

# DNA Tools: A Tour

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### Tool Group 1 – Match List Features

- **Notes**
  - Help you keep track of your matches
  - All testing companies provide a Notes field
  - Save yourself from researching a match over and over
  - Notes will carry over and can be downloaded into some of the advanced tools
- **Types of Things to Add to Notes:**
  - Contact made/received/letters sent (when?)
  - Your identified relationship to the match (ex: 1C1R)
  - Lineage (ex: Martha>George>David>Gertrude)
  - Who they are! (if using a pseudonym)
- **Tags – Ancestry Tree Tags**
  - Allow you to identify your DNA Matches
  - Ends the need for DNA icons in the gallery or profile photos
  - DNA Tags are available, or you can create your own
  - Information sharing for others
- **Filter** – Narrow down your thousands of DNA matches by using the filters
  - Focus – on your research question
  - Viewed/unviewed
  - Common Ancestors
  - Types of Trees/No tree
  - Amount of Shared DNA
  - Groups
- **Search** – Look for specific individuals and groups
  - Name of Match
  - Surnames on their trees
  - Birth locations

### Tools Group 2 – Relationship Calculators

- **Shared Centimorgan Project**
  - Probability of a specific relationship
  - Developed by Blaine Bettinger and Leah Larkin - The Genetic Genealogist – relationship charts <https://thegeneticgenealogist.com/2020/03/27/version-4-0-march-2020-update-to-the-shared-cm-project/>
  - DNA Painter – automated version of the same charts – [www.DNAPainter.com/tools](http://www.DNAPainter.com/tools)
- **cM Explainer – MyHeritage**
  - Probability of specific relationship
  - Allows entry of ages for testers to minimize options
  - Uses easy-to-understand relationships (ex: your 2<sup>nd</sup> cousin's child vs. 2C1R)

### Tool Group 3 - Connecting

- **Basic Level - Shared Match Lists**
  - Everyone on your shared match list is related to you!
  - List sorted by level of the match – highest cM matches are listed first
  - Examine the shared match list from the top down or filter it to focus on a research question
  - All testing companies provide shared match lists. Sometimes called in-common-with.
- **Intermediate Level - Expansion**
  - Spread your DNA around – fish in all the ponds
  - Free Uploads – MyHeritage, Family Tree DNA, LivingDNA (some have an extra charge for a full suite of tools)
  - GEDMatch – download from any testing site and upload to compare with others
- **Advanced Level – Automated Links Between Matches**
  - Ancestry Thru-Lines – Tree Matching
    - ✓ Must have an account with Ancestry
    - ✓ Must have a test that allows matching
    - ✓ Must have a 3-4 generation public tree
      - With non-living people on the tree!
  - MyHeritage – Theory of Family Relativity – Tree and record matching
- **Remember**
  - Understand the **way** matches are connected
  - Always check the sources!
  - Other's trees are only as good as the research (or lack thereof) behind it
  - Don't assume a surname, an ethnicity, or a location identifies the match
  - Be careful of endogamy and pedigree collapse

### Tools Group 4 - Clustering

- Helps divide your matches into groups to assist in identifying individual ancestors or ancestor pairs.
- **Manual Clustering**
  - Grouping with colored dots in Ancestry
  - Leeds Method - <https://www.danaleeds.com/the-leeds-method/>
- **Automated Clustering**
  - Genetic Affairs – [www.geneticaffairs.com](http://www.geneticaffairs.com)
  - MyHeritage
  - GEDMatch
  - DNA Gedcom - Collins-Leeds Method - <https://genetic.family/Help/CLM>
- **Advanced Clustering – Network Analysis**
  - Gephi, NodeXL, RootsFinder, Connected DNA

## Tools Group 5 – Mapping and Phasing - Chromosome Level Comparisons

- **Chromosome Browsers**
  - Pictorial representation of your chromosomes
  - Shows by segment, by chromosome, where your DNA is shared with your matches.
  - All sites, except Ancestry, have chromosome browsers.
- **Chromosome Paintings**
  - Identifies the ethnic origins of your DNA segments
  - Ancestry, 23andMe, and FTDNA have ethnic chromosome painters
- **Visual Phasing** – three siblings identify specific segments inherited from four grandparents – allows for a complete representation of your four grandparent's segments. Those segments can help identify matches.
- **Chromosome Mapping** – Creation of a Map of individual matching segments to identify each segment of your genes by ancestor. Data pulled from original testing sites (NOT Ancestry.)

## Tools Group 6 – Add-ons – Miscellaneous Additional DNA Tools

- DNA Painter
  - Tree Completeness, Chromosome Painter, WATO (What are the odds)
- Genetic Affairs
  - AutoTree, AutoPedigree, AutoKinship
- YourDNA.Family
- 23andMe tool
  - creates triangulation groups, makes research suggestions, and enables group discussions with cousins
- Pedigree Thief –
  - browser extension that downloads a family tree pedigree chart
- Geneanet/GedMatch – upload your raw DNA file and find new matches, tools, and analysis
- DNAGedcom – download Ancestry match data and use Collins-Leeds
- GDAT (Genome Mate Pro) – manage your DNA match data from multiple sources
- DNA2Tree Mobile App – mostly for adoption discovery

## Resources

ISOGG (International Society of Genetic Genealogy) Wiki - [https://isogg.org/wiki/Autosomal\\_DNA\\_tools](https://isogg.org/wiki/Autosomal_DNA_tools)

Facebook – each DNA tool has a user group on Facebook. Additionally, the group Genetic Genealogy Tips and Techniques is a great resource - <https://www.facebook.com/groups/237902130006828>

Ingle, Cyndi. Cyndi's List – DNA Tools and Analysis. <https://www.cyndislist.com/dna/analysis/>

Lee, Andy. Family History Fanatics YouTube Channel. "Best Genetic Genealogy Research Tools of 2022". <https://www.youtube.com/watch?v=NptB3AEVNJY>

Perl, Jonny. "How third party tools can help with your family history research" – RootsTech 2023 presentation, <https://www.familysearch.org/rootstech/session/how-third-party-dna-tools-can-help-with-your-family-history-research>. Handout for that session can be found at: <https://dnainter.com/rt2023>. This handout covers a large number of tools and resources.