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Articles of Significant Interest Selected by the Editors

Exploring How a Phosphodiesterase Is Recruited to the Cell Pole in *Shewanella putrefaciens*

Many bacterial species are highly enriched in enzymes involved in production and turnover of the second messenger c-di-GMP. One possible mechanism to obtain appropriately specific responses is spatiotemporal control of the corresponding proteins. Rossmann et al. (e00534-18) show that the phosphodiesterase PdeB, which regulates mainly flagellum-mediated motility, is recruited to the flagellated cell pole by the polar landmark protein HubP. This localization is mediated by direct interaction between HubP and the GGDEF domain of PdeB. These findings demonstrate an unforeseen role of a GGDEF domain in spatiotemporal organization of c-di-GMP signaling.

Multimodal Regulation of SigF by an Atypical Antagonist and the Osmosensory PknD of *Mycobacterium tuberculosis*

Signal transduction in *Mycobacterium tuberculosis* is intricately regulated using both sigma factors and serine/threonine protein kinases. Sigma factors themselves are regulated by anti-sigma factors and their antagonists. Misra et al. (e00725-18) demonstrate that Rv1364c, a multidomain protein carrying both these functions, regulates sigma factor F, which can be further regulated by the osmosensory kinase PknD. Using biochemical evidence, they identify noncanonical phosphorylation sites in this multidomain regulator to regulate binding with SigF. By overexpressing the regulator in *M. tuberculosis*, the osmotic stress response can be manipulated, demonstrating that this pathway can tightly regulate the osmotic stress response in this pathogen.

Purification and Characterization of an ATP Synthase in a Unique Archaeal Genus

To date, all information about A-type ATP synthases comes from euryarchaeal enzymes. Kreuter et al. (e00510-18) describe the first successful purification of an ATP synthase from the crenarchaeon *Ignicoccus hospitalis*. The seemingly increased in vitro stability at a higher pH (pH 9.0) might be related to the unique cell structure of all members of the genus. *Ignicoccus* cells possess an outer cellular membrane that harbors the ATP synthase as well as the primary proton pump and is therefore energized. The ATP-rich intermembrane compartment could facilitate the supply of ATP from *I. hospitalis* to the parasitic symbiont *Nanoarchaeum equitans*.

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