

# **Efficacy of FeLV vaccination at AfriCat**

**Report on the collaborative study between**

**AfriCat Foundation, Namibia and the**

**Leibniz Institute for Zoo and Wildlife Research (IZW), Germany**

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During the annual health check of AfriCat in May 2009, the IZW was permitted to collect blood samples from 30 cheetahs to test the samples for the presence of feline leukemia virus (FeLV) and leukemia antibodies.

## **Background**

FeLV is a highly contagious pathogen that can lead to anemia, severe suppression of the immune system, and the development of tumors. FeLV is likely to spread quickly between captive cheetahs because they are usually kept at relatively high densities. To protect captive cheetahs against developing the disease, they are vaccinated with an inactivated FeLV to induce production of antibodies against a FeLV infection.

The vaccine used for cheetahs at AfriCat (Fel-O-Vax-Lv-K) was developed for domestic cats, as most vaccines used for felids. It is not known, however, whether this vaccine is effective in cheetahs. It is known that vaccines developed for a specific species, e.g. the domestic cat or dog, do not necessarily induce the desired antibody production against the virus in another species.

## **Aim of the study**

- 1) Evaluate the efficacy of Fel-O-Vax-Lv-K to induce the production of FeLV antibodies in cheetahs using three different antibody tests
- 2) Screen the cheetahs for an active FeLV infection, i.e. for the presence of viral particles using two different antigen tests

## **Methods**

### ***Sample procedures***

Blood samples from 20 males and 10 females were collected in heparin-coated tubes and transported to the Central Veterinary Laboratory in Windhoek. Plasma was isolated from the blood and shipped to the Clinical Laboratory of the Vetsuisse faculty in Zurich, Switzerland, a cooperation institute of the IZW. In Zurich, the plasma samples were subjected to 3 antibody tests and 2 antigen tests.

### ***Antibody tests***

Two ELISA (Enzyme-linked immunosorbent assay) and one Western Blot were conducted to detect antibodies against FeLV.

→ The presence of antibodies indicates an immune response to a vaccination or a past infection and is evidence for protection against a new infection. Thus, “positive” test results are desirable.

### ***Antigen tests***

One ELISA and one RT-qPCR (reverse transcriptase quantitative polymerase chain reaction) were conducted to detect antigen, i.e. viral particles.

→ Viral antigen is not present in a vaccinated and uninfected animal. Thus, “negative” test results are desirable.

### **Summarized results and conclusions**

- 1) 25 of 30 cheetahs (83%) had antibodies against FeLV in two or all three tests  
→ the vaccination program at AfriCat is effective
- 2) All 30 cheetahs were free of FeLV antigens in one test and at least 27 (90%) were free of FeLV antigens in the other test  
→ there are no FeLV infectious cheetahs at AfriCat

This is a summarized report of the study. For the full report please contact Dr Bettina Wachter from the IZW ([wachter@izw-berlin.de](mailto:wachter@izw-berlin.de)).

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