

Scientists discover six new coronaviruses in bats (Update)

14 April 2020



Scientists from the Smithsonian's Global Health Program taking samples from a bumble bee bat in Myanmar. Credit: Roshan Patel, Smithsonian's National Zoo and Conservation Biology Institute

Researchers with the Smithsonian's Global Health Program have discovered six new coronaviruses in bats in Myanmar—the first time these viruses have been detected anywhere in the world. Future studies will evaluate the potential for transmission across species to better understand the risks to human health. According to the authors, the newly discovered coronaviruses are not closely related to coronaviruses Severe Acute Respiratory Syndrome (SARS CoV-1), Middle East Respiratory Syndrome (MERS) or SARS-CoV-2.

The findings, published today in *PLOS ONE*, will help understand the diversity of coronaviruses in bats and inform global efforts to detect, prevent and respond to [infectious diseases](#) that may threaten public health, particularly in light of the ongoing COVID-19 pandemic.

"Viral pandemics remind us how closely [human health](#) is connected to the health of wildlife and the environment," said Marc Valitutto, former wildlife

veterinarian with the Smithsonian's Global Health Program and lead author of the study. "Worldwide, humans are interacting with wildlife with increasing frequency, so the more we understand about these viruses in animals—what allows them to mutate and how they spread to other species—the better we can reduce their pandemic potential."

Researchers detected these new viruses while conducting biosurveillance of animals and people to better understand the circumstances for disease spillover as part of the PREDICT project. PREDICT, an initiative funded by the U.S. Agency for International Development (USAID), supports the global discovery and surveillance of pathogens that have the potential to spread from animals to humans. The PREDICT team in Myanmar consists of scientists from the Smithsonian; the University of California, Davis; Myanmar's Ministry of Agriculture, Livestock and Irrigation; Myanmar's Ministry of Health and Sports; and Myanmar's Ministry of Natural Resources and Environmental Conservation.

The team focused their research on sites in Myanmar where humans are more likely to come into close contact with local wildlife due to changes in land use and development. From May 2016 to August 2018, they collected more than 750 saliva and fecal samples from bats in these areas. Experts estimate that thousands of coronaviruses—many of which have yet to be discovered—are present in bats.

Researchers tested and compared the samples to known coronaviruses and identified six new coronaviruses for the first time. The team also detected a coronavirus that had been found elsewhere in Southeast Asia, but never before in Myanmar.

Coronaviruses have caused widespread disease in humans, including SARS CoV-1, MERS and most recently the global COVID-19 pandemic. According

to the authors, the newly discovered coronaviruses are not closely related to SARS CoV-1, MERS or SARS-CoV-2. Future studies are needed to evaluate their potential for spillover to other species to better understand the risks to human health.

The authors say these findings underscore the importance of surveillance for zoonotic diseases as they occur in wildlife. The results will guide future surveillance of bat populations to better detect potential viral threats to [public health](#).

"Many coronaviruses may not pose a risk to people, but when we identify these diseases early on in animals, at the source, we have a valuable opportunity to investigate the potential threat," said Suzan Murray, director of the Smithsonian's Global Health Program and co-author of the study. "Vigilant surveillance, research and education are the best tools we have to prevent pandemics before they occur."

More information: Marc T. Valitutto et al. Detection of novel coronaviruses in bats in Myanmar, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0230802](#)

Provided by Smithsonian's National Zoo & Conservation Biology Institute

APA citation: Scientists discover six new coronaviruses in bats (Update) (2020, April 14) retrieved 25 January 2021 from <https://phys.org/news/2020-04-scientists-coronaviruses.html>

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