

The power of cryo-EM to elucidate biological mechanisms

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Muscular movement plays an essential role not only in our lives. It is initiated by the release of calcium, which controls the interaction of actin and myosin filaments.

Upon infection with bacterial pathogens, Tc toxin complexes attack F-actin, which is not only the major component of muscles but also of the cytoskeleton. Tripartite Tc toxin complexes perforate the host membrane by forming channels that translocate toxic enzymes into the host, including humans.

The underlying mechanism of Tc toxin action and the function and regulation of muscle contraction are complex but poorly understood. In my talk I will present our recent published and unpublished electron cryo microscopy work, revealing important molecular details of both processes.