

Bacterial supplement could help young pigs fight disease

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A common type of bacteria may help pigs stay healthy during weaning.

In a study of 36 weanling-age pigs, researchers found that a dose of lipid-producing *Rhodococcus opacus* bacteria increased circulating [triglycerides](#). Triglycerides are a crucial source of energy for the immune system.

"We could potentially strengthen the immune system by providing this [bacterium](#) to animals at a stage when they are in need of additional energy," said Janet Donaldson, assistant professor in Biological Sciences Mississippi State University. "By providing an [alternative energy source](#), the pigs are most likely going to be able to fight off infections more efficiently."

Donaldson and other researchers tested *R. opacus* because the bacterium naturally makes large amounts of triglycerides. Normally, *R. opacus* would use the triglycerides for its own energy, but a pig can use the triglycerides too.

Jeff Carroll, research leader for the USDA Agricultural Research Service Livestock Issues Research Unit in Lubbock, Texas, said *R. opacus* could be used sort of like an energy producing probiotic. He said weanling pigs are more susceptible to pathogens and stress because they have to adjust to a new diet and a new environment. To add to the risk, weaning comes at a time when a pig's immune system is immature. The stress of weaning can lead to reduced feed intake, less available energy

and an increased risk of infection.

With an oral supplement of live *R. opacus*, weanling pigs would have an alternative source of energy. Even if pigs ate less feed, they would still have access to the triglycerides produced by these bacteria. The triglycerides could be used as an energy source during this critical stage of development.

Throughout the experiment, the researchers kept watch for any potential side effects. Donaldson said they saw no negative side effects in the pigs given *R. opacus*. Because of this success, Donaldson said pig producers might someday use *R. opacus* on their own farms. She said the bacteria could be provided to pigs through existing watering systems.

The next step in the experiment is to test how [pigs](#) given *R. opacus* react to an immune challenge such as *Salmonella*. Carroll said he is also curious to see if *R. opacus* can help calves stay healthy during transport.

"This could potentially be carried over to human health as well," Donaldson said.

More information: The abstract from this project, titled "Novel Use of Lipid-Producing Bacteria to Increase Circulating Triglycerides in Swine," is the 2013 recipient of the National Pork Board Swine Industry Award for Innovation. The award will be presented at the 2013 American Society of Animal Science Southern Section Meeting in Orlando, Florida.

Provided by American Society of Animal Science

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