

Scientific Assessment of the Zoonotic Potential of COVID-19

This document summarizes what is currently known about Coronavirus Disease 2019 (COVID-19) from a zoonotic perspective and provides additional background on coronaviruses to support animal-related assessment of risk.

WHAT'S NEW:

- A preliminary serological test on the Hong Kong dog thought to have a low-level COVID-19 infection was negative. Further testing is underway.
 - The viral gene sequences isolated from the dog and human contacts were found to be very similar.

COVID-19 – KEY POINTS

ANIMAL RESERVOIR/INTERMEDIATE HOST

- COVID-19 was first recognized in a cluster of human pneumonia cases associated with the Huanan Seafood Wholesale Market in Wuhan City, China. A number of environmental samples at the market were positive, particularly where wildlife trading occurred. Samples were taken from several species of animals and [none of these samples tested positive](#); information about the number of samples and species sampled is not available.
- Several studies have found that the COVID-19 virus is closely related genetically (up to 96%) to coronaviruses found in Chinese horseshoe bats (*Rhinolophus* genus), making them a likely reservoir (Zhou et al., 2020; Chan et al., 2020; Zhu et al., 2020; Wu et al., 2020).
- It is suspected that another animal acted as an intermediate host between bats and humans. Recent research has proposed several different animal species (i.e. snakes, pangolins, and turtles) but all remain to be proven (Ji et al., 2020; Xiao et al., 2020; Lam et al., 2020; Liu et al., 2020a; Zhang et al., 2020; Wahba et al., 2020; Wong et al., 2020; Liu et al., 2020b; Li et al., 2020).

ANIMAL HOST RANGE

- **Dogs:**
 - On Feb. 28, 2020, the Government of Hong Kong announced that a pet dog of a COVID-19 case had tested positive for the virus. Oral and nasal swabs had tested weak positive by real time RT-PCR and two subsequent follow-up tests were also positive. Experts, including the OIE, concluded that the [dog has a low-level of infection](#). The dog has not shown any clinical signs of illness. **On March 12, 2020, Hong Kong announced that a**

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Note that any interpretations expressed do not necessarily reflect those of PHAC.