They also found that the transmembrane region is important for MgrB/PhoQ interaction and appears to physically interact with other sensor proteins. This work provides insights into regulation by MgrB, one of many small proteins that were overlooked until recently.

The Length of Lipoteichoic Acid Polymers Controls *Staphylococcus aureus* Cell Size and Envelope Integrity

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a common cause of community- and hospital-acquired infections and is responsible for a large fraction of deaths caused by antibiotic-resistant bacteria. *S. aureus* is surrounded by a complex cell envelope that protects it from antimicrobial compounds and other stresses. Hesser et al. (e00149-20) show that the length of an essential cell envelope polymer, lipoteichoic acid, is critical for controlling *S. aureus* cell size and envelope integrity. They also show that genes involved in polymer length regulation are required for beta-lactam resistance in MRSA. Proteins encoded by these genes may be targets for combination therapy with an appropriate beta-lactam.