

Saving the Bacon

Scientists battle disease that costs hog industry \$800 million

Written by Guest · July 22, 2013



(<http://cafnrnews.com/2013/07/saving-the-bacon/attachment/78043161/>)A research team from the University of Missouri and [Kansas State University](http://www.asi.ksu.edu/) (<http://www.asi.ksu.edu/>) has been working to find a cure for a specific virus that affects pigs and costs the hog industry \$800 million annually. In their latest study, the team disproved one way the virus spreads, which will help scientists narrow the search for an ultimate cure.

[Porcine Reproductive and Respiratory Syndrome Virus](http://wwwnc.cdc.gov/eid/article/9/8/03-0232_article.htm) (http://wwwnc.cdc.gov/eid/article/9/8/03-0232_article.htm) (PRRSV) can inhibit pigs from reproducing and slow the growth of young pigs. Once pigs are infected, the only remedy is for hog farmers to cull their herds, which has cost farmers approxi-

mately \$800 million annually.

“Initially, scientists believed that PRRSV bound to a specific molecule, known as [CD169](http://en.wikipedia.org/wiki/Sialoadhesin) (<http://en.wikipedia.org/wiki/Sialoadhesin>), and infected white blood cells in the lungs,” said [Randall Prather](http://animalsciences.missouri.edu/faculty/prather/) (<http://animalsciences.missouri.edu/faculty/prather/>), distinguished professor of reproductive biotechnology in the MU College of Agriculture, Food and Natural Resources. “In our study, we’ve found that this is probably not how the virus is infecting pigs.”

A Negative Result, But an Important Clue

In the study, Prather genetically modified a litter of pigs so they would not generate the CD 169 molecule; therefore, the virus would have nothing to bind to and would be killed by the pigs’ natural immune systems. However, after an initial test, the genetically modified pigs did become infected with PRRSV, negating the initial theory.

“While we didn’t find what we were looking for, we did uncover important information about the infection,” Prather said. “This information will help us narrow our search as we continue to fight this virus. We’ll keep searching for answers until we determine how to stop PRRSV.”

When pigs are infected with the disease, farmers must clean everything, Prather said. That means culling the herd, cleaning the barns and letting the pens sit empty until all viral material is killed. If that doesn’t happen, the virus can continue infecting new groups of hogs. Farmers have had access to vaccines for the last two decades, but experts warn they are not the best tool to fight the disease.

“Vaccines have been shown to lessen the impact of the disease on farms, but they are not a good tool to control or eradicate the virus,” said [Raymond \(Bob\) Rowland](http://www.vet.k-state.edu/depts/dmp/personnel/faculty/rowland.htm) (<http://www.vet.k-state.edu/depts/dmp/personnel/faculty/rowland.htm>), co-author of the study and professor of virology at the Kansas State University [College of Veterinary Medicine](http://www.vet.k-state.edu/) (<http://www.vet.k-state.edu/>). “With this new information, we understand more about the mechanisms of this virus and how it acts once inside the pig’s body.”

Collaboration is Critical

Both Prather and Rowland agree that the study was only possible due to the collaboration of the scientists in their respective laboratories.

“To go and find these answers to the problems plaguing farmers, I need to find friends that have expertise in areas that I don’t know anything about,” Rowland said. “Randy Prather knows genes; I know viruses. Together, we can get a lot of work done very quickly”

The study, “An intact sialoadhesin (Sn/SIGLECI/CD169) is not required for attachment/internalization of the porcine reproductive respiratory syndrome virus (PRRSV),” was recently published in the *Journal of Virology*.





Randy Prather. (<http://cafnrnews.com/2013/07/saving-the-bacon/dr-randall-prather-dec-2006/>)

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