

Epigallocatechin-3-gallate (EGCG) inhibits colorectal cancer cells growth via notch signaling pathway

Yi-Wei Huang (5136)

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Outline

- Introduction
- Inhibiting notch signaling pathway to suppress colorectal cancer cells growth
- EGCG inhibits proliferation and migration of colorectal cancer
- EGCG inhibits the proliferation of colorectal cancer cells by regulating notch signaling
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Abstract

Epigallocatechin-3-Gallate (EGCG) is a tea polyphenol. Previous studies have suggested that EGCG plays its inhibitory role in colorectal cancer by regulating the cell cycle, inducing apoptosis and the inhibition of notch signaling pathways. The notch signaling has an important role in cell growth and differentiation. Notch receptors are proteins in many cell types. Binding to their ligands on the surface of neighboring cells leads to the cleavage of notch receptor by γ -secretase and release of the notch intracellular domain (NICD). As the active domain of the notch receptor, NICD can translocate to the nucleus, and transcript gene expression, such as the hairy and enhancer of split (HES). Evidences indicate that notch pathway has a critical role in the cancer growth. Furthermore, high expression levels of the notch cascade such as notch1 and jagged1 are associated with cancer cells progression and metastatic potential. EGCG regulates notch signaling via inhibit notch receptors and ligands. Reducing notch receptors over-expression can down-regulated the gene, likes HES, c-Myc, cyclin D1, which enhances cancer cells growth. In addition, inhibits notch ligands have similar effect to cancer cells. EGCG can also influence cell cycle, and led cells to anti-proliferation or apoptosis through enhance caspases activity, decrease S phase, and increase G₀ phase percentage. Therefore, we know that EGCG inhibits notch signaling to down regulate cell cycle, and lead cancer cells to be suppressed.