

**Jane Doe**

## **Neanderthal Index**

**H2821 – DP10-18022**

Most humans are part **Neanderthal**. Europeans have between 1 and 4 percent Neanderthal genes on a conservative estimate (Green et al 2010). These entered the *Homo sapiens* gene pool from interbreeding probably in the East Mediterranean or Arabia as long ago as 80,000 years, when Neanderthal males first fathered babies with proto-Eurasian mothers. A founder effect ensued, and Neanderthal genes were well preserved in the human populations who expanded into the Middle East, India, Southeast Asia, Australia, Native America and Europe. Isolated and marginalized populations appear, in some cases, to have retained more than others. Because Neanderthals did not live in Africa, Africans show the smallest amount. Neanderthal genes are believed to have been responsible for greater strength, cold adaptation, geo-spatial orientation, motor coordination and other traits in our ancestors. One measure of the Neanderthal legacy may be the **occipital bun** or bony ridge at the back of the skull found in many archaic populations. It is present in Turks and Melungeons, an American ethnic group, where it is called the Anatolian bump or Central Asian ridge.

The Neanderthal Index reports any strong matches between your **DNA fingerprint** or unique **CODIS** marker profile and populations identified as “archaic,” that is, whose composition retains the earliest earmarks of out-of-Africa genetics. Archaic populations were by-passed by many of the mainstream developments of human history such as agriculture, manufacturing and city-states. Such peoples as the Saami and Berbers lived the lives of hunter-gatherers and herders in desolate areas with simple social structures. These comparisons are based on **autosomal markers** and statistical population samples assembled from studies published in the field of forensic science since the mid-1990s. The stronger the match the higher the likelihood that your ancestors gave you Neanderthal genes. A **Random Match Probability** (RMP) expresses commonness or rarity of the subject’s profile in a given population, implying strength or weakness of genetic resemblance to that population.

### **Above-Par Population Matches for Jane Doe**

<b>Population</b>	<b>RMP</b>
Indian	1 in 506 billion
Turkish	1 in 582 billion
Greek	1 in 1 trillion
Greek Cypriot	1 in 1 trillion
East Timor	1 in 1 trillion

### Lower Tier Population Matches for Jane Doe

Population	RMP
Syrian	1 in 3 trillion
Native American	1 in 3 trillion
Kurdish	1 in 3 trillion
Afghanistani	1 in 3 trillion
Algeria	1 in 3 trillion
Libyan	1 in 5 trillion
Arabian	1 in 5 trillion
Basque	1 in 5 trillion
Maghreb	1 in 8 trillion
Moroccan	1 in 9 trillion
Egyptian	1 in 10 trillion
Australian Aboriginal	1 in 11 trillion
Tunisian	1 in 14 trillion
Iraqi	1 in 16 trillion
Saharawis	1 in 24 trillion

### Finno-Uralic Match

Of all archaic populations studied to date, the [Finnish](#), [Estonian](#), [Saami](#) (Laplander) or other [Ugric](#) or [Uralic](#) people retain the strongest links to the original colonizers of Europe because of their relative isolation and homogeneity down through history. They share a high incidence of mitochondrial haplogroup U with the Berbers, another archaic population (Achilli et al 2005). Haplogroup U, termed Ursula in the scheme of [Oxford Ancestors](#), is the oldest branch of the human tree that took root in Europe. U colonized Europe as early as 50,000 years ago and co-existed with (and as we now know, intermarried with) Neanderthals, its occupants for hundreds of thousands of years before. The following high matches were retrieved for your profile in the [ENFSI](#) database, which specifically covers 22 European populations, including Estonia and Finland.

#### Finno-Uralic Data for Joan Doe

Overall European Rank	Population	Actual Matching Probability	Sample Size Bias Corrected
5	Finland	1.1285E-13	1.3106E-13
12	Estonia	1.1173E-13	1.7704E-13

### Interpretive Analysis and Result

The subject has twice the probability of having genetic relatives in India and Turkey than Greece. Descending below those matches, Native American and Middle Eastern affinities are still three times stronger than Northern European such as British. Because of high matches with India, Turkey, Greece, Syria, Basques and Berbers, as well as with Finns and Estonians, the subject probably has a Neanderthal Index estimated at 5.0 or Very High on a scale of 0.1 to 5.0.

This test does not directly measure or determine what kind of genes you have but is based on probabilistic predictions of the occurrence of your individual autosomal profile in archaic populations retaining Neanderthal genes. Only a full genomic sequencing of

the sort employed by the Human Genome Project or Draft Neanderthal Genome can map your entire genetic heritage as encoded in more than 3 billion nucleotides within your DNA. Nevertheless, because of the laws governing large numbers, this test can suggest strength or weakness of Neanderthal admixture in your overall genetic composition and, correspondingly, traits associated with Neanderthal ancestry. The growing list of physical features includes: large amount of body hair, red hair, blue or green eyes, fair skin, large eyes, greater fertility, early maturation into adulthood, short legs and forearms, weak knees and shoulders, a strong grip of the hand and fingers, barrel chest, wide pelvis, rugged brow ridge, large, sometimes odd-shaped noses, and, as mentioned, prominent occipital bun. Ongoing research promises to reveal even more about past human admixture with Neanderthals.

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DNA Consultants

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### References and Suggestions for Further Reading

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### Rubrics for Understanding Your Score

**Very High** (4.0-5.0). You have numerous high matches to Archaic Populations, including a strong match in your European ancestry to Finno-Uralic peoples.

**High** (3.0-3.9). You have prominent matches to Archaic Populations, not necessarily including Finno-Uralic peoples.

**Average** (2.0-2.9). You have matches to Archaic Peoples on a par with other people's results.

**Low** (1.0-1.9). Your matches to Archaic Populations are generally below other people's results.

**Very Low** (0.1-0.9). You have no significant matches to Archaic Populations.

# Neanderthal Sites and Homeland



Source: The Neanderthal Genome, Science Magazine, 2010.



THIS DOCUMENT CERTIFIES THAT

*Jane Doe*

Ordered a Neanderthal Index Analysis  
Producing the Following Result



**5.0**

**—Very High—**

*Down N Yates*

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