



WINN FELINE FOUNDATION

For the Health and Well-being of All Cats

637 Wyckoff Ave., Suite 336, Wyckoff, NJ 07481 • www.winnfelinefoundation.org
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FOR IMMEDIATE RELEASE

WINN FELINE FOUNDATION AWARDS \$141,171 IN TEN GRANTS FOR FELINE HEALTH STUDIES

Wyckoff, NJ, April 26, 2016: Winn Feline Foundation is pleased to announce the award of ten feline medical research grants funded through the generous support of private and corporate donations from around the world. Winn Board President Glenn Olah, DVM, PhD, DABVP (Feline) stated, "Following a very thorough review of 55 competitive proposals, we awarded \$141,171 in grants for a diverse group of cat health studies including whether cell-free DNA can diagnose cancer involving the eye, a drug to treat resistant cases of *Tritrichomonas foetus*, evaluating heart arrhythmias with small monitors, and three FIP-related projects. In addition, Winn continued support for genetics related research about amyloidosis in Abyssinians, searching for mutations causing heart disease in the Persian and Birman cat breeds and the future role of feline genetics known as Precision Medicine. Winn's Grant Review Committee was impressed by the total quantity of proposals, the quality of the science proposed and the number of submissions from several countries around the world.

Winn awarded grants for the following research studies:

GENERAL STUDIES

cfDNA and liquid biopsy – a novel diagnostic approach for melanocytic tumors. (W16-011)

Principal Investigators: Barbara Nell, DECVO, Jessica Rushton DVM; Clinic of Small Animal Surgery, Dentistry and Ophthalmology, Vetmeduni Vienna; \$5188.

Currently removing the affected eye is the only way to diagnose a common form of malignant melanoma of the iris in cats. However, cats also get benign tumors of the iris, so it is important to correctly distinguish between the two tumors. If incorrectly diagnosed, the cancer could spread or the cat could lose an eye unnecessarily. In human cancer patients, the level of cell-free DNA (cfDNA) is significantly higher in the bloodstream than in healthy individuals. This form of DNA can show evidence of tumor specific mutations as well. Elevated cfDNA has been identified in both dogs and humans with breast cancer. Detecting tumor related DNA in a cat's bloodstream could provide a way to diagnose feline diffuse iris melanoma without risking the removal of the eye unnecessarily.

Efficacy of a new treatment for cats with ronidazole-resistant *Tritrichomonas foetus* infection. (W16-053)

Principal Investigators: Jody Gookin, DVM, PhD, DACVIM, Mark Papich, DVM, MS, ACVCP; North Carolina State University College of Veterinary Medicine; \$24,585. (Sponsored in part by Biomed Diagnostics, Inc.)

Tritrichomonas foetus (TF) is a parasitic infection that causes foul relapsing bouts of diarrhea in cats from every corner of the world. Only the drug ronidazole has been identified as effective in treating TF infection but 36% of cats fail to clinically benefit from the drug and others suffer from drug toxicity. An alternative drug has been identified that is 10 times more effective than ronidazole at killing feline TF. The aim of this study is to examine the effectiveness and safety of this alternative drug for treatment of cats with TF infection and diarrhea and that failed prior treatment with ronidazole.



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Precision Medicine for Felines. (W16-030)

Principal Investigators: Leslie A. Lyons, Barbara Gandolfi; University of Missouri; \$4900 (Anonymous Sponsors)

Gene-specific DNA-based tests for inherited diseases have been available for veterinary health care in cats for over 25 years, now over 40 genes with approximately 70 DNA variants have been documented to cause phenotypic, disease or blood type variations. More recently, the entire genomes of dozens of cats have been sequenced, rapidly gleaning the genetic information that is controlling health and what an animal looks like. In the coming years, veterinarians will be performing whole genome screens of some kind as a routine component of a disease diagnosis. Whether for tumors or other diseases, the DNA results will be what routinely direct future therapies. This project will attempt the first "Precision Medicine" trial in a domestic cat. The whole genome of an American shorthair cat that presented with neurological disease will be generated and compared to the 99 Lives Cat Genome Sequencing database in an effort to use an individual cat's genetic signature to determine its course of health care.

BRIA FUND STUDIES

Evaluating new drug compounds for treating feline coronavirus, a continuation study. (W16-022)

Principal Investigators: Brian Murphy, DVM, PhD, ACVP; Niels Pedersen, DVM, PhD; University of California, Davis; \$12,175

This is a continuation study of a previous Winn-funded grant (W15-010). Feline infectious peritonitis (FIP) is a common and generally lethal disease of domestic cats for which there currently is no effective treatment. A laboratory method has been developed to test drug compounds for their effectiveness against FIP. Multiple drug compounds have demonstrated to be effective against SARS and/or MERS, human infections caused by viruses similar to FIP. In light of the dramatic success in antiviral therapeutics targeted against HIV, many researchers in the FIP field consider antiviral therapy to be the brightest hope for success. Production in the laboratory of a key FIP-specific enzyme will form the basis of a more sophisticated screening test in order to identify drug compounds that will effectively treat FIP.

Mefloquine's potential to inhibit FIPV infection in the cat. (W16-023)

Principal Investigators: Merran Govendir, BVSc, PhD, Jacqueline Norris, BVSc, PhD; The University of Sydney, Australia; \$11,750

Feline infectious peritonitis (FIP) is a fatal viral disease that affects cats around the world. The disease results in inflammation and accumulation of fluid in various body cavities, particularly in the abdomen. There are no treatments for cats with this disease. Recently, mefloquine, a medicine used to prevent malaria in people, was found to inhibit FIPV replication in laboratory cell cultures and holds promise as a potential treatment for FIV infected cats. This drug will be incubated in the laboratory with feline liver metabolism enzymes (known as microsomes) to establish mefloquine's ability to bind to plasma proteins or remain free in the plasma, as the amount of medicine not bound to plasma proteins exerts the therapeutic effect. This data will indicate whether mefloquine is safe to be administered to cats and if so, what the initial dosages should be for FIPV affected cats.



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Exploring humoral responses to non-structural proteins of feline coronaviruses. (W16-024)

Principal Investigator: Magdalena Dunowska, BVSc, PhD; Massey University, New Zealand; \$25,000

Feline infectious peritonitis (FIP) is a relatively rare but fatal disease of cats. It is a variant of the common feline coronavirus virus (FCoV), which is localized to the intestines and rarely causes serious symptoms. Unlike FCoV, FIP virus is carried in blood to various internal organs, where it replicates in cells called macrophages to cause a systemic infection with a fatal outcome. However, factors that determine this switch are currently poorly understood. Soon after entering the cell, FCoV produces non-structural proteins (nsps), which comprise enzymes necessary for virus replication. This study will examine antibody response by FCoV infected cats to these proteins to determine if there are differences between antibodies produced by cats with different disease outcomes. If so, such differences could become the basis for future development of FIP-specific diagnostic tests and FCoV vaccines.

RICKY FUND STUDY

Holter monitoring in the home environment for cats with hypertrophic cardiomyopathy. (W16-038)

Principal Investigator: Katherine Scollan, DVM, DACVIM, Oregon State University; \$16,330

Hypertrophic cardiomyopathy (HCM) is a very common heart disease of cats causing their heart muscle to become thicker than normal. A substantial percentage of cats with HCM die suddenly, but the cause of sudden death has not been investigated. Recently developed, small monitors that can record heart rate and the heart rhythm continuously for 24 hours have become available and can be worn by the cat at home during normal activity. This study is designed to assess cardiac rhythms in cats with HCM in order to define the presence and severity of cardiac arrhythmias plus assessing how those arrhythmias vary on different days while better understanding the effects of structural heart changes on cardiac rhythm.

ABYSSINIAN HEALTH FUND STUDY

Seeking genetic markers of Abyssinian/Somali hereditary amyloidosis. (W16-028)

Principal Investigators: Maria Longheri, DVM, PhD, University of Milan; Leslie A. Lyons, PhD, University of Missouri; \$6,900

Amyloidosis is a disease caused by abnormal insoluble protein deposits accumulating in the organs, leading to death from liver or kidney failure. In the past, researchers attempted to identify its causes. However, they were unsuccessful because collecting cases is difficult and analytical tools were inadequate. New methods allow the extraction of DNA from formalin-fixed samples of affected cats, making the University necropsy archives gold mines of case samples and genome wide information on the differential genetic variants between Amyloidosis affected and normal cats. This project will investigate promising DNA variants identified through genome sequencing and screen these historic cases to find markers for development of a genetic test for amyloidosis in Abyssinian cats.



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PERSIAN HCM FUND STUDY

Evaluation of DNA variants associated with hypertrophic cardiomyopathy in the Persian cat. (W16-034)

Principal Investigator: Kathryn Meurs; North Carolina State University; **\$23,531**.

Hypertrophic cardiomyopathy (HCM) is the most common heart disease in the cat. Genetic mutations for HCM have previously been identified in both the Maine Coon and Ragdoll breeds. The identification of the genetic mutation for the disease in these breeds has allowed for the development of a genetic test which can be used for pre-breeding screening purposes. Whole genome sequencing has resulted in the identification of multiple DNA variants that are only found in HCM affected Persian cats and not in a population of normal healthy cats. The purpose of this study will be to sort through these variants to identify the Persian HCM mutation, allowing for improved breeding recommendations and how to eventually treat affected pet cats.

BIRMAN HEART DISEASE FUND

Phenotypic characterization of cardiomyopathy in Birman cats – a phase two continuation study. (W16-040)

Principal Investigator: Virginia Luis Fuentes, VetMB, PhD, DACVIM, DECVIM; Royal Veterinary College, University of London; **\$10,812**

Birman cats are predisposed to multiple types of heart muscle disease, and an inherited basis appears likely. It is currently not clear whether hypertrophic cardiomyopathy (HCM), where the walls of the heart are too thick; restrictive cardiomyopathy (RCM), where the walls of the heart are too stiff; and arrhythmogenic right ventricular cardiomyopathy (ARVC), where the right side of the heart may be replaced by fat and scar tissue represent 3 different diseases with 3 different causes, or whether these cardiomyopathies are part of the spectrum of one disease with one genetic cause. The aim of this second phase study is to conduct genetic testing on 18 genes associated with cardiomyopathy in humans in order to look for possible mutations that might be responsible for cardiomyopathy in Birmans. If successful, this would lead to a genetic test for cardiomyopathy in Birman cats.

Sponsorship is easy! Simply pick one of the projects below seeking sponsors (\$250 minimum donation). Go to our website <http://www.winnfelinefoundation.org> for more information on the project and to make your sponsorship donation online or download a donation form to mail to: 637 Wyckoff Ave., Suite 336, Wyckoff NJ 07481.

W16-023: Mefloquine's potential to inhibit FIPV infection in the cat

W16-34: Evaluation of DNA variants associated with hypertrophic cardiomyopathy in the Persian cat

W16-053: Efficacy of a new treatment for cats with ronidazole-resistant *Tritrichomonas foetus* infection

Winn Feline Foundation is a non-profit organization established in 1968 that supports studies to improve cat health. Since 1968, the Winn Feline Foundation has funded over \$5.5 million in health research for cats at more than 30 partner institutions world-wide. For further information, go to www.winnfelinefoundation.org.