

New approach for treating recurrent prostate cancer on the horizon

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A new study shows that an alpha-particle emitting radiopeptide—radioactive material bound to a synthetic peptide, a component of protein—is effective for treating prostate cancer in mice, according to researchers. The results could eventually result in a significant breakthrough in prostate cancer treatment, especially for patients whose cancer recurs after the prostate is removed.

"Our study shows that this novel form of treatment has the potential to target and destroy [cancer cells](#) with minimal damage to surrounding healthy tissue," said Damian Wild, University Hospital Basel, Basel, Switzerland, lead author of the study. "Eventually, this therapy could give hope to some of the hardest-to-treat [prostate cancer](#) patients and also could be applied to other types of cancer."

Every year, more than 186,000 men in the United States are newly diagnosed with prostate cancer. The most common types of treatment include surgical removal of some, or all, of the prostate, followed by radiation therapy. More than 30,000 men each year who have had their prostates removed experience recurrence of the cancer. In most of these cases, the disease cannot be localized and treated adequately with conventional treatments; therefore, a systemic treatment that efficiently kills small tumors is needed.

Because tumor cells readily bind with certain peptides, researchers have been able to develop highly specific radiopeptides that bind with [tumor cells](#) and treat them using specific therapeutic radioactive substances

attached to the radiopeptide. Prostate cancer cells—and many other types of cancer cells—have an overabundance of gastrin-releasing peptide receptors, making the cancer a strong candidate for treatment with radiopeptides.

The study compared two different types of radiopeptides. One group of mice was injected with ^{213}Bi -DOTA-PESIN, which emits alpha particles that are effective at killing cancer cells. The other group was injected with beta-emitting ^{177}Lu -DOTA-PESIN, which are also effective in tumor cell-killing, but can also cause damage to nearby healthy cells. Alpha particles are able to kill cancer cells without damaging surrounding healthy tissue. A third group of mice received no treatment.

However, at the maximum tolerated dose, the alpha-emitting ^{213}Bi -DOTA PESIN was significantly more effective, tripling the survival rate of the mice that received the therapy. The results indicate that the alpha-emitting radiopeptide could provide a new approach for treating prostate cancer and eventually other types of cancer.

Source: Society of Nuclear Medicine ([news](#) : [web](#))

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