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Title:	Exploring the role of cholesterol in the mode of action Listeriolysin O, a cholesterol-dependent cytolysin
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Abstract:	Listeriolysin O (LLO) is a β -barrel pore-forming toxin and it belongs to the class of cholesterol-dependent cytolysins (CDCs). This toxin is secreted by <i>Listeria monocytogenes</i> which is a gram-positive intracellular pathogen and the causative agent of listeriosis. Previous studies on some CDCs have revealed the role of cholesterol in binding as well as in insertion of the pre-pore into the membrane. However, the exact role of cholesterol in case of LLO is still unexplored. Through this work, we show that the presence of cholesterol enhances the pore-forming activity of LLO. By varying the cholesterol content in the liposome system, we show that the membrane cholesterol facilitates the binding of monomers to the membranes, but the absence of cholesterol did not abolish the binding completely. Our study also reveals that unlike for other CDCs such as perfringolysin O (PFO), streptolysin O (SLO) and intermedilysin (ILY), cholesterol content in the membrane is crucial for the oligomerization process of the Listeriolysin O monomers which are already bound to the liposome membranes.
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