

Wet ear wax and unpleasant body odors signal breast cancer risk

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If having malodorous armpits (called osmidrosis) and goopy earwax isn't bad enough, a discovery by Japanese scientists may add a more serious problem for women facing these cosmetic calamities. That's because they've found that a gene responsible for breast cancer causes these physical symptoms. The report describing this finding is featured on the cover of *The FASEB Journal's* June 2009 print issue, and should arm physicians with another clue for detecting breast cancer risk.

"We do strongly hope that our study will provide a new tool for better predication of [breast cancer](#) risk by genotyping," said Toshihisa Ishikawa, Ph.D., a professor from the Department of Biomolecular Engineering at the Tokyo Institute of Technology and the senior researcher involved in the work. "Using a rapid and cost-effective typing method presented in this study would provide a practical tool for pharmacogenomics-based personalized medicine."

To draw their conclusions, Ishikawa and colleagues monitored the activities of a protein created by a gene associated with breast cancer, called "ABCC11." By studying this gene and its complex cellular and molecular interactions in the body, the researchers discovered a distinct link between the gene and excessively smelly armpits and wet, sticky earwax. Specifically, the researchers expressed the ABCC11 gene and variant proteins in cultured human embryonic kidney cells and showed exactly how the ABCC11 gene produces the wet-type earwax and excessive armpit odor. This discovery could lead to practical tools for clinicians—especially those in developing nations—to rapidly identify

who may have a higher risk for breast cancer.

"Wet, sticky earwax might not be easily noticed, but most people can't miss unpleasant body odors," said Gerald Weissmann, M.D., Editor-in-Chief of The *FASEB Journal*, "As it turns out, the type of ear wax one has is linked to a gene that leads to bad odors from one's armpit. These may become lifesaving clues to the early detection and treatment of breast cancer."

More information: Yu Toyoda, Aki Sakurai, Yasumasa Mitani, Masahiro Nakashima, Koh-ichiro Yoshiura, Hiroshi Nakagawa, Yasuo Sakai, Ikuko Ota, Alexander Lezhava, Yoshihide Hayashizaki, Norio Niikawa, and Toshihisa Ishikawa. Earwax, osmidrosis, and breast cancer: why does one SNP (538G>A) in the human ABC transporter ABCC11 gene determine earwax type? *FASEB J.* 2009 23: 2001-2013.

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