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Sommario/riassunto

Bridging cellular membranes is a key step in the pathogenic action of both binary and pore-forming bacterial toxins. The former use their translocation domains, containing various structural motifs, to ensure efficient delivery of the toxic component into the host cell, while the latter act on the cellular membrane itself. In either case, the integrity of the membrane is compromised via targeted protein-lipid and protein-protein interactions triggered by specific signals, such as proteolytic cleavage or endosomal acidification. This Special Issue presents recent advances in characterizing functional, structural and thermodynamic aspects of the conformational switching and membrane interactions involved in the cellular entry of bacterial protein toxins. Deciphering the physicochemical principles underlying these processes is also a prerequisite for the use of protein engineering to develop toxin-based molecular vehicles capable of targeted delivery of therapeutic agents to tumors and other diseased tissues.