

Stimulation of TNF- α Release by Fungal Cell Wall Polysaccharides

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Carboxymethylated derivatives were prepared from the (1→3)- β -D-glucan isolated from the cell wall of baker's yeast *Saccharomyces cerevisiae* and from the chitin-glucan complex of the mycelium of the industrial filamentous fungus *Aspergillus niger*. The polysaccharides were applied to peritoneal mouse macrophages and after a 2-h incubation the release of TNF- α by the stimulated macrophages was measured using an enzyme-linked immunosorbent assay. As the third polysaccharide stimulant, a water-soluble derivative of chitin was assayed and the observed cytokine release was compared with the control experiment. In three concentrations of the polysaccharides applied, carboxymethyl glucan revealed a dramatic increase in the TNF- α release, while addition of carboxymethyl chitin-glucan resulted only in a moderate enhancement, and carboxymethyl chitin was inactive. The results indicate that fungal polysaccharides, especially (1→3)- β -D-glucan, are potent macrophage stimulators and activators of TNF- α release, which implies their potential application in antitumor therapy.

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