

Relevance of animal infections in SARS-Cov-2 spread: an update after 1 year of pandemic.

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Abstract

In December 2019, several cases of pneumonia caused by a novel Coronavirus, later identified as SARS-CoV-2, were detected in the Chinese city of Wuhan. Due to its rapid, worldwide spread, on 11 March 2020 the World Health Organization declared a pandemic state. Since this new virus is genetically similar to the coronaviruses of bats, it was thought to have a zoonotic origin. Within a year of the appearance of SARS-CoV-2, several cases of infection were also reported in animals, suggesting animal-to-human and animal-to-animal transmission within mammals. Natural infection has been found in both companion and captive animals such as lions, tigers and gorillas. Among farm animals, the only ones found to be susceptible to SARS-CoV-2 infection so far are minks. Experimental infections have documented the susceptibility to SARS-CoV-2 of several animal species, such as humanized mice, hamsters, cats, dogs, ferrets, racoon dogs, cattle and non-human primates. Experimental infections are crucial for both elucidation of the role of animals in transmission and development of appropriate animal models for pathogenesis and therapy studies. This review aims to update the knowledge on natural and experimental SARS-CoV-2 infections in animals.

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