



# THE WINN FELINE FOUNDATION

For the Health and Well-Being of All Cats

1805 Atlantic Ave., PO Box 1005, Manasquan, NJ 08736-0805  
Voice 732-528-9797, ext 31 Fax 732-528-7391 www.WinnFelineHealth.org

## MEDIA RELEASE

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FOR FURTHER INFORMATION:  
Janet Wolf, Executive Director  
856-447-9787  
[winnfeline@aol.com](mailto:winnfeline@aol.com)

Susan Little DVM, DABVP, President  
613-741-2460  
[SusanLittleDVM@gmail.com](mailto:SusanLittleDVM@gmail.com)

### **Winn Foundation Announces Award of Six Grants for Important Feline Health Studies**

The Winn Feline Foundation is pleased to announce the award of six grants funded in partnership with the George Sydney and Phyllis Redman Miller Trust in 2007. Winn President Susan Little, DVM, commented, "We are excited about the proposals that have received funding. This year we awarded \$99,909 in grants for studies on feline herpesvirus, interstitial cystitis, a new form of retinal disease, and adverse effects of vaccinations, among others.

Individual donors, organizations or companies may now sponsor specific projects. The sponsor's name is added to the list of the project's supporters on the Foundation's website and in any publications produced about the project. Sponsors will receive exclusive pre-publication reports on the progress of the chosen project as they become available, and a final report at its conclusion. For more information on project sponsorship:

<http://www.winnfelinehealth.org/Pages/MillerTrust2007.html>

#### **RNA interference of feline herpesvirus by synthetic siRNAs in corneal epithelial cells.**

*Rebecca P. Wilkes, DVM and Stephen A. Kania, PhD; University of Tennessee. \$15,000  
(Continuation of previously funded project)*

Feline herpesvirus 1 (FHV-1) is a virus that causes 50% of the cases of feline respiratory disease. Vaccines available for this virus are only minimally effective and drugs that are used to treat herpesvirus infections in humans do not work well in cats. Therefore, development of a new treatment for cats would be beneficial. RNA (ribonucleic acid) is very similar to DNA and is a molecule used by some organisms to store genetic material. RNA interference is a cellular mechanism that is activated by the introduction of RNA into cells. The cellular machinery that is involved in this process has a natural anti-viral role in plants. It has already been shown that RNA interference can be used to reduce the production of FHV-1 in cat kidney cell cultures. RNA interference is a potential treatment for FHV-1. The purpose of this study is to evaluate RNA interference for FHV-1 in cat corneal cells, cells which naturally are infected by this virus.

**Association of vaccine administration with systemic disease in cats.**

*Michael Lappin, DVM, PhD, DACVIM, and Jacqueline C. Whittemore, DVM, PhD, DACVIM; Colorado State University. \$25,000*

It has been previously shown that several cat FVRCP vaccines (vaccines against feline herpesvirus, calicivirus and panleukopenia) contain proteins from the cells used to grow the viruses in the laboratory. The cell culture used is called the Crandell Rees Feline Kidney (CRFK) cell line. It has been shown that administering FVRCP vaccines containing CRFK proteins causes formation of antibodies against cat kidney cell proteins. Some cats that received repeated injections of these proteins developed kidney disease. The identity of three of these proteins ( $\alpha$ -enolase, annexin A2, cap G/macrophage capping protein) has been discovered. Antibodies against two of these proteins,  $\alpha$ -enolase and annexin A2, are associated with immune-mediated disease in people where the antibodies damage multiple organs like the kidneys, joints, eyes, and brain. It is possible that kidney disease and other common feline disease syndromes may develop as a result of over vaccinating cats. This study will develop and validate tests for antibodies against these proteins. A large population of cats will be evaluated using the new tests to determine whether protein-specific antibodies are increased in cats with certain blood work abnormalities. Finally, test results for healthy cats will be compared with results from cats with kidney disease, pancreatitis, stomatitis, and uveitis to determine whether antibody production is associated with these diseases. Results from this study may help design safer feline vaccines in the future.

**Adrenocortical function in cats with feline interstitial cystitis.**

*C. A. Tony Buffington, DVM, PhD, DACVN and Linda Lord, DVM, PhD; The Ohio State University. \$25,920*

The purpose of this study is to learn more about the causes and treatment of feline interstitial cystitis (FIC). This syndrome is the most common cause of lower urinary tract signs in domestic cats, occurring in approximately 1% of owned cats. The signs of FIC include pain, bloody urine, and urinating outside the litter box. Millions of cats are euthanized as a result of this disease, making it a major veterinary problem and feline welfare issue. The researcher's laboratory has identified problems with normal function of the adrenal gland, an important source of many hormones. These problems may play an important role in the causes of and treatment of these cats with FIC. Based on earlier studies, the researchers will compare hormone concentrations in 32 neutered healthy and FIC cats of both sexes. The data will be used to design hormone replacement therapy to test the effects of hormone replacement on the signs of the disease. It is hoped that replacement therapy will result in clinically important improvements in the cats' symptoms.

### **A novel heritable progressive retinal atrophy in the Bengal cat breed.**

*Leslie A. Lyons, PhD; University of California, Davis. \$7,260*

Different forms of inherited blindness are common in many species, including humans and cats. Several forms of blindness that destroy the photoreceptors in the retina of the eye have been discovered in cats. These conditions will randomly appear in a particular cat breed and then become inherited. Often, two copies of the abnormal vision gene need to be inherited to produce the blindness. The abnormal gene can become established in a breed unknowingly and reveal itself only with particular matings. Some forms of blindness attack the photoreceptors shortly after birth, while other forms take a longer time to destroy the vision layer of the eye. Several cats of the Bengal breed have been diagnosed with a form of blindness that is destroying their vision at around 5 months of age. However, the progression and clinical characteristics of the disease still need to be defined. This project proposes to characterize the disease clinically so that veterinarians and breeders will be more aware of the problem. In addition, breeders will help identify blind cats and their relatives to help determine better breeding practices to prevent the disease and to build a database for future genetic studies.

### **Are differences in feline calicivirus (FCV) tissue tropism and virulence determined by changes in virus interactions with cell surface glycans?**

*John S. L. Parker, DVM, PhD; Baker Institute for Animal Health, Cornell University. \$15,750*

Feline caliciviruses (FCV) are common pathogens of cats and are increasingly being recognized as a cause of severe virulent systemic (VS-FCV) disease. Compared to other strains of FCV, VS-FCV strains infect a broader range of cell types. The interaction between a virus and specific molecules on the cell surface often determines the types of cells that can be infected; the correct complement of 'receptor' molecules is necessary for a virus to infect a particular cell type. Two cellular receptors have been identified for FCV – feline junctional adhesion molecule A (fJAM-A) and sialic acid, a sugar molecule. These researchers are investigating the link between FCV receptor interactions and strain virulence. The goal of this project is to determine the capacity of VS-FCV and non-VS-FCV strains to bind specific sugar molecules on the cell surface and to identify the role this plays in FCV infection of different cell types. In the longer term, the findings will facilitate understanding of the mechanisms by which FCV cause disease.

**Oxidative stress and antioxidant therapy in cats with renal failure.**

*Craig B. Webb, PhD, DVM; Colorado State University. \$10,979*

Chronic renal failure (CRF) is a common disease of aging cats. The majority of current therapies are non-specific, directed toward controlling clinical consequences of the disease such as nausea, dehydration and decreased appetite. Some of the current treatments are potentially problematic, such as using human recombinant erythropoietin to counter the cat's anemia, which puts the patient at risk for developing autoantibodies and transfusion dependency. Oxidative stress, the imbalance between pro- and anti-oxidants, is thought to play a key role in the progression of CRF and the complications seen in human renal failure patients. Despite the importance of oxidative stress in patients with CRF, thus far there is only a single study looking at the effect of supplementing CRF cats with antioxidants (vitamins), and it proved to be beneficial. This study is designed to examine the key components of the cat's antioxidant defense system in this disease. A variety of measures of oxidative stress will be studied, as well as clinical parameters such as body weight and blood pressure. If successful, this study would lay the foundation for deciding on the most appropriate antioxidant supplementation, allowing veterinarians to offer an effective treatment for CRF in cats.

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