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Title:	Pore-forming toxins in infection and immunity
Authors:	Verma, Pratima (/jspui/browse?type=author&value=Verma%2C+Pratima) Gandhi, Shraddha (/jspui/browse?type=author&value=Gandhi%2C+Shraddha) Lata, Kusum (/jspui/browse?type=author&value=Lata%2C+Kusum) Chattopadhyay, Kausik (/jspui/browse?type=author&value=Chattopadhyay%2C+Kausik)
Keywords:	bacterial pathogenesis immunity infection membranes pore-forming protein pore-forming toxin
Issue Date:	2021
Publisher:	Portland Press
Citation:	Biochemical Society Transactions, 49(1), 455-465.
Abstract:	The integrity of the plasma membranes is extremely crucial for the survival and proper functioning of the cells. Organisms from all kingdoms of life employ specialized pore-forming proteins and toxins (PFPs and PFTs) that perforate cell membranes, and cause detrimental effects. PFPs/PFTs exert their damaging actions by forming oligomeric pores in the membrane lipid bilayer. PFPs/PFTs play important roles in diverse biological processes. Many pathogenic bacteria secrete PFTs for executing their virulence mechanisms. The immune system of the higher vertebrates employs PFPs to kill pathogen-infected cells and transformed cancer cells. The most obvious consequence of membrane pore-formation by the PFPs/PFTs is the killing of the target cells due to the disruption of the permeability barrier function of the plasma membranes. PFPs/PFTs can also activate diverse cellular processes that include activation of the stress-response pathways, induction of programmed cell death, and inflammation. Upon attack by the PFTs, host cells may also activate pathways to repair the injured membranes, restore cellular homeostasis, and trigger inflammatory immune responses. In this article, we present an overview of the diverse cellular responses that are triggered by the PFPs/PFTs, and their implications in the process of pathogen infection and immunity.
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