Abstract
Probiotic organisms are claimed to offer several functional properties including stimulation of immune system. This review is presented to provide detailed informations about how probiotics stimulate our immune system. Lactobacillus rhamnosus GG, Lactobacillus casei Shirota, Bifidobacterium animalis Bb-12, Lactobacillus johnsonii La1, Bifidobacterium lactis DR10, and Saccharomyces cerevisiae boulardii are the most investigated probiotic cultures for their immunomodulation properties. Probiotics can enhance nonspecific cellular immune response characterized by activation of macrophages, natural killer (NK) cells, antigen-specific cytotoxic T-lymphocytes, and the release of various cytokines in strain-specific and dose-dependent manner. Mixture and type (gram-positive and gram-negative) of probiotic organisms may induce different cytokine responses. Supplementation of probiotic organisms in infancy could help prevent immune-mediated diseases in childhood, whereas their intervention in pregnancy could affect fetal immune parameters, such as cord blood interferon (IFN)-γ levels, transforming growth factor (TGF)-β1 levels, and breast milk immunoglobulin (Ig)A. Probiotics that can be delivered via fermented milk or yogurt could improve the gut mucosal immune system by increasing the number of IgA(+) cells and cytokine-producing cells in the effector site of the intestine.