

CORONAVIRUS

Questioning suggestion omicron originated in mice

ACCORDING to a study published recently by Chinese investigators,¹ the highly contagious and transmissible 'omicron' variant of SARS-CoV-2, which is known to harbour a number of previously undetected mutations on the spike glycoprotein's receptor binding domain (RBD) and N-terminal domain (NTD), might have originated in mice. Once mice acquired the variant's progenitor from infected people (spillover), the mice then returned the virus to people with additional mutations (spillback) in the form of the omicron variant.

However, albeit fascinating, this assumption does not appear to be strongly supported by the marked differences occurring between the human and the murine SARS-CoV-2 viral cell receptor, the angiotensin-converting enzyme 2 (ACE2) molecule,² with special reference to the ACE2 region/sequence specifically interacting with the SARS-CoV-2 spike glycoprotein's RBD, which is critical for allowing the virus attachment and subsequent entry into host cells.

This difference would argue in favour of a low mouse susceptibility to SARS-CoV-2 infection, with murine cells and tissues being not sufficiently prone to become infected by this betacoronavirus.²

Indeed, much more work is needed before it can be firmly concluded that the omicron variant of SARS-CoV-2 originated from mice.

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Mustelid samples needed for coronavirus testing

READERS of *Vet Record* will be well aware of cases of SARS-CoV-2 in a variety of animal species.¹ In particular, the recent outbreak of SARS-CoV-2 in white-tailed deer in the USA² and the repeated outbreaks in farmed mink³ have highlighted the risk of the virus establishing itself in a new animal reservoir.

A number of UK horseshoe bat screening projects have demonstrated other sarbecoviruses (SARS-like viruses) in horseshoe bats in the UK,⁴ but these are only distantly related to the current pandemic virus and unlikely to pose a human health risk. In addition, we have previously identified alphacoronaviruses (also not thought to be a human health risk) in UK rodents and bats.^{5,6}

Our consortia of researchers at the universities of Nottingham, Sussex, Cardiff and Nottingham Trent have been testing UK wildlife for SARS-CoV-2. We have focused on species either known to carry sarbecoviruses naturally (eg, horseshoe bats), or those capable of supporting natural or experimental infection with SARS-CoV-2 (eg, mustelids and cricetid rodents).

To date we have screened over 500 samples from otters, badgers, greater and lesser horseshoe bats, water voles, field voles and bank voles, with negative results. Public Health England is currently screening UK deer. However, we are still seeking samples from UK mustelids (eg, weasels,

stoats, American mink, pole cats and pine marten) or foxes.

We can test a variety of samples (oronasal swabs, faecal samples or tissue samples from cadavers) depending on the species and can arrange shipping of samples. The project has ethical approval from the University of Nottingham clinical ethics committee for non-invasive sampling.

We would be very interested to talk with any veterinarians (or their clients) involved in control or conservation programmes for these species who might be able to submit samples, would like protocols for doing so, or would like more information on SARS-CoV-2 in wildlife. Please contact us at the email given below, or telephone 0115 951 6273.

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We are seeking samples from UK mustelids to test for SARS-CoV-2

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DEATH NOTICES

Allen On 30 April 2021, Peter Vincent Allen, BVetMed, MRCVS, of Christchurch, Dorset. Mr Allen qualified from London in 1949.

Lawrence On 6 February 2022, Brian Thomas Lawrence, BVetSts, MRCVS, MBE, of Wakefield, West Yorkshire. Mr Lawrence qualified from London in 1956.