Abstract
It is believed that probiotics play an important role for the health of the host, including modulation of immune responses. Most studies have focused on the immunomodulatory effects of viable cells of lactic acid bacteria; however, we investigated those of heat-killed cells of lactic acid bacteria in this study. We first observed the effects on immune functions via stimulating splenocytes with three heat-killed Lactobacillus strains. Furthermore, we also investigated the effect of mouse dendritic cells (DCs) treated with these heat-killed Lactobacillus strains on T cell responses. The results showed that these Lactobacillus strains were able to stimulate cell proliferation and interleukin (IL)-10, IL-12 p70, and interferon (IFN)-gamma production but not transforming growth factor (TGF)-beta in splenocytes. In addition, these heat-killed Lactobacillus strains also stimulated high-level secretion of IL-12 p70 in DCs and switched T cells to T helper (Th) 1 immune responses, as evidenced by the elevated secretion of IFN-gamma but not IL-5, IL-13, and TGF-beta. These results showed that lactobacilli play a potentially important role in modulating immune responses and allergic reactions.