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A Layman's Guide to Using DNA to Further Your Research



Real World DNA Testing
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www.honoringourancestors.com and www.genetealogy.com

What is “genetealogy”?

- DNA testing done for the purpose of learning about one’s heritage
- Mostly used for surname studies to determine if people share a common ancestor
- But other types of tests are also available

What kind of tests are available?

- Y-DNA
- mtDNA
- SNP
- Genographic Project
- BioGeographical/DNAPrint
- Ethnic: African & Native American
- Sorenson Molecular Genealogy Foundation

How are the tests done? <http://www.davedorsey.com/dna.html>

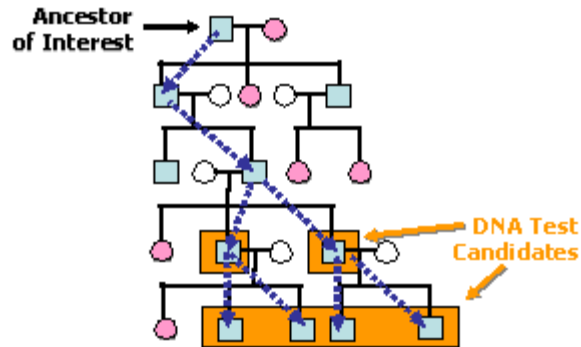
Who offers these tests?

- The big 3: Family Tree DNA, Relative Genetics, DNA Heritage
- Other players: Oxford Ancestors, DNAPrint Genomics, Trace Genetics, African Ancestry, GeoGene, GenbyGen, Roots for Real, GeneTree
- Newest entrants: Ethnoancestry, DNA Fingerprint, Crucial Genetics, Chromosomal Laboratories

Most popular: Y-chromosome testing

- Passed from father to son through generations
- Line ends when male dies without issue or only has daughters
- Women have to find male proxy for testing
- Objective is usually to find a match

Following the Y Chromosome



Surname projects:

- Someone launches a project and invites all with that surname to participate
- As results come in, matchmaking game begins
- Participants are gradually divided into clusters with their Y-DNA mates

The matchmaking game:

- Results presented in numbers of repeats at particular markers
- When 2 or more people are tested, you look for (almost) identical results

Matchmaking example:

Zavacky/Zavatsky Comparison

Name	3	3	3	8	8	4	3	4	9	3	9	4	5	5	4	4	4	4	4	4	4	4	6	4	4	4
Zavacky	13	24	16	10	14	15	11	13	13	14	11	33	17	8	10	11	11	27	15	20	31	15	15	16	16	
Zavatsky	13	24	16	10	14	15	11	13	13	14	11	33	17	8	10	11	11	27	15	20	32	15	15	16	16	

▲
mutation

Y-DNA tests available in 3 tiers:

- 10-15 markers; **23-26** markers; 37-43 markers
- More markers = greater accuracy; low resolution can produce occasional false positive

Case study: Smolenyaks

OTHER TYPES OF DNA TESTING

Mitochondrial (mtDNA)

- Passed from mothers to sons & daughters, but sons don't pass it on

- Primarily a deep ancestry test (*Seven Daughters of Eve* by Bryan Sykes)
- But also useful if you have a rare mtDNA haplotype, for specific genealogical conundrums, and if dealing with degraded remains

SNP

- Deep ancestry Y-chromosome test (*Journey of Man* by Spencer Wells)
- Predictable through standard test, but some take it for confirmation or to learn more

Genographic Project: www.genographic.com

Ethnic

- African: Y & mtDNA versions; Can sometimes link to country or tribe (African Ancestry)
- Native American: Y & mtDNA versions; Potential for disappointment (Trace Genetics and Relative Genetics)

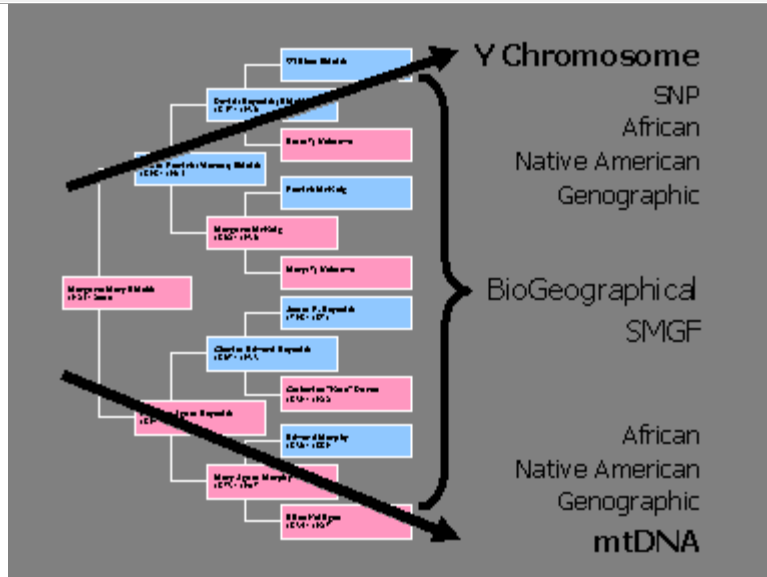
BioGeographical (DNAPrint)

- Presents results in percentages of Indo-European, Sub-Saharan African, Native American and East Asian
- Somewhat shallow test, so potential for disappointment, controversy, and surprises!

Sorenson Molecular Genealogy Foundation

- Aiming to collect 100,000 samples & family trees
- Correlating genetic (Y, mtDNA & autosomal) and genealogical data (dates, places, names prior to 1900)
- Query database by entering results from commercial lab

Perhaps the most important point to remember about all these tests is that . . . most only address certain portions of the family tree!



Resources:

- GENEALOGY-DNA Mailing List:
<http://lists.rootsweb.com/index/other/GENEALOGY-DNA.html>
- To find existing surname studies: search www.ysearch.org, www.ybase.org, www.smgf.org, and testing company sites, as well as <http://www.worldfamilies.net>
- International Society of Genetic Genealogy: <http://www.isogg.org/>
- *Trace Your Roots with DNA: Using Genetic Tests to Explore Your Family Tree* by Megan Smolenyak Smolenyak and Ann Turner
- Genetic Genealogy Articles:
<http://honoringourancestors.com/library.html#three> and
<http://www.genetealogy.com>