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DNA Researcher Svante Pääbo

For the decoding of Neandertaler genomes, Svante Pääbo receives the famous Körber Prize 2018.

What is the difference between Neandertal and the modern human being? The Swedish Svante Pääbo has been associated with the question for a long time. His urge for research brought him an answer and all types of rewards. His work has revolutionized our understanding of evolution. He is regarded as the founder of paleogenetics, a research branch which investigates the inheritance of ancient organisms in order to determine from that the course of evolution. For his pioneering performance he was awarded on the 7th September 2018 in Hamburg Municipal building the 750000€ endowed prize for the European Science.

As in the 1980s first molecular biological techniques were developed in order to sequence DNA, Pääbo was the first who wanted to try out these. The Nobel Prize winner Sune Bergström and Karin Pääbo placed in the son in his very childhood the curiosity in science. At the university of Uppsala he had studied Egyptology and medicine, what lay there nearer, as not only the new technology on the fossilized animals like mammoths but also once tissue structure experiment of extinct human being to put to the test.

In 1984 he succeeded for the first time to isolate the inheritance of a mummy. At the turn of a millennium he carried himself one step further. It was always really a great dream to investigate the Neandertaler closely says Pääbo. He was the nearest relative to the present day human being. These genomes resemble the present human being as also with those of apemans which enable us to determine when genetic changes enter into our ancestors.

The Swede began to sequence the complete genome of Stone Age men. The implements (hand tools) to this, he had learnt with at the University of California in Berkeley with Allan Wilson who is one of the first to found the molecular biological methods to compare the different human races scientifically.

Certainly the intention of the ambitious researchers appeared to condemn the funeral. The unique remains of the Neandertaler in the soil during the millennium were overgrown by bacteria and fungi. The consequence 99.9% of the DNA found within do not descend from Stone Age

men but from the microbes. To these the inspected DNA occurs only in short broken piece – this gigantic puzzle put together made many scientists to hold it therefore impossible.

Pääbo did not get himself kept off from that. With his team he longed for clean space conditions as also efficient extraction method which the output on Neandertaler. DNA clearly improved. The puzzled out software helped to compare the DNA cut up with reference genomes of chimpanzee and human being. In 1996 finally it was successful to isolate the first Neandertal sequences. That we have immediately recognized that those are human resembling but are not identical with the existing living human being – says the researcher.

Scientifically this was a breakthrough which the Max Planck Society recognized. It made him the founding director of Max Planck Institute for Evolutionary Anthropology in Leipzig. It was successful to reconstruct, one first version of genomes of Stone Age human being. In 2014 then decoded the total genomes.

The DNA comparison gave out that modern human being and Neandertaler before 50000 years have called in evidence of common new generation. We have found out about 30000 positions in which the genomes of almost all modern human beings of which the Neandertaler as also of the apeman discriminate sounds Pääbo's answer to the questions posed in the beginning on the difference between Neandertaler and homosapiens.

About Svante Pääbo:

- Is the director at the Max Planck Institute for Evolutionary Anthropology
- Was post-doctorate fellow from the University of California in Berkeley later Professor at the University of Munich.
- Studied Egyptology, Russian, History of Science and Medicine at the University of Uppsala.
- Among others, a member of National Academy of Sciences and recipient of big merit cross with star of Federal Republic of Germany.
- Was born in 1955 in Stockholm as the son of the Swedish Nobel Prize winner.

Source: Der DNA-Fahnder der ersten Stunde-von Bettina Reckter, VDI nachrichten, 7 September 2018, Nr. 36.