

SARS CoV-2 IN ANIMALS

(Updated on May 10th 2020)

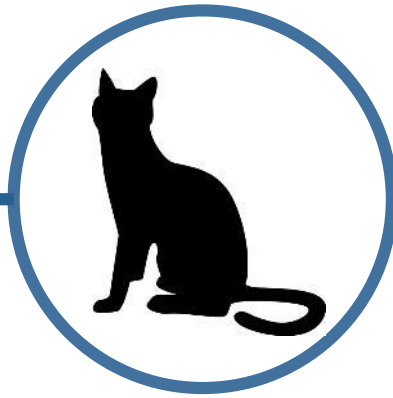


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*Document prepared by the Animal Virology Coordination team of MediLabSecure
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CATS



6 positive cats detected worldwide

**All of them in close contact with
COVID19 positive humans**

**Most of them showed respiratory
and digestive clinical signs**

BELGIUM (27th March): 1 cat with respiratory and digestive symptoms tested positive by PCR in faeces and vomit. Recovery after 9 days. More info [here](#).

HONG KONG (31st March): 1 cat without clinical signs tested positive by PCR. More info [here](#).

USA (18th April): 2 cats with respiratory symptoms. Detection of viral RNA by PCR and antibodies by VNT. More info [here](#).

FRANCE (2nd May): 1 cat with mild respiratory and digestive symptoms. Detection by PCR in faecal swab (negative in oropharyngeal swab). More info [here](#).

SPAIN (8th May): 1 cat died due to non-COVID related cardiopathy. Samples were collected during necropsy and low RNA viral loads were detected in nose and mesenteric lymph node. More info [here](#).

DOGS



2 positive dogs detected worldwide

**Both in close contact with COVID19
positive humans**

No clinical signs

HONG KONG

First case (26th Feb): Nasal and oral swabs from a dog whose owner was infected were positive by PCR. Positive results were obtained in following days up to 12th March when the PCR results were negative. The dog did not show any clinical signs during the quarantine period. More info [here](#).

Second case (19th March): 2 dogs owned by a COVID positive person were tested by PCR and only one was positive. The dogs were asymptomatic. More info [here](#).

FELINES



3 tigers and 3 lions with compatible symptoms. Infection confirmed by PCR in 1 tiger and 1 lion

Close contact with a COVID19 positive zoo employee

Mild respiratory signs

NEW YORK (USA), Bronx Zoo

A tiger showed respiratory signs on March 27th. By April 3rd, three additional tigers and 3 lions living in the same enclosure were showing similar signs (dry cough and wheezing). Samples collected from the first affected tiger and one of the lions were SARS CoV-2 positive. The other animals with clinical signs were also presumed to be infected. All animals are stable and recovering. It is assumed that an asymptomatic zoo employee infected the animals (more info [here](#) and [here](#)).

MINKS



4 affected farms in Netherlands

Contact with COVID19 infected workers

Digestive and respiratory signs that can cause the death of the minks

NETHERLANDS

At the end of April, minks in 2 farms were diagnosed with SARS CoV-2. On May 7th, two additional mink farms in the country were affected by the virus. It is suspected that SARS CoV-2 was transmitted to the animals by infected workers and then the disease spread between minks. The virus has been detected in dust particles inside the farm. It appears that the infection can lead to pneumonia and death in affected minks, but the morbidity and mortality rates are low. Apparently, the disease mainly affects pregnant animals. More info [here](#) and [here](#).

EXPERIMENTAL INFECTIONS IN ANIMALS

CATS



- **Efficient viral replication**
- Severe disease in juveniles
- Abundant virus in respiratory and gut epithelium
- Transmission of virus among cats via droplets

FERRETS



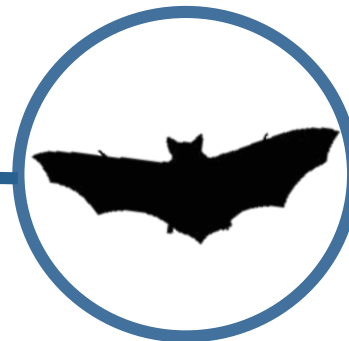
- **Very efficient replication** with high viral loads in upper respiratory tract
- No signs of severe disease or death
 - Contact transmission in 3 out of 3 ferrets
- Seroconversion in all inoculated ferrets

DOGS



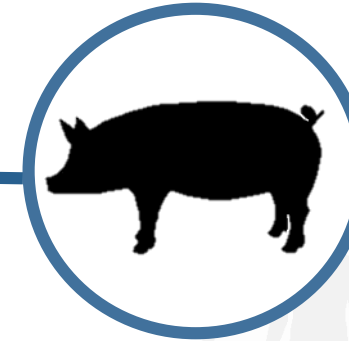
- **Low susceptibility** to the infection
- No infectious virus in swabs
 - 2 out of 4 inoculated dogs seroconverted

FRUIT BATS



- **Transient infection of the respiratory tract**
- Contact transmission in 1 out of 3 bats

PIGS



- **Not susceptible** to intranasal inoculation
- No contact transmission

CHICKEN & DUCKS



- **Not susceptible** to intranasal inoculation
- No contact transmission

Data obtained from [Shi et al., 2020](#) (cats, dogs, ferrets, pigs, duck and chicken) and [Study from FLI](#) (ferrets, pigs, fruit bats and chicken)

OTHER SARS CoV-2 STUDIES IN ANIMALS

Molecular testing of domestic animals from USA and South Korea

IDEXX Company tested by PCR 3500 dog, cat and horse samples collected in February and March 2020. No positive cases were found. There is no information about potential contact of the animals with infected humans. More info [here](#).

Molecular testing of cats and dogs in Hong Kong

17 dogs and 8 cats living in close contact with infected owners were tested by PCR. Two dogs were positive. More info [here](#).

Molecular testing of cats and dogs in France

The virus could not be detected in any of the 9 cats and 12 dogs living in close contact with SARS CoV-2 infected veterinary students. More info [here](#) .

Molecular and serological testing of cats from Wuhan (China)

Out of 102 analysed cats, 15% were found seropositive by indirect ELISA and 10.8% by VNT. The virus could not be detected in oropharyngeal or anal swabs in any of the cats. More info [here](#).

Molecular testing of fur farm animals in China

Negative results in minks, foxes and raccoon dogs. More info [here](#).

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