

# Genes may explain why some people turn their noses up at meat

May 2 2012

---

If you don't like the taste of pork, the reason may be that your genes cause you to smell the meat more intensely, according to a new study.

Duke University Medical Center scientists, working with colleagues in Norway, found that about 70 percent of people have two functional copies of a gene linked to an odor receptor that detects a compound in male mammals called androstenone, which is common in pork. People with one or no functional copies of the gene can tolerate the scent of androstenone much better than those with two, the researchers said.

Hiroaki Matsunami, Ph.D., a Duke associate professor of [molecular genetics](#) and microbiology, had previously discovered and described the genetics of the odor receptor for androstenone (OR7D4). But it wasn't until a group of pork scientists in Norway contacted him that he launched an experiment to learn more precisely at a genetic level how humans perceive the smell of [meat](#).

The Norwegian team had practical reasons for the study: It was concerned what might happen in Europe if a castration method for swine were outlawed. Currently, female pork meat and castrated male pork meat are sold in Europe. The researchers were curious how consumers might respond to meat from noncastrated males.

The level of androstenone in noncastrated pigs ranges up to 6.4 ppm. In Norway the level of androstenone in immunocastrated (using hormones) pigs is from 0.1 to 0.2 ppm, and in surgically castrated pigs the rate

approaches zero.

The findings raise the possibility that more consumers will dislike meat if castration is banned and more meat from noncastrated animals is sold, Matsunami said.

The study was published May 2 online in the *PLoS ONE* open-access journal.

A total of 23 subjects were recruited: 13 consumers and 10 professional sensory assessors. When all of the subjects were divided into sensitive and insensitive cohorts according to a smell test that was previously devised, all of the androstenone-sensitive subjects had the RT/RT genotype, with two copies of the functional RT gene.

"I was surprised at how cleanly this experiment showed who smelled what," Matsunami said. "The results showed that people with two copies of the functional variant of the gene for that odor receptor thought that the meat smelled worse with higher levels of androstenone added."

For the experiment, the researchers added only biological levels of androstenone to existing pork meat, up to the limit of what might be found in male wild boars.

Matsunami said it would be fascinating to see results done on certain populations, including people in the Middle East, where pork has been omitted from diets for centuries.

"I would also like to know about odor receptor variants in indigenous populations, such as people who live near the Arctic Circle and who never eat these meats. What is their [genotype](#)?" Matsunami said. Vegetarians as a group may also have a genetic predisposition against the smell of meat, but all of these ideas need to be scientifically studied, he

said.

Matsunami also speculated whether meat inspectors with both copies of the functional variant, who presumably would be more sensitive to higher levels of androstenone, might make different decisions in their jobs.

The availability of the humane genome has given us the tools for revising sensory and consumer science involving flavor perception, said co-author professor Bjørg Egelanddal of the Institute of Chemistry, Biotechnology and Food Science at the University of Life Science, in Ås, Norway. "This could be very useful in product development, to learn which flavor sensors are correlated with which flavors. More research is needed, but we may be able to revise the way we recruit consumer groups for evaluating product development."

Another practical solution for meat producers would be to find other compounds that are safe to ingest, but that might block the androstenone receptors to reduce that scent in meat.

Provided by Duke University Medical Center

Citation: Genes may explain why some people turn their noses up at meat (2012, May 2) retrieved 14 May 2024 from <https://medicalxpress.com/news/2012-05-genes-people-noses-meat.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--