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STUDY OF THE IMMUNOSTIMULATING ACTIVITY OF LIPOLYSACCHARIDES FROM SACCHAROMYCES CEREVISI BY ASSESSING THE EXPRESSION OF SURFACE MARKERS OF DENDRITIC BLOOD CELLS

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The purpose of this research is to evaluate the immunostimulating effect of lipopolysaccharide from Saccharomyces cerevisi by the expression of surface markers of immunocompetent cells.

Bacterial lipopolysaccharides of the producer strain Saccharomyces cerevisi are obtained by thermal hydrolysis in a 1% sodium hydroxide solution at 100 °C. Isolation of mononuclear cells from peripheral blood and obtaining immature DCs.

A sterile Ficoll-Pak gradient with a density of 1077 g/l was poured into 15 ml propylene tubes. Monocytes were isolated from the MPC fraction by the adhesion method.

A suspension of mononuclear cells (3×106/ml) in a nutrient medium was poured into 12-well plates. The cells were incubated in a CO_2 incubator for 45 minutes to ensure complete adhesion of monocytes. After that, the medium with unattached cells was removed and the wells were washed from lymphocytes with DPBS. Isolated PBMCs were cultured in AIM-V nutrient medium with the addition of cytokines: 100 ng/ml GM-CSF and 50 ng/ml IL-4 at 37 ºC in a humidified atmosphere with 5% CO_2 for 6 days.

Then the polysaccharides under study were added. The studies were carried out in 3–6-fold repetitions. On the surface of DCs, the expression of the following molecules was studied: class II GCS molecules - HLA-DR, costimulatory molecules CD80 and CD86, co-inhibitory molecules CD273, DC differentiation marker CD209.

To determine the expression of surface molecules, cells were incubated with monoclonal antibodies. It was found that the level of expression of CD80, CD86, CD273 and HLA-DR molecules on dendritic cells (DC) was 1.5-2 times higher ($p < 0.05$) when compared with the corresponding control group, which indicates the immunobiological activity of lipopolysaccharide from Saccharomyces cerevisi.

Keywords: bacillus subtilis, dendritic cells, lipopolysaccharide, surface markers of immunocompetent cells.