

Should You Add DNA Testing To Your Genealogy Toolbox?

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Objectives

- Know the three basic types of tests.
- Understand how the test is performed.
- Know the three main testing companies.
- Be familiar with the differences between the three companies.
- Be familiar with some potential benefits of DNA testing.
- Be familiar with some potential risks of DNA testing.

What is Genetic Genealogy?

- Using biological tests to help us find connections with other people who have tested and (potentially) using that data to confirm and extend our family tree.
- Compare DNA samples to look for matches
- Mainstream technique – not a passing fad
- Considered part of reasonably exhaustive research for many genealogical questions.
- Results as compared to other testers.

Why Might We Use It?

Reasons include:

- To locate cousins
- To prove/disprove family linkages
- To help solve adoption/unknown parentage questions
- To get an estimation of our genetic ethnicity

What It Won't Do...

- Generally will not provide instant answers
- Will not give us our full ethnic make-up
- Will not qualify you for membership with any Native American tribe.

What are the tests?

Three basic types of tests

- Autosomal DNA (atDNA) (includes X-DNA)
- Y Chromosome DNA (Y-DNA)
- Mitochondrial DNA (mtDNA)

How is the test performed?

- Two companies use a "spit test"
- One company uses a "cheek swab"

Autosomal DNA Testing Basics

- 22 autosomes & X chromosome
- Lose half with each generation
- 5-6 generations, maybe more
- Anyone can test

What Does Autosomal/X-DNA Show?

- Cousin Finder
- Provides recent ethnicity estimate
- May show adoption info

Ethnicity Report Comparisons – each company will be different!

Ethnicity Report

- It's an ESTIMATE!
- It probably will not reflect your actual heritage because of:
 - Inheritance & generational loss
 - Inaccurate reference populations due to:
 - Poor selection
 - Migration & Conquest
 - Limited size
- Different estimate from each company
- May be genealogically useful in very limited circumstances (adoption or other very recent Non-Paternal Event (NPE))
- Great cocktail conversation!

Y-DNA Testing

- Male sex chromosome
- Passed from father to son to son to son
- Only males can test

What Does Y-DNA Show?

- Direct Paternal Line connections (but not details)
- Genetic Distance which can be used to estimate how far back it was to our shared ancestor
- Statistical
- Can conclusively show two men are NOT closely related
- Can reveal Non-Paternal Event (NPE)
- May show adoption info
- Paternal haplogroup

Mitochondrial DNA

- Mothers pass it to their offspring
- Anyone can test

What Does mtDNA Show?

- Direct Maternal Line connections (but not details)
- Genetic Distance which can be used to estimate how far back it was to our shared ancestor
- Statistical
- NOT the same as the X chromosome
- The least useful of the three tests, mainly due to patronymic naming systems & extremely slow mutation rates
- Maternal haplogroup

Should I Test?

- It depends (but probably)
- Do you have any brick walls left?
- Do you have an adoption, name change, or illegitimacy you are trying to solve?
- Do you want to expand your skill set?
- Do you want to find new cousins?
- Do you want to have fun?

Which Test Should I Take?

- It depends on the question/goal

Some Scenarios Where DNA Testing May Help

- Adoption (atDNA, Y-DNA, mtDNA)
- Finding cousins who may have more info, photos, the family bible, etc. (atDNA)
- Were Johaza Howard & Joseph Howard (both born about 1790) closely-related? (Y-DNA and maybe atDNA)
- Are my Howards related to the Colonial Howards of Bridgewater, MA? (Y-DNA)
- Great great grandpa married twice and there is some question about which wife is my ancestor. (mtDNA)
- I'm just curious about it. (atDNA)
- Were some of my great grandparents Ashkenazi Jewish? (atDNA)
- More evidence to help tear down a family history brick wall. (atDNA, Y-DNA, mtDNA)
- I want to learn more about my genetic health risk factors. (atDNA)

Some Scenarios Where It Won't Work

- I have a Native American great great grandmother. Was she Pawnee or Cherokee?
- I have three months to complete my tree. I need some quick answers on my great-great grandparents.
- Should I buy a kilt or lederhosen?

Who Should I Test With?

- Autosomal Testing - It depends on the question/goal
 - Ancestry.com, FTDNA.com, and 23andMe.com
- Y-DNA & mtDNA - only one option
 - FTDNA.com

Company Comparison For atDNA

- Size of Comparison Pool
- Cost
- Medical data
- Analysis Tools

Size of Comparison Pool

- Ancestry –over 5 million testers
- FTDNA – over 1.5 million testers
- 23andMe – over 2 million testers

Cost

- Ancestry - \$99 (but often on sale)
- FTDNA - \$79 (but often on sale)
- 23andMe - \$99 (ancestry only), \$199 (ancestry and health) (seldom on sale)

Medical data

- Ancestry – medical markers are tested but not currently reported to testers
- FTDNA – medical markers generally not tested
- 23andMe – medical markers tested & reported (but it will cost you)

Analysis Tools

- Ancestry
 - Trees are great
 - Very limited access to any match details
- FTDNA
 - Chromosome Browser
 - Phasing
- 23andMe
 - Chromosome Browser

What are the Risks?

- Unexpected results
 - Paternity
 - Refutes cherished family lore
 - Ethnicity
- Huge Time Suck
- Cousin Overload
- Cost - especially with targeted testing

Ethics

- Standard 12 :Unexpected Results from the *Genetic Genealogy Standards*:
"DNA test results, like traditional genealogical records, can reveal unexpected information about the tester and his or her immediate family, ancestors, and/or descendants. For example, both DNA test results and traditional genealogical records can reveal misattributed parentage, adoption, health information, previously unknown family members, and errors in well-researched family trees, among other unexpected outcomes."

Other Resources

- Blaine Bettinger's new book *Family Tree Guide to DNA Testing and Genetic Genealogy*
- ISOGG Wiki - http://isogg.org/wiki/Wiki_Welcome_Page
- Facebook – Genetic Genealogy Tips & Techniques
- Blogs – Blaine Bettinger, Judy Russell, Roberta Estes, Jim Bartlett, Leah LaPerle Larkin
- Webinars/Videos
- Formal Classes – Institutes & Online
- Upcoming NYG&B seminar Oct 27th & 28th