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Modified genes could produce heart-healthy farm animals: study

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BOSTON - Farm animals could be genetically modified to produce juicy sirloins and healthier omelettes that prevent clogged arteries, a new study suggests.

In the study, biotech researchers in the U.S. bred mice with a worm gene called fat-1. These transgenic mice produced "significant" amounts of heart-healthy omega-3 fatty acids.

Omega-3 fatty acids are found in salmon, mackerel and other fish. Mammals cannot naturally produce omega-3 fatty acids and must get it from their diet.

Fish naturally produce omega-3fatty acids but mammals can't

Nutritionists recommend a diet rich in unsaturated fatty acids such as omega-3. The family of fatty acids is thought to prevent blood platelets from clotting and sticking to artery walls, reducing the risk for heart attacks and strokes.

The study's senior author, Jing Kang of Massachusetts General Hospital and Harvard Medical School, found the gene was passed on to four generations of mice.

The researchers fed genetically modified mice and normal mice a diet high in omega-6 fatty acids and low in omega-3.

The genetically modified mice could chemically convert omega-6 fatty acids into the healthier omega-3 version.

"At present, farm animals are fed fishmeal and other marine products, but this time-consuming and costly, and is limited by the quantity of the source," they wrote

in Thursday's issue of the journal *Nature*.

"Production of [omega-3] fatty acids by the animals themselves would be a cost-effective and sustainable way of meeting the increasing demand."

The researchers are trying to breed transgenic chickens that would lay omega-3 eggs. Kang acknowledges it may be difficult to do in a cow or a pig.

Promising results in mice cannot always be duplicated in experiments on larger, more complicated species.

Other scientists said controversial transgenic herds would face regulatory and consumer hurdles, including animal welfare and human safety concerns.

Researchers have tried to feed livestock omega-3 supplements with poor results. Flavours and textures in the meat, butter and cheese also differed.

So far, neither the U.S. Food and Drug Administration nor Health Canada have approved transgenic livestock for human consumption. Last year, the FDA said cloned animals were probably safe.

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