



## Personalized Cancer Immunotherapy for Companion Animals

*In the challenging field of veterinary oncology, innovative treatment options are crucial. Vaxkit offers veterinarians a practical tool to harness the power of personalized immunotherapy, delivering evidence-based improvements in outcomes for cancer-affected companion animals.*

### What is Vaxkit?

Vaxkit is a kit for preparing personalized cancer immunotherapy treatments in veterinary clinics. It enables the creation of an autologous vaccine using the patient's own tumor antigens. The resulting product is an extemporaneous preparation classified as a veterinary biologic by the USDA, designed for use by licensed veterinarians within established veterinarian-client-patient relationships. A single staff member, whether a veterinarian, technician, or assistant, can prepare the treatment in approximately two hours, with only one hour of hands-on work and the remainder being unattended refrigeration and centrifugation time.

**How does Vaxkit Works:**

1. Tumor sample collection during biopsy or surgery
2. On-site processing using the Vaxkit kit
3. Preparation of patient-specific doses
4. Administration alongside or independent of standard treatments

**Key Features:**

- Utilizes hydroxyapatite-mediated delivery of tumor-specific antigens and heat shock proteins
- Stimulates the patient's immune system to target cancer cells
- Compatible with various cancer types and treatment protocols
- Potential applications across different animal species

**Benefits:**

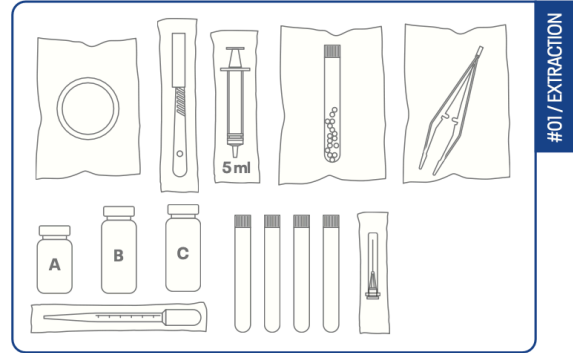
- Personalized treatment for each patient
- Excellent safety profile with minimal side effects
- Easy integration into existing oncology practices
- Environmentally friendly with no toxic waste

**Practical Application:**

- 8 subcutaneous injections over 24 weeks
- Can be administered alongside chemotherapy or as a standalone treatment
- Minimal additional time investment for veterinary staff

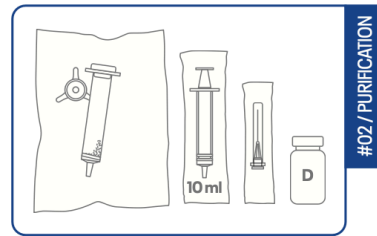
**1 bag labelled #01/EXTRACTION, containing:**

- 1 Petri dish
- 1 scalpel
- 1 5 ml syringe
- Grinding balls
- 1 pliers
- Sterile aqueous solution A / Sodium carbonate 5 ml
- Sterile aqueous solution B / Ammonium sulfate 10 ml
- Sterile aqueous solution C / Phosphate buffer 10 ml
- 1 pipette
- 4 centrifugation tubes
- 1 sterile 23G needle



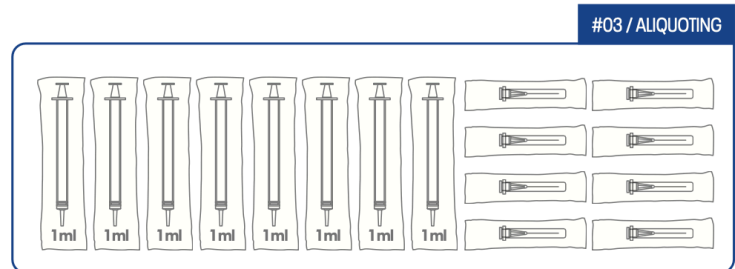
**1 bag labelled #02/PURIFICATION, containing:**

- 1 sterile column: hydroxyapatite content 0.33 g
- 1 sterile 10 ml syringe
- 1 sterile 23G needle
- Sterile aqueous solution D / Carboxy Methyl Cellulose 5 ml



**1 box labelled #03/ALIUQUOTING, containing:**

- 8 sterile 23G needles
- 8 sterile 1 ml syringes
- 8 small labels
- 1 large format label



**1 detailed instruction manual**

Vaxkit includes all components necessary for preparing personalized immunotherapy treatments. Following the step-by-step manual, a single staff member can prepare the treatment in about two hours, with only one hour of hands-on work. The process involves three main steps: Extraction (preparing the tumor sample), Purification (concentrating specific proteins), and Aliquoting (dividing into 8 doses). This efficient system allows clinics to produce customized immunotherapy treatments, integrating seamlessly into existing workflows.

This section provides an overview of key clinical studies evaluating Vaxkit's efficacy and safety in veterinary oncology. While the majority of current clinical research has focused on canine cancers, the results and mechanism of action suggest potential applications across various cancer types and animal species.

Please note that Vaxkit is marketed under the name APAVAC in Europe by the manufacturer, Hastim, which explains why this name appears in the published literature. Full versions of the summarized studies are available on request, and at the provided links below.

### Key Studies:

1. Marconato et al. (2014): This randomized, placebo-controlled, double-blinded trial of 19 dogs with diffuse large B-cell lymphoma found that adding APAVAC to CHOP-based chemotherapy significantly improved median time to progression (304 vs 41 days,  $p=0.0004$ ) and lymphoma-specific survival (505 vs 159 days,  $p=0.0018$ ) compared to chemotherapy alone, with no additional toxicity.  
<https://doi.org/10.1158/1078-0432.CCR-13-2283>
2. Marconato et al. (2015): In this controlled trial of 45 dogs with advanced indolent B-cell lymphoma, combining APAVAC with dose-intense chemotherapy significantly extended median time to progression (209 vs 85 days,  $p=0.015$ ) compared to chemotherapy alone, without increased toxicity.  
<https://doi.org/10.1016/j.tvjl.2015.07.009>
3. Marconato et al. (2019): This 5-year retrospective analysis of 300 dogs with B-cell lymphoma confirmed improved median lymphoma-specific survival with chemo-immunotherapy vs chemotherapy alone (401 vs 220 days,  $p<0.001$ ), particularly in specific subgroups.  
<https://doi.org/10.1016/j.tvjl.2019.02.002>
4. Frayssinet et al. (2020): In this study of 12 dogs with osteosarcoma, APAVAC immunotherapy showed potential in improving survival, especially when combined with amputation (median overall survival 531 days for amputated vs 270 days for non-amputated dogs).  
[https://www.hastim.fr/storage/fm\\_files/hastim/pdf/frayssinet-osteosarcome-2020.pdf](https://www.hastim.fr/storage/fm_files/hastim/pdf/frayssinet-osteosarcome-2020.pdf)
5. Dias et al. (2021): This comprehensive review article provides an overview of various immunotherapy approaches for canine lymphoma, including APAVAC. It explores different immunotherapeutic strategies, their mechanisms of action, and clinical outcomes. The paper highlights the potential of these approaches to improve treatment outcomes in both veterinary and human oncology.  
<https://doi.org/10.3389/fvets.2021.621758>

### Conclusion:

These studies demonstrate the potential of Vaxkit to improve outcomes in various cancers. The underlying mechanism of stimulating a patient-specific immune response against tumor antigens is fundamental to cancer immunology, suggesting possible applications beyond the currently studied cancers and species.

**What is Vaxkit and how does it work?**

Vaxkit is an autologous tumor antigen-based immunotherapy kit. It utilizes the patient's own tumor antigens and heat shock proteins, released via hydroxyapatite particles, to stimulate a specific immune response against the cancer cells.

**How long does it take to prepare Vaxkit?**

A veterinarian can prepare the treatment in approximately two hours. This includes about one hour of hands-on work, with the remainder being unattended time for refrigeration and centrifugation. This efficient process allows for easy integration into a typical clinic's workflow.

**Can Vaxkit be used as a standalone treatment or in combination with other therapies?**

Vaxkit can be used both as a standalone treatment and in combination with other therapies. While many clinical studies have focused on its use alongside chemotherapy, its mechanism of action allows for independent use in suitable cases.

**How does Vaxkit's mechanism of action complement traditional chemotherapy?**

While chemotherapy targets rapidly dividing cells, Vaxkit stimulates a patient-specific immune response against tumor antigens. This can potentially address chemotherapy-resistant cells and provide ongoing immune surveillance. Clinical studies have shown improved survival rates when used in combination, suggesting a synergistic effect.

**Can Vaxkit be used for all types of cancer?**

While Vaxkit has shown promising results in various cancer types, most clinical evidence is in canine lymphoma. However, its mechanism of action suggests potential efficacy in other cancers. Always assess each case individually.

**How long does it take to see results from Vaxkit treatment?**

Response times can vary, but studies have shown improved progression-free survival and overall survival rates. In lymphoma cases, significant improvements were often seen within the first few months of treatment.

**Are there any contraindications for using Vaxkit?**

Vaxkit is generally well-tolerated, but there are some important contraindications. It's not recommended for patients with severe immunodeficiency or autoimmune diseases. Additionally, Vaxkit is contraindicated for dogs with T-cell lymphoma. Always review the patient's full medical history and ensure accurate diagnosis before recommending treatment.

**How is Vaxkit administered?**

Vaxkit is administered as a series of 8 subcutaneous injections over 24 weeks, typically coinciding with the chemotherapy schedule.

**What are the most common side effects of Vaxkit?**

Clinical trials have reported minimal side effects. Mild, localized reactions at the injection site were sometimes reported. These reactions typically disappeared rapidly.

**How does Vaxkit's cost compare to other cancer treatments?**

Vaxkit is generally considered cost-effective compared to many advanced cancer treatments, especially when considering the potential for extended survival times.

**Vaxkit, Inc.:**

Vaxkit, Inc. is the North American distributor of Vaxkit. We are committed to bringing cutting-edge immunotherapy solutions to veterinary oncologists across the United States and Canada

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Ordering: <https://vaxkit.com/ordering/>

**Hastim:**

Hastim is the European manufacturer and distributor of APAVAC. APAVAC is the European brand name for Vaxkit. It is the same innovative cancer immunotherapy preparation kit, marketed under a different name in Europe. They are pioneers in developing hydroxyapatite-based immunotherapy solutions for veterinary oncology.

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For inquiries about Vaxkit in North America, please contact Vaxkit, Inc. For inquiries about APAVAC or distribution in Europe, please contact Hastim directly.