

**Crystal structure of the open state of the Neisseria gonorrhoeae MtrE outer membrane channel.**

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**Public Summary:**

Active efflux of antimicrobial agents is one of the most important strategies used by bacteria to defend against antimicrobial factors present in their environment. Mediating many cases of antibiotic resistance are transmembrane efflux pumps, composed of one or more proteins. The *Neisseria gonorrhoeae* MtrCDE tripartite multidrug efflux pump, belonging to the hydrophobic and amphiphilic efflux resistance-nodulation-cell division (HAE-RND) family, spans both the inner and outer membranes of *N. gonorrhoeae* and confers resistance to a variety of antibiotics and toxic compounds. We here describe the crystal structure of *N. gonorrhoeae* MtrE, the outer membrane component of the MtrCDE tripartite multidrug efflux system. This trimeric MtrE channel forms a vertical tunnel extending down contiguously from the outer membrane surface to the periplasmic end, indicating that our structure of MtrE depicts an open conformational state of this channel.

**Scientific Abstract:**

Active efflux of antimicrobial agents is one of the most important strategies used by bacteria to defend against antimicrobial factors present in their environment. Mediating many cases of antibiotic resistance are transmembrane efflux pumps, composed of one or more proteins. The *Neisseria gonorrhoeae* MtrCDE tripartite multidrug efflux pump, belonging to the hydrophobic and amphiphilic efflux resistance-nodulation-cell division (HAE-RND) family, spans both the inner and outer membranes of *N. gonorrhoeae* and confers resistance to a variety of antibiotics and toxic compounds. We here describe the crystal structure of *N. gonorrhoeae* MtrE, the outer membrane component of the MtrCDE tripartite multidrug efflux system. This trimeric MtrE channel forms a vertical tunnel extending down contiguously from the outer membrane surface to the periplasmic end, indicating that our structure of MtrE depicts an open conformational state of this channel.

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