

African swine fever decimates global pork production. Can a genetically engineered vaccine stop it?

In the fall of 2017, a year before an unfamiliar virus captured the world's attention with an explosive outbreak in East Asia that left tens of millions of pigs dead, immunologist Waithaka Mwangi and his graduate students were already aware of the culprit and its imminent threat to the swine industry.

Behind the glass of a biosafety cabinet at Kansas State University's Biosecurity Research Institute they carefully extracted a few milliliters of fluid from a test tube containing live African swine fever virus (ASFV) In another room down the hall, the researchers administered droplets of the fluid into the nostrils of piglets. In total, more than 60 young pigs were exposed to the virus, and the team waited to see how they'd fare.

ASFV is typically harmless to humans, but it can be devastating to domestic pigs (*Sus scrofa domesticus*), and this particular strain of the virus, known as Georgia 2007 after appearing in the country that year, was typically fatal But a few days earlier, Mwangi's team had given 32 of the piglets a cocktail of proteins that they hoped would help the animals survive the infection.

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