G304 BIFIDOBACTERIUM STIMULATES SYSTEMIC AND MUCOSAL ANTIBODY RESPONSES

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Bifidobacterium is regarded to be stimulatory for overall host immune responses. However, its exact role in the mucosal immunity is entirely unknown. Thus, we examined the effect of bifidobacterium on antibody response in mouse mucosal lymphoid tissues in parallel with spleen. B cells were cultured with *Bifidobacterium bifidum* or *Clostridium perfringens* (negative control) and antibody synthesis was measured by ELISA and ELISPOT assay. *B. bifidum,* but not *C. perfringens,* substantially increased IgA and IgM production by B cells from Peyer's patches, mesenteric lymph nodes and spleen as well as IgA-secreting cell number in the spleen cell culture. Further, Peroral adimistration of *B. bifidum* induced IgA production ≈ 9-fold and IgG1 production ≈ 3-fold in the culture of- mesenteric lymph node B cells. Finally, *B. bifidum* induced Peyer's patch and mesenteric lymph node B cells to reactive to TGF-β1 and IL-5, resulting in the augment of surface IgA expression and IgA production (>20 fold). Taken together, these data indicate that *B. bifidum* has reinforcing effect on mucosal and systemic antibody response. The finding that Bifidobacterium upregulates IgA production has important implications in the primary defense against pathogens in the gastrointestinal tract.