

# Demystifying DNA: Getting Started with Genetic Genealogy

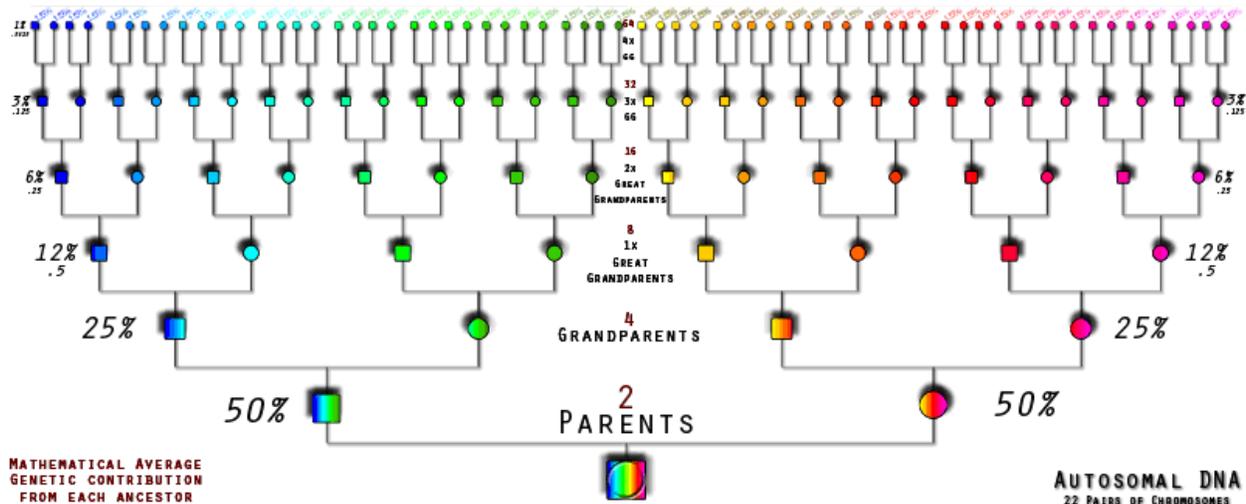
## Class 1: Getting Started Using DNA

Melanie McComb, Senior Genealogist, melanie.mccomb@nehgs.org

### Types of DNA Tests Available:

- **Autosomal**

- Male and female lines tested
- Anyone can take the test
- Testing Companies: Ancestry, FamilyTree DNA, MyHeritage, 23andMe, Living DNA.



- **Y-DNA**

- Direct male line is traced
- Only males can take test (Y chromosome)
- Recommend at least 37 markers (may require 67 markers or higher in groups if a large number of matches)
- Testing Companies: FamilyTree DNA (recommended), Living DNA.

- **Mitochondrial**

- Direct female ancestral line is traced
- Anyone can take the test
- Testing Company: FamilyTree DNA, Living DNA.

## Why Should You Use DNA?

- To learn about ancestral origins
- To confirm lines of descent
- To test hypotheses within your family tree
- To connect with other cousins researching the same families.

## What DNA Cannot Do

- Solve a brick wall ancestor without genealogical research
- Determine a Native American tribe
- Be proof positive of a suspected distant kinship.

## Haplogroups

- Y-DNA and mitochondrial tests generate a haplogroup
  - Made up of letters and numbers (ex. R-M269)
- Each haplogroup is associated with an approximate time and place where it arose from
- Living DNA and FamilyTree DNA – mtDNA, Y-DNA, and autosomal
  - 23andMe – estimated haplogroup from autosomal sample

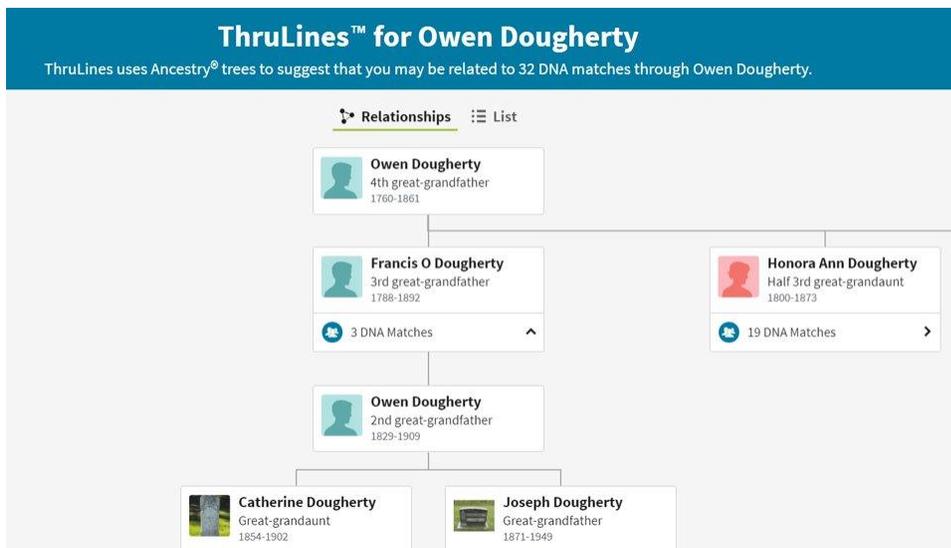
## Informed Consent Forms

- Genetic Genealogist Blaine Bettinger shared these documents under Creative Commons license - <https://thegeneticgenealogist.com/2018/02/15/informed-consent-agreement-and-beneficiary-agreement/>
- Sample Informed Consent Agreement - [https://www.dropbox.com/s/ll79by1hskz57to/Sample Informed Consent Agreement.docx?dl=0](https://www.dropbox.com/s/ll79by1hskz57to/Sample%20Informed%20Consent%20Agreement.docx?dl=0)
- Sample Beneficiary Document: [https://www.dropbox.com/s/g6b58pc8bzwqbp/Sample Beneficiary Agreement.docx?dl=0](https://www.dropbox.com/s/g6b58pc8bzwqbp/Sample%20Beneficiary%20Agreement.docx?dl=0)

## AncestryDNA

- No Membership
  - Ethnicity Estimate
  - DNA Communities
  - Match List
  - Contacting Matches
  - DNA Compare
  - Traits (limited to 3)

- Shared Matches (limited to 3)
- Ancestry DNA Plus (or with Family History Membership)
  - Ethnicity Estimate
    - Ethnicity Estimate by Parents
  - DNA Communities
    - Communities by Parents
  - Match List
    - Match List by Parents
  - Contacting Matches
  - DNA Compare
  - Traits
  - Shared Matches
    - See matches in common with someone else. Goes out to 4th cousin level.
  - Chromosome Painter
  - ThruLines
    - Provides potential ancestors based on other DNA matches and their trees
    - Carefully evaluate these lines with other genealogical documents.



Example of ThruLines. Shows number of DNA matches from a particular person's line.

## 23andMe

- DNA Match List
- Shared Match List

- Chromosome Browser is available for users who share information with you.
- Generates a family tree based on your DNA matches.
- 23andme+ Premium – medical reports (\$)
  - Monthly option also available for access to clinicians and biannual blood testing
- Note: There is an updated genotyping chip available if you want current reports (V5)

## **MyHeritage DNA**

- DNA Match List
- Contacting Matches
- Exporting Matches
- Unlock fee of \$29 per kit
  - Ethnicity Estimate
  - Chromosome Browser
  - Shared Matches
  - Shared Ancestral Places
  - Theory of Relativity (similar to ThruLines)
  - Auto Clusters

## **Living DNA**

- Autosomal Test
  - Ethnicity Estimate
  - DNA Match List
  - Shared Matches List
  - Chromosome Browser (upgrade free required)
- Fatherline - Y-DNA test (Male Only)
- Motherline - Mitochondrial Test (Male and Female)
  - Tests the direct maternal line only

## **FamilyTree DNA**

- Family Finder – Autosomal Test
  - DNA Match List
  - Unlock Fee \$19 per kit
    - Chromosome Browser
    - Chromosome Painter
    - Ethnicity Estimates (MyOrigins)
    - ancientOrigins
- Y-DNA test – Male Only

- Mitochondrial Test – Male and Female
  - Tests the direct maternal line only
- Upload a GEDCOM file of your family tree.
- Link DNA matches to people within your tree. Allows for maternal/paternal sorting.
- Chromosome browser
- Join projects related to a family surname of tester, geographic region, or an ethnicity group.

Projects - Join

Click on the project name to see its description. If there is more than one project listed, click on any of them, and then go to your browser's "back" button to check another project description.

Project	Members	Description
British Nobles Barons Gentry	2794	Male line descendants of British & Irish Earls Nobles Barons and Gentry may join. Those who descend through the female line may be transferred to the England GB groups ELJ (Norman) project. <a href="#">read more...</a>
Chelsea_Mfa	493	For you who are checking this out it is a Project for the towns of Chelsea,Revere [No. Chelsea,Prattsville]and Winthrop Massachusetts.-br>We are doing this in conjunction with the MACHELSEA-L@roots <a href="#">read more...</a>
Clare Roots Society	1557	To learn more about the Clare Roots project, please go to the <a href="https://www.familytreedna.com/groups/clare-roots-society/about/background">Background page</a>. <a href="#">read more...</a>
County Down N.I.	420	This site is for those of us whose antecedents, originated in County Down, Northern Ireland, close to where the Mountains of Mourne sweep down to the sea and includes the settlements of Ardglass, Ba <a href="#">read more...</a>
County Derry	105	The purpose of the project is to autosomally test those of a County Derry pedigree and to establish the family connection between them. <a href="#">read more...</a>
County Donegal	422	The Donegal DNA Project is for those who have done a DNA test (or are awaiting results of such) and whose four grandparents are from County Donegal or the City of Derry. The concentration is upon Do <a href="#">read more...</a>
County Longford	300	Welcome to the County Longford Project. The purpose is to allow People with ties to Longford to test and be compared to others with ties to the same area. The fact they have ties to the same area wo <a href="#">read more...</a>
Doherty	761	Welcome, researchers of all Doherty variant surnames. We invite you to become a participant in the Doherty Surname DNA Project. We hope you will find in this project a new link to your respective <a href="#">read more...</a>
EARLY PENNSYLVANIA	1026	This project is to help researchers make connections with others whose ancestors immigrated through Pennsylvania before 1850. Several major groups used Pennsylvania as their gateway to a new life. <a href="#">read more...</a>
England GB Groups-ELJ	7115	Finding origins of surnames and DNA groups in Great Britain. In England, Scotland, Wales and indeed Ireland for many this origin will be Norman. However the reality is that we cannot look at Normans <a href="#">read more...</a>
French_Heritage_DNA	9959	The main goal of the project is to find and confirm DNA signatures of ancestors, mainly in today's Quebec, Acadia and old Louisiana, preferably before 1800 and Metis/Natives of these area. This is <a href="#">read more...</a>

Example of Projects List suggested for a Y-DNA test user

## Law Enforcement

- DNA Testing Companies and Law Enforcement - <https://www.yourdnaguide.com/ydgblog/dna-testing-companies-and-law-enforcement>
- FamilyTree DNA & Law Enforcement (to Opt Out) - <https://www.yourdnaguide.com/family-tree-dna-opt-out-law-enforcement>

## DNA Consultations

- DNA consultations can currently be arranged with a genealogist via telephone or online (Zoom)
- Cost: \$150/hr for members; \$250/hr for non-members
- We'll work with you on a research plan for your brick wall
- You'll learn how to use one of the many third-party tools to manage and analyze DNA (including GEDMATCH)
- Request a 1-hour post-DNA results consultation at <https://www.americanancestors.org/expert-help/consultations#form>

## Publications

Angie Bush, *Genetic Genealogy Basics*. (Baltimore, Maryland: Genealogical Publishing Company, 2016).

Blaine Bettinger, *The Family Tree Guide to DNA Testing and Genetic Genealogy (2<sup>nd</sup> Edition)*. (Cincinnati, Family Tree Books, 2019).

Christopher Challender Child, *Using DNA in Genealogy*. (Boston, New England Historic Genealogical Society, 2014).

Colleen Fitzpatrick, *DNA and Genealogy*. (Fountain Valley, CA, Rice Book Press, 2005).

Debbie Parker Wayne, *Advanced Genetic Genealogy: Techniques and Case Studies*. (Cushing, Texas, Wayne Research, 2019)

Diahan Southard, *Your DNA Guide the Book: Step-by-Step Plans to Connect You with Your Family Using Your DNA* (United States, Your DNA Guide, 2020).

Ian Watson, “*The origins of Aquila Ramsdell’s given name: investigating the 17<sup>th</sup> century with mitochondrial DNA.*” American Ancestors (Boston, New England Historic Genealogical Society, 2017). Available online at <https://www.americanancestors.org/DB405/i/53692/54/72531115>

Tamar Weinberg, *The Adoptee’s Guide to DNA Testing: How to Use Genetic Genealogy to Discover Your Long-Lost Family*. (Cincinnati, Family Tree Books, 2018).

## Web Sites

- 23andMe <https://www.23andme.com>
- AnceSTREES DNA Tools <https://www.americanancestors.org/ancestrees>
- Ancestry <https://www.ancestry.com/dna>
- DNA Solves - <https://dnasolves.com>
- FamilyTree DNA <https://www.familytreedna.com>
- FamilyTree DNA Projects <https://www.familytreedna.com/group-project-search>
- GEDMatch <https://www.gedmatch.com>
- Genetic Genealogy Standards <http://www.geneticgenealogystandards.com>
- Genetic Genealogy Tips & Techniques Facebook Group  
<https://www.facebook.com/groups/geneticgenealogytipsandtechniques>
- International Society of Genetic Genealogy Wiki <https://isogg.org/wiki>
- LivingDNA <https://www.livingdna.com>
- MyHeritage <https://www.myheritage.com>