



I thought I was a Luxembourger?

Understanding Your DNA Ethnicity Results

DNA Ethnicity Results

DNA testing has become an important tool in helping us understand our ethnic origins, in combination with researching the paper trails of our ancestors. But DNA tests don't always yield the results we expect. Why is that? The short answer is the reference population a testing company uses to predict your ethnic origins is not an exact science. Luxembourg, the green heart of Europe, has seen population migration for more than 2000 years making pinpoint matches unlikely. Geneticist Adam Rutherford noted these results "don't necessarily show your geographical origins in the past. They show with whom you have common ancestry today" and are accurate to the continent level. Family tradition, coupled with research – the paper trail – are equally important parts of your family's story, in addition to your DNA ethnicity results.

Testing Takeaways

There are a variety of DNA testing companies, but the following are the top three in terms of DNA ethnicity testing. Asking your oldest living relatives to test can yield more specific results, as well as having other members of your family test, since you each inherited a unique combination of your ancestors' DNA.

Company Profile			
User testing base	18 million customers	2 million	3.8 million
Reference Panel	1400 ethnic regions	90 ethnic regions	42 ethnic regions
Other features	Strong genealogical community	mtDNA, Y-DNA testing	Largest international community, affordable
Connect with matches	Yes	Yes	Yes
Link results to family tree	Yes	Yes	Yes
Import/export of results from other testing sites	Export results only	Free raw data upload from Ancestry, MyHeritage, and 23andMe	Free raw data upload from Ancestry, FamilyTreeDNA, and 23andMe
Cost (Aug 2021)	\$99	\$79	\$59 – Summer Sale!

Learn More About It!

Ancestry DNA Reference Panel | support.ancestry.com/s/article/AncestryDNA-Reference-Panel

Are We All Related? TEDEd Video | bit.ly/tededrelated

Copeland, Libby. *The Lost Family: How DNA Testing is Upending Who We Are*. Abrams, 2020.

Europe eyes new rules for 'Wild West' of DNA testing. Politico, January 14, 2020.

www.politico.eu/article/europe-eyes-new-rules-for-wild-west-of-dna-testing

FamilyTreeDNA MyOrigins Population Cluster

learn.familytreedna.com/user-guide/family-finder-myftdna/walkthrough

Genealogical DNA Testing Around the Globe, The DNA Geek, May 11, 2017.

thednageek.com/genealogical-dna-testing-around-the-globe

Kenneally, Christine. *The Invisible History of the Human Race: How DNA and History Shape Our Identities and Our Futures*. Viking, 2014.

The Largest Ancestry Groups in the United States. Business Insider, April 13, 2013.

www.businessinsider.com/largest-ethnic-groups-in-america-2013-8

MyHeritage | faq.myheritage.com/en/dna/ethnicity-estimate

Rutherford, Adam. *A Brief History of Everyone Who Ever Lived: The Human Story Retold Through Our Genes*. The Experiment, 2017.

Siblings Can Have Surprisingly Different DNA Ancestry. Here's Why. National Geographic, March 22, 2018.

bit.ly/siblingDNA

Sykes, Brian. *Seven Daughters of Eve: The Science That Reveals Our Genetic Ancestry*. Norton, 2001.

Your 'Ethnicity Estimate' Doesn't Mean What You Think It Does. Wired, October 2, 2020.

www.wired.com/story/your-ethnicity-estimate-doesnt-mean-what-you-think-it-does

Milestones in Genealogy DNA Testing

140,000 YA	"Modern" humans inhabit the earth, as defined by brain size.
45,000 YA	Oldest woman described in <i>Seven Daughters of Eve</i> lived, whose mitochondrial DNA formed ancient lineages passed on to subsequent generations.
1859	Darwin publishes <i>The Origin of Species</i> describing genetic adaptations he observed.
1866	Gregor Mendel discovers basic principles of genetic inheritance studying sweet peas.
1869	Friedrich Miescher identifies "nuclein" in red blood cells, deoxyribonucleic acid (DNA).
1900	The Eugenics movement begins; hailed as a mathematical science able to predict undesirable human traits, leading to forced sterilizations and involuntary commitments.
1953	Francis Crick and James Watson discover the double helix structure of DNA, in part due to x-ray crystallography results recorded by Rosalind Franklin.
1987	DNA first used as evidence in a criminal proceeding.
1999	First human chromosome decoded.
2000	Direct-to-Consumer DNA testing companies launch, many fail due to false claims they could identify genetic health risks. FamilyTreeDNA first to offer testing for genealogy.
2003	Sequencing completed of the 3.2 billion base pairs comprising the human genome after thirteen years of effort.
2005	National Geographic's Genographic Project launches to map human migration.
2012	Ancestry DNA begins offering autosomal DNA testing.
2018	Familial DNA used to identify perpetrator in search for the Golden State Killer.

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Which test is best?

Ethnicity estimates are an ongoing area of research. Whichever company you choose, be prepared for changes and updates.

- AncestryDNA: DNA Migrations tools that help researchers determine where their ancestors were in the last 200 years, and what larger movements of people they may have been part of. Largest consumer database.
- FTDNA: Mitochondrial and Y-DNA testing. Can export results into MyHeritage, GedMatch and LivingDNA. Ancient DNA origins.
- MyHeritage DNA: Five Jewish reference populations, plus other unique populations like Indigenous Amazonian and Inuit.
- LivingDNA: The United Kingdom, with 21 subsets that provide more detailed results.
- 23andMe: Eastern European or South/Central American ancestry.



- 18 million customers
- 1400 ethnic regions
- Strong genealogical community
- Connect with DNA matches
- Link results to family tree
- Export results only, no importing of raw data
- \$99

Reference Populations

Company	# Individuals in Reference Panel	# Individuals in entire database	# Ethnicity Populations
Ancestry 2021	44,703	>20 million	70
Ancestry 2018	16,636	>15 million	43
Ancestry 2013	3000		26
FamilyTreeDNA 3.0	Not reported	>2 million	90
FamilyTreeDNA 2.0	Not reported	>890,000	24
MyHeritage	Not reported	>2.4 million	42
23andMe	11,091	>10 million	45
LivingDNA	Not reported	Not reported	80 (UK specific)

www.yourdnaguide.com/ydgblog/2019/6/6/dna-ethnicity-estimation-reference-panels



- 2 million customers
- 90 ethnic regions, and ancient DNA
- mtDNA, Y-DNA testing and matching
- Surname and haplogroup projects
- Link results to family tree
- Import results into MyHeritage, GedMatch
- \$79

Key Takeaways

- The best ethnicity estimates will come from the company that has your ancestral population(s) as a reference population. Results will change!
- Some companies allow you to import results from another company, but not Ancestry. Use GedMatch to leverage your results.
- Ask your oldest living relatives to test.
- Ask other family members to test.
- Test at multiple sites.




- 3.8 million customers
- Largest international community
- 42 reference populations
- Free raw data upload
- Link results to family tree
- Most affordable
- \$59 – Summer sale!