AKC CANINE HEALTH FOUNDATION
2020-2021
GRANTS REPORT

2020 HIGHLIGHTS

An overview of the grants awarded in 2020 to help prevent, treat and cure canine disease.

PREVIEW INTO 2021

With your continued support, CHF is working to advance canine health in 2021.

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The AKC Canine Health Foundation (CHF) is dedicated to advancing the health of all dogs and their owners. The Foundation maintains a diverse portfolio of innovative canine health research grants that aim to find better treatments, more accurate diagnoses, and an improved understanding of the mechanisms that cause disease in dogs. Amidst the challenges of 2020, CHF awarded 53 new health research and educational grants outlined here. Many new grants embrace a One Health approach by supporting research that improves the health of dogs while simultaneously considering the health of people and the environment. These studies are indicated by a [1] symbol.

Thank you to all the dedicated dog owners, breeders, veterinary professionals, and researchers that continue to support CHF's mission so that all dogs can live longer, healthier lives.

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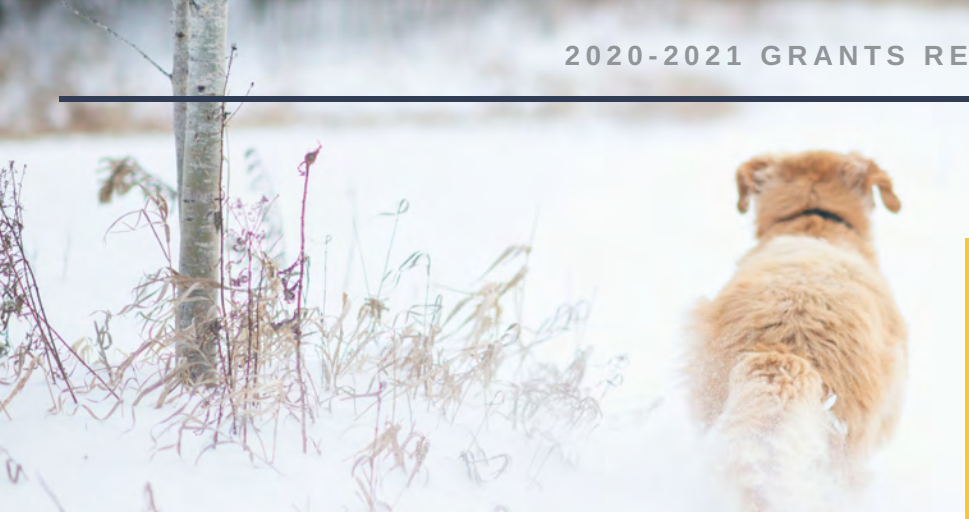


2020 GRANTS

In 2020, CHF awarded $3.29 million in 53 research grants across 23 different research program areas, including multiple educational grants.

18 ACORN GRANTS

Acorn grants fund smaller, pilot studies requiring $15,000 or less. These grants allow researchers to take the first steps to improve canine health.

24 OAK GRANTS

Oak grants provide larger investments (>$15,000) in studies with the potential to advance the health of dogs. In 2020, Oak grants ranged from $16,924 to $269,238.

5 MOU GRANTS

Memorandum of Understanding (MOU) grants allow AKC Parent Clubs and stakeholders to fund research of direct importance to the health of their breed. In 2020, five new MOU grants were awarded to address health concerns for specific breeds and all dogs.

6 EDUCATIONAL GRANTS

CHF supports the next generation of canine health researchers and reproductive specialists through Clinician-Scientist Fellowships and the AKC/AKCCHF/TF Small Animal Theriogenology Residency Program. In 2020, theriogenology residency grants were awarded to Colorado State University and Ohio State University. Four clinician-scientist fellowships were led by young scientists studying joint disease, megaesophagus, genetic tools and diversity, and tick-borne disease.

2020 RESEARCH GRANTS

Puppy Cognition and Development | 02700
Characterize cognitive traits and abilities of puppies to better predict success as a service dog. [1]

Familial Hyperlipidemia in Miniature Schnauzers | 02703
Identify the metabolic and genetic causes of hyperlipidemia in Miniature Schnauzers.

ARVC in Boxers | 02808-MOU
Identify genetic mutations underlying the inherited heart disease arrhythmogenic right ventricular cardiomyopathy (ARVC) in Boxers.

Atopic Dermatitis | 02694
Investigate interactions between the skin cells of allergic dogs and microbes to design better treatments for skin infection in allergic dogs. [1]

Atopic Dermatitis | 02825-A
Examine effects of the body's inflammatory response on bacterial growth to develop new treatments for canine allergies.

Pyoderma | 02829
Develop a therapy using naturally occurring viruses to infect and kill bacteria that cause skin infections. [1]

Antibiotic Use and Pyoderma | 02837
Evaluate the effects of antibiotic use on reoccurrence of canine superficial bacterial skin infection.

Thyroid Function | 02686-A
Monitor thyroid hormone levels during nonthyroidal illness and recovery to develop recommendations for thyroid hormone testing.

Temporal Lobe Epilepsy | 02792-A
Evaluate dogs with a history of temporal lobe epilepsy-like seizures using magnetic resonance imaging (MRI) and pathological findings to better understand the causes of canine epilepsy. [1]

Gastrointestinal Motility Disorders | 02709
Identify genetic risk factors contributing to gastrointestinal motility disorders in Great Danes.

Small Intestinal Obstruction | 02742-A
Evaluate a new technology to assess small intestinal health intra-operatively in dogs undergoing surgery for foreign body obstruction.

Canine Chronic Enteropathy | 02684-A
Determine if a protein that helps maintain intestinal barrier function is elevated in dogs with canine chronic enteropathy. 1

Marijuana Toxicosis | 02692-A
Determine the best method to diagnose marijuana toxicity in dogs in a point of care emergency setting.

Adverse Drug Reactions in Chow-Chows | 02803-MOU
Determine if a gene mutation is responsible for adverse drug reactions in the Chow Chow and other breeds.

Pain Sensitivity | 02797
Explore whether dog breeds differ in pain sensitivity, and whether breed affects veterinarians' treatment of pain in dogs.

Obesity | 02723
Clinical trial to assess the efficacy of fecal microbiota transplantation (FMT) as an adjunctive therapy for canine obesity management.

Working Dog Decontamination Procedures | 02847-A
Evaluate the efficacy of an expedient "wipe-down" procedure to develop decontamination strategies for companion and working dogs exposed to aerosolized contaminants. 1

Gum Disease | 02809
Study the microbial communities under the gumline of dogs with different stages of periodontal disease and varying degrees of inflammation.

Liver Disease | 02683-A
Evaluate treatment regimens for two common and important liver diseases in dogs: idiopathic chronic hepatitis (ICH) and copper associated hepatopathy (CAH).

Canine Herpesvirus | 02681-A
Study the genetic characteristics of canine herpesvirus across geographic locations to help prevent disease and identify new treatment targets.

Heartworm Disease | 02821-A
Investigate the role of a new mosquito species in transmitting heartworms along the U.S.-Mexico border. 1

Chagas Disease | 02841
Develop a test for accurate diagnosis of *Trypanosoma cruzi* infection, the organism responsible for Chagas disease in dogs. 1

Kidney Disease in Greyhounds | 02807-MOU
Complete characterization of the most common types of kidney disease in this breed.

Pneumothorax | 02690-A
Evaluate video-assisted scoping of the chest to identify pockets of air within the lungs that cause life-threatening air in the space around the lungs for a minimally invasive treatment option.

Swallowing Abnormalities | 02699
Use advanced imaging techniques to document gastroesophageal reflux and other swallowing abnormalities in dogs with respiratory disease. 1

Chylothorax in Afghan Hounds | 02804-MOU
Search for a genetic mutation responsible for chylothorax (lymph fluid in the space around the lungs) in Afghan Hounds.

Cranial Cruciate Ligament Rupture | 02682-A
Evaluate a modified tibial plateau leveling osteotomy (TPLO) surgical repair procedure for cranial cruciate ligament rupture to improve post-operative connective tissue strength and stability.

Degenerative Myelopathy | 02800
Define the risk of developing degenerative myelopathy in genetically at-risk dogs to inform breeding decisions while exploring the molecular mechanisms responsible for disease onset.

MUO/MUE | 02802
Clinical trial for a new treatment for meningoencephalitis of unknown origin (MUO), a devastating immune-mediated disease of the canine central nervous system which resembles multiple sclerosis in humans.

IVDD | 02790-A
Determine bacterial imbalances in the gut of dogs with intervertebral disc disease (IVDD) which may contribute to ongoing spinal cord injury.

MUO/MUE | 02791-A
Evaluate the utility of measuring an inflammatory protein released by injured nerve cells to predict response to treatment in dogs with meningoencephalitis of unknown etiology (MUE).

Tumor Margins | 02758
Validate use of a new technology to provide real-time surgical margins for canine skin and subcutaneous tumor removal.

Bladder Cancer | 02780
Search for a link between chemical exposure and bladder cancer in dogs. 1

Soft Tissue Sarcoma | 02783
Combine molecular analysis with traditional microscopic tumor evaluation to improve diagnostic and prognostic information for dogs afflicted with this common cancer. 1

Cancer Diagnostic | 02732-A
Study platelet RNA profiles to develop a blood-based screening test or liquid biopsy for canine cancer. 1

Hemangiosarcoma | 02746-A
Identify specific microRNA in the blood of dogs with hemangiosarcoma to discriminate this cancer from other masses of the spleen before surgery.

Hemangiosarcoma Tumor Immunity | 02759
Study immune cells and how they promote tumor growth and inflammation in hemangiosarcoma.

Hemangiosarcoma "Shine On Project" | 02806-MOU
Validate a blood test to detect hemangiosarcoma at its earliest stages of development, before it becomes a clinically detectable disease.

Lymphoma | 02751-A
Characterize the role of luteinizing hormone (LH) receptors in the spread of lymphoma. 1

Lymphoma Risk | 02772
Evaluate the frequency and type of rare precancerous mutations in dogs with lymphoma. 1
Part of the Dog Aging Project.

Lymphoma Development | 02739-A
Establish the significance of disrupted SETD2 gene function in canine lymphoma. 1

Bone Cancer Genomics | 02782
Investigate the genetic basis of early-onset bone cancer (osteosarcoma) in the Irish Wolfhound.

Bone Cancer | 02768
Study the incidence of dystrophin gene deletions and their role in canine bone cancer. 1

Bone Cancer | 02773
Study a precision non-thermal focused ultrasound method that mechanically breaks down tissues and potentially activates the immune system against osteosarcoma. 1

Corneal Endothelial Dystrophy | 02696
Investigate the safety and efficacy of the drug netarsudil for treatment of early canine corneal endothelial dystrophy, a painful degenerative disease of the cornea. 1

Pyometra | 02811
Evaluate the use of antibiotics plus the risk factors for prolonged hospitalization and infection following surgery to treat canine uterine infections (pyometra).

Lyme Disease | 02831
Study canine immune system function during clinical disease and subclinical infection caused by *Borrelia burgdorferi* (Lyme disease) to understand which immune cells drive disease versus disease protection. 1

TECHNOLOGY

CHF provides funding in areas of unmet need and immediate opportunity, while looking to apply recent advancements in science and technology to canine health research. Many grants in 2020 addressed new and emerging technology, including optical coherence tomography (OCT) – an imaging modality to evaluate tumor margins intraoperatively (#02758), histotripsy – a precision non-thermal focused ultrasound method that may provide a non-surgical treatment option for canine bone cancer (#02773), and GlycoCheck™ – a hand-held, non-invasive device that can assess areas of questionable intestinal health in dogs with foreign body obstruction (#02742-A).

PREVIEW INTO 2021

2021 RESEARCH PROGRAM AREAS OF FOCUS

Canine Cancer

Cardiology

Endocrinology

Epilepsy

Gastrointestinal Disease

Musculoskeletal Conditions and Disease

Ophthalmology

Clinician-Scientist Fellowship

Theriogenology Residency

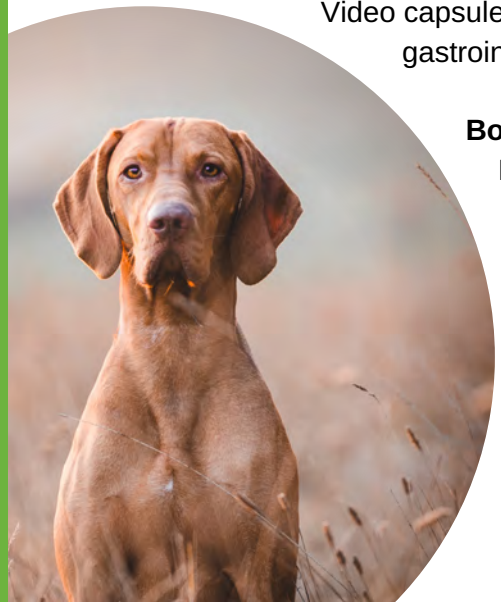
Tick-Borne Disease

CHF is already reviewing proposals for canine health research grants to be awarded in 2021. Proposals are reviewed by subject matter experts and the CHF Scientific Review Committee for scientific rigor, strict adherence to our Humane Use of Animals policy, and impact on canine health. The Foundation plans to request additional proposals throughout 2021, always maintaining a diverse portfolio to address the health needs of all dogs across their lifetime.

Diabetes Mellitus | 02850-A
Examine the effect of fenofibrate on systemic and pancreatic inflammation in diabetic dogs.

Acute Pancreatitis | 02861-A
Characterize the cardiovascular complications of acute pancreatitis in dogs.

Gastrointestinal Injury | 02859-A
Video capsule endoscopy to assess and define acute gastrointestinal injury in critically ill dogs.



Body Condition Scoring System | 02849-A
Develop and validate a new body condition scoring system for use in canine athletes.

Bartonellosis | 02819
Identify *Bartonella henselae a*ntigens for development of a reliable blood test for canine bartonellosis. [1]

2021 CLINICIAN-SCIENTIST FELLOWS

We thank the four 2020 fellows for their contributions to canine health. In 2021, CHF's Clinician-Scientist Program continues to support the next generation of canine health researchers.

Ohio State University | 02922-E
Josephine Dornbusch, DVM

Under the mentorship of Dr. Laura Selmic, Dr. Dornbusch conducts a clinical trial evaluating two-catheter urethral catheterization for female toy-breed dogs and puppies. *Sponsored by owners Carolyn and Gary Koch, breeders Kristy and Kevin Ratliff, and handler Esteban Farias, in honor of "Rumble," GCHP Hill Country's Let's Get Ready To Rumble (www.akcchf.org/rumble).*

University of Florida | 02924-E
Lopamudra Kher, BVSc & AH, MVsc, MS

Dr. Kher researches the effect of cytokines associated with canine atopic dermatitis on *S. pseudintermedius* in planktonic as well as in biofilm state with mentor and CHF-funded investigator Dr. Domenico Santoro. *Sponsored in part by the Westie Foundation of America.*

Cornell University | 02923-E
Skylar Sylvester, DVM

Dr. Sylvester and mentors, Drs. Cheryl Balkman and Kelly Hume, conduct a clinical trial evaluating doxorubicin and temozolomide in dogs with splenic hemangiosarcoma. *Sponsored by the Orthopedic Foundation for Animals (OFA).*

AKC/AKCCHF/TF SMALL ANIMAL THERIOGENOLOGY RESIDENCY PROGRAM

An educational collaboration between the American Kennel Club (AKC), the AKC Canine Health Foundation (AKCCHF), and the Theriogenology Foundation (TF) to increase the number of trained practitioners in companion animal theriogenology and clinical genetics. New residents will start at Virginia-Maryland and University of Florida in 2021. Current residents continuing their 2-3 year programs include:

Colorado State University | 02668-E
Kelsey Martin, DVM
Residency Coordinator: Fiona Hollinshead, BVSc, PhD, DACT

Ohio State University | 02666-E
Joanna Koipillai, BVSc & AH
Residency Coordinator: Marco A. Coutinho da Silva, DVM, PhD

Auburn University | 02538-E
Jamie Douglas, DVM
Residency Coordinator: Robyn Wilborn, DVM, MS

HOW WE WORK

RESPONSIVE FUNDING

CHF aims to be responsive in its funding, supporting scientific studies applicable to current events through MOU grants, invited proposals, or targeted requests for proposals. Look for the latest grants on vector-borne disease (#02831, #02819) and antibiotic resistance (#02811, #02829), as well as wipe-down procedures to help keep dogs safe from aerosolized contaminant exposure (#02847-A) in the 2021 Research Grants Portfolio. You can also check CHF's website for the latest canine top health concerns: **www.akcchf.org/tophealthconcerns.**

INITIATIVES

CHF's Research Initiatives focus fundraising and research efforts on health concerns of great importance to all breeds and mixed breed dogs. Active research initiatives in **epilepsy**, **hemangiosarcoma**, and **tick-borne disease** are making large strides toward more accurate diagnostics and innovative treatments for these devastating diseases.

akcchf.org/research

The AKC Canine Health Foundation is dedicated to advancing 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.

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Have a question?
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