

# Potency-enhancing drugs linked to decreased risks in men with colorectal cancer

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A new study from Lund University and Region Skåne in Sweden indicates that potency-enhancing PDE5 inhibitor drugs have an anti-cancer potential with the ability to improve the prognosis in patients with colorectal cancer. PDE5 inhibitors include a few approved drugs in which sildenafil (Viagra) is the most well-known. The article is published in *Nature Communications*.

"Available preclinical evidence suggests that PDE5 inhibitors could slow down the [tumor growth](#) and progression in mice, but it is still unknown whether PDE5 inhibitors can hinder the proliferation of [cancer](#) in humans. We tried to explore this using real-world medical data in Sweden," says Wuqing Huang, a Ph.D. student at Lund University and one of the researchers behind the study.

By linking several nationwide registers, Wuqing Huang identified all Swedish male patients with colorectal cancer who had used PDE5 inhibitors after their [cancer diagnosis](#) (1 136 patients). During the follow-up period, around 10.2% of patients had died from colorectal cancer among those who used PDE5 inhibitors after diagnosis, whereas the probability was 17.5% in patients who did not use PDE5 inhibitors (11 329). After consideration of a range of clinical confounding factors, the relative risk of death caused by colorectal cancer was 18% lower among patients who used the drugs. The risk of metastases, especially distant metastases which is the main cause of death due to cancer, was also lower among patients who used PDE5 inhibitors.

"In addition, the protective effect was even stronger in men who used these drugs after receiving open surgery. This finding provides the first-ever human-based evidence in terms of the anti-tumor effect of PDE5 inhibitors on colorectal cancer, which complements the preclinical evidence," says Wuqing Huang.

One of the mechanisms that has been suggested to be a critical process that leads to adverse outcomes among patients with cancer post-surgery, is surgery-induced immune suppression.

"The results of our study suggest that the anti-cancer ability of PDE5 inhibitors might be related to regulating immunosuppressive effects. However, randomized [clinical trials](#) are needed to confirm our research findings before PDE5 inhibitors can be used as an adjuvant [drug](#) for

men with [colorectal cancer](#), as well as experiments that explore the underlying biological mechanisms," says Wuqing Huang.

"The observed findings should be interpreted with caution as this is an observational study and the biological mechanisms need to be explored further. We have already collaborated with other scientists to explore the underlying mechanisms by utilizing animal experiments and cancer organoid," says Jianguang Ji, a researcher at Lund University involved in the study.

**More information:** Wuqing Huang et al. Phosphodiesterase-5 inhibitors use and risk for mortality and metastases among male patients with colorectal cancer, *Nature Communications* (2020). [DOI: 10.1038/s41467-020-17028-4](#)

Provided by Lund University

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