

Vaccine for African swine fever may save our bacon

May 7 2019

Wild boar can be immunized against African Swine Fever by a new vaccine delivered to the animals in their food, says new research. Published in *Frontiers in Veterinary Science*, it is the first report of a promising inoculation against this deadly disease, which is a worldwide threat to the swine industry. The study also provides evidence that this immunity can be passed on via contact with immunized individuals, but further studies are needed to examine exactly how this occurs, as well as the safety of repeated administration.

"African [swine](#) fever is of enormous concern to the pig industry," says Dr. Jose Angel Barasona, a researcher at the VISAVET Health Surveillance Centre and co-author of this research. "Our study demonstrates the effectiveness of the first oral vaccine against this disease on Eurasian [wild boar](#). Overall, we demonstrate that oral immunization of wild boar conferred 92% protection against a highly pathogenic strain of African Swine Fever, which is currently circulating in Asia and Europe."

High fever, loss of appetite and death

Infected animals can suffer terribly. Symptoms include [high fever](#), depression, loss of appetite, vomiting, diarrhea, abortion in pregnant sows, as well as redness of skin on the ears, abdomen and legs. The most virulent, or dangerous, forms of this virus can lead to the death of all those infected.

African swine fever affects more than 55 countries on 3 continents, including China, which contains nearly half of the world's pig population. It is highly contagious and can be spread via contaminated feed and pork products, as well as shoes, clothes, vehicles, knives and equipment. Transmission can also occur by the movement of infected livestock and across wild boar populations. It is this latter form of infection that Barasona and his colleagues hope to prevent.

"Wild boar is the most severely affected by this virus in Europe and to date, none of the control measures have been effective. The importance of vaccinating wild boar was demonstrated during the 2000's when Classical Swine Fever affected different European countries, and an oral vaccine was used to reduce the incidence of infection in the wild populations in Germany."

The complex nature of the African Swine Fever virus, gaps in knowledge concerning infection and immunity, as well as technical difficulties, have hindered vaccine development. But in 2017, a wild boar in Latvia provided a breakthrough.

"Serum from a wild boar hunted in Rietumpieriga, Latvia, was confirmed as African Swine Fever Virus positive at the EU reference laboratory in Madrid, Spain," Barasona reports. "This was a weakly virulent strain of the disease, which enabled us to produce a live vaccine. When we inoculated wild boar in our laboratories with this live strain, they showed no symptoms of this disease but produced antibodies against the virus, ultimately giving them protection against the more dangerous form."

Immunity can be passed on via contact

When tested, as well as proving its effectiveness against one of the most dangerous strains of African swine [fever](#), it revealed an additional

capability to immunize other wild [boar](#) through contact with orally vaccinated animals.

"The 'shedding' of this vaccine might help amplify vaccination coverage, reducing the need for expensive production and large-scale administration of vaccine in the field," explains Barasona.

This vaccine, which would be administered in bait to the wild animals, represents considerable progress in the control of African Swine Fever in the wild and, subsequently, at the domestic/wildlife interface. However, Barasona cautions more research is needed before it can be used widely.

"If the safety of the vaccine can be established, then it may help mitigate the uncontrolled spread of African Swine Fever across Europe and Asia, like the success so far in halting the spread of Classical Swine Fever. Future studies should examine the [vaccine](#)'s safety following repeated administration, the process of 'shedding', and its genetic stability during passage from one animal to another."

More information: Jose A. Barasona et al, First Oral Vaccination of Eurasian Wild Boar Against African Swine Fever Virus Genotype II, *Frontiers in Veterinary Science* (2019). [DOI: 10.3389/fvets.2019.00137](https://doi.org/10.3389/fvets.2019.00137)

Provided by Frontiers

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