

A Comparison of the Effects of O55:B5 and O111:B4 Lipopolysaccharides from E. coli in RAW 264.7 Murine Macrophages

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The purpose of this study was to determine the comparability of two lipopolysaccharides, from *Escherichia coli* serotypes O55:B5 and O111:B4, in their ability to stimulate the activation of RAW 264.7 murine macrophages. I hypothesized that O55:B5 and O111:B4 lipopolysaccharides would be comparable in their ability to stimulate macrophage activation. I created concentrations of 0, 1, 10, and 100 ng/mL solutions of both O55:B5 and O111:B4 lipopolysaccharides. Lipopolysaccharides were then placed in a well containing 4.0×10^5 RAW 264.7 macrophages and Dulbecco's Modified Eagle's Medium, totaling 50 μ L, and allowed to incubate for 24 hours. Nitrites were then assayed using the Griess Reaction and were compared to a standard curve to extrapolate nitric oxide levels produced by exposure to lipopolysaccharides. Two-tailed p-values of .519, .353, .093, and .582 were obtained, respective to the above concentration groups, when O55:B5 groups were compared to O111:B4 groups using four two-sample t-tests. These values were compared to an alpha value of .05. This indicated that the data were not significant; thus, the research hypothesis was supported by the data and both lipopolysaccharides are indicated to be comparable and interchangeable activators of RAW 264.7 macrophages.