Preservatives and probiotics: Do additives in meat and cheese harm gut bacteria?

Nisin, a lantibiotic, is a preservative used in the production of foods including packaged meat such as sausages and dairy products such as cheese. Led by Dr Zhenrun J Zhang, researchers at the University of Chicago decided to study the effect of nisin on commensal gut bacteria, to see how its inclusion in our foods impacts our gut microbiome.

The research team mined a public database of human gut bacteria genomes and identified genes for producing six different gut-derived lantibiotics, which closely resemble nisin, including four of which were new. They then produced versions of these lantibiotics to test their effects on both pathogens and commensal gut bacteria. The researchers found that while the different lantibiotics had varying effects and did not all perform in exactly the same way, they all killed the pathogens and the commensal gut bacteria. The result was, in effect, indiscriminate.

“This study is one of the first to show that gut commensals are susceptible to lantibiotics, and are sometimes more sensitive than pathogens,” adds Zhang. “With the levels of lantibiotics currently present in food, it’s very probable that they might impact our gut health as well.”

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