Inflammatory bowel disease

Inflammatory bowel disease (IBD) is a chronic, recurrent, and remitting inflammatory disease resulting from immune dysregulation in the gut. As a clinically frequent disease, it can affect individuals throughout their lives, with multiple complications. Glucagon like peptide 2 (GLP-2) is a potent epithelium-specific intestinal growth factor. However, native GLP-2 has a relatively short half-life in human circulation because of extensive renal clearance and rapid degradation by the proteolytic enzyme dipeptidyl peptidase-IV (DPP-IV). Previously, We prepared a recombinant GLP-2 variant (GLP-2②), which has increased half-life and activity as compared to the [Gly2]GLP-2 monomer. The aim of the present study was to investigate the protective potential of GLP-2② in IBD models. LPS-induced in vitro model and dextran sulfate sodium (DSS)-induced in vivo model were used to study the anti-inflammatory and therapeutic effect of GLP-2②. We found that treated with GLP-2② showed a significantly reduction in the secretion of inflammatory cytokines. Furthermore, GLP-2② alleviated symptoms of DSS-induced colitis. GLP-2② treated mice displayed an increase in body weight, lower colitis scores, and fewer mucosal damage compared with GLP-2 treated mice. MPO activities, protein expression of NLRP3 and COX2 in the colon tissues were significantly reduced in GLP-2② groups. Importantly, the ameliorative effect of GLP-2② was related to anti-apoptosis effect in colon tissues. These findings demonstrated that GLP-2② may offer a superior therapeutic benefit over [Gly2]GLP-2 monomer for treatment of IBD [1)]

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Gu J, Liu J, Huang T, Zhang W, Jia B, Mu N, Zhang K, Hao Q, Li W, Liu W, Zhang W, Zhang Y, Xue X, Zhang C, Li M. The protective and anti-inflammatory effects of a modified glucagon-like peptide-2 dimer in inflammatory bowel disease. Biochem Pharmacol. 2018 Jul 21. pii: S0006-2952(18)30295-8. doi: 10.1016/j.bcp.2018.07.027. [Epub ahead of print] PubMed PMID: 30040929.