

VETERINARY VOICE:
Tips of the Trade

Oncology – Canine Malignant Melanoma Vaccine

Definition	Canine Malignant Melanoma (CMM) is the most common oral malignancy in dogs and roughly 50,000 dogs are diagnosed with this cancer annually.
Signalment and Clinical Signs	CMMs are more common in older dogs most likely to be found in this order of decreasing frequency: gingival, lips, tongue, hard palate and tonsils. It is also seen on the skin and the nail bed and eye.
Etiology	CMMs are not caused by ultraviolet light as they are in people, but by a combination of genes and environment. Abnormal, erratic growth of melanin producing cells, or melanocytes in genetically predisposed dogs is a major contributor to the development of CMM.
Melanoma Vaccine	The melanoma vaccine utilizes a human gene for tyrosinase (a cancer associated protein found on malignant melanoma cells) inserted into a strand of DNA to initiate and immune response in the canine patient. Human tyrosinase is ~9% different than canine tyrosinase; therefore the canine immune system “sees” human tyrosinase as a foreign protein and initiates an immune response against the cancer cells. A vaccination of xenogenic (different species) antigens or DNA that is homologous to the cancer antigens stimulates both cell mediated and humeral immunity. Thus, the introduction of xenogenic tyrosinase stimulates an active immune response against the protein associated with tumor cells, thereby initiating the immune system to produce antigen specific antibody, cytotoxic T-cell and anti-tumor responses which aid in the destruction of the proteins that are associated with malignant cells of CMM.
Prognosis	<p>Positive results have been achieved in dogs with stage II or stage III oral melanoma and in patients where local disease control has been attained. Patients involved in clinical trials have been documented with longer survival times compared to those not being treated with the vaccine. Historical median survival times for dogs with advanced stages of oral melanoma that are treated with conventional therapies (surgery and radiation therapy) are one to eight months. In initial trials, this type of novel vaccine has resulted in significantly extended survival times for dogs with melanoma - 389 days is the median length¹</p> <p>The vaccine is administered transdermally every 2 weeks for a total of 4 treatments and then boosted every 6 months thereafter. The canine melanoma vaccine is currently only available to board-certified veterinary oncologists.</p> <p>¹ Bergman P. J. et al, Development of a xenogeneic DNA vaccine program for canine malignant melanoma at the Animal Medical Center. <i>Vaccine</i> 2006; 24:4582-4585</p>
Questions? Oncology Expert: Anna Szivek, DVM, Diplomate, ACVIM (Oncology)	The Veterinary specialty Center of Tucson has a board-certified oncologist available for questions and consultations during the weekdays. Board-certified oncologists have four additional years of training and are certified by the American College of Veterinary Internal Medicine to assure competency in Veterinary Oncology.