

Every cat, every day benefits from Winn funded health research



# Research Update

Over \$459,000 in Feline Health Grants Awarded in last 2 Grant Cycles

Each year, Winn Feline Foundation receives proposals from veterinary researchers around the world who are interested in improving feline health. By June 2020, Winn's cumulative total in feline health research funding was more than \$7 million at more than 30 partner institutions worldwide

## 2020 Winn Feline Foundation Grant Awards

### **W20-002 - Mechanism of action of doxycycline in inhibiting feline infectious peritonitis virus.**

Principal Investigator: Gary R. Whittaker, PhD, Cornell University; \$25,000 (*Bria Fund*)

This study evaluates the anti-viral effects of doxycycline, a common antibiotic on feline infectious peritonitis (FIP), a fatal coronavirus infection of cats. Doxycycline is highly cost-effective, licensed and approved for use in cats. The study's results may provide strong evidence to support the use of doxycycline in future clinical trials for treating FIP as part of a possible combination therapy, which will be ultimately necessary to combat FIP.

**W20-003 - Developing a safe and effective anticoronaviral therapy for client-owned cats with FIP (continuation study).** Principal Investigators: Dr. Brian Murphy, Niels C. Pedersen, University of California, Davis; \$21,500 (*Bria Fund*)

Recently, effective treatments for feline infectious peritonitis (FIP), a fatal coronaviral infection of cats, were discovered. This study looks at several new antiviral compounds to evaluate their efficacy and determine possible combinations (combined anticoronaviral therapy (CACT)) that may be more effective than a single drug.

**W20-005 - Determining the clinical efficacy of mefloquine for treatment of naturally occurring feline infectious peritonitis, stage 1.** Principal Investigators: Jacqueline Norris, Merran Govendir, Dr. Benjamin Kimble, University of Sydney; \$20,500 (*Bria Fund*)

Mefloquine, a common and available anti-malarial drug, inhibits replication of feline infectious peritonitis (FIP) virus, a fatal coronavirus infection of cats, in laboratory tests. An earlier study found mefloquine to be well absorbed and safe to use. This study will evaluate the effectiveness of this drug in cats with naturally occurring FIP.

**W20-007 - Transcriptomic analysis of CRISPR-Cas9 edited iPSC-CMs to identify and therapeutically target key biological pathways in hypertrophic cardiomyopathy caused by the Ragdoll R820W mutation.** Principal Investigators: David J Connolly, Dr. Luke Dutton, The Royal Veterinary College. \$11,542 (*Ricky Fund/Winn*)

This study uses unique genetic engineering techniques (CRISPR-Cas9) to introduce mutations causing hypertrophic cardiomyopathy (HCM) in cats into pluripotent stem cells (iPSCs). These iPSCs can be turned into an unlimited supply of diseased heart muscle cells to study in the laboratory. This will enable the development of new, effective drug treatments for this fatal disease.

**W20-009 - Investigating cell molecular biological influence of PTC-209, a novel anti-cancer stem cell drug, in cats with oral squamous cell carcinomas lines.** Principal Investigator: Hiroto Yoshikawa, North Carolina State University. \$25,000 (*Oncology Fund/Winn*)

This study evaluates the actions and effectiveness of a novel anti-cancer drug (PTC-209) in treating feline oral squamous cell carcinoma (FO SCC), a fatal cancer of the mouth in cats, either alone or in combination with radiation therapy. This group of investigators have discovered that PTC-209 strongly inhibits proliferation of FO SCC cells.

**W20-016 - Evaluation of oxidative stress in nonazotemic cats with increased symmetric dimethylarginine concentrations.** Principal Investigators: William Whitehouse, DVM, DACVIM (SAIM), Nicolette Cassel, BSc, BVSc, MMedVet, DECVDI. Kansas State University. \$19,426 (*Feline Kidney Fund, in honor of Vicki Thayer, DVM, DABVP (Feline)*)

Chronic kidney disease is a common cause of death in cats. There is a new blood marker of kidney disease called symmetric dimethylarginine (SDMA) which can detect an earlier decrease in kidney function. This study evaluates whether oxidative stress is associated with this new marker, SDMA. If so, it may allow earlier treatment leading to longer lifespans and better quality of life in cats with this disease.

**W20-019 - Phase 1 clinical trial investigating burst wave lithotripsy for treatment of obstructing ureteroliths in cats.** Principal Investigators: Eva Furrow, Jody Lulich, University of Minnesota. \$23,405 (*Feline Urinary Fund, Feline Kidney Fund in honor of Vicki Thayer, DVM, DABVP (Feline)*)

Kidney stones are common in cats and require complex surgery to remove. This study evaluates a new type of ultrasound treatment (burst wave lithotripsy) to fragment the stones so they can pass through the urinary tract and be eliminated without surgery.

**W20-020 - In Vitro Characterization of Small Molecule Inhibitors of Pancreatic Amyloidosis for Diabetic Cats.** Principal Investigator: Jessica Fortin, Michigan State University. \$24,365

Plaque formations (amyloid deposits) in the pancreas contribute to the occurrence of diabetes in cats. This study further characterizes the properties of a recently discovered small molecule (JF) that may inhibit the early formation of these plaques and improve the management of diabetes in cats.

**W20-021 - The effect of feeding frequency on feline energy metabolism and body composition – a long term study.** Principal Investigators: Adronie Verbrugghe, Anna Kate Shoveller, Ontario Veterinary College, University of Guelph. \$24,946

Obesity and geriatric weight loss are two common weight-related issues in cats. While it's been assumed that cats normally eat small meals frequently throughout the day, this study evaluates the effect of feeding frequency on controlling these issues and development of recommendations for a feeding regimen.

**W20-029 - Probing Modulation of FeLV Integration Sites into the Cat Genome Using Epigenetic Modulators.** Principal Investigators: Dr. Cheryl Swenson Kruger, Dr. Vilma Yuzbasiyan-Gurkan, Michigan State University. \$25,000 (*Infectious Disease Fund/Winn*)

One-third of cats exposed to feline leukemia virus (FeLV) will be persistently infected and become fatally ill. This study evaluates laboratory tests of a small molecule that may prevent persistent infection and which may lead to effective treatment strategies for this disease.

**W20-031 - Identification of *Microsporium canis* virulence factors.** Principal Investigator: Sue VandeWoude, Colorado State University. \$21,366

This study evaluates the genetic aspects of "ringworm" that allow it to cause disease, which may result in newer, more effective treatments for this common disease of cats and people.

**W20-032 - Development of a Rapid Diagnostic Test for *Microsporium canis*.** Principal Investigator: Sue VandeWoude, Colorado State University. \$14,062

Ringworm, a common fungal infection of cats and people, can take up to two weeks to diagnose with current methods. This study evaluates a rapid, chair-side test that allows immediate diagnosis and treatment. Development of this testing capability holds great promise for significant improvements in ringworm management for individual cats as well as shelter and multi-cat environments.

**W20-039 - Effects of general anaesthesia and surgery on renal biomarkers in cats.** Principal Investigator: Dr. Kavitha Kongara, BVSc (Cert. ECFVG-AVMA), MVSc, PhD, Massey University. \$20,700 (*Feline Kidney Fund in honor of Vicki Thayer, DVM, DABVP (Feline)*)

By using traditional and newer novel urinary biomarker tests, this study evaluates the effect of anesthesia on kidney function in cats, and whether giving fluids during anesthesia minimizes this effect.

**W20-040 - The effect of an intravenous injection of branched chain amino acids on body temperature of cats undergoing general anesthesia.** Principal Investigator: Stuart Clark-Price, Auburn University. \$7,665

Low body temperature is a common occurrence during anesthesia, leading to prolonged recovery. This study evaluates whether giving a single intravenous injection of amino acids will limit hypothermia and improve recovery times in cats, as it does in people and dogs.

**W20-044 - Development and Initial Validation of a Frailty Scale for domestic cats.** Principal Investigators: Tony Buffington, Melissa J. Bain, University of California, Davis. \$20,000

People and pets can get frail as they age leading to injury, confusion, and earlier death. This study evaluates frailty in cats so it can be measured (Frailty Scale) and identified sooner so better prevention and care can be instituted earlier.

## **2019 George Sydney and Phyllis Redman Miller Trust Grant Awards**

**MT19-001 - Precision Medicine Genomics for Cats (continuation).** Principal Investigator: Leslie Lyons, PhD; University of Missouri; \$35,000

There are many diseases of cats that have a genetic cause. This study continues and improves upon a previous study that identifies through whole exome sequencing genetic variations that cause disease, including those with both single and structural variants.

**MT19-006 - Cats are Not Dogs: Addressing Drug Failure in Cats.** Principal Investigators: M. Katherine Tolbert, DVM, PhD, DACVIM and Bradley T. Simon, DVM, MSc, DACVAA; Texas A & M University, Mark G. Papich, DVM, MS, DACVCP; North Carolina State, Aarti Kathrani, BVetMed (Hons), PhD, DACVIM, DACVN, FHEA, MRCVS; Royal Veterinary College; \$21,294

Many drugs used in people and dogs don't work well in cats, possibly because their gastrointestinal tract is different. This study evaluates the normal acidity level and motility of the cat's stomach and intestinal tract to aid in development of drugs specifically for use in cats.

**MT19-007 - Defining stem cell-induced alterations in CD8+ T cells in cats with chronic gingivostomatitis.**

Principal Investigator: Dori Borjesson; University of California - Davis; \$27,500

Previous studies have demonstrated that stem cells decrease inflammation of the mouth in cats. This study looks at how changes in a specific cell of the immune system (a T lymphocyte or subtype of CD8+ T-cells) may be responsible for this effect and whether this same mechanism may cause other similar types of inflammatory diseases that would be responsive to stem cell therapy.

**MT19-008 - Using probiotics to modulate the respiratory microbiome in feline allergic asthma.**

Principal Investigators: Carol Reiner, DVM, DACVIM, PhD and Aida Vientos-Plotts, DVM, DACVIM; University of Missouri; \$34,686

Recent research has shown that changes in bacteria in the lungs of cats contributes to the development of asthma. This study evaluates whether giving probiotics to asthmatic cats receiving standard of care (glucocorticoids) improve their symptoms.

**MT19-010 - Evaluation of flash glucose monitoring systems in diabetic cats.** Principal Investigator: Stefanie DeMonaco; Virginia-Maryland College; \$15,333

While measuring blood glucose in cats at home is an effective method of monitoring their treatment, it can be difficult. This study evaluates whether a flash glucose monitoring system or sensor (FGMS) attached to the cat's skin is as accurate and easier to use.

***In addition to the Miller Trust Grant recommendations, Winn Feline Foundation will be awarding additional funding for the following:***

**MTW19 - 009 Biologic variability of cardiac biomarkers in healthy cats and cats with Hypertrophic Cardiomyopathy.** Principal Investigators: Ryan Fries, DVM, Diplomate ACVIM (Cardiology), Board of Trustees of the University of Illinois; \$20,800 (*Ricky Fund \$14,600 and Winn General Fund \$6,200*)

Hypertrophic cardiomyopathy (HCM) is a common heart disease in cats that currently requires expensive tests to diagnose, such as x-rays and ultrasound. This study evaluates three blood tests (cardiac biomarkers) for use in diagnosing and evaluating the progression of this fatal disease. Future designed studies using these biomarkers may help assess prognosis in these patients.

For more information visit [www.winnfelinefoundation.org](http://www.winnfelinefoundation.org)

**Winn Feline Foundation**  
**637 Wyckoff Ave., Suite 336**  
**Wyckoff, NJ 07481**  
**Telephone: 201.275.0624**  
**Toll free: 888.963.6946**  
**Email: [info@winnfelinefoundation.org](mailto:info@winnfelinefoundation.org)**

**Winn Feline Foundation is a 501(c)(3) non-profit organization established in 1968 to support studies to improve cat health.**

**Member Combined Federal Campaign #10321**