

Unraveling the structural dynamics of the Type II secretion system.

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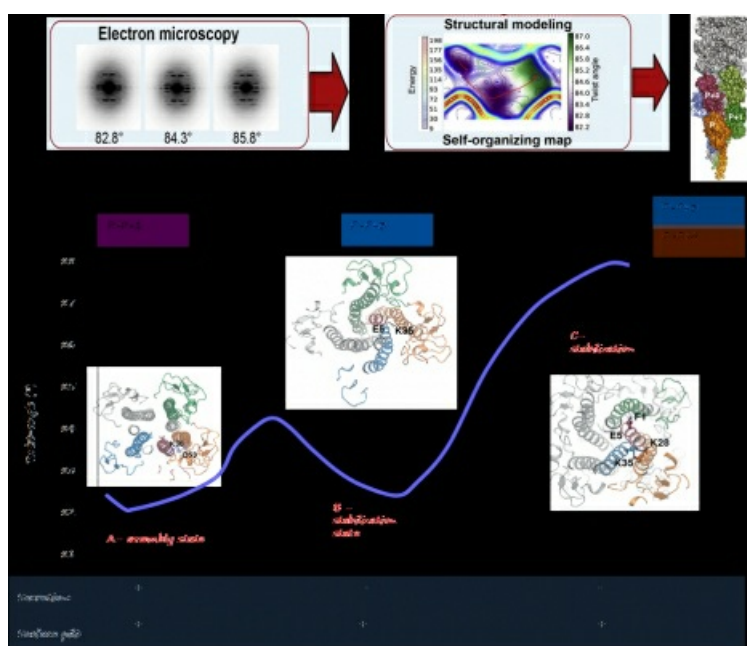
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The type II secretion system is a macromolecular nanomachine that bacteria employ to secrete folded proteins to their extracellular milieu. The system allows for nutrient acquisition, adaptation and virulence of Gram-negative bacteria. Along with the type IV pili systems, the type II secretion system, assemble dynamic fibers that facilitate protein transport, motility and adhesion of bacteria. Here, I present work that demonstrates the structural dynamics of the fiber assembly machine essential for the assembly and function of the type II secretion system. Cryo-EM and flexible modeling tools together with biochemical, in vivo and in vitro interaction studies, and functional assays helped us in deciphering the initial steps involved in fiber assembly. Our data sufficiently delineate the two events of fiber assembly and protein secretion.

[1]Nivaskumar M, Santos-Moreno J, Malosse C, Nadeau N, Chamot-Rooke J, Tran Van Nhieu G, Francetic O. (2016). Mol Microbiol, 101, 924-41.

[2]Nivaskumar M, Bouvier G, Campos M, Nadeau N, Yu X, Egelman EH, Nilges M, Francetic O. (2014). Structure, 22, 685-91.

[3]Nivaskumar M, Francetic O. (2014). Biochim Biophys Acta. 1843, 1568-77.



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