WINN FELINE FOUNDATION
For the Health and Well-being of All Cats
355 Cornell Street, Wyckoff, NJ 07481 www.winnfelinehealth.org
Toll Free Phone 888-9MEOWIN (888-963-6946) • Local Phone 201-275-0624• Fax 877-933-0939

Media Contact: Steve Dale 773.895.8696

FOR IMMEDIATE RELEASE

WINN FELINE FOUNDATION AWARDS MORE THAN $173,000 IN NINE GRANTS FOR FELINE HEALTH STUDIES

Wyckoff, NJ, March 25, 2014: The Winn Feline Foundation is pleased to announce the award of nine feline medical research grants funded through the generous support of private and corporate donations from around the world. Winn Board President Vicki Thayer, DVM, DABVP (feline) stated, "This year we awarded $173,121.56 in grants for studies on a variety of diseases including gastrointestinal disease associated with *E.coli* infection in kittens, FIP, HCM, kidney disease, oral squamous cell cancer, feline calicivirus, and new drug treatments for *Tritrichomonas foetus*. Winn's Grant Review Committee remains impressed by the scope of studies and commitment of the researchers who submit proposals each year. It is always very competitive as we select the studies that will receive funding. The committee considered 50 proposals and, based on a number of criteria including the quality of the science, impact of results and available funding, selected the top nine studies by consensus."

Grants were awarded for the following research studies:

Identifying a genetic variability in cats associated with resistance or susceptibility to feline calicivirus. *(W14-014) Principal Investigator: John S. Parker; Baker Institute, Cornell University; $22,500*

Feline calicivirus (FCV) is a common cause of cat flu or 'colds'. In rare instances, some types of FCV can cause severe and life-threatening disease. The available vaccines lessen the severity of the clinical signs, but do not prevent infection. FCV disease is a major problem in shelters where the virus is easily spread. Some cats in colonies appear to be resistant to infection with FCV, despite exposure. The reason for this resistance to infection is unknown. Based on previous work, the researchers believe that genetic variability in the cell surface protein to which FCV attaches, feline junctional adhesion molecule A (fJAM-A), might explain resistance to FCV in some cats. They will test for genetic differences between cats in the gene for fJAM-A. Based on initial observations, the researchers expect to identify natural variants in cats and that variations in the fJAM-A gene could be markers of susceptibility or resistance to FCV disease. If proven, then a genetic test could identify resistant cats allowing selective breeding of such cats or the identified gene may provide a target for new FCV vaccine development.

Evaluating the cardiovascular effects of a potential new drug, MK-476, in combination with dexmedetomidine for sedation or pre-anesthesia. *(W 14-015) Principal Investigator: Bruno Pypendop; University of California-Davis; $17,083*

Dexmedetomidine is a drug commonly used in cats for its calming and pain-relieving effects. It is also sometimes used prior to general anesthesia. However, its use is mostly indicated in relatively young, healthy cats, because it produces severe effects on the cardiovascular system. MK-467 is a drug that is expected to prevent the most important of these cardiovascular effects, while preserving the beneficial effects of dexmedetomidine when administered simultaneously. It has been studied in dogs and sheep, but not in cats. The goal is to determine if MK-467 offers a clinically attractive solution with limited negative effects while

increasing the tolerance of dexmedetomidine in cats.

BRIA FUND STUDY:

Characterizing how FIP virus binds and enters cells. *(W14-018) Principal Investigator: Gary Whittaker; Cornell University; $24,851.00*

Feline infectious peritonitis (FIP) is a deadly disease of domestic and wild cats. FIP is thought to arise after a feline enteric corona virus (FeCoV) that commonly infects cats and may cause mild diarrhea or no disease at all mutates to become a deadly viral form called feline infectious peritonitis virus (FIPV). The ability of the two virus types to infect different cells in the body is believed to be the difference in their ability to cause disease. Viruses must first bind to the surface of a cell before the virus can enter and replicate within the cell. The binding interactions that allow FIPV to enter into cells are not well understood. The goal of this application is to characterize these interactions and determine some of the molecules involved. Completion of this work will allow a better understanding of how FIPV gains access to cells. Virus entry is where many anti-viral therapies are targeted for prevention of virus infection. The new knowledge gained could lead to development of such therapies against FIP.

RICKY FUND STUDY:

Using induced stem cells in a dish as a means to understanding hypertrophic cardiomyopathy development. *(W14-024) Principal Investigator: Jijun Hao; Western University of Health Sciences, CVM; $24,800.00*

Cats suffering from heart diseases like hypertrophic cardiomyopathy (HCM) are at a high risk of sudden death. However, mechanisms of feline HCM development are poorly understood, and treatment for this disease is largely extrapolated from human HCM therapies with little evidence that these therapies are actually effective for cats. The problems could be overcome by the recent breakthrough in cellular reprogramming of induced pluripotent stem cells (iPSCs). IPSCs generated from somatic cells are functionally equivalent to embryonic stem cells, and they can differentiate into any tissue cells including cardiomyocytes. The researchers will generate iPSCs from somatic cells of cats with genetic causative mutation for HCM disease, and the iPSCs can be generated in vitro into disease-specific heart cells that can display feline HCM cellular phenotype. This study will provide a unique platform to investigate HCM disease development and to test therapeutic drugs for this disease.

***E.coli*, a gastrointestinal infection – looking at a cause of death in kittens and determining whether probiotics offer a protective effect.** *(W14-035) Principal Investigator: Jody L. Gookin; North Carolina State University; $22,011.00*

It is estimated that 180 million kittens are born in the U.S. each year, many of which are abandoned, orphaned, or relinquished for fostering by thousands of U.S. animal shelters. Roughly 15% of kittens fostered by these shelters will die or be euthanized because of illness before the age of 8-weeks. Most of these kittens have diarrhea or post-mortem evidence of gastrointestinal disease at the time of death. The long-term goal of this research is to identify infectious causes and life-saving prevention or treatment strategies to reduce the death toll of gastrointestinal illness in foster-age kittens. In published preliminary data, the researchers

have shown that enteropathogenic *E. coli* (EPEC) is commonly cultured from the feces of foster-age kittens and that attachment of EPEC to the intestinal epithelium is significantly associated with mortality. They have additionally shown in healthy kittens that a member of the normal bacterial flora, *E. hirae*, also attaches to the intestinal epithelium and is often absent in the intestines of sick kittens. In these studies, they will determine if a simple PCR test, performed on kitten feces, can be used to diagnose EPEC infection and whether there are specific genetic or behavioral attributes of EPEC that are associated with kitten mortality. Other goals will be to identify antibiotics useful for treatment of EPEC infection in kittens, and to generate preliminary data in support of using *E. hirae* or other commercially available probiotics to help treat kittens with diarrhea due to EPEC infection.

Developing new drugs for the treatment of feline *Tritrichomonas foetus* infection. *(W14-036) Principal Investigator: Lars Eckmann, Yukiko Miyamoto; University of California-San Diego; $15,000.*

Tritrichomonas foetus is an important and common parasitic infection of domestic cats. The parasite can cause severe inflammation of the colon and subsequent diarrhea, resulting in discomfort for the infected cat and frustration for the owner. Eradication of the infection is challenging for veterinarians and breeders alike. Different drugs have been tried for the treatment of *T. foetus* infection, but with limited success. The current standard of care is ronidazole, but treatment failures are common and drug resistance has been demonstrated in laboratory tests. The researchers have generated a new collection of over 1,000 promising antimicrobial drug candidates similar to ronidazole. Many of the candidates have enhanced activities against other parasites commonly treated with ronidazole and similar drugs. The objective of this proposal is to test their entire drug collection for superior activity against *T. foetus* and to begin assessing the best compounds for activity in a novel rodent model of intestinal *T. foetus* infection. Data from these screening studies will be critical for developing the best drug candidates as novel veterinary medicines for the improved treatment of drug-resistant feline *T. foetus* infection.

Continued study into the use of stem cells for the treatment of chronic kidney disease in cats. *(W14-039) Principal Investigator: Jessica M. Quimby, Colorado State University; Allyson Berent, Animal Medical Center, NYC; $24,777.00*

Chronic kidney disease (CKD) is a common progressive disease condition in elderly cats with no known cause and no definitive cure other than kidney transplantation. Administration of mesenchymal stem cells (MSC) has been shown to improve kidney function in rodent models of CKD, in part by reducing inflammation and scarring in the kidney. CKD in cats is characterized by inflammation and scarring within the kidney, and thus treatment with MSC might improve kidney function. Previous studies in cats have demonstrated that systemic intravenous administration of cultured MSC administered to cats with CKD is safe and results in variable improvement in kidney function. However results have not been as striking as those seen in rodent models. When MSCs are administered intravenously the entire dose likely does not reach the kidney and therefore alternative methods of more effective administration should be assessed. The aim of the proposed study is to assess the safety and efficacy of MSC harvested from the fat of donor cats and administered directly into the kidney artery using minimally-invasive image guided radiologic techniques. The procedure will bypass the initial uptake of stem cells by the lungs and other organs and deliver a larger number of cells directly to the diseased kidney.

Analysis for three receptors in oral squamous cell cancer tissue biopsies – hope for a future treatment. *(W14-042) Principal Investigator: Rebecca George and Annette Smith; Auburn University; $5,505.00*

Oral squamous cell carcinoma (OSCC) is the most common oral cancer diagnosed in cats. It accounts for 60-70% of all feline oral tumors, with oral cancer accounting for approximately 10% of all feline cancers. This locally aggressive disease leads to life-limiting clinical signs in cats. Feline OSCC is a frustrating disease for veterinarians and pet owners, as treatment with surgery, radiation and/or chemotherapy provides poor disease control and cure rates.

Receptor tyrosine kinases (RTKs) are a class of proteins on the cell surface that regulate a variety of normal cell processes. Recently, staining of feline OSCC biopsies confirmed presence of three of these receptors, including vascular endothelial growth factor receptor (VEGFR), platelet derived growth factor receptor (PDGFR) and stem cell growth factor receptor (c-kit). Western blot analysis is a method that is widely used to evaluate protein expression in tissues. The method will be used to show expression of these three specific receptors in feline OSCC biopsies and compare the amount in tumor tissue to the amount in normal oral tissue. The hypothesis is that higher protein expression of these three receptors will be confirmed in biopsy samples from feline OSCC.

Tyrosine kinase inhibitors (TKIs) are a class of drugs used in human medicine, which are new to veterinary medicine. Palladia® and Kinavet-CA1® are TKIs available for use in animals. Confirming and quantifying protein expression of these receptors will support further investigation of treatment with TKIs for feline OSCC.

Exploring the use of a fat-derived stem cell treatment for Syncytial Foamy Virus-Positive cats with severe inflammation of the mouth and gums. *(W14-044) Principal Investigator: Boaz Arzi, Dori L. Borjesson, Frank J.M. Verstraete; University of California-Davis; $16,594.56*

Feline chronic gingivostomatitis (FCGS) is a poorly defined disease characterized by severe inflammation of the mouth and gum that is painful and debilitating. Treatment involves a combination of antibiotics, anti-inflammatory drugs (corticosteroids), pain medications and full-mouth tooth extractions and such treatments are not always 100% effective. Subsequently, there are significant potential complications that can affect the cat's quality of life. Stem cell therapy has been used in both human and veterinary medicine for a variety of inflammatory diseases. One form of stem cell therapy uses stem cells called fat-derived mesenchymal stem cells (adMSC). The researchers have used this therapy to decrease inflammation and effectively cure FCGS in cats. However, 60-75% of older cats are infected with feline syncytium forming virus (FeSFV). While this virus does not directly cause disease or impact the quality of life for infected cats, this virus inhibits culture of adMSCs. Two cats enrolled in their previous study were unable to be treated with their own adMSCs due to the inability to culture FeSFV+ cells. In this proposal, they will use adMSCs generated from a small amount of fat collected from healthy FeSFV- donor cats to treat FeSFV+ cats with FCGS. Further, the goal will be to determine the safety and efficacy of donor-derived adMSCs to treat cats with FCGS. If the proposed stem cell treatment proves to be beneficial, it will revolutionize the treatment options for cats with FCGS.

Individual donors, clubs, organizations or companies may sponsor specific projects. When you sponsor a project, your name will be added to the list of the project's supporters on our website and in any publications we produce about the project. You will receive exclusive pre-publication reports on the progress of your chosen project as they become available, and a final report at its conclusion. A minimum donation of $250 is required for project sponsorship.

Sponsorship is easy! Simply pick one of the projects listed above and go to our website http://www.winnfelinehealth.org for more information on the project and to make your sponsorship donation online.