

# Protect Biotech aims to develop therapeutic vaccines for range of pet diseases



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Taiwanese start-up Protect Biotech intends to become an immuno-oncology pioneer in the pet health space.

Established in Taipei City during 2019, the firm has a wider goal of becoming Asia Pacific's leader in immunotherapeutic vaccines for pet diseases. While its initial target is canine cancer, it has aspirations to approach multiple indications.

Protect is currently working on two oncology product candidates – a recombinant protein (PT001) and DNA vaccine (PT002). Both have recently entered safety studies for treating malignant tumors in dogs. Haolin Sung, the firm's founder and chief executive, pointed out the limited number of canine cancer drugs that are commercially available have no specificity and numerous side effects.

Protect is targeting the PD-1 pathway – a protein found on T cells. The firm has established a team with expertise from various businesses in the human health sector to “bring the PD-1 concept to dogs”, Mr Sung told S&P Global Animal Health. He suggested therapeutic vaccines have a wide application in over 20 cancer types and can be administered conveniently through subcutaneous injection, while also being manufactured at a relatively affordable cost.

Protect has collected positive early data for its protein and DNA vaccine, which were able to successfully trigger an immune response and inhibit tumor growth in mouse models. The veterinary rights for the technology behind the start-up's candidates was licenced from Taipei Veterans General Hospital, which is developing the platform in the human health field. Protect put PT001 into its first dog safety trials last month, with a similar study for the DNA vaccine commencing soon.

In the future, Mr Sung said the business will turn its attentions to other indications outside of cancer. These include infectious disease, osteoarthritis, dermatology and ophthalmology. Protect raised seed funding of \$2.7 million in 2021. This investment will support the firm's current trials. However, to target further domains, it will be aiming to raise another \$5m later this year.

At the recent Animal Health, Nutrition & Technology Innovation USA event in Boston, Mr Sung noted the goal for Protect is to out-license its products to commercial partners and conduct an initial public offering later down the line.

## PD-1 in animal health

While there are no commercially available products in pet health focused on the PD-1 pathway, human health therapeutics in this area – including Merck's Keytruda – make up a \$22 billion market. Merck Animal Health has a conditional license from the USDA for a canine PD-1 monoclonal antibody cancer immunotherapeutic, which is for the treatment of dogs with mast cell tumors or melanomas. The firm told S&P Global Animal Health it received the conditional licence for the product in 2020.

A spokesperson for Merck stated: “We are working closely with the USDA to progress from the conditional license approval to full licensure. Presently, the company is expanding its clinical studies within the indications of mast cell tumors or melanomas to add to the body of evidence for this novel therapy. It is currently available to a limited number of veterinary oncology practices across the US that meet specific clinical trial criteria. The product is a novel immunotherapy that works specifically with a dog's immune system, reactivating it to recognize and fight cancer cells.”

Zoetis gained PD-1 assets when it acquired [Nexvet Biopharma](#) in 2017. At the time of the deal, Nexvet had begun pharmacokinetic, immunogenicity and preliminary safety proof-of-concept studies for its anti-PD-1 program.

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