



COVID-19 mythbusting series

Do ferrets and other mustelids pose a zoonotic risk for COVID-19?

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Do ferrets and other mustelids pose a zoonotic risk for COVID-19. A lot of research has been done this year in terms of investigating whether mustelids and ferrets, in particular, can be a reservoir or source of infection to humans of SARS-CoV-2. As of now, no animal to human infection has been confirmed from ferrets. And ferrets are fairly low risk of natural infection from currently circulating SARS-CoV-2. Like cats, ferrets are permissive to infection, they are able to become infected. And amongst the domesticated species, cats and ferrets are the two most susceptible to infection. SARS-C-2 infection has been confirmed in ferrets and it causes fever and loss of appetite.

What's the experimental evidence to date regarding ferrets and COVID-19? The susceptibility of ferrets to COVID-19 is based on the architecture of the angiotensin converting enzyme 2 receptor. ACE2 proteins allow SARS-CoV-2 to bind to host epithelial cells. Ferret ACE2 proteins have less affinity for SARS-CoV-2 than human ACE2 proteins. Viral dosage is important in transmission of SARS-CoV-2 and transmission is only remotely likely between humans and truly domesticated pets. So for example, those that live in the same house and those that have prolonged and close contact.

Ferrets infected with high intra-nasal doses of virus developed elevated body temperature and viral replication has been shown. Experimentally infected ferrets shed virus in nasal washes, saliva, urine, and faeces for up to eight days, post-infection. Experimentally infected ferrets can efficiently transmit SARS-CoV-2 to naive ferrets by direct contact and also via aerosol transmission to naive ferrets being housed in adjacent accommodation. Interestingly, those ferrets who were infected directly became unwell, while those who are infected via indirect or aerosol transmission did not, thus strengthening the argument that initial viral dosage is crucial for establishing infection within an animal.

So what's the advice for the profession? Theoretically, ferrets can shed virus, which could potentially infect humans with whom they're in contact. Now, extrapolating from work done on the original SARS-CoV. In this case, viral RNA can be found on the hair coat. However, there was no record of live SARS-

CoV-2 virus being found. So in terms of reassurance, this allows us to consider that it is unlikely that SARS-CoV-2 live virus would be found on hair coats. So handling alone would be unlikely to result in transmission, unless there were contamination with bodily fluids.

Advice to veterinary staff would be to use appropriate PPE and biosecurity measures when treating ferrets and be especially careful if the ferret is from a home or situation where there has been a known SARS-CoV-2 infection.

For more free COVID-19 resources for veterinary professionals, visit rcvsknowledge.org/covid-19



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