Man Cures Dog?

Customized cancer vaccines are a reality—for dogs and humans—but they're not yet ready for prime time.

March 15, 2026 By Liz Highleyman

Social media was abuzz this week over an article in The Australian about a tech entrepreneur who used artificial intelligence to create a customized vaccine to cure his dog's cancer.

Many commenters thought this sounded like science fiction. Others expressed outrage that a cure for cancer could be available right now if only regulatory authorities would get out of the way. Still others expressed skepticism that such an approach could ever be scalable or affordable.

But in fact, research on personalized cancer vaccines, designed to help the immune system recognize and attack tumors, has been underway for at least a decade. Scientists have reported promising results from studies of customized messenger RNA (mRNA) vaccines for melanoma and pancreatic cancer, among others, and some are now in late-stage clinical trials.

> Proud with @UNSWRNA to have been involved & making the mRNA-LNP for Rosie. There are nuances here that the thread below misses but nevertheless, the intersection of RNA technology, genomic & AI poses an opportunity to change the way do medicine and make access more equitable 1/8 https://t.co/lRsBtSNgld
>
> — Palli Thordarson (@PalliThordarson) March 15, 2026

Quest for a Cure

Paul Conyngham, an AI entrepreneur in Sydney, adopted Rosie, an eight-year-old mixed breed, in

2019. Five years later, she was diagnosed with life-threatening mast cell cancer. After little success with standard surgery and chemotherapy, he decided to try an experimental approach in conjunction with researchers at the University of New South Wales (UNSW).

To create personalized cancer vaccines, scientists genetically sequence DNA from a patient's tumor, looking for mutated proteins known as neoantigens. Machine learning algorithms are used to select antigens most likely to provoke an immune response. They then create mRNA blueprints that encode instructions for making the neoantigens. These are packaged into lipid nanoparticles (fat bubbles) for injection—the same technology the Pfizer/BioNTech and Moderna COVID vaccines use to deliver instructions for making the SARS-CoV-2 spike protein.

Conyngham turned to ChatGPT, a large language model that learns patterns from vast amounts of training data. Based on the popular AI chatbot's recommendation, he reach out to the Ramaciotti Centre for Genomics at UNSW and paid $3,000 to have Rosie's DNA sequenced.

UNSW put out a news release about Conyngham's quest for a cure last June, but it received little attention until the March 13 write-up in The Australian and the ensuing social media frenzy.

With the massive trove of genetic data in hand, Conyngham used AlphaFold, an AI program developed by Google DeepMind that predicts the 3D structure of proteins, to model a protein dubbed c-KIT that drives mast cell cancer in dogs. Based on abnormalities in the tumor protein, he pinpointed a drug that could potentially target Rosie's cancer. When the press release was issued last summer, he was still trying to obtain it.

That road came to a dead end when the unidentified drug manufacturer wouldn't supply it for compassionate use in a dog. But Conyngham didn't stop there. He next worked with Ramaciotti Centre director Martin Smith, PhD, UNSW RNA Institute director Pall Thordarson, PhD, and others to develop a customized mRNA vaccine made from Rosie's tumor, using Grok to design the final construct. The vaccine was produced in a UNSW lab, but Conyngham still had to find a veterinary specialist to administer it.

"I had to do everything by the book because you can't just willy-nilly create a vaccine in Australia," Conyngham told The Australian. "The red tape was actually harder than the vaccine creation, and I was trying to get an Australian ethics approval to run a drug trial on Rosie."

Mari Maeda, PhD, founder of the Seattle-based Canine Cancer Alliance, heard about Conyngham's efforts and alerted Rachel Allavena, DVM, at the University of Queensland's School of Veterinary Science, who had the ethics approval to test immunotherapy in dogs.

The customized vaccine was shipped to Allavena's lab in Gatton, a rural town outside Brisbane. Conyngham made the 10-hour drive for Rosie's first injection in December, followed by a booster in February and another due next week, according to the news report.

Rosie also received an immune checkpoint inhibitor, a type of immunotherapy that unleashes killer T-cells to fight malignant cells—in effect, releasing the brakes and stepping on the accelerator at

the same time.

So far, the vaccine appears to be working, as a “tennis ball-sized tumor” on Rosie’s hind leg has shrunk in half.

“I’m under no illusion that this is a cure, but I do believe this treatment has bought Rosie significantly more time and quality of life,” Conyngham said. He is now working on a second vaccine to attack another large tumor that did not respond to the first treatment, and he is also looking to assist others in accessing this type of treatment.

A lot of people have been asking if this can be done for their dogs and for people. I’m speaking with everyone involved to see what is possible here.

If you would like to be involved, please complete the following Google form:https://t.co/qs9WwDNgBH pic.twitter.com/ANvxF9LX47

— Paul S. Conyngham (@paul_conyngham) March 14, 2026

Promise in Human Studies

“This is the first time a personalized cancer vaccine has been designed for a dog,” Thordarson told The Australian. “This is still at the frontier of where cancer immunotherapeutics are—and ultimately, we’re going to use this for helping humans. What Rosie is teaching us is that personalized medicine can be very effective, and done in a time-sensitive manner, with mRNA technology.”

That work is already well underway in humans. Cancer vaccines, often used in combination with immune checkpoint inhibitors, appear to work best for preventing recurrence by training the immune system to attack residual malignant cells after a tumor is surgically removed.

Earlier this year, Merck and Moderna announced the latest results from the Phase IIb KEYNOTE-942 trial, which is testing a customized vaccine dubbed intismeran autogene (also known as mRNA-4157 or V940) that contains up to 34 neoantigens. In this study of 157 patients with advanced melanoma, the vaccine plus the checkpoint inhibitor Keytruda (pembrolizumab) lowered the risk of recurrence or death by 49% compared to Keytruda alone at five years. The vaccine was safe and well tolerated. Larger Phase III trials are now ongoing for patients with high-risk advanced melanoma and non-small-cell lung cancer, while Phase II studies are underway for other malignancies, including kidney cancer, bladder cancer and cutaneous squamous cell carcinoma.

The Trump administration recently halted funding for research on mRNA vaccines for infectious diseases, but development of cancer vaccines will continue. “We continue to invest in our platform in oncology because of encouraging outcomes like these, which illustrate mRNA’s potential in cancer care,” Moderna senior vice president Kyle Holen, MD, said in a news release.

Further back in the pipeline, Vinod Balachandran, MD, of Memorial Sloan Kettering Cancer Center, and colleagues are testing a customized mRNA vaccine from BioNTech and Genentech, dubbed autogene cevumeran (BNT122 or RO7198457), plus the checkpoint inhibitor Tecentriq (atezolizumab) and chemotherapy for pancreatic cancer. Half of the 16 patients in a small Phase I trial had strong T-cell responses against the neoantigens in the vaccine. Six of these responders remained cancer-free after three years, while most of the eight nonresponders relapsed.

Researchers have also reported promising results from studies of personalized vaccines for kidney cancer and glioblastoma brain cancer (in humans and dogs).

But cancer vaccines—like all new medical advances—will only be a game-changer if they are accessible and affordable. Creating a customized vaccine for each patient is time-consuming and expensive. Conyngham spent $3,000 to sequence Rosie’s DNA, but without interested scientists volunteering their time and resources, production of mRNA nanoparticles would be much more costly. (One estimate puts the price tag at $100,000 per person.) Getting new cancer treatments through clinical trials can cost hundreds of millions of dollars. And once they hit the market, the price of patented proprietary therapies often far exceeds their manufacturing cost. In practice, this means asking private insurers or Medicaid and Medicare to cover costly new therapies at a time when budgets are constrained and millions of people have just lost their health coverage.

Over time—and with evolving AI and automation—companies may be able to simplify and speed up the process and bring down the cost. Researchers are also working on off-the-shelf cancer vaccines that use common tumor antigens rather than those selected from a specific patient’s tumor, which have the potential to be more scalable and affordable. In fact, mass-produced vaccines are already commercially available to treat melanoma and osteosarcoma in dogs.

If you like cancer vaccines for dogs, you’ll love this

There are already two approved and on the market — one for melanoma, the other for osteosarcoma pic.twitter.com/O58QpidjUj

— Samuel Hume (@DrSamuelBHume) March 15, 2026

This report was updated to include existing cancer vaccines for dogs.

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