Mutant strains of *Escherichia coli* that lack the ability to form disulfide bonds in exported proteins can readily be isolated (Bardwell, McGovern and Beckwith, 1991). However, there are at least two *E. coli* cell envelope proteins that are essential and require disulfide bonds for their activity – LptD, which is essential for transport of lipopolysaccharides (LPS) to the outer leaflet of the outer membrane, and FtsN, which is essential for cell division (Ruiz *et al.*, 2010; Meehan *et al.*, 2017b). Recent work has shown that in fact, disulphide bond formation is essential for anaerobic growth of *E. coli* (Meehan *et al.*, 2017a).

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