Life in the pits: Scientists identify the key enzyme behind body odor

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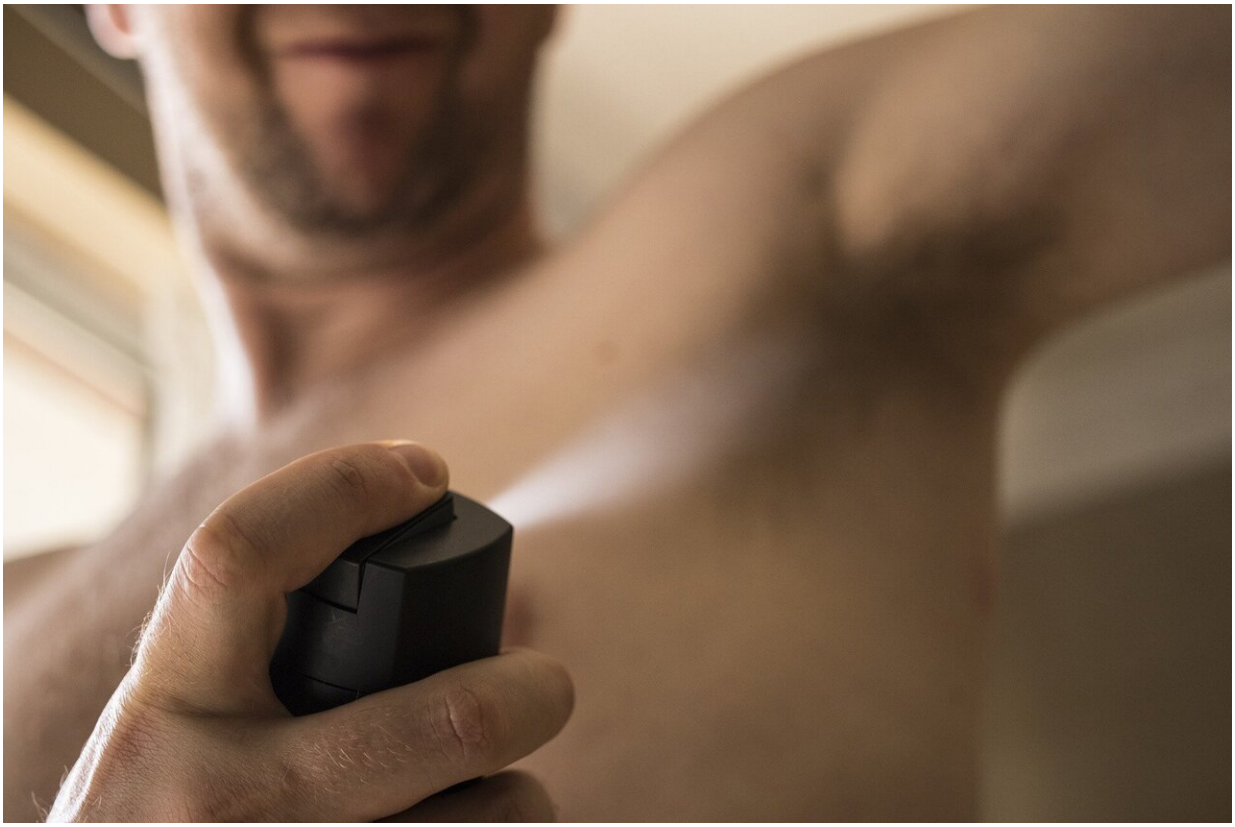

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Scientists have discovered a unique enzyme responsible for the pungent characteristic smell we call body odor or BO.

Researchers from the University of York have previously shown that only a few bacteria in your armpit are the real culprits behind BO. Now the same team, in collaboration with Unilever scientists, has gone a step further to discover a unique "BO enzyme" found only within these bacteria and responsible for the characteristic armpit odor.

This new research highlights how particular bacteria have evolved a specialized enzyme to produce some of the key molecules we recognize as BO.

Co-first author Dr. Michelle Rudden from the group of Prof. Gavin Thomas in the University of York's Department of Biology, said: "Solving the structure of this "BO enzyme' has allowed us to pinpoint the molecular step inside certain bacteria that makes the odor molecules. This is a key advancement in understanding how body odor works, and will enable the development of targeted inhibitors that stop BO production at source without disrupting the armpit microbiome."

Your armpit hosts a diverse community of bacteria that is part of your natural skin microbiome. This research highlights Staphylococcus hominis as one of the main microbes behind body odor.

Furthermore, the researchers say that this "BO enzyme" was present in S. hominis long before the emergence of Homo sapiens as a species, suggesting that body odor existed prior to the evolution of modern humans, and may have had an important role in societal communication among ancestral primates.

This research represents an important discovery for Unilever R&D, made possible by its long-standing academic-industry collaboration with the University of York. Unilever co-author Dr. Gordon James said: "This research was a real eye-opener. It was fascinating to discover that a key odor-forming enzyme exists in only a select few armpit bacteria—and

evolved there tens of millions of years ago."

"The molecular basis of thioalcohol production in human body odor" is published in the journal *Scientific Reports*.

More information: The molecular basis of thioalcohol production in human body odour, *Scientific Reports* (2020). DOI: 10.1038/s41598-020-68860-z

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