

# Augmentation of Macrophage Phagocytic Activity by Cell-Free Extracts of Selected Lactic Acid-Producing Bacteria

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Oral and intraperitoneal administration of lactic acid-producing bacteria can significantly augment the immune response in murine models; however, the immunopotentiating effects in these studies differ significantly. Murine macrophagelike cell line J774 was cultured in the presence of cell-free extracts of *Lactobacillus acidophilus* and *Bifidobacterium longum*, and the effect on macrophage function was evaluated by measurement of synthesis of selected enzymes and their ability to take up either acrylamide particles or live *Salmonella typhimurium*. Lysozyme activity of J774 cells was significantly decreased by cell-free extracts of *B. longum*, but not of *L. acidophilus*, whereas extracts of both strains induced morphological changes and significantly enhanced phagocytosis of inert particles or viable *Salmonella*. Whole cell extracts of lactic acid-producing bacteria are therefore capable of altering macrophage function in a strain-dependent manner.

Key Words: *Lactobacillus* • macrophage • phagocytosis • probiotics

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