

Interpreting Your FTDNA & 23andMe Results
Mary Eberle, JD

Mary@DNAHunters.com • www.DNA Hunters.com • 608-206-0641

Talk 1: Interpreting Your FamilyTreeDNA Results

FamilyTreeDNA (FTDNA) tests three (3) kinds of DNA: autosomal DNA, Y-DNA, and mitochondrial DNA.

Autosomal DNA (Family Finder Test)

1 2 Types of Results: Ethnicity Estimate and Match List

a. Ethnicity Estimate (myOrigins)

- i. 500 – 1000 years ago (or a little less)
- ii. Good for certain ethnicities, e.g., Scandinavian, possibly Eastern European, South American
- iii. 2 Views:
 1. Broader – more continental/regional level
 2. More specific – regional/countries
- iv. Shared Origins
 1. Your matches with similar ethnicity estimates

b. Match List

- i. Listed from match with most shared DNA to least.
- ii. Search window – to search for name or ancestral surname
- iii. Envelope—allows you to email your match
- iv. Notepad—for note taking
- v. Family tree—if it's blue, there's a family tree for this match

c. In Common With = matches shared with another match

- i. Select one match, then click on "In Common With."
- ii. This generates a list of shared matches.
- iii. Look for clues on how these people are related to you and each other.
 1. Look at match's names, whether they have trees, and "Ancestral Surnames"
 2. Examine them in the Chromosome Browser to see where the group shares DNA.

d. FTDNA over-estimates your matches' closeness (says they are closer than they are)

- i. You should determine amount of Shared DNA
- ii. Two Methods.
 1. Method 1: Hover over segments in Chromosome Browser (CB) & add them up if they're over 7 cm. See [https://isogg.org/wiki/Identical by state](https://isogg.org/wiki/Identical_by_state) for an explanation of why you don't want to include smaller segments.
 - a. Determine possible relationship
 - i. Either compare your total cM to table with possible relationships (in other handout with table) or

- ii. Use on-line relationship predictor at <https://dnainter.com/tools/sharedcmv4>
2. Method 2: Download segments
 - a. Download to Excel (far left choice) or
 - b. View data in table (middle choice)
 - i. Then add up segments
https://isogg.org/wiki/Identical_by_state, and
 - ii. Go to step 1. a. above (Determine possible relationship)
3. On CB, two matches might share DNA with you at the same place, but are they from the same side of your family?
 - a. Go back to your match list
 - b. Click on 1 match
 - i. Then click on In Common With Tool
 - ii. Is the 2nd match in the list?
 1. If Y, then they are from same side of family (mom or dad)
 2. If N, then they aren't
- e. Shows X-matches—but confirm them in the chromosome browser!
- f. Limitations to FTDNA's chromosome browser
 - i. use DNAGedcom.com's Autosomal DNA Segment Analyzer (ADSA)
 - ii. described in other handout

Y-DNA

1. FamilyTreeDNA is only company providing full Y-testing
 - a. Provides:
 - i. Y Haplogroup & Haplotype
 - ii. Deep Ethnicity Estimate
 - iii. Y-DNA Matches
 - b. 2 Kinds of DNA Tests
 - i. STR: Provides Y-Haplotype
 1. How many STR locations/markers to test?
 - a. 37, 67, or 111
 - ii. SNP: Provides Y-Haplogroup
 - a. Should SNP be ordered to confirm haplogroup?
 - c. Y-DNA Results
 - i. Y Haplotype
 1. Receive a printable certificate
 - ii. Y Haplogroup
 1. Example: Haplogroup I-M253 (old = I1)
 - a. SNPs **M253**, M307, P30, and P40
 - b. Part of broader Haplogroup I
 - c. Age: dates to 23,000 years ago, or older
 2. Y Haplogroup Migration Map
 - iii. Deep Ethnicity Estimate of your direct paternal line
 - iv. Y-DNA Matches:

1. Who in at FT-DNA's Y-DNA database shares DNA with you?
 - a. Table of matches
 - i. Genetic distance = differences between match & you
 - ii. Lists matches' name, their oldest known patrilineal ancestor
 - iii. TiP calculator—estimates of how many generations to a common ancestor
 - iv. Whether the match has done autosomal DNA testing (FamilyFinder (FF) test on FTDNA)
- d. Y-DNA Genealogical Uses
 - i. Y-DNA can:
 1. On your *patrilineal line*
 - a. Confirm that branch of your family tree
 - b. Find someone, e.g., father
 2. Find a surname
 - a. Y-37 marker test gives surname 30-40% of time
 - ii. Projects:
 1. Y-DNA Surname Projects
 2. Haplogroup Projects
 3. Suggested projects based on your surname
 - iii. Interpreting Y-DNA results
 1. Haplotypes: from STR markers (Y-37, Y-67, Y-111)
 - a. Genetic distance = differences from your match
 - i. In general, the fewer the number of distances, the closer the match should be to you.
 - b. Tip calculator shows probability of finding a common ancestor in a given number of generations.
 - c. Test takers can list their oldest known direct paternal ancestor.
 - d. "FF" means the tester also did a Family Finder (autosomal test)
 - e. Use the Advanced Matches (AM) tool to see if a Y-DNA match also matches your autosomal DNA (click on Family Finder in the AM tool).
 2. Haplogroups: from SNPs
 - a. Look at your haplogroup
 - b. If you're comparing it to another person's haplogroup, compare the results
 - i. Are they the same?
 1. Then you might share a common patrilineal ancestor,
 - a. But s/he might be too far back in time to find a common ancestor
 2. Then you might share a father or other relative on that line

- a. But this is only going to be true in rare situations, such as trying to decide if Man A or B is the father.
 - b. That is, because so many people have the same haplogroup, it cannot be used alone to determine whether there's a shared ancestor.
 - c. Use it in combination with autosomal DNA.
- c. It might tell you about where your patrilineal ancestor came from
 - i. Search on line for your haplogroup to find more information about it. For example, look for:
 1. Wikipedia
 2. Eupedia.com
 3. Scientific studies
 4. Blogs
 - ii. Your haplogroup might help you sort your matches.

Mitochondrial DNA (mtDNA)

1. Genealogy Uses

- a. Deep ethnicity of matrilineal line
- b. Whether woman 1 or 2 is the mother
- c. Whether children share the same mother
- d. mtDNA Tests to Order @ FamilyTreeDNA
 - i. Separate Test \$\$\$
 - ii. Full mtDNA sequence = the test
 - iii. Provides much more detailed information
 - iv. mtDNA haplogroup and related reports
 - v. Match list, i.e., your matches @ FTDNA
 - vi. Haplogroup certificate
 - vii. Migration maps
 1. Tells deep ethnicity of your matrilineal line
 - viii. mtDNA matches—a table of matches
 1. Genetic distance (differences between you and your matches)
 2. Matches' name, their oldest known matrilineal ancestor
 3. NO TiP calculator (like with Y-DNA matches)
 4. Whether the match has done autosomal DNA testing (FamilyFinder (FF) test on FTDNA)
- iv. Interpreting mtDNA Results (see steps above for Y-DNA)

Advice on contacting your matches:

Here's what to say:

- a. Tell them who you are (name, location, your parents—but don't overwhelm them).
 - b. Say how you think you're related.
 - c. Tell them where they can find your tree.
 - d. Ask them if they have a family tree.
-

Resources:

- International Society of Genetic Genealogy – isogg.org
- Glossary of Terms - http://isogg.org/wiki/Genetics_Glossary
- International Society of Genetic Genealogy's Autosomal DNA Statistics - http://isogg.org/wiki/Autosomal_DNA_statistics
- DNA Detectives FaceBook Group - <https://www.facebook.com/groups/DNADetectives/>
- Short videos on genetic genealogy - <http://learn.genetics.utah.edu/content/basics/molgen/>
- Types of cousins explanation - <https://en.wikipedia.org/wiki/Cousin>

Talk 2: Interpreting Your 23andMeDNA Results

23andMe

- 1 Currently 2 kinds of kits:
 - a. Kit 1: Ancestry service
 - i. Match List for autosomal DNA (atDNA)
 1. You can search it for names, haplogroups, locations
 2. Sharing Options with Your Matches
 - a. 1:1—ask 1 person to share
 - b. Open sharing—all of your matches can see your info
 - ii. Under Reports:
 1. Ancestry Composition = Ethnicity Estimate
 2. Haplogroups = mtDNA & Y-DNA haplogroups
 3. Neanderthal Ancestry = How many Neanderthal traits
 - iii. Ethnicity Estimates
 1. Map & table formats
 2. You can adjust the confidence level
 3. Ethnicity by Chromosome
 - a. Can help:
 - i. To see whether the same ethnicity is on both maternal & paternal sides
 - ii. For males to determine their mom's ethnicity
 - iii. If you've mapped chromosomes to ancestors, can see their ethnicity
 4. Closest to paper trail,
 - a. but still differs for most people
 5. Good for Native American
 - a. 0.8-0.9% shows up, whereas Ancestry might miss this
 6. Hard time w/ Italian sometimes
 7. Very good for Finnish results
 - iv. To View atDNA Matches
 1. Click on Reports, then View DNA Relatives
 - a. Provides match list
 - b. % DNA shared with match
 - c. Predicted relationship pretty accurate, but might be other possibilities
 - d. Some people are anonymous
 2. Chromosome browser
 - a. Click on Tools, then DNA Relatives, then See What Segments You Share
 - b. You add the people to be compared
 - i. Person 1 verses 5 different matches
 - ii. You can use your match & see whether they match 5 other of your matches

- b. Kit 2: Health + Ancestry service (everything listed above) plus the following health information:
 - i. Four disease reports (called Genetic Health Risks):
 - 1. Hereditary Thrombophilia
 - 2. Late-Onset Alzheimer's Disease
 - 3. Parkinson's Disease
 - 4. Alpha-1 Antitrypsin Deficiency
 - ii. Wellness reports, e.g., lactose tolerance
 - iii. Traits reports, e.g., taste & smell
 - iv. Carrier Status, e.g., cystic fibrosis, sickle cell anemia, hereditary hearing loss
 - 1. Previous: was lots of disease risk
 - 2. Workarounds:
 - a. Promethease.com
 - b. interpretome.com
 - c. livewello.com
 - d. geneticgenie.org
 - e. others
 - f. ***but you can use your Ancestry or FT-DNA results for these also***
2. Conclusion/Summary/Highlights
- a. Who tests at 23andMe?
 - b. % not cM in match list
 - i. cM in chromosome browser
 - c. Chromosome browser
 - d. Share 1:1 or "open sharing"
 - e. Ethnicity information
 - f. Closest to paper trail
 - g. Chromosome-by-chromosome view