ANCIENT DNA

A window into our past

Fossilised dental plaque

Social relationships

Diet

Behaviour

Palaeogenomics

This technique consists of recovering and analysing ancient fossils' genetic material. After analysing the fossilized micro-organisms on the dental plaque of 5 Neanderthals, new information about the diet, behaviour, and relationships between humans and Neanderthals was revealed.

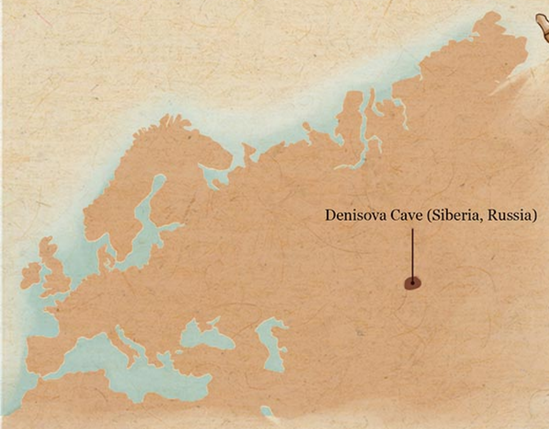
DNA as a history book

The DNA of a single person contains the evolutionary history of our entire species.

Little finger bone

Molars

Denisova Cave (Siberia, Russia)



DENISOVA GIRL

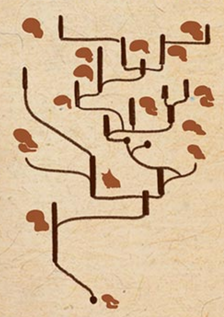
>70.000 years ago

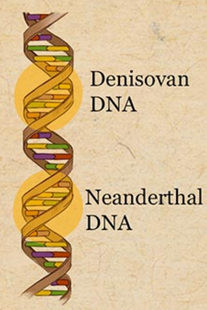
The reconstruction of Denisovans

Thanks to the extraction of the DNA from the last phalanx of this individual's pinky finger, the appearance of this population was reconstructed for the first time.

Just one finger bone was able to disclose as many as 56 distinctive features of these hominids!

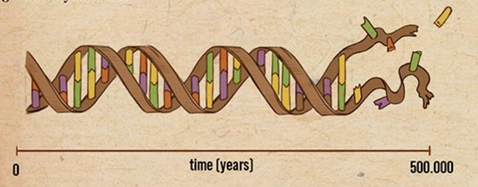
Human evolution: a story of diversity





The limits of DNA

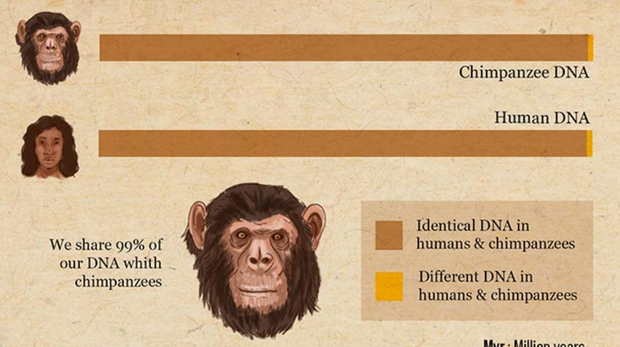
DNA degradation is a significant problem when trying to decipher genetic information on fossils that are over 500.000 years old.



Palaeoproteomics

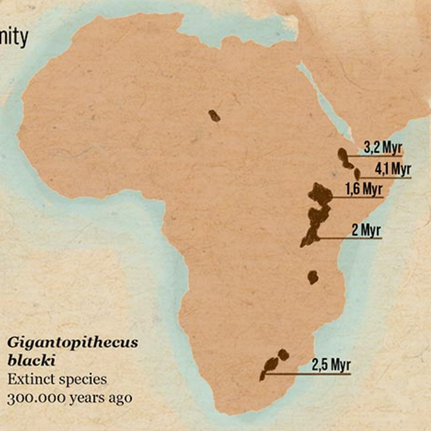
This technique is based on extracting proteins (molecules that are preserved much better over time) from the fossilised material to extract genetic information. This method, however, gives us more limited information.

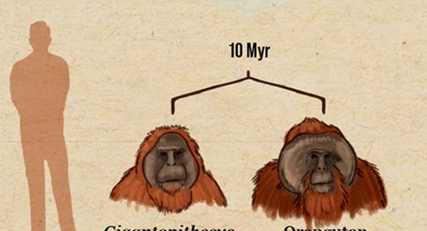
Proteins



The cradle of humanity

In Africa we can locate the archaeological sites where the oldest fossils of the human lineage have been found. Given their age, the DNA in this fossils has not survived the course of time.





ARTIFICIAL INTELLIGENCE: DEEP LEARNING

Algorithm development

The IBE is working on artificial intelligence that simulates all the possible paths human history might have followed.

This has allowed us to predict that there may have been a third extinct ancient human population.

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In collaboration with: GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN FECYT INNOVACIÓN CSIC

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