



Research to protect, treat and cure animals.

## Progress in Dog Health

### BEHAVIOR

*"Evaluation of the Effectiveness of Animal Shelter Enrichment Protocols for Dogs"*  
D06CA-080, Cornell University, Dr. Janet M. Scarlett

**Description:** An estimated 4 million dogs annually enter animal shelters in the United States. More than one-third of them – often healthy, adoptable animals — are euthanized due to limited homes and shelter space. Poor behavior is a primary reason for relinquishing a dog and also decreases an animal's adoptability. Many shelters have launched behavioral enrichment programs to help prevent problems and enhance the welfare of dogs in shelters. This study will evaluate the benefits of enrichment programs and how they may reduce stress for dogs, enhance adoptability, shorten the dog's time in the shelter and improve behavior and retention in homes following adoption. Understanding the effectiveness of these programs will provide optimum care for dogs in shelters and minimize the behavioral problems that lead to failed adoptions.

**Update:** Researchers at Cornell University are evaluating the benefits of enrichment programs and are looking at how they may reduce stress for dogs, enhance adoptability, shorten the dog's time in the shelter and improve behavior and retention in homes after adoption. The researchers have finished enrolling dogs and are compiling and analyzing final data; final results and recommendations are anticipated by the end of this year.

### BLOOD DISORDERS

*"Tissue Factor: A New Approach to Thrombosis in Immune-Mediated Hemolytic Anemia"*  
D07CA-047, Cornell University, Dr. Tracy Stokol

**Description:** Immune-mediated hemolytic anemia (IMHA) is a severe blood disorder that affects all breeds of dogs. Although dogs usually receive transfusion therapy to control their anemia, a frequent and often fatal complication of this disease is blood clot formation (thrombosis). Dogs with IMHA are often given anti-thrombotic drugs in the hopes of preventing these fatal blood clots. Determining what causes the clots would significantly improve veterinarians' ability to prevent them. This project aims to define the cause of

abnormal clotting in dogs with IMHA, with the ultimate goal of developing an effective treatment strategy to improve patient survival.

**Update:** Researchers from Cornell University theorize that inflammation may play a role in the formation of blood clots. If their theory proves accurate, development of an effective treatment strategy would be the next step toward increasing the survival rates of dogs suffering from this devastating disorder.

## **CANCER**

*"Canine Mammary Tumors Expressing Prolactin Result in Poor Clinical Outcomes"*  
D07CA-067, Oregon State University, Dr. Michelle A. Kutzler

**Description:** Breast cancer is the most common tumor of intact female dogs, with a two-year survival rate of about 25 to 40 percent. While canine breast cancer has many similarities to breast cancer in women, traditional chemotherapy and radiation are only minimally effective in dogs. Non-traditional chemotherapeutic agents, which affect hormone receptors, may hold promise for treating dogs. In particular, researchers will look at prolactin, a hormone that regulates mammary cells and appears to be linked to cancer cell development in humans and rodents. They will study archived biopsy samples of breast cancer tissue that were collected from female dogs over a 10-year period and determine how the survival time of these dogs relates to mammary prolactin production and prolactin receptor expression. This will give insight into the development and potential treatment for this cancer in dogs.

**Update:** Researchers from Oregon State University are currently investigating the role of prolactin. They are studying archived biopsy samples of breast cancer tissue that were collected from female dogs over a 10-year period and determining how the survival time of these dogs relates to mammary prolactin production. This will give important insights into the development of a potential treatment for mammary cancer in dogs that may involve regulating prolactin levels.

## **CANCER**

*"Investigating the Biology of Canine Met Mutations"*  
D06CA-026, The Ohio State University, Dr. Cheryl A. London

**Description:** Research has shown that mutations in a gene called Met contribute to the development of numerous types of cancer in people and mice. Met inhibitors that may stop these mutations are entering human clinical cancer trials, and with further scientific work, the same trials could take place for dogs. Researchers in this study already have identified two similar mutations in dogs, one of which has been found in about 70 percent of rottweilers, which have a high risk of developing cancer. This study will continue investigating the biology

of Met mutations in dogs and lay the foundation for using Met inhibitors in dogs with cancer.

**Update:** Researchers at Ohio State University have found that a Met inhibitor causes the death of osteosarcoma cells and they are now investigating the potential effectiveness of a new protein inhibitor, HSP90, that targets Met as well as other key proteins in osteosarcoma cells. The researchers are encouraged by their preliminary results with this inhibitor in several clinical cases of dogs diagnosed with osteosarcoma. Since the last report, the scientists are continuing their work with the HSP90 inhibitor to see whether they have better activity when this drug is combined with chemotherapy.

## **ENDOCRINE DISORDERS**

*" Comparison of 2 ACTH Stimulation Tests in Determining Adrenal Function in Critically Ill Dogs"*

D06CA-050, Auburn University, Dr. Linda G. Munson

**Description:** When an animal or human is struck with illness, the pituitary-adrenal system produces hormones such as ACTH and cortisol to help fight the illness. Unfortunately, some critically ill patients appear to have very low levels of ACTH and cortisol. This inappropriate way of reacting to the stress of illness leads to higher death rates in these patients. Being able to detect and treat this deficiency early could significantly improve the survival rates of critically ill dogs. This study will compare the pituitary-adrenal function in critically ill dogs and use the information to determine the best way to diagnose this condition. An early detection test will help veterinarians to treat sick dogs more effectively.

**Update:** Human and veterinary studies have shown that critically ill patients do not respond appropriately to the stress of illness and have low cortisol and ACTH levels, which is referred to as relative adrenal insufficiency. Scientists at Auburn University are working to develop a better diagnostic test to detect this inappropriate hormonal state. They hope to determine whether a low-dose ACTH stimulation test is a more accurate indicator of adrenal function in critically ill dogs than the current standard-dose ACTH stimulation test. By increasing awareness of this deadly syndrome and providing better diagnostic tests to determine its presence, many lives could be saved.

