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# The effect of polysaccharide isolated from the root of Acanthopanax koreanum on B cell activation

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Many polysaccharides isolated from plants have been shown to enhance various immune responses in vivo and in vitro. Here we demonstrate that polysaccharide isolated from the root of Acanthopanax koreanum (AK) has a unique mode of immunostimulation with regard to its cell-type specificity. AK was found to markedly increase polyclonal IgM antibody production and the proliferation of B cells. However, AK did not affect the proliferation of T cells, the IL-2 and IFN-g expression of Th1 cells, or the IL-4 expression of Th2 cells. AK also did not increase iNOS transcription and NO production in macrophages. AK activity was not affected by polymyxin B, a specific inhibitor of LPS, suggesting that AK had different mode of action from LPS. AK activity in B cells from C3H/HeJ, known to have a defective TLR4, was decreased in comparison with that in control B cells from C3H/HeN mice. Anti-TLR2, anti-TLR4, anti-CD19 and anti-CD79b, but not anti-CD38, antibodies blocked B cell proliferation, indicating the possible cellular binding sites of AK. AK-induced B cell proliferation was significantly inhibited by PTK inhibitor genistein, PI3K inhibitor wortmannin, and p38 inhibitor SB203580, but not by MEK-1 inhibitor PD98059. In conclusion, our results demonstrate that AK, plant-derived polysaccharide, has a distinct mode of action in that it selectively activated B cells.

Keyword : Acanthopanax koreanum;B cells;Macrophages;T cells