Increased in vivo Activation of Mucosal Immune Cells by Orally Administered Yogurt-Based L. lactis Vaccine Vector

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The purpose of this project is to determine if live yogurt cultures can be used a vaccine vector with greater immune-stimulatory compared to a plain bacterial vector. A bacterial vaccine vector with an antigen, and the same vector cultured in yogurt were prepared to be given to mice. Intestinal lymph nodes, called Peyer's Patches were then excised after the mice were exposed to the two vaccines for 4 hours. The immune cells inside these lymph nodes were then isolated and stained and then measured for activation using a flow cytometer. In all three types of cells that were stained measured for activation, (dendritic cells, macrophages and B Cells) the yogurt group on average showed higher activation. There was also greater intensities of activation markers on the cells such as the CD86 marker and the MHC-II marker in all the immune cells from the yogurt group. It is concluded that yogurt can act as a vaccine vector with higher immune-stimulatory properties than the bacterial vaccine vector alone.