Ashkenazi Jews – Who do we think we are?
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DNA Testing

There are three major types of genealogical DNA tests: Autosomal and X-DNA, Y-DNA and Mt DNA.

- **Autosomal** tests look at chromosomes 1–22 and X. The autosomes (chromosomes 1–22) are inherited from both parents and all recent ancestors. The X-chromosome follows a special inheritance pattern. Ethnicity estimates are often included with this sort of testing.
- **Y-DNA** looks at the **Y-chromosome**, which is inherited father to son, and so can only be taken by males to explore their direct paternal line.
- **Mt DNA** looks at the **mitochondria**, which is inherited from mother to child and so can be used to explore one's direct maternal line.

Y-DNA and Mt DNA cannot be used for ethnicity estimates, but can be used to find one's haplogroup, [i.e., a group of genes in an organism that are inherited together from a single parent], which is unevenly distributed geographically. https://en.wikipedia.org/wiki/Genealogical_DNA_test

What kind of DNA test does MyHeritage provide?

The MyHeritage DNA kit is an autosomal DNA test for genetic genealogy, designed to discover and identify relatives and ancestors, through DNA matches with MyHeritage's genealogical matching database.

Humans have 46 chromosomes. The MyHeritage DNA test looks at the first 44 'autosomal' chromosomes, that aren't the X or Y chromosomes determining your gender, identifying linked DNA segments. It analyses the DNA inherited from your mother and father, four grandparents, eight great-grandparents, and so on - to provide you with a breakdown of your ethnic percentages and connect you with relatives descended from any of your ancestral lines within approximately the last 6 generations. Both men and women can take the MyHeritage DNA test, and the results are not limited to just the direct maternal or paternal lines.

https://faq.myheritage.com/DNA/MyHeritage-DNA-Test/951693691/What-kind-of-DNA-test-does-MyHeritage-provide.htm

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<u>Who are the Ashkenazim?</u>

Ashkenaz refers to a people and a country bordering on Armenia and the upper Euphrates; listed in Genesis 10:3 and I Chronicles 1:6 among the descendants of Gomer. The name Ashkenaz also occurs once in Jeremiah 51:27 in a passage calling upon the kingdoms of Ararat, Minni, and Ashkenaz to rise and destroy Babylon. Scholars have identified the Ashkenaz as the people called Ashkuza in Akkadian...

...[However,] the name Ashkenaz was [also] applied in the Middle Ages to Jews living along the Rhine River in northern France and western Germany.

The centre of Ashkenazi Jews later spread to Poland-Lithuania and now there are Ashkenazi settlements all over the world. The term "Ashkenaz" became identified primarily with German customs and descendants of German Jews...

Shira Schoenberg, 'Judaism: Ashkenazim', Jewish Virtual Library
https://www.jewishvirtuallibrary.org/ashkenazim

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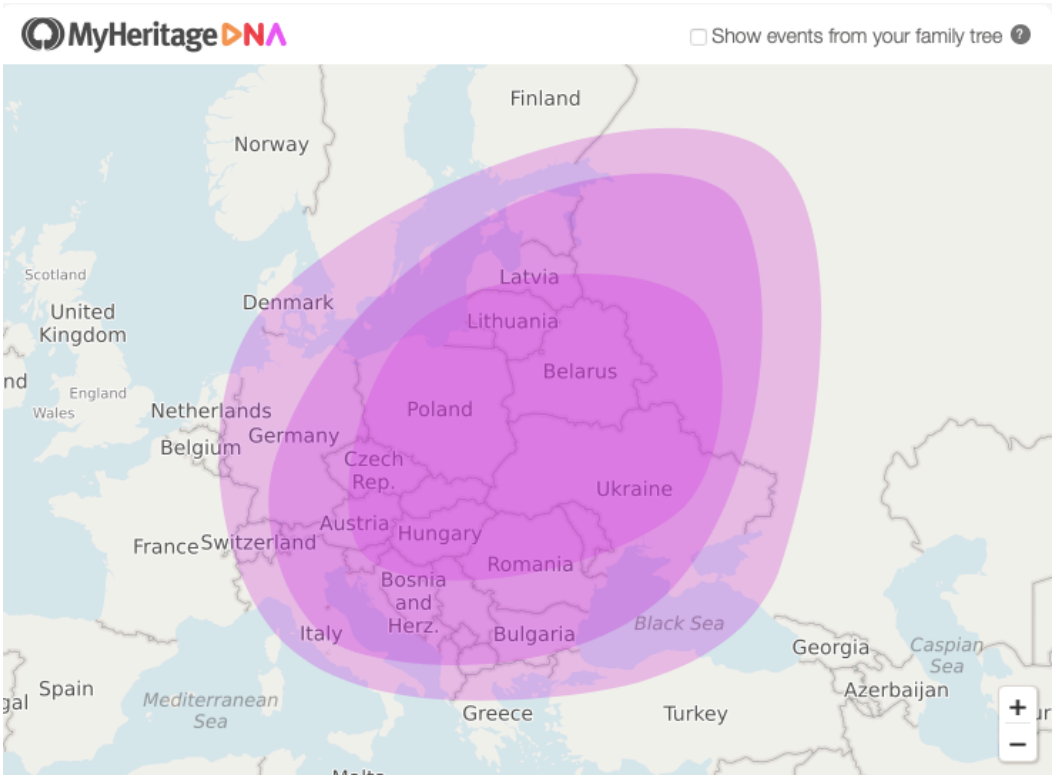

Origins of Ashkenazim Jews

Little is known about the history of Ashkenazi Jews before they were expelled from the Mediterranean and settled in what is now Poland around the 12th century. On average, all Ashkenazi Jews are genetically as closely related to each other as fourth or fifth cousins, said Dr. Harry Ostrer, a pathology, paediatrics and genetics professor at the Albert Einstein College of Medicine in New York and the author of "*Legacy: A Genetic History of the Jewish People*" (Oxford University Press, 2012)...

Tia Ghose, 'Surprise: Ashkenazi Jews Are Genetically European', 8th October 2013
https://www.livescience.com/40247-ashkenazi-jews-have-european-genes.html

...While legends abound, it is not entirely clear when Jews began populating the Rhine Valley, or where they had come from. Details in liturgy and other clues point to the Holy Land as a possible point of origin. Beginning around the 10th Century, the Jewish communities straddling France and southern Germany rose to prominence as a learned and vital centre of Jewish life. Ashkenaz is the Biblical name of a grandson of Japhet, the ancestor of the Romans. Perhaps because the area had been part of the Roman Empire, the region, its language, and its (non-Jewish) inhabitants were associated with that name. In time, the Jews living there became known as Ashkenazim as well....

Menachem Posner, 'The Origins of Ashkenaz', Chabad.org, 2018
https://www.chabad.org/library/article_cdo/aid/4095674/jewish/Ashkenazim-and-Sephardim.htm

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But what does the science say…

A 2006 study* found Ashkenazi Jews to be a clear, homogeneous genetic subgroup. Strikingly, regardless of the place of origin, Ashkenazi Jews can be grouped in the same genetic cohort – that is, regardless of whether an Ashkenazi Jew's ancestors came from Poland, Russia, Hungary, Lithuania, or any other place with a historical Jewish population, they belong to the same ethnic group. The research demonstrates the endogamy of the Jewish population in Europe and lends further credence to the idea of Ashkenazi Jews as an ethnic group.

'Ashkenazi Jews', Wikipedia
https://en.wikipedia.org/wiki/Ashkenazi_Jews#cite_note-pmid17044734-15
* https://archive.is/20120709050812/http://genetics.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pgen.0020143

…An international team of scientists announced on the 9th September 2014 that they had come to the conclusion that **all Ashkenazi Jews** are descended from an original group of about 350 individuals who lived between 600 and 800 years ago. These people were of Middle-Eastern and European descent.

The analysis was done by comparing the DNA data of 128 Ashkenazi Jews with the DNA of a reference group of 26 Flemish people from Belgium, and then working out which genetic markers are unique to people of Ashkenazi descent.

The similarities in the Ashkenazi genomes allowed the scientists to identify a base point from which all Ashkenazi Jews descend. According to the scientists, this effectively makes all modern Ashkenazi Jews 30th cousins, stemming from the same population almost 800 years ago…This discovery also effectively disproves the idea that Ashkenazi Jews were descended from Khazars who converted to Judaism during the 8th or 9th centuries C.E.

Shira Schoenberg, 'Judaism: Ashkenazim', Jewish Virtual Library
https://www.jewishvirtuallibrary.org/ashkenazim

The Khazar theory

…Since the late 19th century, the so-called "Khazarian theory" has promoted the idea that a bulk of Ashkenazic Jews living in Eastern Europe descended from medieval Khazars, a semi-nomadic Turkic people who founded a powerful polyethnic state in the Caucasus and north to the Caspian, Azov and Black seas. The theory received a boost with the 1976 publication of *"The Thirteenth Tribe,"* a book by Arthur Koestler. More recently, the Khazarian hypothesis has been promoted by authors like the Tel Aviv University professor of history Shlomo Sand and Tel Aviv University professor of linguistics Paul Wexler, as well the geneticist Eran Elhaik.

[However,] despite this institutional backing, the theory is absolutely without evidence [either archeologically, historically, linguistically, genetically or via onomastics, i.e. the study of proper names]…

[Of note, though there is evidence of the existence of Jews in the region going back to the 10th Century,] it is only during the 16th century that references to Jews appear in large

territories of Ukraine, Belarus and Lithuania, and even in the mid-16th century local communities were not populous.

…Globally speaking, all arguments suggested by proponents of Khazarian theory are either highly speculative or simply wrong. They cannot be taken seriously.

Alexander Beider 'Ashkenazi Jews Are Not Khazars. Here's The Proof', 25th September, 2017

https://forward.com/opinion/382967/ashkenazi-jews-are-not-khazars-heres-the-proof/

Ashkenazi Jews - our origins

The majority of Ashkenazi Jews are descended from prehistoric European women, according to a [newly] published study in *Nature Communications*. While the Jewish religion began in the Near East, and the Ashkenazi Jews were believed to have origins in the early indigenous tribes of this region, new evidence from mitochondrial DNA, which is passed on exclusively from mother to child, suggests that female ancestors of most modern Ashkenazi Jews converted to Judaism in the north Mediterranean around 2,000 years ago and later in west and central Europe.

The new findings contradict previous assertions that Ashkenazi mitochondrial lineages originated in the Near East, or from mass conversions to Judaism in the Khazar kingdom, an empire in the north Caucasus region between Europe and Asia lasting from the 7th century to the 11th century whose leaders adopted Judaism.

Kate Yandell, 'Genetic Roots of the Ashkenazi Jews', October 8th 2013

https://www.the-scientist.com/daily-news/genetic-roots-of-the-ashkenazi-jews-38580

The origins of Ashkenazi Jews remain highly controversial. Like Judaism, mitochondrial DNA is passed along the maternal line. Its variation in the Ashkenazim is highly distinctive, with four major and numerous minor founders. However, due to their rarity in the general population, these founders have been difficult to trace to a source. Here we show that all four major founders, 40% of Ashkenazi [mitochondrial DNA] variation, have ancestry in prehistoric Europe, rather than the Near East or Caucasus.

Furthermore, most of the remaining minor founders share a similar deep European ancestry. Thus the great majority of Ashkenazi maternal lineages were not brought from the Levant, as commonly supposed, nor recruited in the Caucasus, as sometimes suggested, but assimilated within Europe.

These results point to a significant role for the conversion of women in the formation of Ashkenazi communities, and provide the foundation for a detailed reconstruction of Ashkenazi genealogical history.

D. Costa et al, 'A substantial prehistoric European ancestry amongst Ashkenazi maternal lineages', 2013

https://www.nature.com/articles/ncomms3543

…[R]ecent DNA analysis of Ashkenazic Jews revealed that their maternal line is European. It has also been found that their DNA only has 3% ancient ancestry which links them with the Eastern Mediterranean (aka the Middle East) – namely Israel, Lebanon, parts of

Syria, and western Jordan. This is the part of the world Jewish people are said to have originally come from – according to the Old Testament. But 3% is a minuscule amount, and similar to what modern Europeans as a whole share with Neanderthals. So given that the genetic ancestry link is so low, Ashkenazic Jews' most recent ancestors must be from elsewhere.

Eran Elhakm

'Ashkenazic Jews' mysterious origins unravelled by scientists thanks to ancient DNA'
The Conversation, 5th September 2018
https://theconversation.com/ashkenazic-jews-mysterious-origins-unravelled-by-scientists-thanks-to-ancient-dna-97962

What maternal [Mitochondrial] DNA has told us

…[Martin Richards, an archaeogeneticist at the University of Huddersfield in England] and his colleagues analysed mitochondrial DNA…from more than 3,500 people throughout the Near East, the Caucasus [i.e., a region occupied by Russia, Georgia, Azerbaijan, and Armenia] and Europe, including Ashkenazi Jews.

The team found that four founders were responsible for 40% of Ashkenazi mitochondrial DNA, and that all of these founders originated in Europe. The majority of the remaining people could be traced to other European lineages.

All told, more than 80 percent of the maternal lineages of Ashkenazi Jews could be traced to Europe, with only a few lineages originating in the Near East.

Virtually none came from the North Caucasus, located along the border between Europe and Asia between the Black and Caspian seas…

…The genetics suggest many of the founding Ashkenazi women were actually converts from local European populations. *"The simplest explanation was that it was mainly women who converted and they married with men who'd come from the Near East,"* Richards told LiveScience.

Another possibility is that Jews actively converted both men and women among local populations at this time, although researchers would need more detailed study of paternal lineages to test that hypothesis, Richards said.

Tia Ghose, 'Surprise: Ashkenazi Jews Are Genetically European', Live Science
8th October 2013
https://www.livescience.com/40247-ashkenazi-jews-have-european-genes.html

What about the existence of the so-called 'Kohenim gene'?

Jewish tradition, based on the Torah, is that all *Kohanim* are direct descendants of Aharon, the original *Kohen*. The line of the *Kohanim* is patrilineal, passed from father to son for 3,300 years, or more than 100 generations.

Dr Karl Skorecki [puzzled as to how it is possible for a Sephardic Kohen with roots in Morocco and an Ashkenazi Kohen with roots in Eastern Europe could both be direct descendants from one man, irrespective of differences in stature, skin coloration, hair and eye colour] tested a hypothesis i.e., they should have a common set of genetic markers - a common haplotype – i.e., that of their common ancestor.

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[Cheek swabs] were taken from 188 Jewish males from Israel, England and North America who were asked to identify whether they were a *Kohen*, Levi or Israelite, and to identify their family background. The results of the analysis...were indeed significant. A particular marker, (YAP-) was detected in 98.5 percent of the *Kohanim*, and in a significantly lower percentage on non-*Kohanim*.

In a second study, [they] found that a particular array of six chromosomal markers were found in 97 of the 106 *Kohens* tested...The chances of these findings happening at random is greater than one in 10,000.

[However, in] their second published paper... the researchers included an unexpected finding. Those Jews in the study who identified themselves as Levites **did not** show a common set of markers as did the *Kohanim*...According to tradition, the Levites should also show a genetic signature from a common patrilineal ancestor...

...Many individual *Kohanim* and others have approached the researchers to be tested. The researchers' policy is that the research is **not** a test of individuals, but an examination of the extended family. Having the CMH is not a proof of one's being a *Kohen*, for the mother's side is also significant in determining one's *Kohanic* status. At present, there are no *halachic* ramifications of this discovery. No one is certified nor disqualified because of their Y chromosome markers...

Rabbi Yaakov Kleiman

'The DNA Chain of Tradition - The Discovery of the "Cohen Gene"', 2000

http://www.cohen-levi.org/jewish_genes_and_genealogy/the_dna_chain_of_tradition.htm

...[However,] the identification of this marker has also boosted the credibility of other groups who claim to be descended from ancient Hebrews. The Lemba, a Bantu-speaking group in southern Africa who have long believed that they are the progeny of distant Jews, **also have the DNA sequences indicative of Kohen status. This sequence is also found in the tiny population of modern-day Samaritans in Israel**. Interestingly, their mitochondrial DNA...doesn't match the mitochondrial DNA of other Jews, leading researchers to believe that the sect is descended from Jewish men who married non-Jewish women after the Assyrians conquered ancient Israel.

Sala Levin, 'The Biggest Jewish Genetic Myths of All Time', Moment, 28th July 2012

https://www.momentmag.com/the-biggest-jewish-genetic-myths-of-all-time/

...[With regards to] the Cohen Modal Haplotype, [i.e., the so-called 'Kohanim gene'], it has been discovered this Y-chromosomal set of markers is not unique to Jewish men. It is found commonly among other Middle Eastern men, including those in Yemen, Oman, Iraq, and Palestine, [...] Analysis of additional genetic markers [...] has shown that the CMH occurs on two different ancestral Y-chromosomal types - J1 and J2 - with roughly half occurring on each. These two haplogroups diverged from each other about 25,000 years ago. [...] this record **refutes the idea of a single founder for Jewish Kohanim** who lived in Biblical times. [...] Nevertheless, these results still supported the notion of common origins of CMH lineages in the Middle East, before the Diasporas of the Jewish people into separate communities.

Harry Ostrer. '*Legacy: A Genetic History of the Jewish People* Oxford University Press', 2012

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...Only about half, or less (40-45%), of Ashkenazi Jewish Cohens have the so-called "Kohen gene". A somewhat greater percentage of Sephardic Cohens have the gene. But it doesn't approach 100 percent... Daniel Friedman observes: *"Ashkenazi and Sephardic Cohanim show significant differences in the occurrence frequencies of the haplotypes said to make up the 'Cohen gene'. Israelite populations from both populations do not show the same differences. If the 'Cohen gene' comes from a single Biblical ancestor, the Cohanim seem to have had different genetic histories since the split between Sepharad and Ashkenaz."*

Michael F. Hammer et al, 'Y Chromosomes of Jewish Priest', *Nature*, 2nd January 1997

http://www.khazaria.com/genetics/abstracts-cohen-levite.html