

Effect on cecal microbiota and gene expression of various cytokines in ileal Peyer's patches and cecal tissues were compared between viable and heat-killed *Bifidobacterium longum* strain BR-108 (BR-108) using a mouse model. Irrespectively of viability, oral supplementation of BR-108 altered the cecal microbiota and stimulated gene expression of cytokines such as IL-6 and IL-10 in ileal Peyer's patches and cecal tissue of mice. In addition, BR-108 supplementation significantly affected the relative abundance of bacterial genera and family, *Oscillospira*, *Bacteroides* and S24-7. The abundance of these bacterial genera and family strongly correlated with gene expression induced by BR-108. This study demonstrated that the effect of heat-killed BR-108 on the mouse cecal microbiota is similar to that of viable BR-108, most likely due to stimulation of the gut immune system by both heat-killed and viable BR-108 is also similar.

Oral administration of *Bifidobacterium longum* strain BR-108 altered mouse cecal microbiota irrespectively of viability.