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Summary

A NEW ROS-RESISTANT BIFIDOBACTERIUM LONGUM STRAIN PROTECTS AGAINST MURINE COLITIS BY ENHANCING INTESTINAL COLONIZATION

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A newly isolated Bifidobacterium longum strain (B. longum S2) from a healthy Korean adult demonstrates superior antioxidant activity, enhanced intestinal barrier function, and anti-colitic effects in two mouse models of colitis.

KEY POINTS

- B. longum S2 exhibited higher resistance to hydrogen peroxide and greater antioxidant activity against ABTS and DPPH radicals compared to other bifidobacterium strains, and possesses oxidative response genes including LexA and HrcA.
- In mice treated with B. longum S2 (1 × 10^9 CFU oral gavage), both DSS-induced colitis and adoptive T cell transfer models showed alleviation of colitis symptoms, including higher survival rate, restoration of body weight loss, reduced colon shortening, and improved disease activity index compared to controls.
- B. longum S2 treatment significantly decreased goblet cell loss and histopathological scores in colon tissues, induced expression of Treg cell and M2 macrophage markers, and reduced gene expression of pro-inflammatory cytokines including mucin gene.
- Pre-treatment with B. longum S2 significantly reduced TNF-α-induced permeability of intestinal epithelial cells, indicating improved epithelial barrier function.
- The authors suggest B. longum S2 holds promise as a potential treatment for inflammatory bowel disease; the material is relevant for researchers investigating probiotic therapies for IBD.

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