

How does aspirin help prevent colorectal cancer development and progression?

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Long-term daily use of aspirin can help to prevent the development and progression of colorectal cancer, but the mechanisms involved have been unclear. New research has revealed that aspirin may exert these

protective effects by boosting certain aspects of the body's immune response against cancer cells. The findings are published in *Cancer*.

To investigate the effects of aspirin (a nonsteroidal anti-inflammatory drug) on [colorectal cancer](#), investigators in Italy obtained tissue samples from 238 patients who underwent surgery for colorectal cancer in 2015–2019, 12% of whom were aspirin users.

Patients were enrolled in the METACCRES section of the IMMUNOLOGICAL microenvironment in the RECTAL Adenocarcinoma Treatment (IMMUNOREACT 8) multicenter observational study. The study was mainly carried out at the University Hospital of Padova.

Compared with [tissue samples](#) from patients who did not use aspirin, samples from aspirin users showed less cancer spread to the [lymph nodes](#) and higher infiltration of immune cells into tumors. In analyses of colorectal cancer cells in the lab, exposing the cells to aspirin caused increased expression of a protein called CD80 on certain immune cells, which enhanced the capacity of the cells to alert other immune cells of the presence of tumor-associated proteins.

Supporting this finding, the researchers found that in patients with rectal cancer, aspirin users had higher CD80 expression in healthy rectal tissue, suggesting a pro-immune surveillance effect of aspirin.

"Our study shows a complementary mechanism of cancer prevention or therapy with aspirin besides its classical drug mechanism involving inhibition of inflammation," said principal investigator Marco Scarpa MD, Ph.D., of the University of Padova.

"Aspirin is absorbed in the colon by passive diffusion to a significant degree. Its [absorption](#) is linear and depends on concentration along the bowel, and in the rectum, the concentration of orally administered

aspirin can be much lower than in the rest of the colon.

"Thus, if we want to take advantage of its effects against colorectal cancer, we should think of how to guarantee that [aspirin](#) reaches the colorectal tract in adequate doses to be effective."

More information: IMMUNOREACT 7: Regular aspirin use is associated with immune surveillance activation in colorectal cancer, *Cancer* (2024). [DOI: 10.1002/cncr.35297](https://doi.org/10.1002/cncr.35297)

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