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World J Gastroenterol. 2009 Sep 28;15(36):4491-8.

Adenosine: an immune modulator of inflammatory bowel diseases.

Ye JH, Rajendran VM.

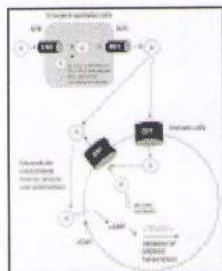
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Abstract

Inflammatory bowel disease (IBD) is a common and lifelong disabling gastrointestinal disease. Emerging treatments are being developed to target inflammatory cytokines which initiate and perpetuate the immune response. Adenosine is an important modulator of inflammation and its anti-inflammatory effects have been well established in humans as well as in animal models. High extracellular adenosine suppresses and resolves chronic inflammation in IBD models. High extracellular adenosine levels could be achieved by enhanced adenosine absorption and increased de novo synthesis. Increased adenosine concentration leads to activation of the A2a receptor on the cell surface of immune and epithelial cells that would be a potential therapeutic target for chronic intestinal inflammation. Adenosine is transported via concentrative nucleoside transporter and equilibrative nucleoside transporter transporters that are localized in apical and basolateral membranes of intestinal epithelial cells, respectively. Increased extracellular adenosine levels activate the A2a receptor, which would reduce cytokines responsible for chronic inflammation.

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