

DNA Beyond the Basics – Adding to Your Solid Foundation

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<p>Matches</p> <ul style="list-style-type: none">• What is a Match?<ul style="list-style-type: none">○ A match is someone who has tested their DNA and shares a segment(s) of DNA with you.○ The sequence of that portion of their DNA exactly matches your sequencing in the same place on the same chromosome.○ DNA segments are measured in centimorgans (cMs)• Key Principles of Matches<ul style="list-style-type: none">○ The more centimorgans you share, the closer the relationship. Matches show up on your match list in descending order of cMs shared.○ The companies provide ranges of possible relationships – these do NOT tell you how you are related (except for parent-child – which is never wrong)○ If a person appears on your match list with more than 10 cMs, they ARE related to you.○ Matches below 10 cMs could be false matches and should be used carefully, or not at all.○ Testing databases are skewed. They have more testers with Western European ancestry and more testers with immigrant ancestors who arrived in the US very early.○ DNA comes in pairs. For every match on one side of your chromosome, you could also have a match on the other side of the pair in the same location.	<p>Match Analysis</p> <ul style="list-style-type: none">• Extract the basic facts – match name, administrator, location, last signed-in, genealogical expertise.• Centimorgans – what are the shared cMs? Suggested relationship? Number of segments? Longest segment?• Trees – is there a tree attached to this DNA match? Public? Any non-private individuals• Common Ancestor - does Ancestry suggest a Common Ancestor? Or more than one?• Shared Surnames – scroll down – what does Ancestry show for surnames in common?• Maps – Compare the geographic locations on the Maps• Ethnicity – Compare Ethnicity Profiles• Profiles – Review their profile in the directory. Do they have multiple trees? A gallery? Do they share more information about their family?
<p>Where to Start? Setting Priorities</p> <ul style="list-style-type: none">• Four Rules to Follow<ol style="list-style-type: none">1. Matches that Answer YOUR Research Questions2. Top Matches3. Matches you CAN Pursue4. Matches you know HOW you match• Matches that Answer YOUR Research Question<ul style="list-style-type: none">○ Like ALL good genealogy, you should start with a research question - EX: Who are the parents of Nicholas Powers, born in 1852 in North River, Newfoundland?○ Know what you need to find out.○ Where are your brick walls? What locations are you researching? What timeframes? What surnames?	<ul style="list-style-type: none">• Top Matches<ul style="list-style-type: none">○ It is all about cM's (Centimorgans.) Start from the top (largest number of cMs) and work your way down○ Don't bother with small matches!• Matches you CAN pursue<ul style="list-style-type: none">○ Do they have any public information?○ Do they have a tree posted? Anywhere?○ How long since they last signed on?○ Are they on GEDMatch? Or elsewhere?• Understand what info you already have that you can leverage<ul style="list-style-type: none">○ What family members have tested, where you know the connection? 2nd cousins are gold○ Enhance this with targeted testing
<p>Resources for DNA Basics</p> <ul style="list-style-type: none">• Diahan Southard, "3 Steps for Prioritizing Which DNA Matches to Research First," <i>Family Tree Magazine</i>, 12 June 2020.• Blaine Bettinger, An in-depth analysis of the use of small segments as genealogical evidence. <i>The Genetic Genealogist</i>, blog, 7 August 2022.• Working with your DNA Matches - https://www.legacytree.com/blog/understanding-ancestrydna-matches• ISOGG Wiki - International Society of Genetic Genealogy https://isogg.org/wiki/Wiki_Welcome_Page - great reference info	

DNA Potpourri

I don't recognize any of these names!

- **Changing Surnames** - Due to women traditionally changing their surnames, every generation of females below a common ancestor could have an unrecognizable surname.
- **Identification** - It only takes two or three generations for you to have no idea who your matches are, nor who the people on their tree are.
- **Tree Completeness** is a measure of how complete your tree is and the trees of your matches. Do you have
- **Identification Tips** - Build out your tree sideways and down – include spouses and descendants to identify connections

Connecting with Matches - How do I get my matches to respond?

- **Reach out to your matches** – and reach out again! Be friendly, be brief, and keep trying.
- **Anticipating Responses** - Approx 20% of your matches will respond – don't dwell on those who don't!
- **Tips** - identify who you are interested in, do your homework first, tell them how to reach you, and keep track

Why don't I share DNA with....

- 10% of your third cousins will not match you at all (numbers are rounded)
- 54% of your fourth cousins will not match you
- 85% of your fifth cousins will not match you

Special Circumstances that Impact DNA Matches

- **Multiple Relationships**
 - You can be related to a match in more than one way.
 - The most common multiple relationship is when siblings marry siblings. Ex: Your grandfather's sister marries your grandmother's brother
 - This is not pedigree collapse or endogamy – it is simply a double relationship – in this case, double 1st cousins.
 - Multiple relationships can impact how much DNA you share and the determination of common ancestors. If you are related more than once, as in the above example, a match can share DNA with you from both your maternal and paternal sides.
- **Pedigree Collapse**
 - Pedigree collapse is when a set of ancestors appears in **your** tree more than once – or multiple times. This refers to the ancestral tree of an individual “collapsing” or not having a full complement of 32, 64, or 128 unique ancestors. (Ex: Instead of thirty-two unique 3rd-gr grandparents, you have thirty or twenty-eight.)
 - This happens when cousins marry. The descendants of this couple would then show the common ancestor(s) twice in their trees.
- **Endogamy**
 - Endogamy is when a population marries exclusively within a confined group over and over across multiple generations. No new DNA is introduced, and over time, everyone in the population has segments of DNA that are in common with the entire population.
 - Groups can be confined by religion, geography, or social/societal norms. Examples often cited are Ashkenazi Jews, Acadians, Polynesians, and similar populations.
 - Endogamy is a long-term issue – not just a few generations.
 - The result for a modern DNA tester with ancestors from an endogamous population is a very large number of matches with numerous small segments. These segments add up, and it looks like a match is a closer match than it really is.
 - The rule of thumb for those with endogamy in their pedigree is to look for matches with the largest individual segments (at least over 10 cMs) and use non-endogamous matches to tease out relationships.
- **Consanguinity**
 - Historic religious and social constraints on marriage are based on the number of degrees of separation between two individuals. Ex: 1st cousins are 4 degrees of separation

Resources for DNA Potpourri

- Courtney Eberhard, "[Effective Strategies for Contacting DNA Matches](#)," *FamilyTreeDNA.com*, blog, 20 July 2023
- Roberta Estes, [DNA: In Search of...Signs of Endogamy](#), *DNA Explained*, blog, 11 August 2022
- Lara Diamond, "[Lara's Jewnealogy: How Endogamy Looks in Practice](#)," *Lara's Jewnealogy*, *larasgenealogy.blogspot.com*, 10 April 2016.
- Nichole Dyer, "[The Effect of Pedigree Collapse on DNA Matching: A Case Study](#)," *FamilyLocket.com*, blog, 6 November 2022.
- Nichole Dyer, "[Strategies for Overcoming Endogamy](#)," *Family Locket.com*, blog, 5 January 2023.
- Patricia Hartley, "[Ready To Contact Your DNA Matches? Here's What To Say \(And NOT To Say\)](#)," *FamilyHistory Daily.com*, 9 January 2024.
- International Society of Genetic Genealogy, *ISOGG.org*, Wiki, "[Cousin Statistics](#)."
- Legacy Tree Genealogists, "[Endogamy Part 1: Exploring Shared DNA](#)", *LegacyTree.com*, blog, 13 October 2016.

Tools to Enhance Your DNA Research Journey

- **Tools from the Testing Companies**
 - Chromosome Browsers
 - Match-to-Match Relationships and Compare Matches to Each Other
 - Maternal/Paternal Indicators
 - Chromosome Painters (Ethnicity)
 - Triangulation Indicators
 - X-DNA
 - Haplogroups
 - Upload and Download of DNA test data
- **3rd Party Tools**
 - DNA Painter – www.dnainter.com
 - WATO - <https://dnainter.com/tools/probability>
 - Banyan DNA – www.banyandna.com
 - Genetic Affairs – www.geneticaffairs.com
 - GEDmatch – www.gedmatch.com
 - DNAGEDcom – www.dnagedcom.com
 - GDAT - <https://www.getgdat.com/>
 - Borland Genetics – www.borlandgenetics.com
 - And many more....

Resources for DNA Tools

- Kitty Cooper, "Finally a reason the get DNA Pro Tools" blog, 19 July 2024, (<https://blog.kittycooper.com/2024/06/finally-a-reason-to-get-ancestry-protocols/>)
- International Society of Genetic Genealogy Wiki, ISOGG, "Autosomal DNA Tools," https://isogg.org/wiki/Autosomal_DNA_tools
- Jonny Perl, "3rd Party Tools," DNAPainter.com, <https://dnainter.com/tools/other>
- Diahn Southard, "Why Use a Chromosome Browser?" Your DNA Guide, blog, <https://www.yourdnaguide.com/ydgblog/using-chromosome-browsers-for-genetic-genealogy?>
- MyHeritage, "How to Use Chromosome Browsers for Genealogy," MyHeritage Knowledge Base, <https://education.myheritage.com/article/how-to-use-chromosome-browsers-for-genealogy/>
- Nicole Elder Dyer, "Banyan DNA," FamilyLocket.com, Research Like a Pro podcast, Episode 314, <https://familylocket.com/rlp-314-banyan-dna/>
- FamilySearch, "Getting Started with DNA Painter," online document, <https://cms-z-assets.familysearch.org/a1/61/e41594b74f86aeb47c2a8dd1ad80/getting-started-with-dna-painter.pdf>