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CORONAVIRUS DISEASE 2019 UPDATE (20): ANIMAL, DEER, EXPERIMENTAL INFECTION

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<https://www.biorxiv.org/content/10.1101/2021.01.13.426628v1.full.pdf>

Susceptibility of white-tailed deer (*Odocoileus virginianus*) to SARS-CoV-2

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The origin of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus causing the global coronavirus disease 19 (COVID-19) pandemic, remains a mystery. Current evidence suggests a likely spillover into humans from an animal reservoir. Understanding the host range and identifying animal species that are susceptible to SARS-CoV-2 infection may help to elucidate the origin of the virus and the mechanisms underlying cross-species transmission to humans. Here we demonstrated that white-tailed deer (*Odocoileus virginianus*), an animal species in which the angiotensin-converting enzyme 2 (ACE2) -- the SARS-CoV-2 receptor -- shares a high degree of similarity to humans, are highly susceptible to infection. Intranasal inoculation of deer fawns with SARS-CoV-2 resulted in established subclinical viral infection and shedding of infectious virus in nasal secretions. Notably, infected animals transmitted the virus to non-inoculated contact deer. Viral RNA was detected in multiple tissues 21 days postinoculation (pi). All inoculated and indirect contact animals seroconverted and developed neutralizing antibodies as early as day 7 pi. The work provides important insights into the animal host range of SARS-CoV-2 and identifies white-tailed deer as a susceptible wild animal species to the virus.

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[The full pre-print can be accessed at <https://www.biorxiv.org/content/10.1101/2021.01.13.426628v1.full.pdf>.

This experiment adds a new mammal family (Cervidae) to those known to be compatible for SARS-CoV-2 infection. White-tailed deer and other cervids are farmed worldwide, and thus they are at risk of exposure to infected people. The fact that white-tailed deer can infect other conspecifics, as also can cats and minks, raises concern and urges surveillance and biosafety efforts in deer farms. - Mod.PMB]

## See Also

COVID-19 update (13): animal, USA, zoo, gorilla 20210112.8095510

COVID-19 update (07): animal, China, origin, WHO experts mission 20210106.8079009  
2020

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COVID-19 update (557): animal, Slovenia (SA) ferret, OIE 20201226.8048809

COVID-19 update (552): USA, animal, cat, dog, snow leopard, OIE 20201223.8042405

COVID-19 update (551): animal, pig, research, experimental infection 20201223.8041877

COVID-19 update (536): animal, USA (UT) wild mink, 1st case 20201213.8015608

COVID-19 update (525): Spain, animal, zoo, lion, human 20201208.8002466

COVID-19 update (469): USA (TN) zoo, tiger 20201104.7915683

COVID-19 update (356): South Africa (GT) animal, puma, zoo, OIE 20200813.7673666

COVID-19 update (143): USA (NY) animal, zoo, tiger, lion, tests 20200430.7284183

COVID-19 update (141): India, animal, wild tiger, susp, clarification, RFI 20200430.7281768

COVID-19 update (138): India, animal, wild tiger, fatal 20200428.7275765

COVID-19 update (135): Netherlands (NB) animal, farmed mink 20200427.7272289

COVID-19 update (130): USA (NY) zoo, tiger, lion, new cases 20200425.7266556

COVID-19 update (85): USA (NY) tiger, OIE 20200406.7191480

COVID-19 update (84): USA, tigers 20200406.7191352

COVID-19 update (76): China (HU) animal, cat, owned, stray, seropositive 20200403.7179946

COVID-19 update (75): China (Hong Kong) cat, OIE 20200403.7179945

COVID-19 update (70): China (Hong Kong) cat, pets & stock 20200402.7173286

COVID-19 update (58): Belgium, cat, clinical case, RFI 20200327.7151215

COVID-19 update (57): global, re-using PPE, DR Congo, more countries, WHO 20200327.7149046

COVID-19 update (56): China (Hong Kong) animal, dog, final serology positive 20200326.7146438

COVID-19 update (45): China (Hong Kong) animal, dog, 2nd case PCR positive 20200319.7112693

COVID-19 update (37): China (Hong Kong) animal, dog, prelim. serology negative 20200312.7081842

COVID-19 update (30): China (Hong Kong) dog, susp, serology pending 20200306.7057595

COVID-19 update (25): China (Hong Kong) dog, susp, OIE 20200302.7040373

COVID-19 update (22): companion animals, dog susp, RFI 20200229.7036661

COVID-19 update (17): China, animal reservoir, wildlife trade & consumption 20200225.7024245

COVID-19 update (11): animal reservoir, intermediate hosts, pangolin susp 20200220.7009213

COVID-19 update (08): companion animals, RFI 20200218.7002276

COVID-19 update (06): animal reservoir, intermediate hosts 20200217.6997782

Novel coronavirus (42): China, global, COVID-19, SARS-CoV-2, WHO 20200211.6979942

Novel coronavirus (40): animal reservoir, pangolin poss intermediate host, RFI 20200210.6972104

Novel coronavirus (28): China (HU) animal reservoir 20200201.6943858

Novel coronavirus (22): reservoir suggested, bats 20200129.6930718

Novel coronavirus (20): China, wildlife trade ban 20200127.6922060

Novel coronavirus (18): China (HU) animal reservoir 20200125.6915411

Novel coronavirus (15): China (HU) wild animal sources 20200123.6909913

Novel coronavirus (03): China (HU) animal reservoir suggested, RFI 20200114.6887480

Novel coronavirus (01): China (HU) WHO, phylogenetic tree 20200112.6885385

Undiagnosed pneumonia - China (HU) (07): official confirmation of novel coronavirus 20200108.6878869  
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