

Discoveries



Canine Health Resources

By Sharon Albright, DVM, CCRT
Manager of Communications & Veterinary Outreach, AKC Canine Health Foundation

In addition to canine health research grants and educational grants, the AKC Canine Health Foundation (CHF) also identifies and supports resources that will benefit canine health research. These tools serve to further our mission of advancing canine health and facilitate research projects of high scientific caliber. Two examples of these canine health resources include the Canine Health Information Center and the Canine Comparative Oncology and Genomics Consortium.

Canine Health Information Center

The Canine Health Information Center (CHIC) was founded in 2001 as a collaboration between CHF and the Orthopedic Foundation for Animals (OFA). Its database serves as a collection of health test results pertinent to various dog breeds. Each AKC parent club determines which health screenings are required for their breed and a dog that completes these health tests is issued a CHIC Certification, whether their results are normal or abnormal. This open-access health information helps breeders make informed decisions to reduce the incidence of heritable disease in their lines and helps puppy buyers connect with responsible breeders that use health testing in their breeding plan.



CHIC added a DNA repository in 2005 to collect and store DNA samples along with pedigree and health data to facilitate research on heritable disease in dogs. This valuable genetic material with accompanying health history information accelerates scientific progress, since the necessary samples and data have already been collected. Veterinarian, Labrador Retriever breeder, and OFA President, Dr. Fran Smith states, "This collaboration between parent clubs, CHF, OFA, and researchers has really helped everyone get on the same page. We can now work together to solve the health problems relevant to specific dog breeds and all dogs."

Learn more at caninehealthinfo.org

Continued on pg. 2

Spring 2020

CALENDAR OF EVENTS

UPCOMING WEBINARS

Register at akcchf.org/vetvine

April 22, 2020

Time to get tough and "Ruff":
Protecting dogs from infectious diseases

Presented by Jason Stull, VMD,
MPVM, PhD, Diplomate ACVPM

May 13, 2020

Recent Advances in Cancer
Immunotherapy

Presented by Steven Dow, DVM, PhD,
Diplomate ACVIM (Oncology)

June 16, 2020

Biomarkers of Canine Chronic Kidney
Disease

Presented by Mary Nabity, DVM, PhD,
Diplomate ACVP

IN THIS ISSUE

Canine Health Resources

PPCP Program Goes 'Above & Beyond' in
Supporting Breed Parent Clubs

Important Publications from CHF-funded
Research

Researcher Spotlight - Dr. Matthew Breen
Recent Grant Highlights

It's Our Anniversary!

In 2020, CHF is celebrating its 25th anniversary. Learn more about CHF milestones and achievements at akcchf.org/25years.



Canine Comparative Oncology and Genomics Consortium

After completion of the canine genome map, the Canine Comparative Oncology and Genomics Consortium (CCOGC) was established to maximize the use of this new genetic information. A collaboration was initiated to foster partnerships and share information across multiple scientific disciplines, all focused on understanding canine cancer and the role of the dog as a model system for advancing human cancer research. A biorepository was established to hold samples from cancer bearing dogs with seven naturally occurring cancers – osteosarcoma, melanoma, lymphosarcoma, pulmonary cancer, hemangiosarcoma, mast cell tumors, and soft tissue sarcomas. These carefully collected and cataloged samples, comprising tumor tissue, non-tumor tissue, blood, plasma and urine, became available to researchers in 2012 and have proven to be a valuable resource for several CHF-funded researchers. Dr. Matthew Breen at North Carolina State University was a founding member of the CCOGC and has used this resource in his research examining the genomics and comparative aspects of canine cancer. He states, “The rigorous sample collection standards established by the CCOGC minimize sample collection variation and maximize the utility of each specimen. Now, instead of researchers studying cancer in different sub-sets of the dog population, they can examine specimens from the same, centralized cohort of patients and one dog’s sample contribution can impact multiple cancer studies.”



Learn more at ccogc.net.

PPCP Program Goes ‘Above & Beyond’ in Supporting Breed Parent Clubs

By Barbara Fawver
Manager of Pet Influential Communications, Purina

Fundraising to support canine health research is a fundamental effort of most breed parent clubs. As the lead corporate sponsor of the AKC Canine Health Foundation (CHF) since 1997, Purina recognized this need and devised a plan to help clubs do exactly that.

Begun in 2002, the Purina Parent Club Partnership (PPCP) Program provides funding directly to participating parent clubs and to the clubs’ Donor Advised Fund (DAF) held at CHF. Funding is based on the annual submission of proofs of purchase of qualifying Purina pet products from parent club members who are members of Purina Pro Club and who designate their participating parent club to receive credit for their submissions. Pro Club members also earn credit for their qualifying proofs of purchase in their individual Pro Club accounts.



“The backbone of the PPCP Program is to give parent club members a way to contribute to their breeds through participation in Purina Pro Club,” says Purina Director of Conformation Ann Viklund. “We wanted to go above and beyond by providing Pro Club members a way to support their clubs and also benefit personally.”

The popularity of the program took off, resulting in more than \$8.2 million raised through 2019. The 195 clubs participating in 2019 earned \$249,907, with half of the funds going directly to clubs to support breed education, rescue and health research, and the other half going to their DAF held at CHF. Parent clubs have earmarked their PPCP funds to support a diversity of canine health research.

“Purina is our partner in helping to educate dog owners about canine diseases and increase awareness about CHF-funded research. We have a rich history working with clubs that has resulted in benefits to dogs and their owners through better diagnoses, treatments and outcomes for canine health,” says Dr. Diane Brown, former CEO of the AKC Canine Health Foundation.

“The strength of this partnership lies in our shared passion and commitment to support research that will help dogs live long, healthy lives,” Viklund says. “At Purina, our vision is to advance the lives of pets. When you look at the wealth of research that has led to many discoveries, this work impacts not only the health of an individual breed but all dogs. Purina is proud to offer PPCP and to partner with the AKC Canine Health Foundation.”



MISSION: The mission of the American Kennel Club Canine Health Foundation, Inc. is to advance the health of all dogs and their owners by funding scientific research and supporting the dissemination of health information to prevent, treat and cure canine disease.

Significant Publications from CHF-funded Research

By Sharon Albright, DVM, CCRT
Manager of Communications & Veterinary Outreach, AKC Canine Health Foundation

In early 2020, CHF-funded research teams published their study results in high-impact, open-access scientific journals. Years of hard work and financial investment from CHF, its donors, and researchers have produced information that will positively impact veterinary care now and in the future. *To read the full scientific publications, visit each grant page and scroll down to view associated publications.*



The Genetics of Adverse Drug Reactions

Greyhounds and other sighthounds are known to recover more slowly compared to other breeds following anesthesia. With funding from [CHF grant O2529: Understanding the Genetics of Adverse Drug Reactions in Sighthounds: Phase II](#), researchers at Washington State University identified a genetic mutation that significantly decreases the function of an enzyme responsible for breaking down anesthetic drugs commonly used in veterinary medicine. Results were published in *Scientific Reports*. They now hope to create a test for this genetic mutation that will allow veterinarians to tailor the use of anesthesia and other medications to best suit each patient.

Hemangiosarcoma and Bartonella infection

Investigators at North Carolina State University have been exploring the possibility that intracellular infection plays a role in canine hemangiosarcoma, a deadly cancer of the cells that line blood vessels. With funding from [CHF grant O2519: Prevalence of Bartonella spp. Infection in Dogs with Cardiac and Splenic Hemangiosarcomas within and between Geographic Locations](#), they screened blood and tissues from dogs with

hemangiosarcoma for *Bartonella*, *Babesia*, and *Mycoplasma*, three bacteria associated with blood-borne infection. Results published in *PLoS ONE* showed that 73% of dogs studied had *Bartonella* DNA in their tumor tissue and non-tumor tissues. *Bartonella* are intra-cellular bacteria known to trigger chronic inflammation and secrete growth factors that stimulate the formation of new blood vessels. Given these qualities, investigators hypothesize that *Bartonella* could be contributing to development of canine hemangiosarcoma.

Cancer Immunotherapy

Immunotherapy uses the body's own immune system to help fight cancer and is an important and relatively new tool to treat this ominous disease. Since dogs share our environment and get many of the same cancers as humans, the research community is increasingly recognizing the value of studying cancer immunotherapy in dogs to benefit drug development for both dogs and humans. Dr. Steven Dow, the principal investigator for [CHF grant O2487: OX40 Checkpoint Molecule Targeted Antibodies for Cancer Immunotherapy in Dogs](#), published a review paper in *Frontiers in Immunology* to highlight the importance of canine cancer immunotherapy studies and stimulate additional collaboration.

Learn more about canine cancer immunotherapy from Dr. Dow's May 13th webinar.

Register at akcchf.org/vetvine.



Stay Informed

Stay informed about coronavirus from CHF's Coronavirus – Information for Dog Owners fact sheet at akcchf.org/tophealthconcerns.



Researcher Spotlight

Matthew Breen, PhD, C. Biol, FRSB

Dr. Matthew Breen is a professor of genomics and the Oscar J. Fletcher Distinguished Professor of Comparative Oncology Genetics at North Carolina State University College of Veterinary Medicine. He was a charter member and remains a board member for the Canine Comparative Oncology and Genomics Consortium and received the 2007 Asa Mays, DVM Excellence in Canine Health Research Award for his work on the comparative aspects of canine cancer.

Dr. Breen played a key role in the mapping of the canine genome. His research focus is the molecular evaluation of canine tumors to discover the genes involved in the initiation and progression of cancers. He has received numerous CHF grants to study canine lymphoma, histiocytic malignancies, osteosarcoma, and more. Dr. Breen notes that receiving a grant from CHF is a significant accomplishment because the Foundation, through its rigorous review process, carefully determines which studies will truly advance canine health. He also notes that CHF is unique in its ability to balance the needs of researchers and dog owners while working to improve canine health and welfare.



Recent CHF-Awarded Grant Highlights

Grant 02692-A: Diagnostic Accuracy of Point of Care Analysis of Canine Urine and Plasma in Marijuana Toxicosis

Principal Investigator: Joel Weltman, DVM; Caspary Research Institute of the Animal Medical Center

An evaluation of the accuracy of urine drug screening tests using non-invasive urine or blood samples in dogs to inform the best method to diagnose marijuana toxicity in dogs in a point of care emergency situation.

Grant 02682-A: The Effect of a Modified Approach on Early Weight Bearing in Dogs Following a Tibial Plateau Leveling Osteotomy

Principal Investigator: Dominique Sawyere Hansford, BVSc, MS; Virginia-Maryland College of Veterinary Medicine

An evaluation of a modified tibial plateau leveling osteotomy (TPLO) surgical repair procedure for cranial cruciate ligament rupture to improve post-operative connective tissue strength and stability, leading to better short- and long-term outcomes for canine patients undergoing this procedure.

Grant 02732-A: Tumor-educated Platelets: A Novel Minimally Invasive Liquid Biopsy for Early Cancer Diagnosis

Principal Investigator: Unity Jeffery, VetMB, PhD; Texas A&M AgriLife Research

A study of platelet RNA profiles as a first step in developing a blood-based screening test or liquid biopsy for canine cancer.

See our full research grants portfolio at akcchf.org/research.

May is Pet Cancer Awareness Month

The AKC Canine Health Foundation marks Pet Cancer Awareness Month each May. It is an opportunity to recognize important CHF-funded canine cancer research seeking better treatments, more accurate diagnoses, and an improved understanding of the mechanisms that cause cancer in dogs and humans. Stay tuned in May of 2020 for more information about CHF's Canine Cancer Research Initiative.



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