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Cloned Pigs Produce Healthy Pork?

Amitabh Avasthi
for National Geographic News
March 27, 2006

Pigs have been genetically modified to make their meat as healthy as seafood, researchers report.

But concerns over food safety and the U.S. federal approval process may prevent the tricked-up pork from appearing in supermarkets anytime soon.

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The premise of the work, published yesterday in the online journal *Nature Biotechnology,* is based on cloning pigs to genetically express higher levels of omega-3 fatty acids, a type of natural oil that is thought to fight heart disease and various immune disorders. The oils are typically found in fish.

"Omega-3 fatty acids are crucial to human health," said Jing Kang, associate professor of medicine at Harvard Medical School in Cambridge, Massachusetts.

"But the source is increasingly limited, due to declining fish stocks and contamination from mercury and other harmful chemicals. We need a cheap, land-based alternative to meet the growing demand, and these pigs could be the answer."

Cloning for Healthy Pork

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Until now the only way to enrich livestock with these fatty acids was to supplement their feed with expensive fish meal, Kang explains. That's because the animals lack a specific gene that helps convert less healthy omega-6 fatty acids into their healthier omega-3 form.

During experiments in 2004, Kang and his colleagues transplanted that gene into mice to create mice that could produce the omega-3 fatty acids.

For their work on pigs, the researchers introduced a similar version of the gene—tweaked for use in pigs—into the fetal cells of male pigs and singled out those cells that produced higher amounts of omega-3.

The researchers then implanted material from those altered cells into unfertilized pig eggs and transplanted the embryos grown from the eggs into 14 sows.

Of the ten live piglets born from the pregnancies, six tested positive for the gene that produces omega-3 fatty acids.

"Tissue samples from the tails of the transgenic pigs indicated higher levels of omega-3 fatty acids and lower levels of omega-6 fatty acids," Kang said.

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