

## New Vaccine Offers Dogs a Fighting Chance

Explore the remarkable results of a cancer vaccine that triggers the immune system to attack tumors, bringing new hope to canine cancer patients.

Reviewed by Dr. Becker

### STORY AT-A-GLANCE

- A canine cancer vaccine in clinical trial since 2016 shows promising results
- To date, over 300 dogs have been treated with the vaccine; the 12-month survival rate for dogs in the trial with certain cancers has increased from about 35% to 60%
- The vaccine induces immune cells to produce antibody defenses that attach to tumors and interfere with their growth patterns
- Unfortunately, as is the case with human cancers, not all dogs respond to treatment, and it's difficult to predict which ones will
- An integrative or holistic veterinarian and/or integrative veterinary oncologist can guide you on healthy lifestyle choices to minimize cancer risk in your own dog

***Editor's Note: This article is a reprint. It was originally published June 10, 2024.***

A cancer vaccine for dogs, the Canine EGFR/HER2 Peptide Cancer Immunotherapeutic manufactured by Therajan, is showing promising results according to a report in Science Alert.<sup>1</sup> A clinical trial on the vaccine has been running since 2016, and there's hope that some of its benefits may translate into human cancer treatments.

While you should be extremely cautious about vaccines in general, for dogs diagnosed with cancer, this vaccine is a better option than chemotherapy.

### Vaccine Induces Multiple Immune Cells to Target Tumors

To date, over 300 dogs have been treated with the vaccine during a series of clinical trials, which are still ongoing at 10 sites in the U.S. and Canada. The 12-month survival rate for dogs in the trial with certain cancers has increased from about 35% to 60%. In addition, **tumors in many of the dogs have shrunk.**

The treatment was developed based on studies of autoimmune diseases in which the immune system attacks the body's own tissue instead of an invading pathogen. The Therajan immunotherapeutic is designed to trigger the immune system to attack cancer instead.

*“In many ways tumors are like the targets of autoimmune diseases,” Yale University School of Medicine rheumatologist Mark Mamula, developer of the vaccine, said in a news release. “Cancer cells are your own tissue and are attacked by the immune system. The difference is we want the immune system to attack a tumor.”<sup>2</sup>*

Mamula was senior author of a 2021 study<sup>3</sup> on the vaccine. The treatment induces immune cells to produce antibody defenses that attach to tumors and interfere with their growth patterns. As the Science Alert report explains:

*“Specifically, these antibodies hunt down two proteins: epidermal growth factor receptor (EGFR) and human epidermal growth factor receptor 2 (HER2). Mutations causing overexpression of these proteins drive uncontrolled cell division in some human and canine cancers.*

*Existing treatments targeting EGFR and HER2 call upon just one kind of antibody. The new vaccine boosts its effects by creating a polyclonal response — one that involves antibodies from multiple immune cells, rather than a single one, making it harder for the cancer to become resistant to the drug.”<sup>4</sup>*

## **Vaccine Is ‘Truly Revolutionary’**

Study co-author Gerry Post, a veterinary oncologist at the Yale School of Medicine, makes the point that the veterinary cancer toolbox is “much smaller than that of human oncology.”

*“This vaccine is truly revolutionary,” says Post. “I couldn't be more excited to be a veterinary oncologist.”*

At the present time, the vaccine is a post-diagnosis treatment only. It has helped dogs like 11-year-old search-and-rescue dog Hunter, the **Golden Retriever** featured in the video above, live cancer-free two years after his osteosarcoma (bone cancer) diagnosis. Typically, only about 30% of dogs with this type of cancer survive beyond 12 months.

Other research teams are also trialing a variety of immunotherapies for dogs with metastatic lung cancer,<sup>5</sup> melanoma,<sup>6</sup> and lymphoma.<sup>7</sup> Unfortunately, as is the case with human cancers, not all dogs respond to treatment, and it's difficult to predict which ones will.

*“Dogs, just like humans, get cancer spontaneously,” says Mamula. “My own dog died of an inoperable cancer about 11 years ago. Dogs just like humans suffer greatly from their cancers. They grow and metastasize and mutate, just like human cancers do. If we can provide some benefit, some relief — a pain-free life — that is the best outcome that we could ever have.”*

Mamula gets many emails from grateful dog owners whose pets had been given only weeks or months to live, “but who are now two or three years past their cancer diagnosis.”

*“It's a program that's not only valuable to me as a dog lover. Witnessing the happiness that successful therapies provide to families with dogs is incredibly rewarding,” he says.*

And when the vaccine eventually becomes available for public use, Mamula says it will always be free of charge for working dogs like Hunter.

## 5 Ways to Reduce Your Dog's Cancer Risk

Cancer isn't an inevitable outcome for any dog, including golden retrievers. If you're concerned about your pet's future health and want to reduce cancer risk as much as possible, team up with a proactive integrative or functional medicine veterinarian who can guide you on healthy lifestyle choices and the use of **targeted nutrition** and supplements.

Regular wellness visits are essential so your pet can get screened for cancer at least annually — and twice a year if your dog is a senior. However, the following five steps are also important to reducing your dog's cancer risk. Following these throughout your pet's life can help keep him healthy and reduce disease potential:

1. Maintain a healthy weight and exercise regularly
2. Feed a minimally processed, whole food, anti-inflammatory diet, avoiding highly processed pet foods with large quantities of starch (grains, legumes, corn, etc.)
3. Reduce exposure to environmental toxins, such as pesticides and chemical lawn treatments
4. Wait to spay or neuter your pet until the age of 18 months to 2 years, especially for large or giant breeds; better yet, sterilize your pet without desexing
5. Refuse unnecessary vaccinations (ask your vet to check vaccine antibody titers before automatically giving more vaccines)

### Sources and References

<sup>1,4</sup> [Science Alert, March 29, 2024](#)

<sup>2</sup> [Yale News, March 5, 2024](#)

<sup>3</sup> [Translational Oncology, Volume 14, Issue 11, November 2021, 101205](#)

<sup>5</sup> [UC Davis Health News, June 10, 2022](#)

<sup>6</sup> [University of Illinois College of Veterinary Medicine News, August 6, 2022](#)

<sup>7</sup> [The University of Queensland News, February 19, 2021](#)

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