Spotlight

By M.O.

Why It Is Even More Important To Eat Your Fiber

Tang *et al.*
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A diet rich in fiber is associated with a decreased incidence and growth of colon cancer. Small fatty acids such as butyrate and propionate are major by-products of bacterial fermentation and metabolism of undigested dietary fiber. These agents accumulate in the large intestine and in the colon and can induce growth arrest and apoptosis in colon cancer cells. One important aspect is that small fatty acids, especially butyrate, can enter cells and act as an inhibitor of histone deacetylases, a group of transcriptional regulators now implicated in the generation of many cancers. However, it was recently shown that small fatty acids also act at the surface of cells via the orphan G protein-coupled receptors GPR41 and GPR43.

Tang and colleagues now identify GPR43 as a functional tumor suppressor in colon cancer. GPR43 is normally highly expressed on leukocytes, probably in response to bacterially produced small fatty acids. The authors show that GPR43 is also highly expressed in normal colon tissue at the surface of the differentiated apical epithelium. However, expression is drastically reduced in colon malignancies and modestly on benign colon tumors. Restoration of GPR43 expression in the colon carcinoma cell line HCT8 sensitizes cells to the anti-tumor actions of propionate and induces growth retardation as well as cell death by apoptosis. Next, the authors will explore how GPR43 expression is silenced in colon cancer cells and whether GPR43 expression can be therapeutically restored to maximize the anti-tumor activities of small fatty acids.