

The Immunostimulatory Effect of Probiotic Conditioned Medium on RAW264.7 Murine Macrophages

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ABSTRACT

Background: Probiotics are a mixture of good live bacteria and/or yeasts that naturally survive in our bodies. Recently, loads of studies have focused on their role in the immune system and digestive tract. Accordingly, there are many commercially available probiotic products in the market. This study examines the immunostimulatory effect of commercially available-probiotic conditioned medium (PCM) on RAW264.7 murine macrophages.

Methods: Probiotic conditioned medium has been prepared by culturing the commercially available probiotic in a cell culture medium overnight at 37°C, followed by centrifugation and filter-sterilization to be tested on RAW264.7 murine macrophages. The immunostimulatory effect of different ratios (50, 75, 100) of PCM was examined using MTT assay, pro-inflammatory cytokine (tumor necrosis factor TNF-alpha) production in macrophages., migration, and Phagocytosis assays.

Results: At all the examined PCM ratios, the percentages of cell viability were >80%. Regarding the migration scratch, TNF-alpha and phagocytosis assays, PCM demonstrated a concentration-dependent pattern in the immunostimulatory effect. However, the ratio of 100 PCM illustrated a significant (p-value<0.05) stimulatory effect compared to the positive and negative control.

Conclusion: The findings of this study confirm the stimulatory activity of probiotic conditioned medium, which may contribute directly to the immune-boosting effect of the probiotic supplements.