The application of fungal beta-glucans for the treatment of colon cancer.

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[Ab] Abstract: Mushrooms have been consumed for their health benefits for thousands of years in China, and the main active component was recently identified as beta-glucan. The immune-stimulating effect of beta-glucans has been well studied, and several beta-glucan receptors have been identified on the surface of immune cells. In addition, mushroom extracts with high levels of beta-glucans have also been shown to have direct cytotoxic effects on cancer cells, and beta-glucans are used for the treatment of cancer. This review summarizes the use of beta-glucans in colon cancer. Evidence has supported the idea that beta-glucans can decrease the size of xenografted colon cancer tumors via the stimulation of the immune system and direct cytotoxicity. Beta-glucans can also have synergistic effects with chemotherapeutic agents and other immune stimulators, and an innovative strategy is to use beta-glucans to deliver nanoparticles containing chemotherapeutic agents to the site of the colon cancer and, thus, improve the therapeutic efficacy.