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Researchers looking for ways to make the body's immune system fight off cancer have built an effective cancer vaccine. It's a major breakthrough in turning viruses against tumors. [The Scotsman explains](#).

"Scientists have developed a vaccine to combat prostate cancer which could be ready to use in just a few years. ... The vaccine has been used to cure laboratory mice suffering from prostate cancer. The animals suffered no side effects."

Vaccines typically work by teaching your immune system to target specific antigens, protein markers that tell your immune system to attack. [The Daily Mail](#) explains why finding the right antigens for cancer has been tricky.

"Past attempts at gene therapy cancer vaccines often used just one gene from a tumor cell to stimulate the immune system. But finding the right gene has proved difficult. And using two or more genes has raised fears that the immune response would be too strong for the patient to handle."

The new research tested those fears. Instead of using two or three genes, they used a shotgun approach. [The BBC reports...](#)

"Researchers ... broke up chunks of DNA from healthy prostate cells and inserted them into a virus. The mice were then repeatedly infected with the virus. The prostate DNA made the virus produce a wide range of prostate antigens, so when the immune system battled the virus it learned to attack the cancerous prostate cells."

In their experiment, 80% of the mice were completely cured. But [a Medscape writer](#) says there are still questions to answer before humans can line up for their cancer shots.

"...issues to be resolved include the use of the vaccine in combination with chemotherapy and its use for other cancers."

Also: **"The ... virus vector does raise some safety concerns because it has never been tested in humans."**

The researchers hope to begin testing in humans in three to five years.

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