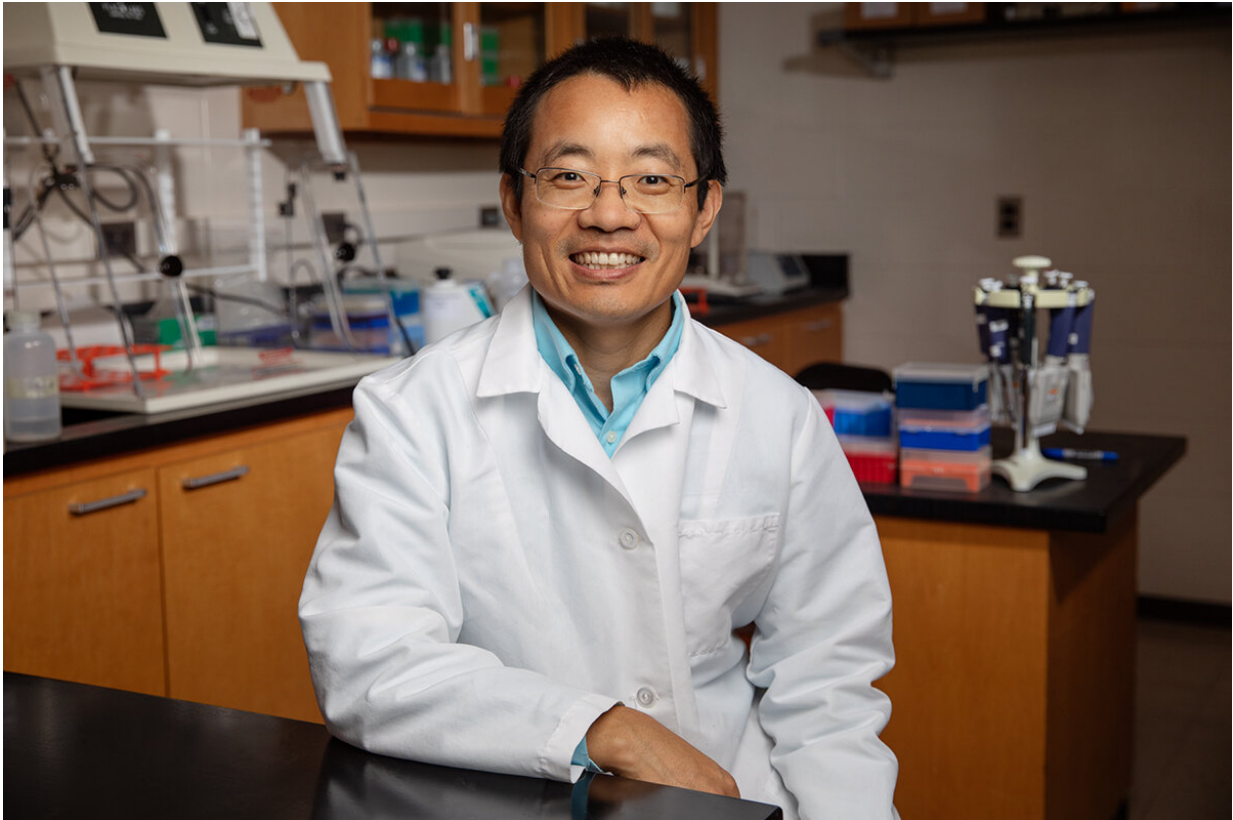


Which animals can catch the coronavirus?

October 15 2021, by Liz Ahlberg Touchstone



Dr. Leyi Wang and the Veterinary Diagnostic Laboratory have played a key role in diagnosing coronavirus infection in animal species in zoos across the country. Credit: L. Brian Stauffer

On Oct. 6, the U.S. Department of Agriculture's National Veterinary Services Laboratories announced confirmation of SARS-CoV-2—the virus that causes COVID-19—in two previously uninfected animal

species at a zoo in Illinois. Dr. Leyi Wang, a virologist and professor of veterinary medicine at the University of Illinois Urbana-Champaign, first tested the samples in the university's Veterinary Diagnostic Laboratory, with his positive results then verified by the NVSL. Wang talked with News Bureau Biomedical Sciences Editor Liz Ahlberg Touchstone about zoological transmission of SARS-CoV-2, the VDL's involvement in testing animal samples, and why animal transmission is important to identify and track.

Why bother testing zoo animals for the virus that causes COVID-19?

Prompt detection of SARS-CoV-2 in managed [wild animals](#) helps the animal care staff take action to control the spread of [virus](#) and contain the outbreak. Detection of virus as early as possible will help with outbreak investigation, tracking down sources of infection and [transmission](#) routes, thus further preventing zoonotic transmission and interspecies transmission.

What kinds of animals have you tested samples from? How many species have tested positive?

The first sample we tested was from a Malayan tiger in April 2020. Our lab's positive test results were confirmed the following day by the NVSL.

Since then, we have tested more than 1,500 samples from more than 50 animal [species](#) in over a dozen zoos and aquaria. We have tested a wide variety of animal species, from dogs, cows and pigs to [big cats](#), nonhuman primates and even marine mammals. Seven species have tested positive for SARS-CoV-2 at our veterinary diagnostic lab. We received more samples and calls this week, and expect more confirmed

positive results as the national outbreak continues.

What are the two new species confirmed to be infected last week?

Fishing cat and binturong were tested presumptive positive by our lab and confirmed by the federal NVSL. The fishing cat is a wild cat native to Southeast Asia, about twice the size of a domestic cat. A binturong, also native to Asia, is sometimes called a bearcat—though it is neither a bear nor a cat, but is related to civets.

Why is it significant whenever a new species is found to be susceptible to infection?

The SARS-CoV-2 virus binds to the ACE2 receptor in human cells. Structural analysis of ACE2 sequences in other [vertebrate animals](#) and their predicted ability to bind SARS-CoV-2 suggested a large number of mammals could potentially be infected by SARS-CoV-2, indicating a broad host range of the virus. When we confirm infection in a new species, we provide solid evidence to support the findings of those experimental and theoretical studies.

What does transmission in multiple species tell us about the virus and how it spreads and mutates?

So far, there is no report about the transmission of virus from one managed [animal species](#) to others in zoological institutions. Instead, most of these [animals](#) were infected through contact with COVID-19-positive animal keepers. This means the virus has a broad host range. Animals could be infected through contact with contaminated surfaces or objects, or aerosol transmission.

SARS-CoV-2 genome mutations are random events and variation is a continued process. Once "enough" accumulation of mutations occurs, variants with different phenotypes—such as higher transmission or more pathogenic—will occur. Therefore, it is best to reduce or contain outbreaks, even in animal populations, as much as possible.

Provided by University of Illinois at Urbana-Champaign

Citation: Which animals can catch the coronavirus? (2021, October 15) retrieved 13 May 2024 from <https://phys.org/news/2021-10-animals-coronavirus.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.