

# Genetic Engineering Protects Pigs from Nasty Virus

By ACSH Staff — December 10, 2015



[1] Happy Pigs via [Shutterstock](#) [2]

As we've written on multiple occasions, genetic engineering has provided numerous benefits, such as crops resistant to insects and pesticides, rice that makes vitamin A, chickens that incorporate drugs into their eggs, bacteria that produce human insulin, and potatoes less susceptible to blight, to name just a few.

One thing these breakthroughs had in common was that they resulted from the addition of one or more genes into an organism's DNA. This latest endeavor is different the benefits are seen when a gene is *deleted* from the porcine genome.

The [virus](#) [3] in question is called the Porcine Reproductive and Respiratory Syndrome (PRRS) virus. Animals that have contracted the virus don't gain weight normally, don't reproduce well, and in many cases die. The result for the producers is financial losses, and for consumers higher food prices.

But now a team of researchers from the University of Missouri, Kansas State University and a biotech company called Genus ([published](#) [4] in *Nature Biotechnology*) have found that when the virus enters a pig, the animal produces a protein called CD163, which acts to remove the virus' coat, thus activating it. The virus can then go on to infect the pig's cells and cause the negative effects noted above.

The investigators reasoned that if CD163 were somehow inactivated or removed, the virus would not be able to infect the pigs, thus rendering it harmless. In fact, this indeed seems to be the case. When the researchers edited the pigs' genome, and basically removed the gene that allows them to make CD163, the animals were impervious to the virus.

"We had been able to make pigs that are resistant to an incurable, untreatable disease," said Dr. Kevin Wells from the University of Missouri. He also noted that if this gene editing were made commercially viable it could save the pork industry hundreds of millions of dollars.

We can only hope that this discovery can be put to wide use, and that it eventually will result in reducing consumers' food prices as well.

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[4] <http://www.nature.com/nbt/journal/vaop/ncurrent/full/nbt.3434.html>