

The power of cryo-EM: Structural Insights into Tc toxin action

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Tripartite Tc toxin complexes perforate the host membrane by forming channels that translocate toxic enzymes into the host, including humans. The underlying mechanism is complex but poorly understood. In my talk I will present the high-resolution structure of a complete 1.7 MDa Tc toxin complex composed of TcA, TcB and TcC. TcA forms a long translocation pore that is surrounded by a shell domain including putative receptor-binding domains. TcB and TcC form a large cocoon, in which the toxic domain resides and is autoproteolytically cleaved. A high-resolution structure of TcA embedded in the membrane and functional studies enable us to explain the mechanism of membrane insertion of the toxin.

Our results allow us to understand the mechanism of action of Tc toxins at molecular to atomic level and shed new light on the interaction of bacterial pathogens, such as the plague pathogen *Yersinia pestis*, with their hosts.

References

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