



## 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.