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Polysaccharide from *Pseudopterogorgia americana* modulates immune response in macrophages

Key words: macrophages, toll-like receptor 4, immune modulator

The marine polysaccharides have a profound impact on the regulation of immune response. However, the mechanism of immune modulation by polysaccharides isolated from the coral *Pseudopterogorgia americana* (PPA) in mammalian cells remains unclear. Here, we demonstrated that PPA activated macrophages through toll-like receptor 4. PPA induced the expression of TNF- α , IL-6 and COX-2 in mouse macrophages, but had no effect on the expression of inducible NO and iNOS. The PPA-mediated macrophages activation was regulated by ROS, MAPK, PKC and NF- κ B. Notably, PPA pretreatment resulted in a reduced expression of TNF- α and IL-6 in LPS-activated macrophages through the downregulation of IRAK2 expression, MAPK phosphorylation and NF- κ B activation, indicating that PPA induced LPS tolerance in macrophages. Taken together, our data indicate that PPA has the potential to be used as an immune modulator in mammals.

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