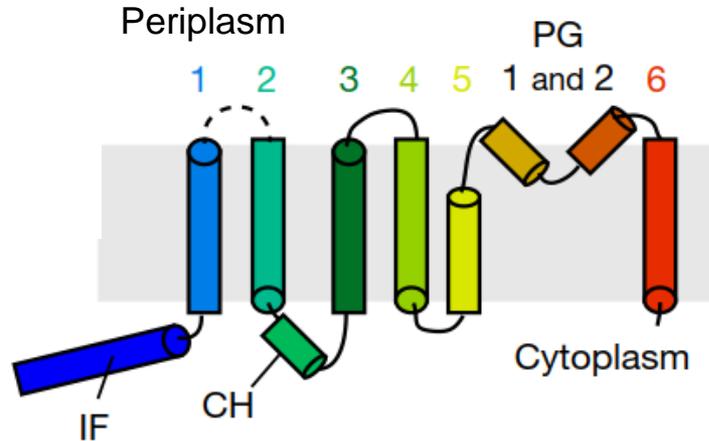


Unexpected Architecture of a Membrane Protein Revealed



Wzm forms six transmembrane helices and the cytoplasmic loop (CH) forms the coupling helix. The periplasmic loop, between helices 5 and 6, generates two periplasmic gate helices (PG1 and PG2). Gray box indicates likely membrane boundaries.

Y. Bi, E. Mann, C. Whitfield, J. Zimmer, *Nature* 553, 361–365 (2018).

Work was performed in part at Brookhaven National Laboratory

Scientific Achievement

The crystal structure of a channel-forming O-antigen polysaccharide transporter called Wzm-Wzt was revealed and showed an unexpected, non-traditional architecture.

Significance and Impact

O-antigens are important cell wall components in Gram-negative bacteria; Understanding how O-antigens are synthesized and secreted can help treat many human infections.

Research Details

- X-ray crystallography, structure-derived models, and additional functional analyses showed a processive O-antigen translocation mechanism.
- This mechanism stands in contrast to the classical alternating access mechanism of ABC transporters.



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