

# **An Annotated Bibliography of DNA Literature, Presentations, & Sources.**

Compiled by David Duncan. Updated 1 Feb 2024.

## **“Stand Alone” book length presentations on Genetic Genealogy:**

**DNA Workbook, A Hands-on Guide** by **Michelle Leonard**. Excellent. If you buy one book, this is it!  
<https://www.family-tree.co.uk/store/genealogy-tools/family-tree-magazine/dna-workbook/>

**The Family Tree Guide to DNA Testing and Genetic Genealogy** by **Blaine Bettinger**. A more academically oriented overview, copy at Silver Falls Library. <https://www.amazon.com/Family-Guide-Testing-Genetic-Genealogy/dp/1440345325>

**Your DNA Guide: The Book** by **Diahan Southard**. Available as a digital download (recommended) or print. Sacrifices rigor for “ease of use”. Digital version has internal links that allow easy flipping back and forth between topics. <https://www.amazon.com/Your-DNA-Guide-Diahan-Southard/dp/1734613904>

## **Uploading your DNA results from one company to another.**

The **North of Ireland Family History Society** has a comprehensive instruction set for transferring your DNA results from one company to another here: <https://www.nifhs.org/dna/uploading-your-dna/>

**Diahan Southard** covers DNA uploads from Ancestry to other DNA testing companies here: <https://www.yourdnaguide.com/transferring>

**MyHeritage’s** page on how to upload your DNA results to MyHeritage:  
<https://education.myheritage.com/article/how-to-upload-your-dna-data-to-myheritage/#:~:text=Go%20to%20www.myheritage.com,%2C%20then%20click%20%E2%80%9CUpload.%E2%80%9D>

**FamilyTree DNA** upload page. <https://www.familytreedna.com/autosomal-transfer>

## **Ethnicity**

If you use ethnicity or admixture as a tool in your DNA matching—and you should—please be aware that ethnicity is limited in its scope or utility. You **must read** these articles:

A third party look at DNA testing company accuracy on ethnic heritage, Part I  
<https://www.yourdnaguide.com/ydgblog/which-dna-tests-ethnicity-estimate-is-best>

A third party look at DNA testing company accuracy on ethnic heritage, Part II  
<https://www.yourdnaguide.com/ydgblog/448e560zevkhngaz8q256plvzz6zxg>

## yDNA, mtDNA Tools and Discussions

<https://www.familytreedna.com/public/y-dna-haplotree/R;name=R-Z17611> **yDNA haplogroups.**

Shows all mutations of yDNA. How current are your yDNA haplogroup results? Women can use their biological father's, brother's, paternal uncles, or paternal male first cousins' yDNA results. Select the letter that your yDNA haplogroup starts with at top of page. Then scroll down and select the next letter/number until you've gotten to the last letter/number of your yDNA haplogroup. You can now see how many mutations there are downstream (more recent than) your test result.

<https://www.familytreedna.com/public/mt-dna-haplotree/T> **mtDNA haplogroups.** Shows all mutations of mtDNA. How current are your mtDNA results? Check here. Select the letter that your mtDNA haplogroup starts with at top of page. Then scroll down and select the next letter/number until you've gotten to the last letter/number of your yDNA haplogroup. You can now see how many mutations there are downstream (more recent than) your test result.

mtDNA haplogroups: [https://www.eupedia.com/europe/Haplogroup\\_T\\_mtDNA.shtml](https://www.eupedia.com/europe/Haplogroup_T_mtDNA.shtml)

<http://scaledinnovation.com/gg/snpTracker.html?snp=R-S764&walk> SNP Tracker R-S764 Graphic that tracks yDNA mutations by time and place. Replace "R-S764" in this link with your yDNA haplogroup to get the animation specific to your yDNA result.

[http://www.yseq.net/product\\_info.php?products\\_id=4830](http://www.yseq.net/product_info.php?products_id=4830) 300 plus SNP specific tests that bridge the gap between your haplogroup, as identified by the big companies, and the bleeding edge of haplogroup mutation. E.g. "Scots Panel" for yDNA haplogroups that are specific to Scotland.

## atDNA Relationship Finders:

The **Shared cM Project** by **Blaine Bettinger**, Version 4.0 DNA Relationship Table. The relationship results shown by Ancestry, 23andme, etc. are based on Blaine's work: <https://thegeneticgenealogist.com/wp-content/uploads/2020/03/Shared-cM-Project-Relationship-Chart.png>

The **Shared cM Project 4.0 tool v4** with option for second DNA testee—**Blaine Bettinger and Jonny Perl**. An interactive version that allows two different DNA matches to be entered to refine predicted relationship results. <https://dnainter.com/tools/sharedcm-double>

**DNA Detectives Autosomal Statistics Chart**, by **DNA Detectives**, CeCe Moore's group. [https://ssghs.org/wp-content/uploads/2018/11/Webinar\\_DNA\\_03\\_HANDOUT-DNA-Detectives-Chart.pdf](https://ssghs.org/wp-content/uploads/2018/11/Webinar_DNA_03_HANDOUT-DNA-Detectives-Chart.pdf)

## Top Resource for Identifying DNA Matches.

**Michelle Leonard's** presentation at Roots Tech 2022 **"Top Tips for Identifying DNA Matches"** Excellent how-to on connecting your DNA matches to your traditional genealogical tree. <https://www.familysearch.org/rootstech/session/top-tips-for-identifying-dna-matches>

In addition to the tips and strategies Michelle discusses, here are two useful strategies:

1. Check out Geni.com which does not mask living people with 'private'.
2. On Ancestry, check out who copies the images connected to your research target—those people are connected to your target and may have/share additional info.

[https://isogg.org/wiki/Autosomal\\_DNA\\_match\\_thresholds](https://isogg.org/wiki/Autosomal_DNA_match_thresholds) Has table showing the reliability of match prediction for different bands of cM matching. Discusses different companies' approaches to declaring a match and shows how recent changes of match criteria have excluded valid matches, eg colonial American ancestors.

## atDNA Tools—DNA Painter, Color Coding Schemes, WATO

**Leeds Method** for color coding atDNA matches. Doesn't work well if you descend from endogamous populations. <https://www.yourdnaguide.com/leeds-method>

**David Stewart's** Hand Out on Color Coding DNA matches from his 10 Nov 2020 presentation:

<http://ancestrydetectives.org/Archives.html>

**Jonny Perl's** DNA Painter. Overview with links to sub topics and latest research. Latest version allows 'fell swoop' color coding of all descendants of an ancestor.

<https://blog.dnapainter.com/blog/author/delicado/>

Overview link to DNA Painter tools. <https://dnapainter.com/tools>

**"Creating a Plan for Geoff's Brick Wall"** Case study of Diahan's approach to locating DNA matches in the family tree, presented 7 Dec 2022 by **Diahan Southard**. .

<https://familytreewebinars.com/webinar/creating-a-dna-plan-for-geoffs-brick-wall/>

**Diahan Southard's** Presentation at RootsTech23. **"Shared DNA Matches--The Only DNA Tool You Will Ever Need"** Diahan's 'system' for approaching genetic relative identification.

<https://www.familysearch.org/rootstech/session/shared-dna-matches-the-only-dna-tool-you-will-ever-need?lang=eng>

**Diahan Southard** on Longest Shared Segment and Timber, **AncestryDNA's Timber Tool**—how Timber works to filter out non-specific DNA segments. [https://www.yourdnaguide.com/ydgblog/ancestrydna-](https://www.yourdnaguide.com/ydgblog/ancestrydna-timber-longest-shared-segment-dna#:~:text=Ancestry%20uses%20Timber%20to%20chop,familial%20relationships%20within%20recent%20generations)

[timber-longest-shared-segment-dna#:~:text=Ancestry%20uses%20Timber%20to%20chop,familial%20relationships%20within%20recent%20generations](https://www.yourdnaguide.com/ydgblog/ancestrydna-timber-longest-shared-segment-dna#:~:text=Ancestry%20uses%20Timber%20to%20chop,familial%20relationships%20within%20recent%20generations)

**What are the Odds? Tool.** Abbreviated **WATO**. A program that combines what you know about target DNA match with your Gedcom Family Tree to produce the probability that your mystery match fits into your tree in any given spot. <https://thednageek.com/a-major-update-to-what-are-the-odds/>

<https://dnapainter.com/tools/wato>

## Endogamy

**Tanner Blair Tolman** on Endogamy at RootsTech 2023. Strategies to avoid Endogamy's effects on your DNA matches. <https://www.familysearch.org/en/rootstech/session/endogamy-in-dna-research>

Gedmatch: **"Are your parents related?" Tool.** Need to upload your DNA to Gedmatch first. Identifies homozygous DNA (identical DNA) shared by your parents. <https://www.gedmatch.com/education/are-your-parents-related/>

## Cousins and Genetic Networks

**ID'ing distant relatives with DNA markers.** Bioinformatics, Volume 25, Issue 18, 15 September 2009, Pages 2376–2382, <https://academic.oup.com/bioinformatics/article/25/18/2376/197166?login=false>

**Blaine Bettinger** discusses DNA painter and leveraging the DNA results of your **siblings and cousins** to learn more: <https://thegeneticgenealogist.com/2022/11/12/leveraging-the-power-of-siblings-and-cousins-to-narrow-relationship-possibilities/>

<https://thegeneticgenealogist.com/wp-content/uploads/2016/11/Visual-Phasing-Bettinger.pdf> By **Blaine Bettinger**. How to phase your grandparents DNA contribution using results from three siblings and first cousins. Eliminates 75% of family tree when trying to match an unknown by identifying which grandparent they share with you.

**Diana Elder** explains DNA network graphing—how to create clusters of DNA matches to research and find new possibilities for ancestral origins <https://familytreewebinars.com/webinar/explore-uncharted-paths-in-tracing-brick-wall-ancestors-through-dna-network-graphs/> Membership required. Legacy Family Tree Webinars: <https://familytreewebinars.com/>

Step by Step on how to use RootsFinder, GedMatch, with MyHeritageDNA results to generate a Triangulation Network, by **Nicole Elder Dyer**. <https://familyloket.com/how-to-make-a-rootsfinder-triangulation-network-graph-with-myheritage-dna-matches/>

## The Future of Genetic Genealogy

**Jonny Perl on 3<sup>rd</sup> Party DNA Tools** Jonny's Presentation at RootsTech2023. <https://www.familysearch.org/rootstech/session/how-third-party-dna-tools-can-help-with-your-family-history-research?lang=eng>

Gedmatch has introduced a **visual phasing** tool in 2023. Identifies DNA from each grandparent.

Part 1: <https://www.gedmatch.com/education/visual-phasing-part-1-setup/>

Part 2: <https://www.gedmatch.com/education/visual-phasing-with-a-twist-segment-phasing-part-2/>

## Recovering DNA from artifacts:

The big bugaboo of atDNA is that atDNA is cut in half through each generation. But what if you could DNA test your grandparents or great grandparents? Then you could resolve your distant matches with greater clarity. It can be done but is expensive at \$2500 a pop. And the companies that provide these services only do whole genomic testing, so the returned results don't harmonize with the DNA databases of the big genetic genealogy companies.

Overview of **DNA recovery from artifacts**, like envelopes:

<https://familytreewebinars.com/webinar/dna-testing-of-artifacts-and-family-heirlooms/>

**Atlantic Monthly** article on DNA testing of envelopes and stamps:

<https://www.theatlantic.com/science/archive/2019/03/dna-tests-for-envelopes-have-a-price/583636/>

**DNA Artifact Testing.** <https://www.totheletterdna.com/>

**DNA Artifact Testing.** <https://www.intermountainforensics.com/keepsakedna>

## Genetic Genealogy Stories in the News:

Otzi the Iceman—6,200 year old mummy who yDNA matches 19 living people.

<https://en.wikipedia.org/wiki/%C3%96tzi>

Neanderthal Family DNA—DNA analysis shows Neanderthals living in Siberian Caves were closely related

[www.zyri.net/2022/10/28/first-known-neanderthal-family-discovered-in-russian-cave/](http://www.zyri.net/2022/10/28/first-known-neanderthal-family-discovered-in-russian-cave/)

King Richard the III's remains were found at a Leicester, UK Parking Lot (Battle of Bosworth Field site):

<https://www.npr.org/sections/thetwo-way/2013/02/04/171043924/royal-recovery-remains-idd-as-those-of-king-richard-iii#:~:text=Press-,Royal%20Recovery%3A%20Remains%20ID'd%20As%20Those%20Of%20King%20Richard,distant%20relative%20who's%20alive%20today.>

**Endogamy Example:** Number of women estimated to have arrived in New Zealand on the waka (sea going canoes)—the **mothers of all Maori people: 70-100**. The 'crew' of each waka would be a family or clan group, so the women on each canoe would be related to each other.

<https://teara.govt.nz/en/pacific-migrations/page-7>

## What the Future May Hold—WGS (Whole Genomic Sequencing)

Whole Genomic Testing is the future. Current atDNA testing covers less than 1% of the human genome. While 97% of the human genome is the same person to person, the 3% that does differ is not fully assessed by current testing. Ultimately whole genomic sequencing—your entire genome—will be the most accurate and precise method of determining genetic disorders, genetic predisposition to health disorders, ethnicity, and genealogy.

For genealogy and genealogists there is no good place to go with a whole genomic test result at present. But that may change. The 'big boys' in atDNA do not want their investment and infrastructure to be disrupted by WGS and you can bet your bottom dollar they are exploring how to harmonize whole genomic test results with the atDNA databases they have built.

While a whole genomic test result will exactly determine your yDNA and mtDNA, a whole genomic test may not be the most cost effective means of obtaining useful yDNA and mtDNA results.

Center for Disease Control and Prevention article on whole genomic testing applications with respect to public health: <https://www.cdc.gov/pulsenet/next-gen-wgs.html>

Yale University article on current state of whole genomic testing with particular reference to detection and treatment of genetic disorders in very young patients.

<https://www.yalemedicine.org/conditions/whole-genome-sequencing>

Nebula Genomics—a Whole Genomic Testing company. <https://nebula.org/whole-genome-sequencing-dna-test/>

Sequencing.com. Whole Genomic Testing company that accepts results from AncestryDNA for genealogical work. <https://sequencing.com/>

## Going Full Nerd—Non conventional approaches to Genetic Genealogy

**Fuzzy Logic.** Logic where 'truth value' ranges from zero to one, not zero or one.

<https://www.nitsri.ac.in/Department/Computer%20Science%20&%20Engineering/FuzzyLogic.pdf>

**Set Theory**—Viewing your DNA results as Nesting Sets and viewing your DNA match lists as intersections of sets. [https://en.wikipedia.org/wiki/Set\\_theory](https://en.wikipedia.org/wiki/Set_theory)

**Fuzzy Set Theory.** Genetic Genealogy is a classic application of fuzzy sets and fuzzy logic.

[https://en.wikipedia.org/wiki/Fuzzy\\_set](https://en.wikipedia.org/wiki/Fuzzy_set)

