Autologous Cancer Vaccines: Canvax & Neovax

What is immunotherapy?

The immune system constantly protects the body against infections and abnormal cells. Cancer, however, can hide from or suppress these natural defenses.

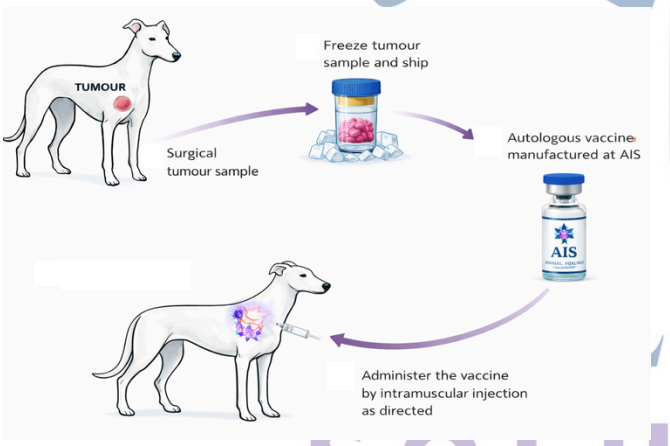
Immunotherapy is designed to “wake up” the immune system, helping it recognise cancer cells as threats and mount a stronger, targeted attack.

Rationale

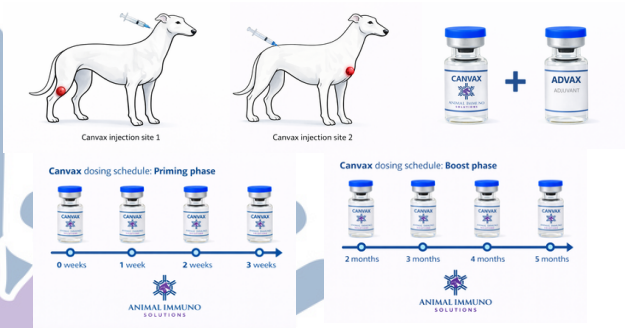
Tumours contain many antigens, but these are often poorly recognised by the immune system because the cancer develops from the patient’s own tissues and actively suppresses immune responses.

Canvax and Neovax are vaccines created from the dog’s own tumour tissue, combined with potent adjuvants to trigger an immune response. As adjuvanted tumour lysate vaccines, the combined complex autologous antigen source reflects the biological complexity of that individual’s cancer.

Your patient’s tumour becomes their treatment.



Canvax Autologous Vaccine

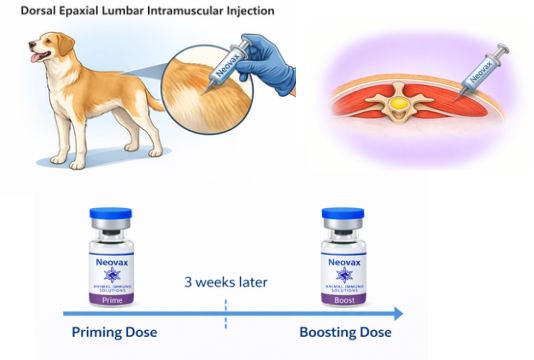


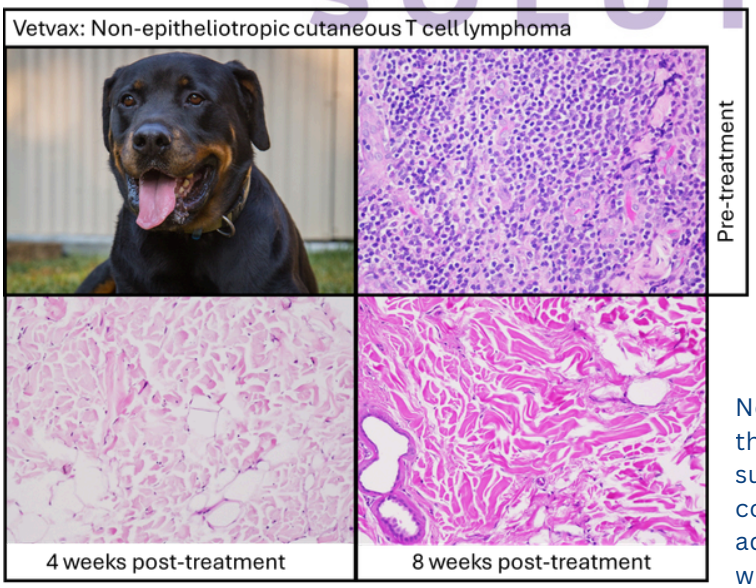
Neovax and Canvax are suited to situations where a patient-specific vaccine strategy is desirable, and when frozen tumour tissue is available following surgical excision or biopsy.

Key Features

- Patient-specific immunotherapy using autologous tumour antigen
- Designed to complement standard-of-care cancer treatment including chemotherapy
- Suited to post-surgical or minimal residual disease settings
- Targets the biological heterogeneity of the individual patient’s tumour
- Non-cytotoxic approach with no chemotherapy-type residue concerns
- Can be incorporated into broader multimodal treatment plans
- Suitable for use in primary care practice and specialist settings
- Safe for the patient’s family and veterinary care team: being immune based the vaccine does not produce any toxic residues or metabolites.

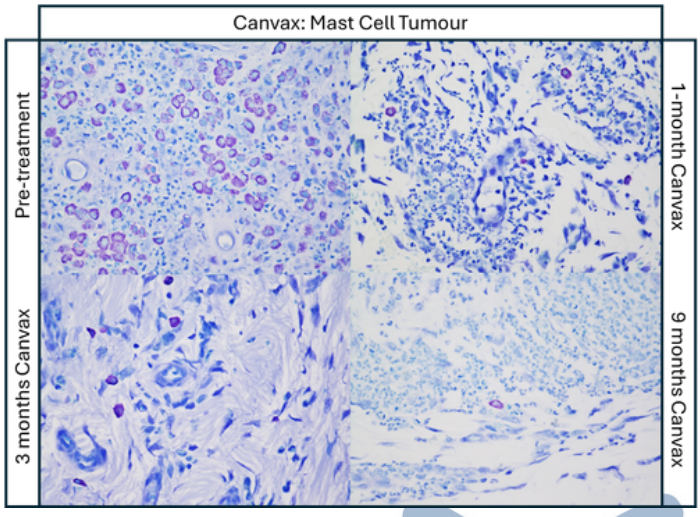
Neovax vaccine for Osteosarcoma





Data from Dr Annika Oksa’s PhD thesis

Non epitheliotropic T cell lymphoma of the thoracic skin that reoccurred after radical surgery. Prognosis 8-12 week survival. The owners declined chemotherapy due to concerns of toxicity around their infant. Canvax was administered as a sole treatment. Mass was in full remission within 4 weeks and the dog remained in remission for 4 years before being euthanased due to age-related osteoarthritis



Source Dr Annika Oksa PhD thesis

Considerations for administration

Autologous vaccination is suited to patients where adequate tumour tissue (minimum 1 gram, approximately 'dice-sized' 1 cm cube) can be collected, processed, and formulated into an autologous vaccine in a clinically useful time frame.

Patients should have a projected survival of at least 3 months to allow immune response priming.

Clinical benefits

In clinical trials beneficial clinical responses include tumour remissions, tumour shrinkage, tumour growth stasis, reduction in metastatic or multicentric cancer burden, immune responses targeted at tumour tissue and extensions in survival times.

In clinical trials positive clinical benefits are seen on average in 30% of patients.

Safety and tolerance

Canvax has excellent tolerance due to its gentle adjuvant system, with most side effects likely to reflect normal immune stimulation. These may include transient local swelling, discomfort at the injection site, mild pyrexia, lethargy, or short-duration inflammatory responses. In clinical trials, the gentle immune stimulants within Canvax were extremely well tolerated by a variety of canine oncology patients.

Neovax uses more potent adjuvants but requires only two injections. Neovax is generally well tolerated, with adverse effects typically limited to transient local discomfort, swelling, or mild inflammatory responses at the intramuscular injection site, consistent with immune activation. Superficial injection may result in ulceration.

Autologous vaccination uses tumour-derived material, so strict case selection, handling, and preparation standards are essential. AIS only uses frozen tissue in our vaccines.

Safety and early efficacy data of Canvax has been published in Weir C, Oksa A, Millar J, Alexander M, Kynoch N, Walton-Weitz Z, Mackenzie-Wood P, Tam F, Richards H, Naylor R, Cheng K, Bennett P, Petrovsky N, Allavena R. The Safety of an Adjuvanted Autologous Cancer Vaccine Platform in Canine Cancer Patients. Vet Sci. 2018 Oct 12;5(4):87. doi: 10.3390/vetsci5040087. PMID: 30322015; PMCID: PMC6313922.

Canvax generates long term tumour suppressing immune responses.

Mast cell tumour on carpus. Owner declined surgery/ amputation and the dog was apprehensive with veterinary care. Canvax administered as a sole treatment. Mast cell tumour remained in remission for the full course of available vaccine administered over 9 months. Some mast cell infiltrates returned to the area after the final dose. Some tumours may need multiple vaccine courses to maintain suppression.

Autologous vaccinations in veterinary medicine.

Autologous vaccinations represent an emerging therapeutic strategy in veterinary medicine with building safety and efficacy data. Autologous vaccination has been trialed in dogs for:

- Diffuse large B cell lymphoma (heat shock protein peptide complex formula) combined with chemotherapy.
- Osteosarcoma as an autologous cancer cell vaccine combined with activated T cells and IL-2.
- In metastatic haemangiosarcoma as an adjuvanted whole cell autologous vaccine.
- In various cancers, augmented IgG responses to autologous tumour antigens were shown after vaccination.
- In canine meningioma autologous tumour lysate vaccine demonstrated tumour-reactive antibodies capable of inducing antibody-dependent cell mediated cytotoxicity.

All these approaches the autologous vaccines were well tolerated and safe.

AIS vaccines have demonstrated positive clinical benefit in mast cell tumour, lymphoma, osteosarcoma, anal sac tumours and other cancers in university clinical trials. The vaccines have induced changes in intratumoral cytokines and intratumoral lymphocyte infiltration associated with clinical benefit

A. Oksa PhD thesis "Novel Immunotherapeutics in the treatment of cancer in pet dogs: An investigation into the tumour microenvironment". Awarded University of Queensland 2025.

Canvax and Neovax are not registered veterinary products and must therefore be used off label. Administration is restricted to registered veterinarians, who must exercise independent clinical judgment, ensure appropriate case selection, and obtain informed owner consent in accordance with relevant state and territory veterinary legislation and professional standards. As with all off-label therapies, responsibility for safe use, monitoring, and adverse event management rests with the treating veterinarian.