

Winn Feline Foundation Progress Report

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*The immunopathogenesis of systemic feline infectious peritonitis
and prospects for intervention*

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Feline infectious peritonitis (FIP) is an immune-mediated disease that develops after a cat becomes infected with a mutant of the common feline enteric coronavirus. Disease develops when the cat's immune system is unable to contain the mutant coronavirus and the infection damages vital organs, such as the brain, kidney and liver. FIP is commonly divided into two forms. In the wet or effusive form, fluid accumulates within the chest or abdominal cavity. In the dry or non-effusive form, the disease attacks organs such as the central nervous system, kidneys, and liver with little or no fluid accumulation.

The neurological form occurs in about 1/3 of cats with FIP. Little has been known about how this viral infection causes damage to the nervous system. Learning more about the pathogenesis of this form of the disease and what changes occur in the immune system may lead researchers to develop new treatments. Since FIP is invariably considered fatal, research into any promising treatments is badly needed.

The researchers evaluated the immune status of cats with FIP by monitoring components of the immune system called cytokines. Cytokine profiles were evaluated in three groups of cats: those that died of neurological FIP, those that died from other neurological diseases, and those that died of diseases not affecting the brain. The researchers were able to identify specific cytokines that appeared to be possible targets for immunotherapy in cats with FIP.

A small pilot project was designed to attempt immunotherapy in patients with the neurological form of FIP by either replacing a deficient cytokine or by using anti-cytokine antibodies to lower excessive levels of other cytokines. Unfortunately, it has proven difficult so far to find therapies that demonstrate improvement in ill cats and it has been difficult to find a way to monitor the therapy at the cellular level. Regardless, this research has provided improved understanding of the immune system response to FIP, opening the door to future research on novel therapies.