

In today's healthcare gram-positive bacterial infections are a major cause of morbidity and mortality. Opsonin dependent phagocytosis plays the major role in protection and clearance of these infections. As this accounts for acquired immunity, the innate immunity role of opsonin independent phagocytosis is still largely unknown. Class A scavenger receptors (SR-A) are known to recognize and bind modified low density lipoproteins such as the gram-positive lipoteichoic acid (LTA). In this study we show that mature macrophages (CD 11b+) undergo ex vivo phagocytosis of *Staphylococcus aureus* mediated by scavenger receptors. While confirming this by showing that peripheral blood monocytes (PBMC) were unable to internalize the gram-positive bacteria. Our findings provide evidence of the critical role in which scavenger receptors play in the opsonin-independent innate defense of bacterial infections