For a long time, scientists believed that Neanderthals were the only descendants of the ancestral lineage in Africa. However, recent investigations have brought to light another sub-species that may have evolved around the same time as the Neanderthals. The Neanderthals moved from Africa around 300,000 years ago towards Europe and Western Asia, and evolved into present-day humans. The other species that has surfaced in recent investigations is known as the Denisovans, as their remains were first found in the Denisovan cave in the Altai Mountains of Southern Siberia.

In 2008, a group of researchers were on a digging expedition in a cave in Southern Siberia when they came across a fossilized distal phalanx, a bone found at the tips of fingers and toes. Not clear about the human sub-species to which the bone belonged, scientists extracted DNA from the bone and subjected it to DNA sequencing. Once the DNA sequencing results were ready, they studied the regions of similarity between this sequence and that of present-day humans and Neanderthals. They found that the DNA sequence of the bone showed considerable similarity with the sequence of the Neanderthals, yet not enough to be considered one of them. Hence, scientists classified this sequence under a new group of archaic humans, which were called Denisovan after the cave in which it was discovered.

Further DNA comparison studies between the Denisovan sequence and the sequences of other groups of humans revealed several interesting results. In particular, sequence similarity was found between Denisovan DNA and that of the Melanesians living in the region of Papua New Guinea. It was shown that the Denisovans have contributed a small part of their DNA to the Melanesians. The most likely explanation for this similarity is that interbreeding occurred between the Denisovans living in Eurasia and the ancestors of the Melanesians. Around 45,000 years ago, these Melanesian ancestors settled in Papua New Guinea carrying a part of the Denisovan DNA in their genomes. This is indicative of the hypothesis that the Denisovans were spread across a large part of Asia in low numbers, thus contributing to a low genetic diversity in the population.

An in-depth analysis of these new findings has led to the development of the theory that the Neanderthals, Denisovans, and modern humans have descended from *Homo heidelbergensis*. When this species left Africa around 400,000 years ago, it split into two groups. One group moved northwest into West Asia and Europe and came to be known as the Neanderthals. The other group moved east and evolved into the Denisovans. The people who were left in Africa during this time evolved into our ancestors, the *Homo sapiens*. They eventually left Africa around 60,000 years ago and settled in different parts of the world.

Genetic studies on various sub groups of the population throw light on the fact that a single DNA sequence of present-day humans survived and thrived among several different variants. Carrying out comparative studies on the DNA sequences of Denisovans, Neanderthals, and modern humans help scientists identify those DNA segments that are unique in the three sequences. These types of studies help us gain a better understanding of why our species survived and why the other species were eventually wiped out.