

Finding Cousins Using DNA
Tools and Case Studies for Exploring your Autosomal DNA Matches

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You get half of your DNA from each parent, 25% from your grandparents, 12.5% from your great-grandparents, 6.25% from your 2nd great-grandparents and so on.

FamilyTreeDNA is the only company currently offering Y-DNA and mtDNA testing.

- Y-DNA is only found in males since the Y chromosome is not present in females.
- Mitochondrial or mtDNA is found in both males and females but it is only passed down by females.

Autosomal or atDNA is the random recombination of DNA inherited from all of your ancestors.

- It is used in genealogy to identify relationships in the past five generations or to at least the 2nd great grandparent or the third cousin level.
- Test your older relatives whenever possible. This will allow you to identify matches further back in your family tree. For example, if you can test a parent or aunt or uncle you are going back five generations in their family tree which is six generations in your family tree.
- You can test your atDNA at all three companies but they call it different names.

X-DNA is found in both males and females. Because of the way it is passed down X-DNA follows only certain maternal lines in your family tree. See the link in the resource list for fan charts with these lines.

- If you have an X-DNA match you are related on the lines shown on the two charts. **Caution at FamilyTreeDNA:** check the number of centimorgans (cMs) on the chromosome browser to see if the match is at least 7 cMs. FTDNA will flag even small blocks as an X-Match which may be too small to be a reliable match.
- However, the converse is not true. If you do not have an X-DNA match it could mean a distant ancestor's X-DNA is not showing up and you might still be related on your X-DNA lines.
- All three companies test X-DNA as part of autosomal testing but to access X-DNA on AncestryDNA you have to transfer your raw data or use a third party site such as GEDmatch.

Autosomal DNA tests by different names.

- FamilyTreeDNA - Family Finder.
- AncestryDNA only offers atDNA - DNA Matches.
- 23andMe only offers atDNA - DNA Relatives.

Predicted relationships are based on the amount of DNA you share with a match.

- Each company has their own algorithm so results may vary slightly.
- The blocks of DNA you share with a match are measured in centimorgans.
- 5 to 7 cMs blocks or less are often considered to be Identical by State (IBS). This is also referred to as Identical by Chance or Coincidence (IBC).
- If you and a match share a block of DNA that is less than 5 to 7 cMs ignore that small block unless there is a compelling reason not to.
- See the resource list for charts on the amount of DNA you might share with people in your family tree.

Understand how Relationships work and narrow down if possible.



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- See the Percent of DNA shared graphic:
[http://www.isogg.org/wiki/File:Cousin_tree_\(with_genetic_kinship\).png](http://www.isogg.org/wiki/File:Cousin_tree_(with_genetic_kinship).png)
- Use the chromosome browser at FTDNA or 23andMe (or GEDmatch).
- Add all segments over 5 cMs.
- Divide by 68 to get percent of shared DNA. (6800 is the total amount of shared cMs.)

Edit your Profile and have surnames and a tree available at your testing company.

- FamilyTreeDNA
 - Add your Most Distant Ancestors and their information. You can also edit their Ancestral Locations to plot their birth locations on the map or it will default to 0 Latitude & 0 Longitude and be plotted in Africa. (This will be used on the Matches Map for Y and mt results.)
 - Set the Family Tree Privacy Settings to allow matches to see your information. If you are worried about privacy you can strip your GEDCOM of private data before uploading.
 - Upload a GEDCOM to "FamilyTree" to populate Surnames. Your tree should start with yourself and include all known ancestors and collateral relatives.
 - You can edit Surnames & add locations manually too.
- AncestryDNA
 - Link to an Ancestry.com family tree on the Settings page.
 - You can change your display name but your profile information is found through your Ancestry.com Member Profile.
- 23andMe
 - Edit "Family Surnames" found in your Enhanced Profiles, under the "Update DNA Relatives profile," to add surnames and family locations.
 - If you are comfortable, participate in Open Sharing to allow your matches to see more information about you.
 - On the Tools page click on Family Tree to link to MyHeritage to upload a GEDCOM.
 - Send messages through 23andMe to ask matches to share Ancestry Reports so you can compare DNA data.

Create a 6 or more generation ancestral chart showing families and geographic locations.

- Use your genealogy software to create a fan chart.
- Or try a horizontal Excel spreadsheet. See resource list for template.

Working with your DNA matches.

- Check for surnames in common. Look in your match's tree and your own tree to determine how you might be related. Sometimes more research will be needed to determine the relationship.
 - **FamilyTreeDNA:** Will highlight shared surnames. If you click on the surnames it will display all the surnames available for that match.
 - **AncestryDNA:** You need to click on 'View Match' for each match to see shared surnames. AncestryDNA also has a tool called Shared Ancestor Hints that tries to figure out how matches are related. You still need to verify the hint is correct.



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- **23andMe:** You need to click on each match to see their profile. On the profile page under Relatives you can check for shared surnames.
- Look for locations in common. If specific locations are the same in your match's tree and your own tree during the same time period it can be a good clue to follow up on.
 - **FamilyTreeDNA:** Click on a match's name to see their profile that might contain locations.
 - **AncestryDNA:** Click on 'View Match' and then 'Map and Locations' to see birth locations. This only works if they have linked to an Ancestry.com tree and it is not private. Also look at Shared Ancestor Hints but verify the hint is correct.
 - **23andMe:** Click on a match to see their profile page. On the profile page under Ancestry you will see any locations they have entered.
- Look for X-DNA matches. Use the charts in the resource list to highlight lines in your tree that are your X-DNA lines.
 - **FamilyTreeDNA:** If you share X-DNA an X-Match field will be listed. **Caution:** check the number of centimorgans on the chromosome browser to see if the match is at least 7 cMs. FTDNA will flag even small blocks as an X-Match which may be too small to be a reliable match.
 - **AncestryDNA** does not provide any X-DNA comparison tools on their website. To access their X-DNA you can transfer your raw data to ~~FTDNA~~ or a third party site such as GEDmatch.
 - **23andMe:** If you are "sharing" with a match you can see if you share X-DNA by using the chromosome browser.
- Finding a match's family tree.
 - **FamilyTreeDNA:** The tree icon will be highlighted blue under their name if they have uploaded a GEDCOM. Click on it to look at their tree.
 - **AncestryDNA:** If they have linked one you'll see the number of people in the tree. Then click on 'View Match' to find their tree.
 - **23andMe:** Click on a match. Then if you are sharing Ancestry Reports or they are a public match and they have uploaded a GEDCOM you will see an option to view their family tree under the Relatives area. Remember to invite matches to share Ancestry Reports on 23andMe especially if they are a close match so you can see their DNA data.
- No tree available?
 - If on FamilyTreeDNA or 23andMe you can ask if they have an Ancestry.com tree or search for one yourself.
 - Google for any information available about the family. Sometimes your match may have a website with a family tree.
- Keep track of information at each company by writing notes to yourself. Record possible or confirmed common ancestors or information your match may have given you about their family.
 - **FamilyTreeDNA:** Click on the note icon under a match's name to add a note.
 - **AncestryDNA:** Click on View Match to open up the Match Page. There you will see an "Add Note" icon to click and add a note.
 - **23andMe:** Click on a match to open up the Comparison Page. There you will see a notes icon next to the bubble-message icon.



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The Testing Companies:

- FamilyTreeDNA: <https://www.familytreedna.com/>
- AncestryDNA: <http://dna.ancestry.com/>
- 23andMe: <https://www.23andme.com/>

Genetic Genealogy Resources:

- International Society of Genetic Genealogists or ISOGG wiki: <http://www.isogg.org/wiki/>
- Debbie Parker Wayne's DNA Reference Works
http://debbiewayne.com/presentations/gatagacc_biblio.php
- Low-cost online learning at DNA Adoption: <http://moodle.dnagedcom.com/>
- X-DNA: <http://www.thegeneticgenealogist.com/2008/12/21/unlocking-the-genealogical-secrets-of-the-x-chromosome/>
- Percent of DNA shared:
[http://www.isogg.org/wiki/File:Cousin tree \(with genetic kinship\).png](http://www.isogg.org/wiki/File:Cousin_tree_(with_genetic_kinship).png)
- Shared cMs for various relationships: <http://www.isogg.org/wiki/File:Shared-cM-Project-Image-2.png>
- Excel spreadsheet ancestor chart: <http://analyticgenealogy.blogspot.com/2015/02/genetic-genealogy-needs-horizontal.html>
- Blogs
 - Blaine Bettinger: The Genetic Genealogist <http://thegeneticgenealogist.com/>
 - CeCe Moore: Your Genetic Genealogist <http://www.yourgeneticgenealogist.com/>
 - Debbie Parker Wayne: Deb's Delvings <http://debsdelvings.blogspot.com/>
 - Roberta Estes: DNAeXplained - Genetic Genealogy <http://dna-explained.com/>
 - Judy Russell: The Legal Genealogist <http://www.legalgenealogist.com/> often posts about DNA.
 - Kitty cooper: Musings on genealogy and genetics <http://blog.kittycooper.com/>

