

# Of skin and teeth: Identifying key differences in Asians

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Authors Susana Seixas et al., in a new study recently published in the advanced online edition of *Molecular Biology and Evolution*, have found key differences in a suite of genes important for skin and bone development that may have bestowed specific advantages amongst Asians.

They focused on the human kallikrein cluster (KLK), a suite of fifteen genes clustered on the long arm of chromosome 19 that play a key role in human adaptation and reproductive biology. The genes function as molecular scissors called serine proteases, which target and clip other proteins involved in semen function, teeth development, skin and blood pressure maintenance, and even cancer.

The team undertook a large study to identify 1,419 DNA [differences](#) in the KLK genomic cluster amongst Eastern Asian (Han Chinese and Japanese), African and European populations by using new DNA data from the 1000 Genomes project.

The most striking differences were narrowed down to two regions near the KLK4 gene, which were found to severely hamper the activity of KLK4 only in Asian populations. This may contribute to dental traits typically found in Asians and important in controlling skin conditions like eczema, which is much more prevalent in northern Europe than in Asia.

"We further predict many effects related to male biology and other

physiological functions with possible outcomes in human complex diseases, said Seixas. "KLK4 is a pervasive protease, expressed in a wide range of tissues, and frequently over-expressed in prostate, ovarian and breast cancers, where it is thought to play a role in tumor progression and metastasis.

We are only at the tip of the iceberg, but one very exciting possibility is that the same differences may confer a selective advantage to offering a reduced risk to several cancer types with lower incidences in East-Asia."

Provided by Oxford University Press

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