

You Need Both!

Uniting DNA and Traditional Research

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Introduction

Genealogists have learned to use many different types of complex records without having specific degrees in history, law or other specialty fields. In this same way, it is possible for genealogists to use DNA testing as another record type to resolve questions of kinship and identity.

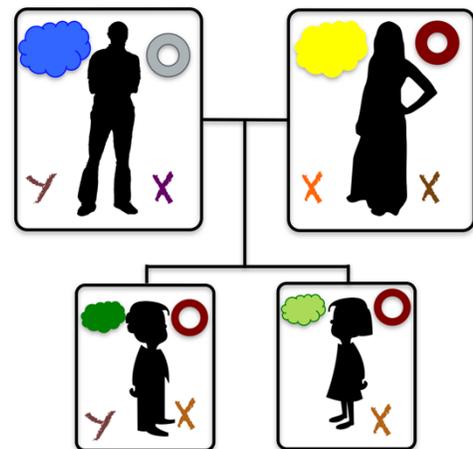
When any record (including DNA) is analyzed, it generally leads to one of three outcomes:

1. The record provides evidence to support a research hypothesis
2. The record provides evidence to refute a research hypothesis
3. The record provides information that leads to additional evidence or sources to be analyzed and correlated.

Those who are most successful with using DNA “records” in their genealogical research understand that a DNA test will not immediately solve all of their research questions, but that DNA test results are often part of conducting “reasonably exhaustive research.”

Genetic Inheritance

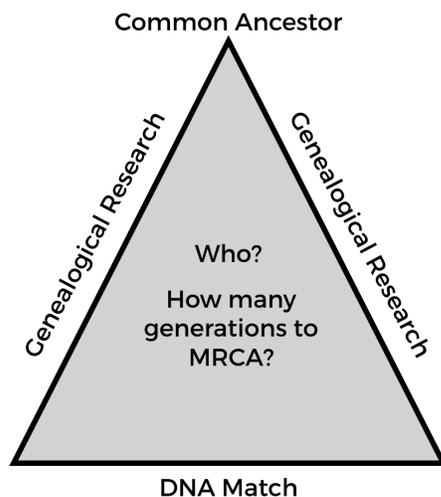
The types of records that are most valuable to the genealogist are those records that provide evidence of inheritance. Vital records show inheritance of surnames; probate records show inheritance of personal and real property; DNA testing shows inheritance of biological material. By understanding basic patterns of genetic inheritance, genealogists can very effectively use DNA testing to answer questions of kinship and identity, and in some cases, reconstruct kinships for which no records exist. The growing field of genetic genealogy aims to combine information contained in our DNA with traditional genealogical records to determine how related we are to others. In the last 15 years significant scientific advances have occurred allowing genealogists to use this biological record as a genealogical research tool in unprecedented ways.



Genetic Inheritance

A single DNA match in isolation proves nothing, although it does indicate that there is a biological relationship between two people. Another piece of evidence is required to determine exactly what the relationship between two people is. It may be another DNA test result or another piece of documentary evidence, or both. Understanding genetic inheritance coupled with the figure below provide the foundation for using DNA test results (specifically cousin “match lists”) as a genealogical research tool.

GENETIC EVIDENCE & GENEALOGICAL RECORDS



- ▶ DNA “match” indicates shared common ancestral line.
- ▶ Statistical algorithms and other analysis tools can provide clues to genealogical relationship.
- ▶ Genealogical research required to identify common ancestor.

Direct line testing (Y-DNA and mtDNA) provides evidence that two people share a common ancestor on that particular direct line, but they do not differentiate how long ago that common ancestor may have lived – genealogical research is required to determine how many generations separate these individuals. See the following links at Family Tree DNA for additional information on how to interpret the closeness of a DNA match:

- mtDNA: <https://www.familytreedna.com/learn/mtdna-testing/tell-closeness-relationship/>
- Y-DNA: <https://www.familytreedna.com/learn/y-dna-testing/y-str/expected-relationship-match/>

For relationships closer than a second cousin, autosomal DNA testing provides strong evidence of how many generations separate two people. Autosomal DNA testing can also provide evidence for relationships more distant than third cousin, however, the analysis and interpretation of results becomes more difficult. The “Shared cM Tool” hosted at the DNA Painter website (<https://dnapainter.com/tools/sharedcmv4>) provides a listing of possible genealogical relationships based on the amount of autosomal DNA shared. A key question to consider when working with DNA test results is: **Does the genealogical and genetic evidence support the hypothesized relationship?**

Testing with Purpose

Seasoned genealogists know that developing a research plan is often key to their success. For many genealogical questions, incorporating DNA testing as another “record” to search can often lead to answers to difficult questions. DNA testing plans should target the specific genealogical relationships being queried. Developing a testing plan generally consists of three basic steps:

- Identify the subject or ancestor to be researched.
- Determine who carries the DNA of the subject (all types). This often requires a significant amount of “reverse genealogy” or descendancy research.
- Evaluate the available types of tests and the databases and features available at each company to maximize the usefulness of the test results.

All DNA testing relies on matching others (whether a reference population for the ethnicity estimate, or other testers as a genetic cousin) in the databases that have taken the same type of DNA test, and then comparing your data against those individuals. Determining which test and which company to use relies heavily on this concept. As you plan your research and identify individuals to test, realize that just as your ancestors may not be found in a traditional record collection, there may be no DNA matches or descendants of these ancestors found that have tested their DNA.

Confirmation Bias

By nature, humans incorporate bias into their decisions and interpretation of information and data they come in contact with. Bias often makes our world easier to understand and helps us to internally resolve complicated issues. However, objectivity requires bias be removed wherever possible. One way to counteract the effects of bias in genealogical research is to understand and apply the principles of the Genealogical Proof Standard (GPS). The GPS is an adaptation of the scientific method applied to genealogical research questions. Reasonably exhaustive research and analysis of all information found, whether favorable or not, leads to conclusions that stand the test of time and that are not easily overturned with new information or evidence. There are some self-checks that can be done and questions that can be asked to avoid confirmation bias and ensure that sound research conclusions are reached.

1. **Establish independent checks of your research.** Reaching the same conclusion through analysis of traditional documents and records and a separate analysis of genetic information greatly strengthens the conclusion.
2. **Do not become isolated as a researcher.** This can be difficult for genealogists, as most are independent and prefer to work that way. Find at least two to three others that are willing to review your conclusions and look at things in a new way. Find peers that are willing to be critical of your work. Criticism should not be taken personally. Also consider exploring other schools of thought in genealogy. Although the Board for Certification of Genealogists has done a monumental amount of work to create standards; seek out others who have written on the topic such as Robert Charles Anderson and Paul Gorry.

3. **Do not become emotional or apply your morals and values to the research.** Traditional research coupled with DNA often reveals situations such as incest or abuse. It can also reveal the horrors of slavery, identify priests who may have fathered a child with a parishioner and a host of other things. It is critical that the evidence speak for itself and be evaluated on its merit, even if the evidence makes a research uncomfortable.
4. **Examine all evidence.** All evidence should be examined, and if evidence or information challenges previously held conclusions, then those conclusions must be reevaluated. Evidence should never be “cherry-picked” to agree with pre-conceived notions.
5. **Research should be repeatable.** Other researchers should be able to find the same documents and reach the same conclusions that you reach. It may be more challenging to evaluate conclusions reached through an analysis of DNA results due to privacy of genetic information, there are ways to share genetic information through excel spreadsheets or sharing DNA results (AncestryDNA).

Quality genealogical research requires an understanding of what constitutes evidence and proof of relationships and identity. As a biological record of shared ancestry, DNA is an ideal tool for testing relationship hypotheses. Though DNA cannot reveal everything about the lives of our ancestors and those we share a history with, it can shape our understanding and interpretation of our relationships with our ancestors.

Further Study

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4. Michael Hait, “Traditional vs. Scientific Genealogy?” *Planting the Seeds: Genealogy as a Profession*, <http://michaelhait.wordpress.com/2011/06/22/traditional-vs-scientific-genealogy/>: posted 22 June 2011.
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