

Difference between Endotoxin and Exotoxin

Exotoxins are usually heat labile proteins secreted by certain species of bacteria which diffuse into the surrounding medium.

Endotoxins are heat stable lipopolysaccharide-protein complexes which form structural components of cell wall of Gram Negative Bacteria and liberated only on cell lysis or death of bacteria.

Table show Differences between exotoxin and endotoxin.

Characteristics	Exotoxins	Endotoxins
Source	Living gram positive and gram negative bacteria	Lysed gram negative bacteria
Location	Released from the cell	Part of cell
Chemical Composition	Protein	Lipopolysaccharide
Heat Sensitivity	Liabile (60-80C)	Stable (250C)
Immune Reactions	Strong	Weak
Conversion to Toxoids	Possible	Not possible
Fever	No	Yes
Enzyme Activity	It has no enzymatic activity.	It has mostly enzymatic activity.
Molecular Weight	Its molecular weight is 10KDa.	Its molecular weight is 50-1000KDa.
Denaturing	On boiling it get denatured.	On boiling it cannot be denatured.
Specificity	Specific to particular bacterial strain	Non specific
Antigenicity	High	Poor
Examples	<i>Staphylococcus aureus</i> , <i>Bacillus cereus</i> , <i>Streptococcus pyogenes</i> , <i>Bacillus anthracis</i> .	<i>E.coli</i> , <i>Salmonella typhi</i> , <i>Shigella</i> , <i>Vibrio cholera</i> .

Reference: Pommerville JC. Alcamo's Fundamentals of Microbiology: Body Systems. Jones & Bartlett Learning, 2009; p626.