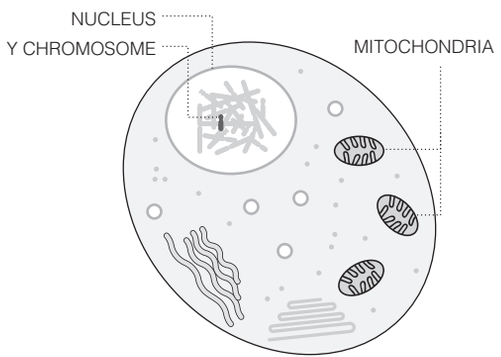
Tracing Human History With Genetics

The Genographic Project seeks to clarify human history by testing genes from different groups for common ancestors. Here is how it works.

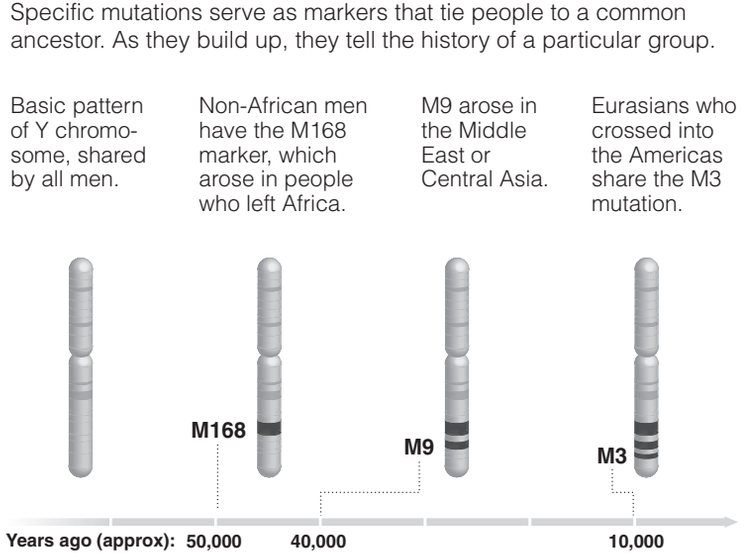
Some bits of genetic material are not subject to shuffling when parents' DNA mixes. Examples are the Y chromosome and the DNA in mitochondria, tiny structures that provide energy to the cell.



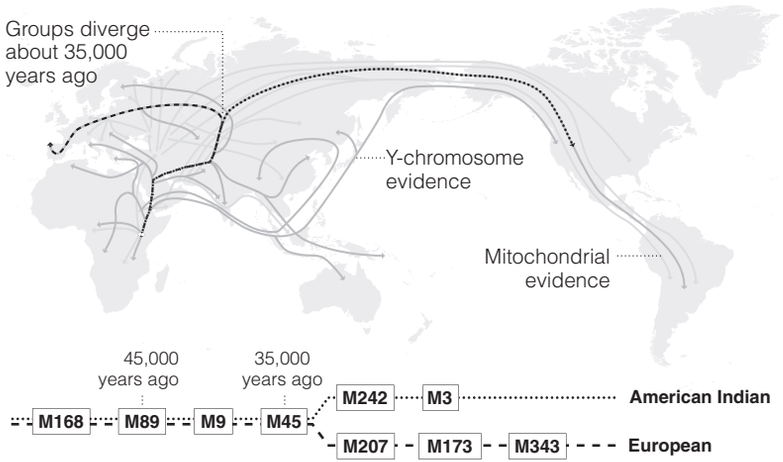
Since only males have a **Y chromosome**, mutations on this gene give information about the history of the paternal lineage.

All **mitochondrial DNA** comes from the mother. Thus, mutations in the mitochondrial DNA track changes through the maternal lineage.

Specific mutations serve as markers that tie people to a common ancestor. As they build up, they tell the history of a particular group.



As an example, two men who might live in the United States — an American Indian and a descendent of Europeans — shared an ancestor in Asia about 35,000 years ago, markers on their Y chromosomes show.



Source: National Geographic; The Genographic Project

James Bronzan/The New York Times