

Thème 3 – Une histoire du vivant.

Studies reveal genetic variation driving human evolution.

Based on the analysis of this discovery describe how natural selection drives human evolution.

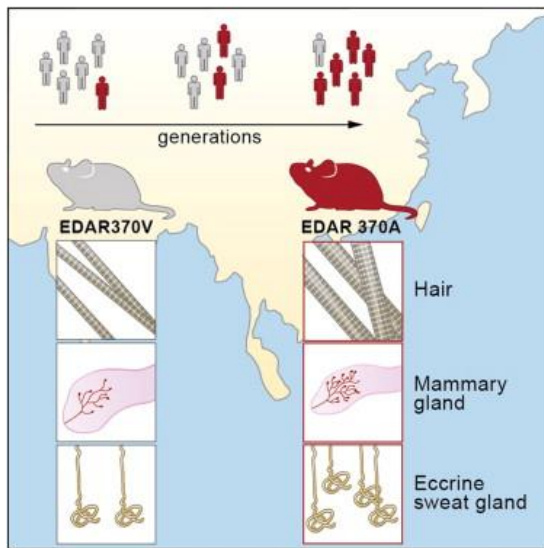
Document 1: human past lays in our genome

"There is an archaeological record hidden in our DNA that can help point us to the traits that have been critical in human survival, such as resistance to infectious diseases and new abilities to respond to different environments," says Pardis Sabeti of Harvard University.

Sabeti and her team found that a previously reported variant of the EDAR gene, which arose in central China about 30,000 years ago, increased the number of sweat glands in genetically modified mice and had other effects not previously reported in humans; their discovery demonstrates that animal models can be used to study the biological changes expected to result from human genetic variation. This gene variant was also associated with an increase in the number of sweat glands in a present-day Han Chinese population. By enhancing sweating, this EDAR variant could have helped humans adapt to humid climates that may have existed in China 30,000 years ago.

https://www.eurekalert.org/pub_releases/2013-02/cp-tcs021113.php

Document 2: the use of an animal model



We generated a knock-in mouse model and find that, as in humans, hair thickness is increased in EDAR370A mice. We identify new biological targets affected by the mutation, including mammary and eccrine glands. Building on these results, we find that EDAR370A is associated with an increased number of active eccrine glands in the Han Chinese.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3575602/>

Glossary:

Eccrine glands: glandes exocrine (qui déversent à l'extérieur du corps)

Knock-in (mutation) refers to a mutation that is created by replacing the selectable marker of a mutation by the desired artificially generated allele of the gene.