

Identifying Unknown Parents or Grandparents Through DNA

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TECHNIQUES to identify an unknown parent or grandparent

1. Use all available websites
2. Cluster matches & build trees
3. Theorize immediately

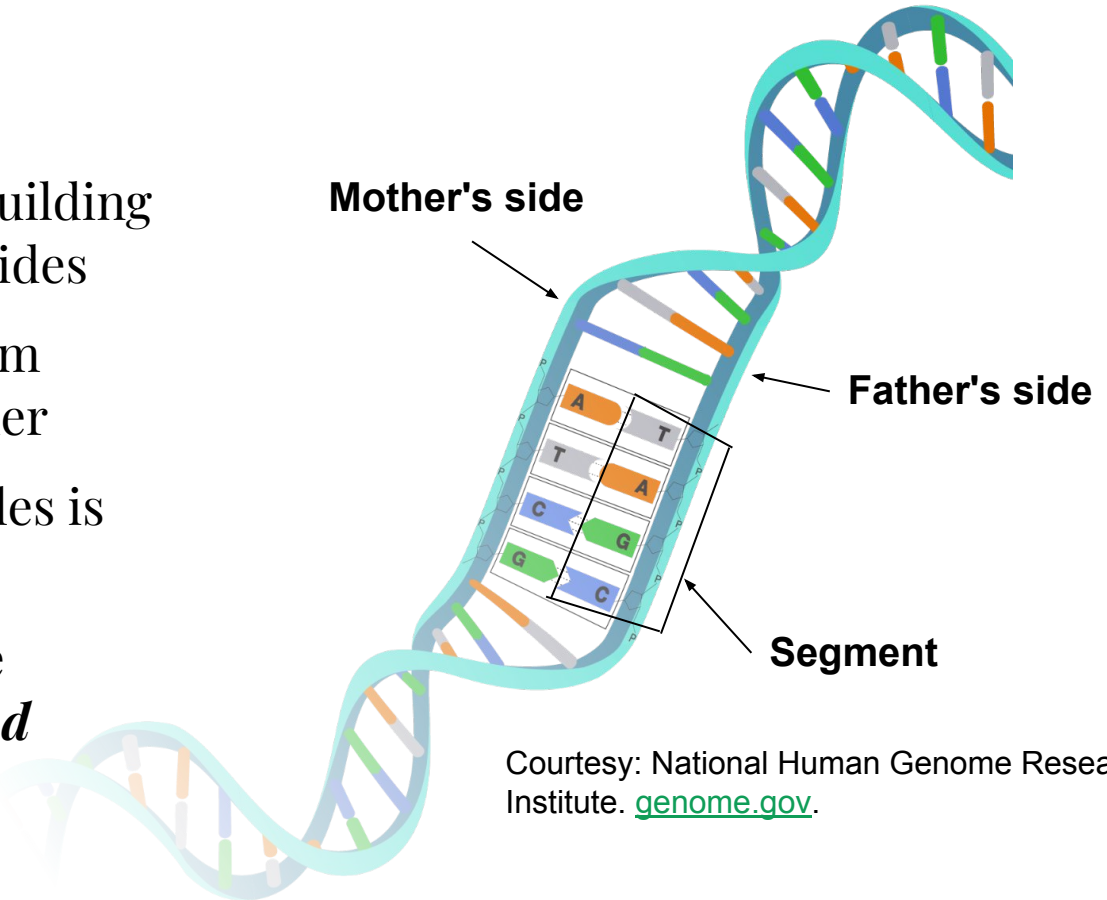
FOUNDATIONS

1. DNA inheritance\
2. Cousins & “MRCAs”
3. Be systematic

Foundations

DNA inheritance

- Autosomal DNA is a "building block" of life; it has 2 sides
- One side inherited from mother; one from father
- Exact order of molecules is what we inherit
- **Genetic cousins share identical segments *and therefore ...* ancestors**



Courtesy: National Human Genome Research Institute. [genome.gov](https://www.genome.gov).

This means . . .

(1) You can **eliminate about half of all matches from your search** almost immediately because the two sides of a family are separated by DNA.

Maternal cousins share segments of DNA on one side of each **chromosome** (strand of DNA).

Paternal cousins share segments on the other side of the chromosome.

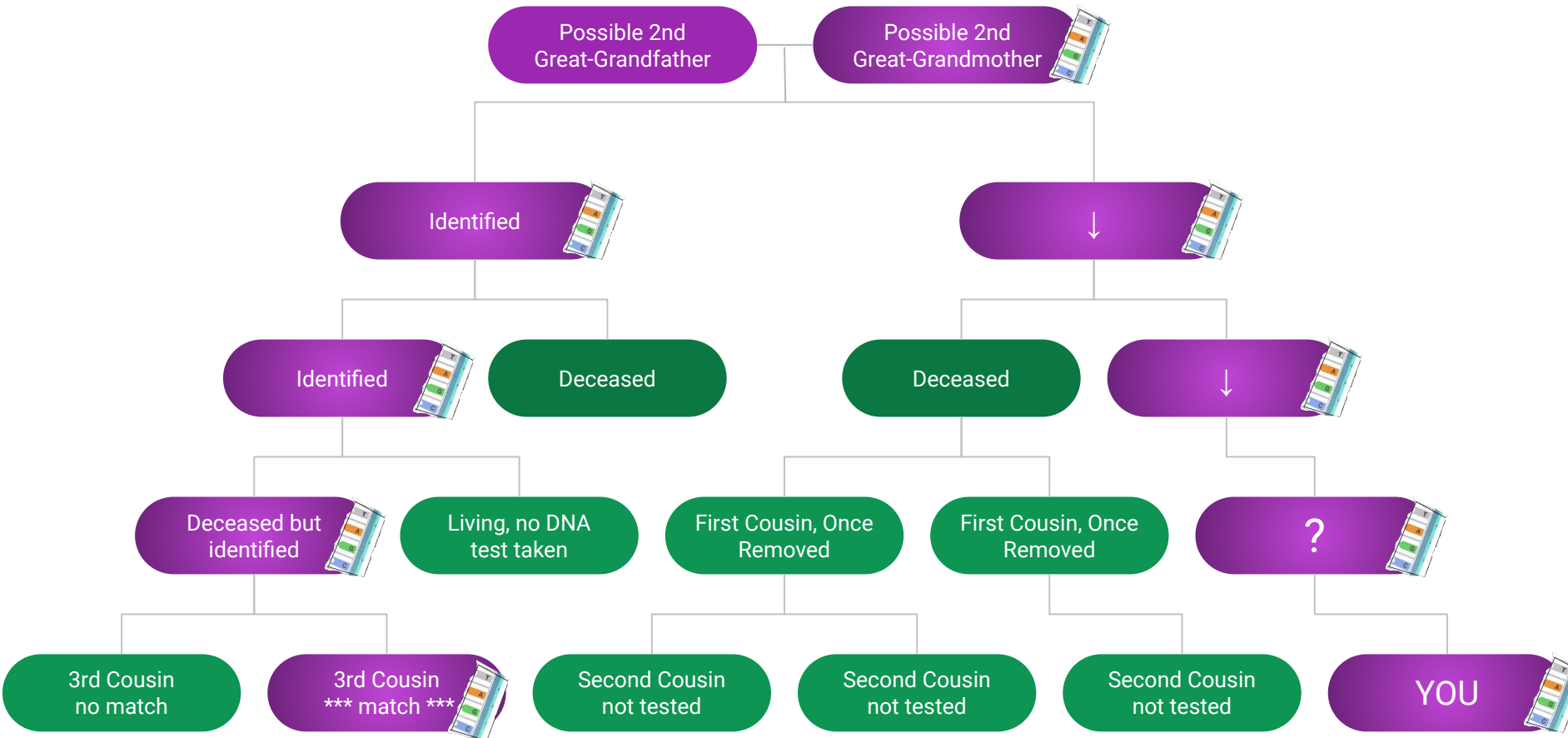
Ancestry and FamilyTreeDNA have tools to help you identify matches as maternal, paternal, or both. MyHeritage does not.

(2) You can use the **Leeds Method** to create your own lists of maternal and paternal matches.

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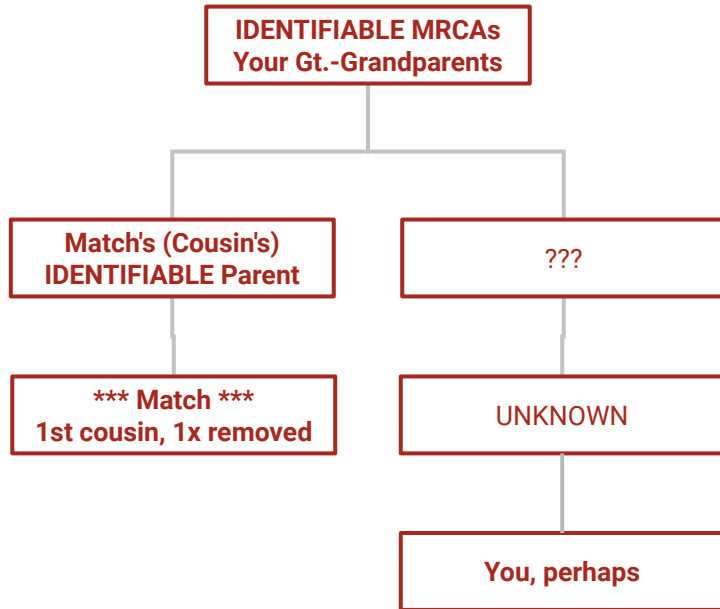
DNA Color Clustering: The Leeds Method for Easily Visualizing Matches

<https://www.danleeds.com/dna-color-clustering-the-leeds-method-for-easily-visualizing-matches/>



Most Recent Common Ancestors (MRCAs)

- Establish lines above the unknown person (i.e., farther back in time)
- Analyze and build your DNA matches trees to identify **MRCAs**
- If you are the test-taker seeking an unknown parent or grandparent, this will identify your ancestors.



Systematic

- It's easy to get overwhelmed!
- Follow the methodology established by DNA Adoption:
 - Step 6. Identify **MRCAs** that link several genetic cousins (this is a cluster)
 - Step 7. Build their tree forward
 - Step 8. Repeat for other clusters



What is “The Methodology” ?

The Methodology is the basic process used to conduct a search using DNA. It is encapsulated in Steps 6, 7, and 8 of our Search Process.

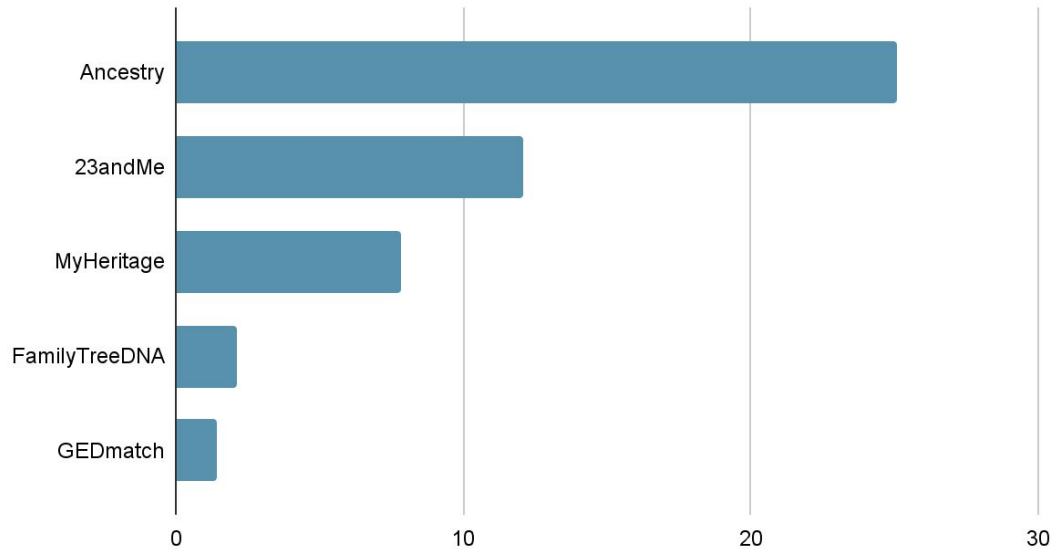
The Methodology was developed, defined, and codified by Gaye Tannenbaum, Diane Harmon-Hoog, and Karin Corbeil and has since been updated and refined by Barbara Rae-Venter and our Team. The Methodology is the core process used by all searchers. For a complete pdf Methodology for researching DNA results.

<https://dnaadoption.org/methodology/>

3 Techniques

Technique 1 - Upload DNA file to all sites

Number of users (millions; estimated)



- Find as many matches as possible
- Different tools to analyze DNA, build trees, estimate relationships, and contact matches.
- Some matches will be on multiple sites, but only have a tree on one

Download raw DNA file; save; upload to other sites

Download

- Your “raw DNA” file is available to you
- Find the company’s download instructions and save this file

Upload

- Upload that file to other sites (MyHeritage, FTDNA, GEDmatch, LivingDNA)
- Follow the company’s upload instructions.

Case study: Why upload DNA file to all sites.

The screenshot shows a user's profile at the top left, followed by navigation tabs: Overview, Ethnicity Estimate, DNA Matches, and DNA Tools. Below the tabs, it says "Showing 1–10 of 9,464 DNA Matches" and a "Filter" button. The main content area displays a match card for a female user. The match card includes a profile picture, a star icon, and a speech bubble icon. The match details are as follows:

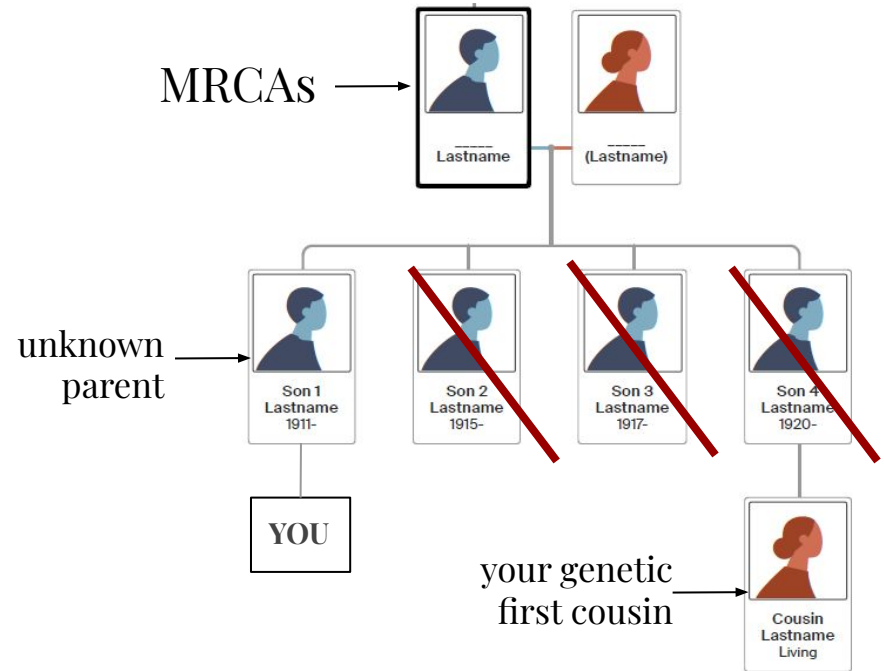
Probable relationship	DNA Match quality
<u>1st_cousin</u>	Shared DNA: 16.0% (1,133.2 cM)
	Shared segments: 32
	Largest segment: 122.6 cM

Additional match information includes: (born [redacted]), Age: 60's, and DNA managed by [redacted].

- If you are the test-taker a first cousin match points directly to your unknown grandparents.
- This first-cousin match **was only on one DNA site**

A first cousin match is very useful

- If you are looking for an unknown parent, **that parent is the aunt or uncle of a first cousin**
- Information from other genetic matches will indicate if the unknown parent is on the cousin's mother's or father's side.
- Then, process of elimination



Technique 2 - Cluster matches and build their family tree(s)

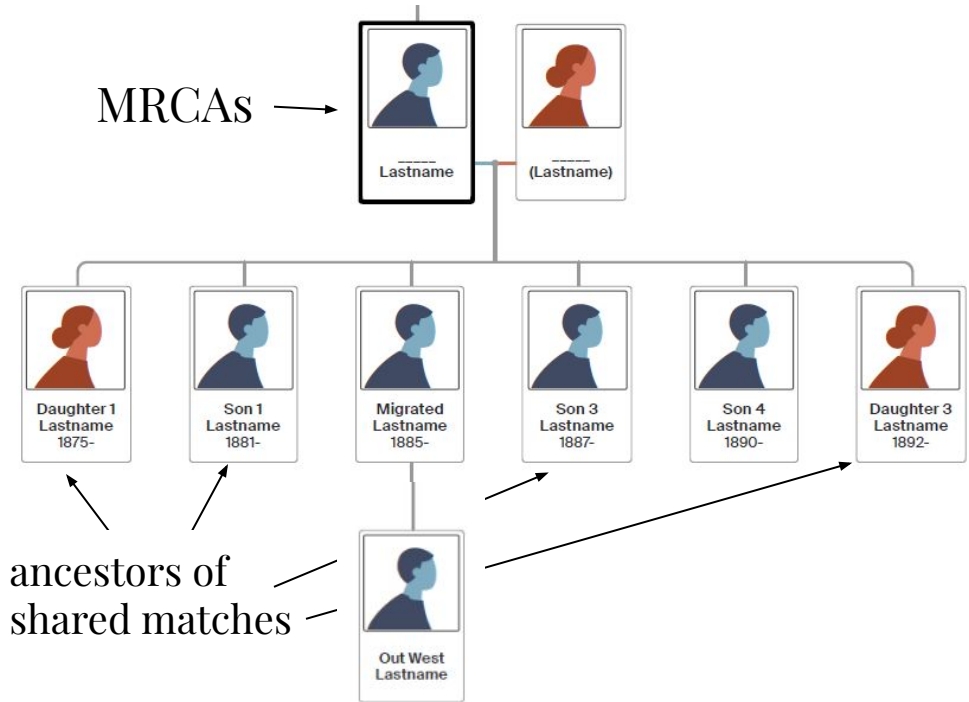
1. Identify groups of shared matches; >20 cM probably inherited DNA from an ancestral couple (their MRCA)
2. Examine their trees for shared surnames, locations, ancestors to determine how they are related to each other? **Who is their MRCA?**

The screenshot shows a DNA testing interface with three tabs: 'Trees', 'Ethnicity', and 'Shared Matches'. The 'Shared Matches' tab is selected and highlighted with a red box. Below the tabs, the section is titled 'Extended Family'. It lists three matches, each with a profile picture, a redacted name, and relationship details:

Match	Relationship	Shared DNA	Side
[Profile Picture]	2nd - 3rd Cousin	116 cM 2% shared DNA	Parent 1's side
[Profile Picture]	2nd - 3rd Cousin	113 cM 2% shared DNA	Parent 1's side
[Profile Picture]	2nd - 3rd Cousin	108 cM 2% shared DNA	Parent 1's side

Technique 2 - Cluster matches and build their family tree(s)

3. Create trees for each cluster by tracing all descendants of the MRCA
4. One of their descendants is probably your unknown parent or grandparent
5. Use traditional family history research to identify the relevant line in the family tree you made.



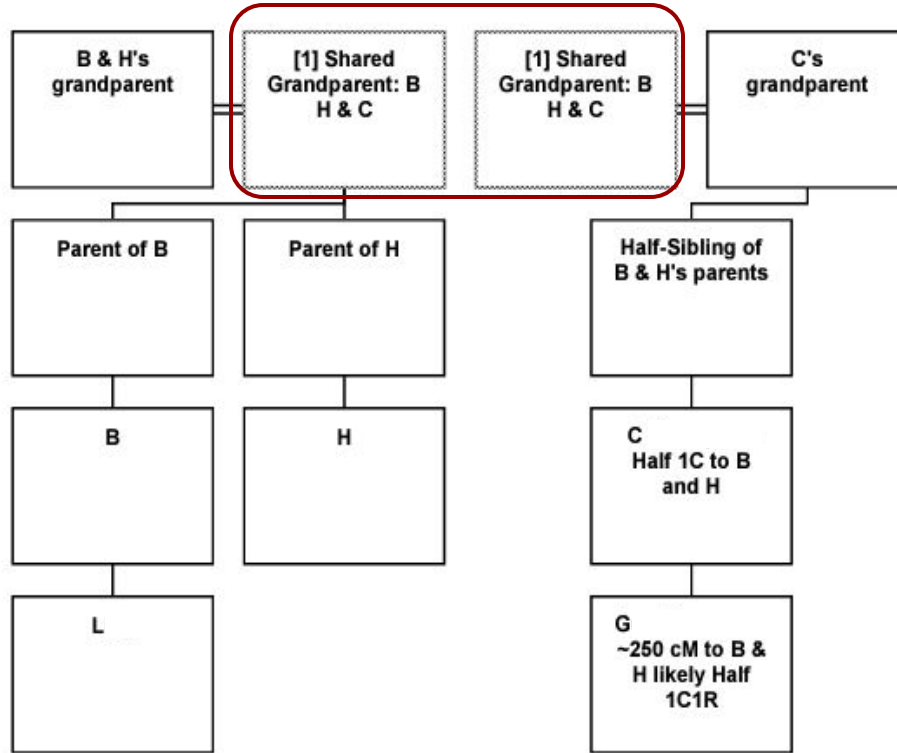
Technique 3 - Theorize immediately (if cM is high enough)

- If you have matches >200 cM on the side of the unknown parent or grandparent. . .
- Use Shared cM Project Tool to consider possible relationships and draft a family tree.

67%	Half GG-Aunt / Uncle 2C Half GG-Niece / Nephew	Half 1C1R 1C2R
23%	Great-Great-Aunt / Uncle Half Great-Aunt / Uncle Half Great-Niece / Nephew Great-Great-Niece / Nephew	Half 1C 1C1R
9%	1C3R † Half 2C 2C1R Half 1C2R	

DNA Painter, Shared cM Project Tool beta 4.0,
(<https://dnapainter.com/tools/sharedcmv4-beta>). Search: 252 cM

Technique 3 - Theorize immediately (if cM is high enough)



- **G** had an unknown great-grandparent; his grandfather was child of a single woman
- **G** had **250 cM** match to **B** and **H** (first cousins to each other; they shared 1 set of grandparents)
- Shared cM Project Tool indicated **G** was possibly **Half 1C1R** to **B** and **H**
- Traditional research indicated **B and H's grandfather** (who was married, with children) **fathered G's grandfather**.

Review

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Q & A

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