

Exploring ethnicity estimates

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Class description

The DNA testing companies will try to assign your ancestry to specific regions and countries from around the world. But why do you get different results from different companies? Why have you been assigned ancestry from Norway or Italy when you have no ancestors from these countries? In this session we will look at a range of results from all the different testing companies. You will get an understanding of the science behind the calculations so that you will be able to understand what the results actually mean. Although for most people the population percentages are nothing more than an interesting conversation piece, in some cases the results can provide important clues for your family history research. For a few people unexpected results can be a life changing experience.

General articles

- Race versus ethnicity. In: *Stanford Encyclopedia of Philosophy*: <https://plato.stanford.edu/entries/race>
- What is ancestry? by Joe Pickrell <https://medium.com/the-seeq-blog/what-is-ancestry-67c8c82cce2c>
- Q&A: Everyone has two family trees – a genealogical tree and a genetic tree by Blaine Bettinger www.thegeneticgenealogist.com/2009/11/10/qa-everyone-has-two-family-trees-a-genealogical-tree-and-a-genetic-tree
- Ancestry inference is precise and accurateish by Razib Khan <https://www.gnXP.com/WordPress/2017/03/23/your-ancestry-inference-is-precise-and-accurateish>
- Ancestry inference won't tell you things you don't care about (but could) by Razib Khan: <https://www.gnXP.com/WordPress/2017/03/23/ancestry-inference-wont-tell-you-things-you-dont-care-about-but-could>
- How to look at population structure by Razib Khan <https://www.gnXP.com/WordPress/2016/10/03/how-to-look-at-population-structure>
- When genetic astrology meets ancient DNA testing by Jennifer Raff: <https://www.forbes.com/sites/jenniferraff/2019/04/09/genetic-astrology-when-ancient-dna-meets-ancestry-testing/#140b18746c69>

ISOGG articles

- Autosomal DNA portal on the ISOGG Wiki: https://isogg.org/wiki/Portal:Autosomal_DNA
- Admixture analyses: https://isogg.org/wiki/Admixture_analyses
- Autosomal DNA statistics: https://isogg.org/wiki/Autosomal_DNA_statistics
- Autosomal DNA testing comparison chart: https://isogg.org/wiki/Autosomal_DNA_testing_comparison_chart
- Cousin statistics: https://isogg.org/wiki/Cousin_statistics
- Genetic ancestry: https://isogg.org/wiki/Genetic_ancestry
- Pedigree collapse https://isogg.org/wiki/Pedigree_collapse

Coop Lab articles

- How many genetic ancestors do I have? <http://gcbias.org/2013/11/11/how-does-your-number-of-genetic-ancestors-grow-back-over-time>
- Our vast shared family tree <https://gcbias.org/2017/11/20/our-vast-shared-family-tree>
- Your ancestors lived all over the world: <https://gcbias.org/2017/11/28/your-ancestors-lived-all-over-the-world>
- Full list of genetic genealogy articles by Graham Coop, all of which are recommended reading: <https://gcbias.org/category/genetic-genealogy>

PCA-based ethnic origins – a series of articles by Rebekah Canada

- Part 1, How it looks: <https://haplogroup.org/pca-based-ethnic-origins-part-i-how-it-looks>
- Part 2, What was it meant for? <https://haplogroup.org/pca-based-ethnic-origins-part-2>
- Part 3, How it is used: <https://haplogroup.org/pca-based-ethnic-origins-part-3>
- Part 4, Fixing the visuals: <https://haplogroup.org/pca-based-ethnic-origins-part-4>
- Part 5, Science and not art: <https://haplogroup.org/pca-based-ethnic-origins-part-5>
- Part 6, Genealogical markers: <https://haplogroup.org/pca-based-ethnic-origins-part-6>

Videos

- The science of admixture percentages by Dr Garrett Hellenthal <https://youtu.be/iGUHMs0TtIs>
- The science of genetic genealogy by Hendrik Poinar, McMaster University <https://youtu.be/KO-eUczzdU>

23andMe

- 23andMe Customer Care articles on the Ancestry Composition feature <https://customercare.23andme.com/hc/en-us/sections/202825047-Ancestry-Composition>
- 23andMe reference populations: <https://customercare.23andme.com/hc/en-us/articles/212169298-Reference-Populations>
- 23andMe Ancestry Composition Guide: <https://www.23andme.com/ancestry-composition-guide>
- 23andMe Ancestry Composition white paper: https://permalinks.23andme.com/pdf/23-16_ancestry_composition.pdf
- 23andMe Ancestry timeline white paper: https://permalinks.23andme.com/pdf/23-14_admixture_date_estimator.pdf

AncestryDNA

- Ethnicity FAQs <https://www.ancestry.co.uk/cs/dna-help/ethnicity/faq>
- AncestryDNA support articles including many on “ethnicity”: <https://support.ancestry.co.uk/s/ancestrydna>
- AncestryDNA reference panel: <https://support.ancestry.co.uk/s/article/AncestryDNA-Reference-Panel>
- List of regions/communities: <https://support.ancestry.co.uk/s/article/List-of-AncestryDNA-Regions>
- New Irish regions: <https://blogs.ancestry.co.uk/ancestry/2019/01/09/launch-new-dna-regions-ireland>
- Ethnicity estimate 2018 white paper: www.ancestrycdn.com/dna/static/images/ethnicity/help/WhitePaper_Final_091118dbs.pdf
- Genetic communities/regions white paper: <https://www.ancestry.com/cs/dna-help/communities/whitepaper>

FamilyTreeDNA

- MyOrigins articles in the FTDNA Learning Centre:
<https://www.familytreedna.com/learn/topics/autosomal-ancestry/myorigins>

Living DNA

- Family Ancestry Results: <https://support.livingdna.com/hc/en-us/sections/360001792171-Family-Ancestry-Results>
- Living DNA regions: <https://support.livingdna.com/hc/en-us/articles/360019480992-Which-regions-can-we-compare-your-ancestry-with->

MyHeritage

- MyHeritage Ethnicity Estimates: <https://www.myheritage.com/help-center/dna/ethnicity-estimate>
- DNA basics Chapter 9: Explaining ethnic regions:
<https://blog.myheritage.com/2018/10/dna-basics-chapter-9-explaining-ethnic-regions>
- Introducing our new ethnicity analysis <https://blog.myheritage.com/2017/06/introducing-our-new-dna-ethnicity-analysis>
- MyHeritage Founder Populations Project: <https://www.myheritage.com/dna/founder-populations>

Uploads/transfers

- FTDNA autosomal DNA transfer: <http://www.familytreedna.com/AutosomalTransfer>
- Living DNA uploads: <https://my.livingdna.com/upload>
- Living DNA upload also available through Findmypast:
<https://www.findmypast.co.uk/ancestry-dna-testing>
- Living DNA/Findmypast uploads: <https://support.livingdna.com/hc/en-us/articles/360012746031-How-do-I-upload-my-data->
- Living DNA – let's talk about uploads: <https://livingdna.com/news/lets-talk-uploads>
- MyHeritage Upload: www.myheritage.com/dna/upload
- New MyHeritage upload policy from 16th December 2018:
<https://blog.myheritage.com/2018/12/starting-today-new-dna-upload-policy>

Third-party tools

- GEDmatch <https://www.gedmatch.com>
- Finally! A GEDmatch admixture guide! *Genealogical Musings* 6 November 2017.
<http://genealogical-musings.blogspot.com/2017/04/finally-gedmatch-admixture-guide.html>
- DNA.Land <https://dna.land>

Scientific projects

- People of the British Isles: https://isogg.org/wiki/People_of_the_British_Isles
- Irish DNA Atlas Project https://isogg.org/wiki/Irish_DNA_Atlas_Project

Scientific papers

- Athanasiadis G et al (2016). Nationwide genomic study in Denmark reveals remarkable population homogeneity. *Genetics* 204(2): 711-722. Available from: <https://www.genetics.org/content/204/2/711>
- Bryc K et al (2015). The genetic ancestry of African Americans, Latinos, and European Americans across the United States. *American Journal of Human Genetics* 96(1): 37-53. Available from: [https://www.cell.com/ajhg/fulltext/S0002-9297\(14\)00476-5](https://www.cell.com/ajhg/fulltext/S0002-9297(14)00476-5)
- Bycroft C et al (2019). Patterns of genetic differentiation and the footprints of historical migrations in the Iberian Peninsula. *Nature Communications* 2019 10(1): 551. Available from: <https://www.nature.com/articles/s41467-018-08272-w>
- Byrne RP et al (2018). Insular Celtic population structure and genomic footprints of migration. *PLOS Genetics* January 25. Available from <https://doi.org/10.1371/journal.pgen.1007152>
- Fiorito G et al (2015). The Italian genome reflects the history of Europe and the Mediterranean basin. *European Journal of Human Genetics* 24: 1056-1062. Available from: <https://www.nature.com/articles/ejhg2015233>
- Gilbert E et al (2017). The Irish DNA Atlas: revealing fine-scale population structure and history within Ireland. *Scientific Reports* 7: 17199. Available from: <https://www.nature.com/articles/s41598-017-17124-4>
- Han E et al (2017). Clustering of 770,000 genomes reveals post-colonial population structure of North America. *Nature Communications* 8: 14238. (Scientific paper which laid the foundations for AncestryDNA's genetic communities/regions feature.) Available from: <https://www.nature.com/articles/ncomms14238/>
- Karakachoff M et al (2015). Fine-scale human genetic structure in Western France. *European Journal of Human Genetics* 23: 831-836. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4795055>
- Kermin S et al (2017). Fine-scale genetic structure in Finland. *G3* 7(10): 3459-3468 Available from: <https://www.g3journal.org/content/7/10/3459>
- Leslie S et al. The fine-scale genetic structure of the British population. *Nature* 2015: **519**: 309-314. Available from: <http://discovery.ucl.ac.uk/1467470/>
- Novembre J et al (2008). Genes mirror geography within Europe. *Nature* 456(7218): 98-101. Available from: <http://europepmc.org/abstract/med/18758442>
- Popejoy AB, Fullerton SM (2016). Genomics is failing on diversity. *Nature*. 538 (7624):161-164. Available from: <https://www.nature.com/news/genomics-is-failing-on-diversity-1.20759>
- Rohde DLT et al (2004). Modelling the recent common ancestry of all living humans *Nature* 30; 431(7008): 562-6. Available from: <http://www.stat.yale.edu/~jtc5/papers/CommonAncestors/NatureCommonAncestors-Article.pdf>
- Sirugo G et al (2019). The missing diversity in human genetics studies. *Cell* 177(1): 26-31. Available from (£): [https://www.cell.com/abstract/S0092-8674\(19\)30231-4](https://www.cell.com/abstract/S0092-8674(19)30231-4)
- Wiuf C and Hein J (1997). On the number of ancestors to a DNA sequence. *Genetics* 147(3): 1459-1468. Available from: <https://www.genetics.org/content/genetics/147/3/1459.full.pdf>