Erratum


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Abstract: The major surface lipoglycan of Mycobacterium tuberculosis (M. tb), mannose-capped lipoarabinomannan (ManLAM), is an immunosuppressive epitope of M. tb. Interleukin (IL)-37, is a newly identified anti-inflammatory cytokine, which reduces systemic and local inflammation. However, the correlation between ManLAM and IL-37 remains unknown. Therefore, in this study, we investigate the possible role and relative molecular mechanism of ManLAM in IL-37 production of human type II alveolar epithelial cells by using A549 cell line. Here, we report that M. tb induced IL-37 mRNA and protein expression in a time-dependent manner. We next fractionated components of M. tb using chloroform: methanol (C:M) and water. In sharp contrast to the C:M phase, water phase was mainly responsible for the production of IL-37. Since ManLAM is the major component of water phase, we found that ManLAM induced IL-37 mRNA and protein expression in a time and dose-dependent manner, while this activity was almost totally abolished by the ERK1/2 (U0126) and p38 (SB203580) inhibitor. ManLAM stimulation significantly induced ERK1/2 and p38 phosphorylation in A549 cells, as well as cell surface TLR2 expression. After interfering TLR2 expression, ERK1/2 and p38 phosphorylation levels were markedly decreased, and also IL-37 production. Though ManLAM also promoted TLR4 expression on A549 cells, TLR4 interference showed no influence on ManLAM-induced IL-37 production. Our results indicate that ManLAM induces IL-37 production in human type II alveolar epithelial cells via up-regulating TLR2/p38 or ERK1/2 pathway, and this provide an important evidence to explain the pathological role of ManLAM that contribute to the persistence of M. tb.

Keywords: ManLAM, tuberculosis, IL-37, TLR2, ERK1/2, p38

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