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Lipopolysaccharide Assembly and Modifications in Gram-Negative Bacteria

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Message from the Guest Editors

Dear colleagues ,

The most defining feature of Gram-negative bacteria is the presence of an asymmetric outer membrane (OM), with phospholipids facing its inner leaflet and lipopolysaccharide (LPS) on the outer surface. LPS is generally essential, constituting the major component of OM and is the causative agent of sepsis. LPS is a complex glycolipid comprised of a hydrophobic membrane-anchored lipid A and a core oligosaccharide. The biosynthesis of LPS and assembly requires more than 50 genes and many of them are essential and being unique to bacteria are targets for the discovery of new antibiotics. LPSs are potent activators of mammalian immune system. Bacteria often alter their LPS composition, due to changes in acylation, modifications of LPS core and lipid A part, which often confer antibiotic resistance or evade detection by immune system. Recent studies have unraveled novel essential components in the regulation of a tight balance between LPS and phospholipid content, LPS transport to the OM and role of cardiolipins. In this issue, diversity of LPS structure, its modifications, assembly of LPS and detection of LPS by host immune system will be covered.

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Message from the Editor-in-Chief

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