Review > Curr Med Chem. 2021;28(8):1605-1624. doi: 10.2174/0929867327666200504081503.

Targeting Mammalian Target of Rapamycin: Prospects for the Treatment of Inflammatory Bowel Diseases

Naser-Aldin Lashgari [1], Nazanin Momeni Roudsari [1], Saeideh Momtaz [2], Negar Ghanaatian [1], Parichehr Kohansal [1], Mohammad Hosein Farzaei [3], Khashayar Afshari [4], Amirhossein Sahebkar [5], Amir Hossein Abdolghaffari [1]

Affiliations

PMID: 32364064 DOI: 10.2174/0929867327666200504081503

Abstract

Inflammatory bowel disease (IBD) is a general term for a group of chronic and progressive disorders. Several cellular and biomolecular pathways are implicated in the pathogenesis of IBD, yet the etiology is unclear. Activation of the mammalian target of rapamycin (mTOR) pathway in the intestinal epithelial cells was also shown to induce inflammation. This review focuses on the inhibition of the mTOR signaling pathway and its potential application in treating IBD. We also provide an overview of plant-derived compounds that are beneficial for the IBD management through modulation of the mTOR pathway. Data were extracted from clinical, in vitro and in vivo studies published in English between 1995 and May 2019, which were collected from PubMed, Google Scholar, Scopus and Cochrane library databases. Results of various studies implied that inhibition of the mTOR signaling pathway downregulates the inflammatory processes and cytokines involved in IBD. In this context, a number of natural products might reverse the pathological features of the disease. Furthermore, mTOR provides a novel drug target for IBD. Comprehensive clinical studies are required to confirm the efficacy of mTOR inhibitors in treating IBD.

Keywords: Gastroenterology; crohn's disease; inflammatory bowel disease; mammalian target of rapamycin; natural products; ulcerative colitis.

Related information

MedGen
PubChem Compound (MeSH Keyword)

LinkOut - more resources

Full Text Sources
Bentham Science Publishers Ltd.
Ingenta plc

Miscellaneous
NCI CPTAC Assay Portal