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How have starvation shaped ancient variation in our genomes

LE JEUDI 20 JANVIER 2022 À 12 H 30

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Our work integrates evolutionary biology, anthropology, and high-throughput molecular tools to investigate the roots of human variation. We showed that changes in the human diet have driven adaptation throughout human evolution. In particular, we presented evidence that an exonic deletion affecting the growth hormone receptor gene was nearly fixed in the ancestral population of anatomically modern humans and Neanderthals but underwent a recent adaptive reduction in frequency in East Asia. We documented that this deletion is associated with protection from severe malnutrition. Using a novel mouse model, we found that, under calorie restriction, this deletion leads to the female-like gene expression in male livers and the disappearance of sexual dimorphism in weight. The sex- and diet-dependent effects of the deletion are consistent with a model in which its allele frequency varies throughout human evolution due to fluctuations in resource availability.

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