

FAQ

SARS-CoV-2 / Covid-19: What role do pets and farm animals play?



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Can common farm animals become infected with SARS-CoV-2 and spread it further?

So far, there is no evidence that pigs, chickens, and other farm animals/food-producing animals common in Germany can become infected with SARS-CoV-2. Therefore, testing slaughter animals for SARS-CoV-2 is not useful at this time. The Friedrich-Loeffler-Institut has started studies on the susceptibility of animals to SARS-CoV-2. These animal studies are important to assess the potential risk to humans and animals and to test whether these animals might develop into a virus reservoir. First intermediate results show that neither pigs nor chickens can be infected with SARS-CoV-2.

Can pet animals such as cats and dogs transmit SARS-CoV-2 to humans?

So far, there is no evidence that dogs or cats play a role in the spread of SARS-CoV-2 (also see assessment of the European Centre for Disease Control www.ecdc.europa.eu and the WHO www.who.int). For the Covid-19 pandemic, human-to-human transmission is crucial for its spread.

According to the information currently available, the Friedrich-Loeffler-Institut does not believe that contact between healthy humans and pets should be restricted. However, as a general precaution, it is always advisable to observe basic principles of hygiene when coming into contact with animals (e.g. washing hands thoroughly with soap).

Can pets be infected by infected humans?

Depending on the animal species, this cannot be completely ruled out. However, a possible infection of pets does not automatically mean that the virus can replicate in the animals and will be excreted by them (e.g. with nasal discharge, sputum or faeces). Persons

infected with SARS-CoV-2, in particular those with symptoms of the disease, can excrete large quantities of the virus via the nose and mouth (droplet infection). It can be assumed that their surroundings are correspondingly contaminated with virus, even if basic hygiene rules are observed (sneeze and cough in the crook of your arm, wash your hands, clean surfaces). For this reason, infected persons should pay particular attention to hygiene, especially when in contact with their pets, avoid close contact as far as possible, do not cough or sneeze on the animals and do not allow the animals to lick your face.

Can dogs be infected by infected humans?

So far, there is no scientifically verifiable evidence of an epidemiologically relevant infection of dogs by infected humans. However, there is a dynamic situation which is closely monitored by the Friedrich-Loeffler-Institut.

In two dogs from different households with persons infected with SARS-CoV-2 in Hongkong, genetic material of the pathogen was discovered using highly sensitive detection methods, and in one case, infectious virus was also detected. Both dogs showed no symptoms of the disease. A first animal experimental study from China and the two individual cases from Hongkong indicate a low susceptibility of dogs to SARS-CoV-2.

Can cats and musteloids such as e.g. ferrets be infected by infected humans?

In Belgium, genetic material from SARS-CoV-2 has been detected in a cat. The cat came from the household of a Covid-19 patient who showed symptoms of the disease. One week later the cat itself developed shortness of breath, vomiting and diarrhea and was examined. No other possible causes were found which

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could explain the symptoms. The animal recovered. The Belgian authorities evaluate the evidence as an individual case and point out that although the symptoms point to Covid-19, this has not been clearly established. Further reports of cats tested positive came from Hongkong (1 cat) and New York (2 cats with mild symptoms of the disease from different households).

A recent study from China shows that cats and ferrets can be experimentally infected with SARS-CoV-2 and can also transmit the virus to their conspecifics under special experimental conditions. The study from China has been published here:

<https://doi.org/10.1101/2020.03.30.015347>

In another study, a total of about 140 cats from the city of Wuhan, which has been particularly affected by Covid-19, were tested for antibodies against SARS-CoV-2. Of these, 102 were sampled after the Covid-19 outbreak, 11 had produced antibodies, which suggests that they had been infected.

A New York zoo also reported the infection of a tiger, probably transmitted by an animal keeper. Since tigers belong to the Pantherinae (big cats), this report is not very surprising. The affected tiger showed mild symptoms of the disease (dry cough). Similar symptoms were also observed in some other big cats (tigers and lions) in the same zoo.

The Friedrich-Loeffler-Institut also proved in a study that ferrets can be infected and transmit SARS-CoV-2 to their conspecifics under experimental conditions. However, this does not allow any conclusions as to whether cats and ferrets excrete quantities of the virus that are sufficient for human infection. It needs to be further investigated whether such infections can actually occur. So far, there is no evidence that pets have infected humans. Keeping cats has not been identified as a risk factor.

The SARS-CoV epidemic in 2003 also caused infections of cats without any relevance for a further spread of the disease.

Therefore, this evidence does not change the assessment of the Friedrich-Loeffler-Institut: According to the current state of knowledge, pets do not play an epidemiological role in the spread of SARS-CoV-2/Covid-19.

How should pets of individuals infected with SARS-CoV-2 be handled?

Pets such as dogs and cats can and should remain in the household. However, general hygiene rules such as washing hands before and after contact with the animals and avoiding close contact with the animals should be strictly observed. If a pet owner infected with SARS-CoV-2 requests laboratory testing of his own susceptible pets, testing and sampling should be notified to the competent veterinary office and should be carried out on site by an authorized and appropriately protected individual. Detection in animals follows the same test procedure as in humans. Persons with confirmed infection should avoid close contact with their pets if possible.

Persons who are in quarantine or self-isolation should, if possible, find appropriate individuals outside their own household for assistance in animal care or walking the dog (see below). These could be neighbours or friends who may also provide food for the person(s) in quarantine or self-isolation or (in urban areas) professional dog sitters. Only young, healthy individuals should walk the dog, depending on the dog's character also persons with experience in handling dogs. In every individual case, pragmatic solutions should be found to affect the well-being of the animal as little as possible and to ensure quarantine/self-isolation as much as possible. A separate leash should be

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used, preferably not that of the dog owner. Always remember: always wash your hands after walking the dog! **The infection risk does not come from the dog, but from the possibly infected owner(s)!** Before handing over the dog, infected owners should wash their hands thoroughly.

Cats of owners in self-isolation who normally leave the house („outdoor cats“) should be kept indoors for the duration of quarantine, if possible. Cats should also not be kept together with other foreign cats (e.g. in a boarding cattery).

There is no reason to leave pets in shelters as a precaution. If a pet tests positive for SARS-CoV-2, there is no reason to euthanize the animal.

Information on how to handle susceptible cats and ferrets is provided by the FLI in its respective recommendations for handling susceptible pet animals.

Are there other coronaviruses in pet and farm animals?

Yes, there are coronaviruses in various animal species. For example, feline infectious peritonitis (FIP) occurs in cats. In pigs, porcine epidemic diarrhea (PED) is caused by a coronavirus. These pathogens pose no risk to humans and can be clearly distinguished from SARS-CoV-2.

Where does SARS-CoV-2 come from?

Molecular biological studies of the genetic material of SARS-CoV-2 (sequence analyses) indicate that closely related viruses are found in certain bats. SARS-CoV-2 belongs to the so-called betacoronavirus group. The closest related coronaviruses are SARS-CoV (occurred first in 2003, also with bats as the known reservoir

host), MERS-CoV (*Middle East Respiratory Syndrome Coronavirus*, first detected in 2012 on the Arabian Peninsula; dromedaries are the natural hosts) and other coronaviruses of bats.

SARS-CoV, SARS-CoV-2 and MERS-CoV are infectious agents that can be transmitted between animals and humans; therefore, the infections they cause are zoonoses.

It is unclear whether SARS-CoV-2 was transmitted directly from bats to humans or whether an animal intermediate host played a role in the early transmission to humans.

An overview is provided in the publication „The proximal origin of SARS-CoV-2“ by Kristian G. Andersen et al. in *Nature Medicine* (<https://doi.org/10.1038/s41591-020-0820-9>).

What role do endemic bat species play?

In principle, coronaviruses belong to the natural pathogen spectrum of endemic bats. However, these coronaviruses are clearly distinguishable from SARS-CoV-2. Although it is assumed that the current corona pandemic has its origin in Asian bats, there has been no direct detection so far. Instead, other intermediate hosts must be considered.

According to current knowledge, endemic bats do not play a role in the current corona pandemic. Therefore, there is no reason to persecute these strictly protected species, to scare them off houses or to destroy their living quarters. Direct contact between bats and humans is per se extremely rare. However, it cannot be ruled out that the pathogen is introduced into endemic bat species by infected humans.

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More information on this topic can be found in the information sheet „Einheimische Fledermäuse und SARS-CoV-2“ (in German language) jointly produced by the Bundesverband für Fledermauskunde, NABU, Fledermauszentrum Noctalis, the University of Greifswald, the Leibniz-IZW, Museum für Naturkunde Berlin, BAT. e.V. and the Deutsche Fledermauswarte e.V., see

<https://www.deutsche-fledermauswarte.org/fledermaeus-und-sars-cov-2>.

* Changes and additions compared to the previous version from 14.04.2020 underlaid.