



# WINN FELINE FOUNDATION

For the Health and Well-being of All Cats

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## TESTING AND SAFETY OF VIRUS PROTEASE INHIBITORS AGAINST FELINE CORONAVIRUSES

### PROJECT STUDY:

#### **Pharmacokinetic and toxicity testing of novel feline coronavirus protease inhibitors in laboratory cats**

Yungeong Kim DVM, MS, PhD, ACVM; Kansas State University; Niels C. Pedersen, DVM, PhD; University of California-Davis

*Final report summary, MT13-006*

The goal of previous projects of Dr. Kim's at Kansas State University evaluated the ability of various inhibitors of certain viral enzymes to act as antiviral drugs for treatment of feline coronavirus infections. The drugs tested had been found to work on the virus when grown in cell culture in the lab. In addition, the drugs exhibited no evidence of toxicity or negative side effects when given to mice that carried a virus, mouse hepatitis virus, similar to feline coronavirus. Virus titers and tissue damage were significantly reduced in the mice treated with these viral enzyme inhibitors.

In this study, the investigators determined the pharmacokinetic properties of select protease inhibitors in cats. They then selected the best inhibitor and evaluated the administration route, dose and dosing frequency for additional study. Over a period of four weeks, cats were administered the inhibitor to evaluate its safety. Blood samples were collected weekly for complete blood counts and serum chemistry panels while being monitored for any adverse symptoms. Blood tests were all within normal limits and no adverse clinical symptoms were noted. One cat developed a skin reaction at the site of injection, but the reaction was not significant.

In summary, a protease inhibitor with favorable pharmacokinetic properties was identified and its long-term safety was demonstrated in cats. Based on these results, further studies of the therapeutic effects of this protease inhibitor in cats with FIP disease are needed.

*Summary prepared by Vicki L. Thayer, DVM, DABVP (Feline) © 2014*

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