IN BRIEF

PRIONS

Epigenetic control of polyamines by the prion [*PSI*$^+$]

Namy, O. *et al. Nature Cell Biol.* 1 Aug 2008 (doi:10.1038/ncb1766)

The *Saccharomyces cerevisiae* prion protein [*PSI*$^+$] is an aggregating conformation variant of the translation release factor eRF3 that affects the efficiency of translation termination, which results in alterations in cellular fitness. However, the regulatory targets for [*PSI*$^+$] have remained uncharacterized. Namy and colleagues show that [*PSI*$^+$] increases the use of a frameshift that is required for antizyme (OAZ1) expression, thereby increasing its cellular concentration. Antizyme negatively regulates cellular polyamines by targeting ornithine decarboxylase for degradation. The decrease in polyamine concentrations accounted for approximately half of the phenotypes observed in [*PSI*$^+$] cells. This indicates that antizyme is an important regulatory target for [*PSI*$^+$].

BIOFILMS

Complementary adhesin function in *C. albicans* biofilm formation

Nobile, C. J. *et al. Curr. Biol.* **18**, 1017–1024 (2008)

In common with many other microorganisms, the human pathogenic fungus *Candida albicans* forms surface-associated communities named biofilms. Surface proteins from the *ALS* gene family that are homologous to fungal adhesins have been linked with biofilm formation. Nobile *et al.* now show that whereas single *als1* or *als3* deletion mutants were able to form biofilms on a rat *in vivo* catheter model, a double mutant that lacked Als1 and Als3 was defective for cell adherence and could not form biofilms. Interestingly, mixing two biofilm-formation-defective strains (the *als1 als3* double mutant and a strain that lacked the surface protein Hwp1) rescued biofilm formation. Furthermore, an *S. cerevisiae* strain that expressed *C. albicans HWP1* bound to wild-type *C. albicans* cells but not to the *als1 als3* double mutant. Therefore, interactions between Hwp1 and Als family members enable adhesion and biofilm formation.

BACTERIAL PATHOGENESIS

Amide bonds assemble pili on the surface of bacilli

Budzik, J. M. *et al. Proc. Natl Acad. Sci. USA* **105**, 10215–10220 (2008)

BcpA is the main subunit of the cell surface pili of *Bacillus cereus*. Pili, which can grow to lengths of 1–5 micrometres, enable attachment to and invasion of host cells by this Gram-positive bacterium. In these bacteria, surface proteins can be tethered to the cell wall envelope by a family of proteins known as sortases. Previous work identified a role for sortase D (SrtD) in pilus formation, although its exact function was unclear. Schneewind and colleagues show that cleavage of the LPXTG sorting signal that is present in BcpA by SrtD is followed by formation of an intermolecular amide bond between the cleaved BcpA carboxyl terminus and the YPKN motif of another BcpA molecule. Furthermore, three intramolecular amide bonds are formed by the immunoglobulin-like collagen adhesin B domains within an individual BcpA molecule, but only one of these bonds is required for pilus formation. Understanding the mechanistic basis of pilus assembly will aid the development of therapeutics to block invasion by Gram-positive bacteria.