

Immunotherapy

Your pet's immune system constantly surveys their body for sources of disease including bacteria or viruses. To be effective, their immune system must distinguish "self" from "non-self". This means it must be able to recognize and ignore normal tissue versus defending against anything determined to be foreign. This process is disrupted in auto-immune disease, where the immune system inappropriately attempts to destroy healthy tissue.

The immune system can fight cancer, but there are limitations to its success in doing so. Cancer cells originate from "self" cells, making it difficult for a healthy immune system to recognize they are abnormal. Tumor cells can also suppress the actions of their host's immune system, making it less effective in surveying for abnormalities, even when it is capable of determining the cancerous cells are atypical. Historically, cancer in pets and people is treated with surgery to remove as much disease as possible, followed by radiation therapy and/or chemotherapy to kill off any residual tumor cells. These treatment options are not specific to cancer cells and the unwanted side effects of this approach are related to the damage that occurs in healthy cells.

An alternative treatment option would be the use of immunotherapies that can stimulate or enhance the immune system's ability to recognize and attack cancer cells. An ideal immunotherapy treatment can specifically distinguish between cancer cells and healthy cells, is able to destroy small and large numbers of cancer cells, and also is permanent once introduced into the patient.

There are several strategies of immunotherapy currently under investigation in veterinary medicine. Some focus on enhancing the pet's ability to generate antibodies against cancer cells or improving the immune cells ability to detect tumors. Some involve the administration of immune system components to the pet to aid in attacking cancer cells. Some therapies boost the immune system in very general ways, while others are more specific to the disease in question.

A different approach is to use a treatment that can remove the suppressing effect cancer can have on the immune system. An example of this is called metronomic chemotherapy which involves the administration of daily low doses of chemotherapy rather than a single, large dose given at a longer interval.

Much of the focus of immunotherapy in veterinary medicine is on treating canine lymphoma, osteosarcoma, and melanoma and most research is only in pre-clinical or clinical trial stage of discovery. While this leads to great anticipation for the future, for now, this means most veterinarians do not have access to such treatments and owners need to be willing to travel to be considered for enrollment into a study using immunotherapy to treat cancer.

There are a few approved immunotherapy options for treating cancers in pets including Oncept® for canine melanoma, monoclonal antibody therapy for canine lymphoma, IL-2 treatment for feline injection site sarcomas, and Immunocidin® for canine mammary tumors. The efficacy of each particular treatment depends on many factors specific to the patient in question, and your veterinary oncologist will discuss what immunotherapy options might be available to you during your initial consultation.

Veterinarians, scientists, and pet owners each hope the interest in immunotherapy will ultimately benefit our patients and further research is needed to better characterize animal's immune systems in order to devise potential treatment options. While there are many challenges towards this end, veterinary oncologists are optimistic immunotherapies will offer a new way of treating cancer in pets.

Medical Oncology

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