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Genetic research pursues healthier bacon

Jing X. Kang, M.D., Ph.D., found a gene in worms that he spliced into pig embryos. The result could produce healthier bacon for human consumption. Kang was photographed in his laboratory at Harvard Medical School at the Massachusetts General Hospital in Boston, on March 24. AP Photo/Steven Senne

SAN FRANCISCO – A microscopic worm may be the key to heart-friendly bacon.

Geneticists have mixed DNA from the roundworm C. elegans and pigs to produce swine with significant amounts of omega-3 fatty acids – the kind believed to stave off heart disease.

Researchers hope they can improve the technique in pork and do the same in chickens and cows. In the process, they also want to better understand human disease.

“We all can use more omega-3 in our diet,” said Dr. Jing Kang, the Harvard Medical School researcher who discovered the omega-3-making gene in the worm.

Kang is one of 17 authors of the paper appearing in a recent online edition of the journal Nature Biotechnology.

The cloned, genetically engineered pigs are the latest advance in the agricultural biotechnology field, which is struggling to move beyond esoteric products such as bug-repelling corn and soy resistant to weedkillers.

Hoping to create healthier, cheaper and tastier products that consumers crave, Monsanto Co. of St. Louis and its biotech farming competitors like DuPont are developing omega-3-producing crops that yield healthier cooking oils. Kang said 30 academic laboratories are now working with his omega-3 gene, presumably pursuing similar projects.

“Consumers have responded pretty positively when asked their opinion of food modified to improve food quality and food safety, just as long as the taste isn’t altered negatively,” said Christine Bruhn, director of the Center for Consumer Research at the University of California Davis.

Earlier experiments have succeeded in manipulating animals’ fat content, but most never made it out of the lab because of taste problems.

While boosting omega-3s doesn’t decrease the fat content in pigs, the fatty acids are also important to brain development and may reduce the risk of Alzheimer’s disease and

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depression. The American Heart Association recommends at least two weekly servings of fish, particularly fatty fish like trout and salmon, which are naturally high in omega-3s.

People already eat genetically engineered soybeans in all manner of processed food, but biotech companies run into what bioethicists call the “yuck factor” when they begin tinkering with animals.

The Food and Drug Administration has never approved food derived from genetically engineered animals. Unlike crops, the FDA treats such animals as medicine and requires extensive testing before approval.

“We understand that this research is in the very early stages,” FDA spokeswoman Rae Jones said. “This technology will not likely reach meat counters for many years.”

The FDA is still considering Waltham, Mass.-based Aqua Bounty Technologies’ application to market a salmon genetically engineered to grow faster, the only such request pending wit the agency. Aqua Bounty began its federal application process about nine years ago, and there is no indication when the FDA will rule.

In the meantime, the researchers of the latest project said they will use their genetically engineered pigs to study human disease, especially heart conditions.

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