

ROLE OF SCHISTOSOMAL LYSOPHOSPHATIDYLCHOLINE ON ACTIVATION OF INNATE IMMUNE RESPONSE SIGNALING PATHWAY MEDIATED BY TOLL-LIKE RECEPTOR-2

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It has become increasingly recognized that lipids and their receptors play an important role in regulating immune responses. Here, we have addressed the role of schistosome lipids in the interaction with the innate immune system. To investigate the role of schistosomal lipids, mainly Lyso-PC, on activation of innate immune response, we isolated and purified lipids from eggs, adult worms and Lyso-PC of *S.mansoni* through TLC. The purity and biochemical structure of Lyso-PC was characterized by mass-spectrometry analysis. The total lipids from eggs, adult worms and Lyso-PC of *S.mansoni* were used to stimulate macrophages from both wild-type and TLR2-deficient mice *in vitro*. Our results showed that stimulation of mouse peritoneal macrophages by schistosomal lipids *in vitro* induced translocation of NF- κ B to the nucleus. Schistosomal lipids, mainly Lyso-PC, also induced a time-dependent release of IL-6 and TNF- α , increased lipid body formation, and enhanced production of inflammatory mediators, as prostaglandin-E₂ and leukotrienes in wild-type but not in TLR2-deficient mice. Co-localization of 5-lipoxygenase and lipid body showed that such organelles might function as specialized cytoplasmic domain for eicosanoid-forming enzyme localization. Taken together, our data support a role for schistosomal lipids, mostly Lyso-PC, in enhancing the production of inflammatory mediators, inducing lipid body formation and stimulating innate immunity through TLR2-dependent pathway.