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# HOW BACTERIAL LIPOPROTEINS INFLUENCE OUR IMMUNE SYSTEM

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**B**acterial lipoproteins (Lpp) belong to the class of lipid-anchored proteins that are in Gram-negative bacteria anchored both in the cytoplasmic and the outer membrane and in Gram-positive bacteria only in the cytoplasmic membrane. In contrast to Gram-negative bacteria, lipoprotein maturation and processing is not vital in Gram-positive bacteria, however, they play an important physiological role, in nutrient and ion acquisition allowing particularly pathogenic species to better survive in the host. In Gram-positive bacteria Lpp represent the major protein group of the surfacome. They also represent important MAMPs (microbe-associated molecular patterns) by alerting our immune system via interaction with TLR2 (Toll-like receptor 2). More recently it has been shown that the lipid structure of Lpp has a profound influence on the intensity of our immune response. In commensal staphylococcal species Lpp carry a long-chain N-acyl group, while non-commensal species carry only N-acetylated lipid moiety. While the non-commensal species and their isolated Lpp induce a fulminant immune reaction the commensal species rather lulls our immune system. These findings confirm our hypothesis that successful pathogenic bacteria but also harmless commensal bacteria can only survive in the host when they manage to escape or evade the immune defense system. There are two main strategies of bacteria to circumvent the immune system. One is directed against phagocytes including inhibition of chemotaxis or phagocytosis or colonization of phagocytes. The other strategy is directed against the innate and adaptive immunity such as avoiding to evoke an immune response.