

Three new feline viruses raise questions about transmission and disease

January 28 2014, by Jennifer Dimas

(Medical Xpress)—Pathogen researchers at Colorado State University have discovered a family of cancer-causing viruses in several U.S. populations of bobcats, mountain lions and domestic cats, raising questions about whether the previously undetected viruses could be transmitted between cat species – and whether they might be the root cause of some cancers found in housecats.

Scientists tested nearly 300 individual [blood samples](#) from cats in three geographic regions in Florida, Colorado and California. They found significant numbers of each species infected, indicating widespread distribution of the newly identified [viruses](#), said Dr. Susan VandeWoude, a research veterinarian and associate dean in the CSU College of Veterinary Medicine and Biomedical Sciences. Much of the work was conducted in her laboratory.

The newly identified viruses are in the same family of gamma herpes viruses that can cause lymphoma and Kaposi's sarcoma in people, especially those with HIV-AIDS and other immune-suppressing conditions. Both are cancers of the circulatory system.

Other herpes viruses can cause fatal bovine disease when transmitted to cattle from host species, including wildebeest and sheep.

It is not yet known whether the novel feline viruses are associated with diseases in bobcats, mountain lions and pet cats, but the link between gamma herpes viruses and disease in other species clearly raises the

possibility, scientists said.

"We think there's a chance these viruses could be doing something similar in cats," said Ryan Troyer, a research scientist in CSU's Department of Microbiology, Immunology, and Pathology. "Discovery of viruses and virus transmission is important because it can help us understand common and emerging diseases in animals and people. That's the first step to stopping infectious disease."

The research findings were published in the online version of the *Journal of Virology*. Among those on the research team is Julia Beatty, an expert in feline disease at the University of Sydney, Australia, who helped design the investigation during a visit to the CSU campus.

Collaborators were able to identify gamma herpes viruses in bobcats, mountain lions and [domestic cats](#) after developing techniques to rapidly and specifically detect the virus DNA in feline blood, the research paper reports.

Wildlife ecologists collected blood samples from the bobcats and mountain lions in the course of separate studies related to the wild cats; they shared samples for the CSU study. Likewise, animal shelters across the United States collected and shared blood samples from domestic cats.

The study populations were near Los Angeles and San Diego, Calif.; Fort Myers and Naples, Fla.; and Montrose and Grand Junction on Colorado's Western Slope.

In analyzing blood collected from wild and domestic cat populations in these regions, researchers identified the novel gamma herpes viruses in three species – and further discovered the bobcat virus in some [mountain lions](#). The route of transmission remains unknown, but could occur when

the animals fight in the wild, Troyer said.

"Investigators have studied viruses of cats for many years, so it is interesting that this is the first time these relatively ubiquitous agents have been identified," said VandeWoude, who is well-known for her own investigation of feline viruses. "This study suggests we still have a lot to learn about pathogens that exist in nature. We are not done making basic discoveries about potential pathogens in companion and wild animals."

Provided by Colorado State University

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