

# Pigs May Be a Host for Ebola Virus



By Alex Berezow — July 10, 2018



Credit: Storyblocks [1]

Much is still unknown about the Ebola virus. The microbe, which re-emerges from time to time usually in Africa, causes a hemorrhagic fever with a fatality rate as high as 90%.

One of the many goals of epidemiology is to understand the ecology of infectious disease. Where does the virus go when there isn't an active human outbreak? Viruses can't survive in the environment, so some type of animal must be serving as a "reservoir" from which outbreaks re-emerge. So far, evidence points to fruit bats as the guilty party, but gorillas, chimpanzees, and antelope may also play a role.

Furthermore, there was some evidence that pigs might be able to host the Ebola virus. This is particularly worrisome because it would mean that a common animal used as livestock could be spreading the disease. To further investigate this possibility, a team of scientists collected blood samples from 400 pigs in regions of Sierra Leone that had reported human cases of the Ebola virus.

Of the 400 pigs, three had antibodies in their blood that reacted to Ebola virus proteins. This indicates that these three animals had been infected by the virus and mounted an immune response. (Note: An infected animal does not necessarily show signs of disease; that is, infections can be asymptomatic.)

Next, the authors investigated if the antibodies generated by the pigs were protective against Ebola virus. Antibodies are protective or "neutralizing" if they block the ability of the virus to infect cells. They found that the antibodies were *not* protective, which means that the pigs' immune response wasn't particularly specific to the Ebola virus. Taken together, what does all of this mean?

Unfortunately, it's not entirely clear. Perhaps the likeliest explanation is that these three pigs were

infected by some type of Ebola virus (there are five different Ebola species), but maybe not the one that caused the large West African epidemic. Thus, the good news is that the data suggest that pigs didn't play much of a role in spreading the disease.

The bad news is that they could in the future. The presence of antibodies serves as proof that an animal had been infected, even if it showed no signs of illness. Monitoring livestock near an Ebola outbreak should be on the to-do list for future virus hunters.

**Source** [2]: Kerstin Fischer, et al. "Serological Evidence for the Circulation of Ebolaviruses in Pigs From Sierra Leone." *J Infect Dis* jiy330. Published: 5-July-2018. DOI: 10.1093/infdis/jiy330

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