

Leveraging Tech Tools in Family History Research

Section 4: DNA Tools

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DNA Platforms

- Ancestry
 - Shared Matches – shows matches in common with you and another DNA match. PRO Tools version shows the estimated relationship between your DNA match and their shared matches.
 - ThruLines – provides you with a theory how you're related to your ancestors out to 5th great grandparents, including potential ancestors.
 - Custom Groups – used for filtering and identifying matches by a specified color. Recommend using ancestor's surnames.
 - Linking DNA matches – connect your DNA matches to a profile within your family tree.
 - Search by match name, surname, birth location.
 - Filter on specific journeys, custom groups, new ancestors, unviewed, common ancestor (ThruLines), parent, etc.
- FamilyTree DNA
 - Search matches by name, ancestral surname, haplogroup (mtDNA and Y-DNA)
 - Linking DNA matches can help you perform maternal/paternal matching by linking known genetic cousins in your uploaded GEDCOM file.
 - Other features include chromosome browser tool, chromosome painter for ethnic origins, family finder matrix (clustering), time predictor tool for Y-DNA matches, and projects for autosomal, Y-DNA and mtDNA tests
- MyHeritage
 - Theory of Relativity – similar to Ancestry's ThruLines feature
 - Chromosome Browser
 - AutoClusters groups together matches that likely descend from a common ancestor.
 - Separate upgrade available for medical reports
 - Whole genome sequencing now available for new DNA tests sent in starting January 2026
- 23andMe
 - Search matches by name, location, notes
 - Filter by surnames commonly found in profiles
 - Reports include information on haplogroups, Neanderthal variants, medical, etc.

GEDMatch

- Allows DNA uploads from several testing companies – “fish in multiple ponds”.
 - Uploads are allowed from the following companies:
 - Ancestry
 - FamilyTree DNA
 - LivingDNA
 - MyHeritage
 - TellmeGen (AKA Genelink)
 - 23andMe
- Free tools include but are not limited to the following:
 - One to many
 - One to one Autosomal DNA Comparison
 - One to one X-DNA Comparison
 - Chromosome Browser
 - Admixture (Heritage) Tools
 - User Lookup
 - Search All GEDCOM's + DNA
- Tier 1 Tools (\$10/month subscription or \$15 one month-non recurring):
 - Phasing
 - Lazarus
 - My Evil Twin
 - American Ancestors members get 10% on Tier 1 Membership -
<https://www.americanancestors.org/gedmatch>
- More details on GEDMatch features is discussed in the online webinar “GEDmatch.com: Taking Your DNA Results to the Next Level!”. Recording is available at
<https://www.youtube.com/watch?v=e2WugdTjcow>

DNA Painter

- Paint the segments of chromosomes you share with DNA matches
- Allows uploads of DNA from GEDMatch, MyHeritage and FamilyTree DNA

The screenshot shows the DNA Painter website homepage. At the top, there is a navigation bar with "DNA PAINTER", "Tools", "Help", and "Subscribe". The main heading reads "DNA Painter is an award-winning website that can help demystify your DNA results". Below this, there is a search bar and a "Register for a free account" button. The page is divided into several sections under the heading "WHAT YOU CAN DO AT DNA PAINTER":

- Investigate family mysteries:** "If you have a group of matches you can fit into a family tree, What are the Odds? (WATO) plus can help you figure out how you might be related to them." Includes a link to "WATO plus User guide".
- Visualize your direct line:** "Create an elegant, searchable page for your direct ancestors and enhance it with custom visualisations such as religion, country of birth and age of death." Includes a link to "More info".
- Map segments of DNA to ancestors:** "Chromosome mapping is a fascinating puzzle that helps you to decode your inheritance by tracking known matches and comparing them to others." Includes a link to "More info".
- Figure out how you're related to a DNA match:** "Enter the number of cMs of DNA you share with a match and the shared cM tool will help you consider possible relationships." Includes a link to "Visit the Shared cM tool".

At the bottom, it says "... and many more standalone tools to help you work with your DNA matches →".

The screenshot shows a user's DNA Painter chromosome map. The user is identified as "Me", Female, with a red badge indicating "- 92% / 184 segments painted". The interface includes a navigation bar with "DNA PAINTER", "Dashboard", "Tools", "Help", "Subscribe", "Blog", and a user profile for "Melanie McComb". There are buttons for "PAINT A NEW MATCH" and "Switch chromosome map".

The main area displays 11 numbered chromosomes (1-11) as horizontal bars. Each bar is composed of colored segments representing different DNA matches. A legend on the right side identifies the matches:

- Yellow: DNA Match
- Teal: Anton Gallunas and Matilda Siegel
- Blue: Joseph Doherty and Rose Rooney
- Orange: Michael Rooney and Mary Ann Mc...
- Dark Blue: Hyman Siegel and Chaje Goldman
- Light Blue: Thomas Corcoran and Bridget Cor...
- Light Orange: Rose Corcoran and Michael Doh...
- Light Green: Dad
- Purple: Mom

At the bottom, there are filters for "ALL", "NONE", "PATERNAL", and "MATERNAL", along with a "Help with this page" link. The time "8:42 AM" is visible in the bottom right corner.

Example of Chromosome Map from DNA Painter

- **TIP:** Test close relatives and paint their segments to help separate paternal vs. maternal matches

- **Other Tools:**

- Shared cM Project Tool
- What Are The Odds (WATO) - test hypotheses using manually created or uploaded trees
- AncestryDNA Chromosome Painter Segments
- A full list of tools can be found at <https://dnainter.com/tools>
- Additional tools available with subscription \$
 - Multiple probability trees with WATO plus
 - Multiple ancestral trees
 - Up to 50 chromosome maps

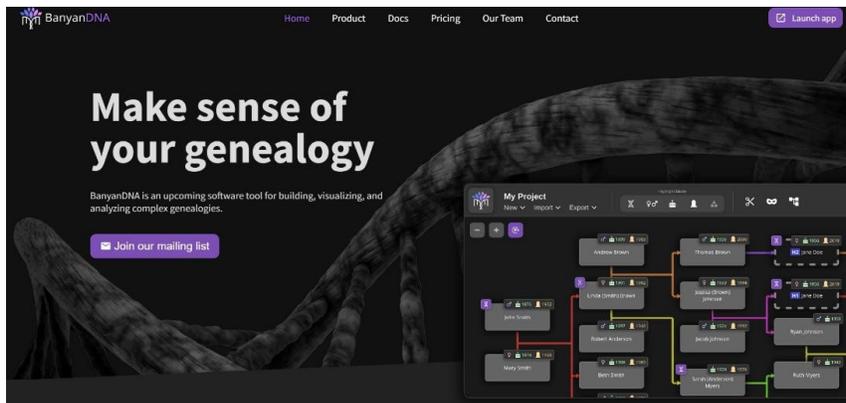
AncesTREES

- DNA Tools include triangulation, chromosome browser, and a dashboard of DNA matches
- Subscription required to add to AncesTREES - \$34.95/yr
- Upload DNA Details from GEDMatch, Ancestry, MyHeritage, Family Tree DNA, and 23andMe using DNA GEDCOM client

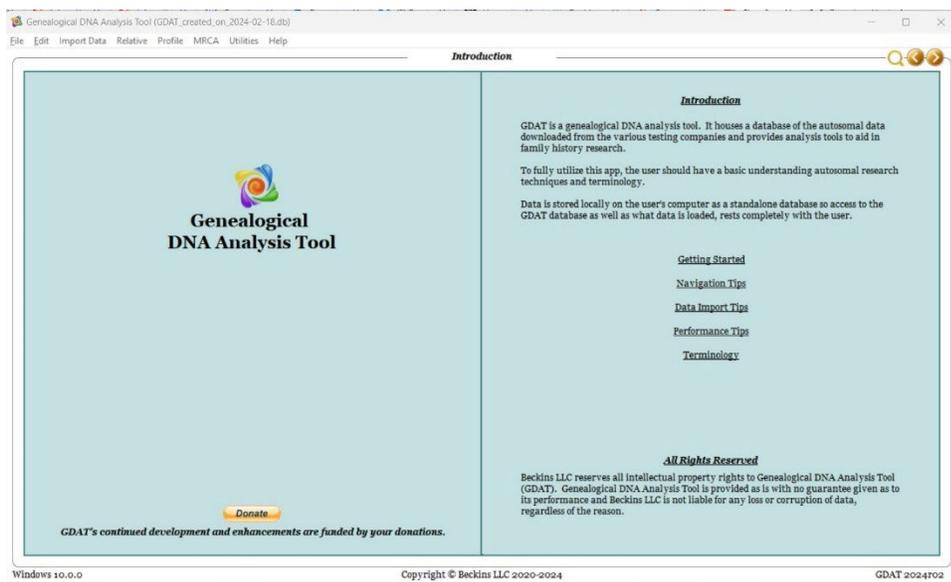


Other Third-Party Tools for DNA

- **Banyan DNA**
 - Analyze complex relationships including double cousins and pedigree collapse
 - Run calculations within a few seconds to obtain statistical data on hypotheses.
 - Free and premium products available



- DNA GEDCOM
 - DNA client you can download to your computer to manage and analyze DNA match data.
 - Access your different DNA web sites via web logins to pull data into program.
 - \$ Subscription required to run program (PC and Mac versions available)
- Genealogical Data Analysis Tool
 - DNA client you can download to your computer to manage and analyze DNA match data.
 - Import templates provided to upload from different DNA web sites, as well as GEDMatch and DNA GEDCOM.
 - Available for PC, Macs, and Linux



Publications

Blaine Bettinger, *The Family Tree Guide to DNA Testing and Genetic Genealogy (2nd Edition)*. (Cincinnati, Family Tree Books, 2019).

Debbie Parker Wayne, *Advanced Genetic Genealogy: Techniques and Case Studies*. (Cushing, Texas, Wayne Research, 2019)

Diahan Southard, *Your DNA Guide the Book: Step-by-Step Plans to Connect You with Your Family Using Your DNA* (United States, Your DNA Guide, 2020).

Roberta Estes, *The Complete Guide to FamilyTreeDNA: Y-DNA, Mitochondrial, Autosomal and X-DNA* (Baltimore, Maryland: Genealogical Publishing Company, 2024)

Tamar Weinberg, *The Adoptee's Guide to DNA Testing: How to Use Genetic Genealogy to Discover Your Long-Lost Family*. (Cincinnati, Family Tree Books, 2018).

Websites

- AnceSTREES <https://www.americanancestors.org/tools/american-ancestrees>
- Banyan DNA <https://www.banyandna.com>
- DNA GEDCOM www.dnagedcom.com
- DNA Painter <https://dnainter.com/>
- GEDMatch <https://www.gedmatch.com/>
- Genealogical Data Analysis Tool (GDAT): <https://sites.google.com/view/genealogical-dna-analysis-tool>
- Genetic Genealogy Tips & Techniques Facebook Group <https://www.facebook.com/groups/geneticgenealogytipsandtechniques>
- International Society of Genetic Genealogy Wiki <https://isogg.org/wiki>