

## Proving Your Native American Heritage

*Written by Roberta Estes, [www.dnaexplain.com](http://www.dnaexplain.com), Copyright 2007-2012*

Many American families carry oral histories of Native American heritage. Most often, we think of either the Western tribes who still reside in or near their indigenous homes, or the Cherokee who were displaced in the 1830s, forced to march from Appalachia to Oklahoma in the dead of winter, an event subsequently known as the Trail of Tears.

In truth, the history of Native American heritage in North America is much, much more complex. It is probable that many of the people who carry oral history of "Cherokee heritage" are actually descended from a tribe other than the Cherokee initially. The Cherokee were well known for accepting remnants of other tribes whose members and numbers had been decimated by disease or war. Sometimes these alliances were created for mutual protection. The Cherokee are also the most widely known.

The Cherokees were not the only tribe in the Eastern United States. The Eastern seaboard was widely populated by varying tribes, some related and affiliated, and some not. There were in fact three major language groupings, Algonquin, Souian and Iroquoian scattered throughout the Eastern seaboard northward into Canada, westward to Appalachia and south to the Gulf of Mexico.

People from Africa were also imported very early, often, but not always, as slaves. Jamestown shows evidence of individuals of African heritage. Those who were later brought specifically as slaves sometimes ran away, escaping into the Native population. Conversely, Indians were often taken or sold by defeating tribes into slavery as well.

In the early years of settlement, European women were scarce. Some men immigrated with wives and families, but most did not, and few women came alone. Therefore, with nature taking its course, it is not unreasonable to surmise that many of the early settlers traded with, worked alongside and married into indigenous families, especially immigrants who were not wealthy. Wealthy individuals traveled back and forth across the Atlantic and could bring a bride on a subsequent journey.

Further complicating matters, there were numerous "lost" individuals of varying ethnicity in the very early years of colonization. Specifically, Juan Pardo established forts in many southern states from Florida to Mexico beginning in 1566. The Spanish settled Florida and explored the interior beginning in 1521, settling Santa Elena Island in present day South Carolina from 1566-1576. Their forays extended as far North as present day East Tennessee. In 1569, 3 English men arrived in Cape Breton, Nova Scotia having set out on foot with 100 men 4000 miles earlier in Tampico, Mexico. The notorious Capt. Drake rescued and

subsequently probably released 400-500 or more African, Portuguese and Moor galley slaves likely on or near Roanoke Island in North Carolina in 1584<sup>1</sup>. These individuals are in addition to the well-known Lost Colony of Roanoke, and the less well-known earlier military expeditions on which several individuals were “lost” or left behind.

What does this mean to the family historian who is trying to prove their genealogy and understand better just who they are and where they come from?

If your family has a long-standing oral history of Native American heritage, it is probably true. Historically, Native people were classified as “non-white” which severely limited (and sometimes prevented) their ability to function as free, white, people with equal rights. This means that free “people of color” often could not vote, could not own land, and could not attend schools along with white people, if at all.

Furthermore, laws varied and how much non-white heritage constituting “people of color” ranged from the infamous “one drop” rule to lesser admixture, sometimes much more liberal, to only the third generation. In essence, as soon as individuals could become or pass for “white” they did. It was socially and financially advantageous. It is not unusual to find a family who moved from one location to another, often westward, and while they were classified as mulatto in their old home, they were white in their new location.

Often there were only three or sometimes four classifications available, white, negro or black, mulatto and Indian. Sometimes Indian was a good thing to be, because in some colonial states, Indians weren’t taxed. However, this also means their existence in a particular area often went unrecorded.

Any classification other than white meant in terms of social and legal status that these people were lesser citizens. Therefore, Native American or other heritage that was not visually obvious was hidden and whispered about, sometimes renamed to much less emotionally and socially charged monikers, such as Black Dutch, Black Irish and possibly also Portuguese.

For genealogists who are lucky, there are records confirming their genealogy, such as the Dawes Rolls and other legal documents. More often, there are only hints, if even that, such as a census where an ancestor is listed as mulatto, or

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<sup>1</sup> David Beers Quinn addresses this eloquently in his article, **TURKS, MOORS, BLACKS, AND OTHERS IN DRAKE'S WEST INDIAN VOYAGE**, which appeared in the “Terrae Incognitae Journal for History of Discoveries”, [Vol. XIV, 1982], Wayne State University Press.

[http://books.google.com/books?id=P7OuMkzGKw0C&pg=PA197&lpg=PA197&dq=turks+moors+blacks+and+others+in+drakes+west+indian+voyage&source=web&ots=rmvnZXcLSd&sig=lgiaM8vh6JwrskutO\\_ODYci6ygE](http://books.google.com/books?id=P7OuMkzGKw0C&pg=PA197&lpg=PA197&dq=turks+moors+blacks+and+others+in+drakes+west+indian+voyage&source=web&ots=rmvnZXcLSd&sig=lgiaM8vh6JwrskutO_ODYci6ygE)

some other document that hints at their heritage. Most often though, the stories are very vague, and were whispered or hidden for generations. References may be oral or found in old letters or documents. Supporting documentation is often missing.

Many times, it was the woman of the couple who was admixed initially, of course leading to admixed children, but with 50% less admixture than their mixed parent. It was much more common for a male of European stock to intermarry with Native or admixed women, rather than the other way around.

This means to genetic genealogists today, that they are likely to meet with frustration when attempting to document Native heritage in a male line.

Let's take a look at why this is and how we can build a DNA pedigree chart to track our ancestry. But first, let's take a minute to dispel a couple of myths regarding Native heritage and Native rights.

## **Myth-Busting**

### Myth 1 – Free College

There is no free college for Native Americans. There are sometimes scholarships and grants available, mostly by the individual tribes themselves, for their official members.

### Myth 2 – Joining a Tribe

Many people think that if they can only figure out which tribe their ancestors descends from, they can join. This is untrue. Each tribe is a sovereign nation, and they get to determine their criteria for membership. Most tribes require a specific percentage of Native "blood," called blood quantum, in addition to being able to document which tribal member you descend from. Some tribes require as much as 25% Native heritage, and most require at least 1/16<sup>th</sup> Native heritage, which is one great-great grandparent. If you don't know who in your family was a tribal member it's unlikely that you would be able to meet the blood quantum requirement.

### Myth 3 – DNA Testing Will Reveal my Tribe

Generally, DNA testing does not provide us with the information needed to determine a tribe, although it can clearly tell, using yline or mitochondrial DNA testing, whether your direct paternal or maternal line was or was not Native. Sometimes you will be able to determine a tribe based on your matches and their documented history. We are working on improving this ability, but the science simply isn't there yet.

Let's look at what DNA testing can do for you in your search for Native heritage.

## **DNA Tests**

To avoid confusion, this is probably a good place to mention that DNA testing is not accepted by any tribe for membership. Each tribe has its own membership criteria and to my knowledge, none accept DNA as either proof or disproof.

Tribes typically require a percent of "blood quantum", such as 1/4<sup>th</sup> or 1/8<sup>th</sup> and in addition they generally require that you be of proven descent from an individual about whom there is no question of their Native heritage. This is most often accomplished by the inclusion of the family in question on specific tribal rolls, plus proven descent from that family, and that the applicant is not currently less than a specific percentage Native American.

Conceptually, this means that you could very well be mostly Native American, with 7 of your 8 direct great-grandparents being 100% Native American, but your father's direct paternal line being European. With proven genealogy to the tribes specifications and being 7/8<sup>th</sup> Native American, there is no question that you would be accepted on the tribal rolls. However, a yline DNA test would reveal the European haplogroup of your father's paternal line is not of Native heritage.

Given the above example, you can never interpret non-Native haplogroup results of any one line to answer the much broader questions of, "do I have Native heritage", "how much" and "where". What you can do at that point is to continue to test other lines in order to discover the identity of your Native American ancestor. You will need to create a DNA pedigree chart. But first, let's take a look at the different kinds of DNA testing and what they can tell you about your heritage.

There are 4 different types of DNA tests that can be used to either confirm or hint at Native ancestry. The Yline paternal test, the maternal mitochondrial DNA test, and two types of autosomal tests, one of which is now obsolete.

### **Yline – Paternal Line Testing**

Yline dna tracks the male's paternal line through the Y chromosome that is passed from father to son. This DNA also follows the last name of the father, so projects tracking these families are called surname projects. Comparatively speaking, these are easy to manage because a male carrying the last name of interest is obvious.

Yline DNA can tell you whether or not you descend from a common male genealogically when compared to another testing participant. It can also tell you by identifying your deep ancestral clan whether or not you descend from early

Native Americans who were here before contact with Europeans. For that matter, it can also tell you if you descend from those of African, European or Asian ancestry.

Scientists know today that there are only two primary haplogroups indicating deep ancestry that are found among Native American males who were here prior to contact with Indo-Europeans, and those haplogroups are C and Q3. It is not accurate to say that all C and Q3 individuals exist only in the American Native population, but the American Native population is part of the larger group worldwide that comprises C and Q3. We find little to no C or Q3 in European or African populations, although we do learn more every single day in this infant science.

This sometimes becomes confusing, because the single most common male haplogroup among current Cherokee tribal members who have tested is R1b. How can this be, you ask? Clearly, one of three possibilities exists:

1. The Cherokee (or those tribes who were assimilated into the Cherokee) adopted a European male into the tribe or a European male fathered a child that was subsequently raised as Cherokee.
2. The R1b ancestor was not adopted into the tribe, maintained their European/American identity but married a Cherokee individual. This might be the case where one of the 8 great-grandparents in our example was white, and the other 7 were not.
3. There is some level of R1b admixture in the Native Population that preceded contact with Europeans that we have not yet identified.

Given this situation, I want to be very sure that people do understand that DNA results and tribal membership are not related.

Because of the unique haplogroups for Native Americans who preceded European contact, Yline is the only way to positively confirm that a specific line is or is not of Native American descent. This obviously applies to all of the individuals in the pedigree chart who directly descend from the oldest known ancestor in this paternal line.

Yline testing does not indicate anything about the contributions of the other ancestors in this family tree.

### **Mitochondrial DNA**

Mitochondrial DNA tracks the participant's maternal line. Mitochondrial DNA is passed from the mother to all of her children, but only the females pass it on. So both men and women can test themselves to reflect the mitochondrial (mtdna) DNA of their mother, but following it up the ancestral tree, the path of ascent is

only through the mothers. Your mtdna is the mtdna of your mother, her mother, her mother, etc. on up the tree following only the maternal line.

Mtdna testing is not as popular as yline testing because it's more difficult to use genealogically as last names change every generation. When you look at your matches, you have no idea whatsoever if you might be related to these people in a genealogically relevant time frame by looking at their last names. Those who have put forth the effort to collaboratively work on their mtdna matches, assuming a high resolution match and a shared geographical history as well, have been pleasantly surprised by what they've found.

A haplogroup assigning deep ancestry is also provided through mitochondrial testing, so like the Yline, depending on the haplogroup assigned, you will know if your ancestors were here before the age of European contact. Female haplogroups that indicate Native heritage include A, B, C, D and X.

The certificate below shows a typical certificate from the mtdna test. Some additional information, along with matches, is available on the participant's personal web page if they are Family Tree DNA clients. Clients of other testing companies receive varying amounts of information ranging from none to a printed report.



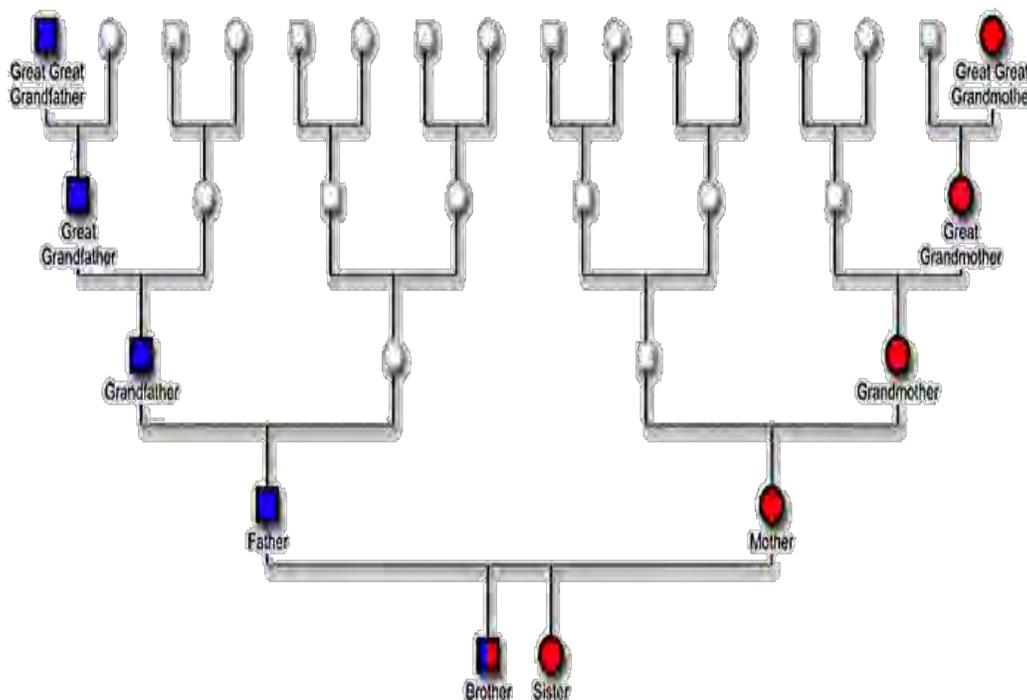
The pedigree fan chart below, courtesy of Family Tree DNA, shows the inheritance pattern for both yline and mtdna. Notice that of the 16 individuals shown as the great-great-grandparents of the siblings, the yline and mtdna positively identify the deep ancestry of only two of the 16 branches, leaving 14

unidentified. It is certainly possible that their Native heritage descended through their father's family pedigree, but was not reflected in the yline dna of that line. The Native American individual could have been any of the people on the father's half of the tree other than the surname branch that was tested, or perhaps even someone further up the tree not shown here.

Both yline and mtdna can provide this level of deep ancestral accuracy because both are passed from parent to child without being admixed with any DNA from the other parent, allowing us today to determine exactly what the DNA of those paternal and maternal ancestors looked like, with the exception of an occasional mutation.

Because of the accuracy of both yline and mtdna testing, I strongly encourage people to attempt to complete their DNA pedigree chart by finding appropriate testing candidates, representatives of the other genealogical lines found on their tree. It may indeed require some work, especially to identify individuals descended through maternal lines with last names changing each generation, but it is the only way to accurately reconstruct your genetic heritage.

Yline and mitochondrial DNA testing is the only way to positively identify which individual line or lines were of Native (or African, European or Asian) heritage, although other types of tests, called autosomal and/or biogeographical tests can be done to indicate the existence or absence of Native American (or other) heritage, no other tests can pinpoint where the Native heritage entered the family tree and which ancestors were of Native heritage.



## Autosomal DNA Testing

Unlike yline and mtdna testing where the DNA of the father or mother is passed to the offspring unmixed with that of the other parent, autosomal testing tests all portions of the DNA of an individual. As the field of genetic genealogy has moved forward, research has begun to indicate that certain markers are found in higher or lower amounts in different ethnic populations.

For example, if someone has the Duffy Null allele, or genetic marker, we know they positively have African admixture. We don't know how much African admixture, or from which line, or when that individual with African admixture entered their family tree, but we know for sure they existed.

Attempting to determine the population frequency of varying markers and what that means relative to other populations is the key to this analysis. Few markers are simply present or absent in populations, but are found in varying frequencies. Some populations are widely studied in the research literature, and others are virtually untouched. The process of compiling this information in a meaningful manner so that it can be analyzed is a formidable task, as the information is often found in nearly inaccessible academic and forensic research publications. It's difficult to determine sometimes if the DNA analysis of 29 individuals in a small village in northern Italy is, for example, representative of that village as a whole, of northern Italy, or more broadly for all of Italy as a whole. Is it representative of Italy today or Italy historically? These and other similar questions have to be answered fully before the data from autosomal testing can be useful and reliable.

If the DNA tests being performed aren't mtdna or yline, then they are autosomal tests, meaning they are performed on the balance of the DNA contributed by both parents to an individual.

Before we discuss the varying kinds of autosomal tests and what they mean, let's take a look at the inheritance process and how it really works.

## Inheritance

Everyone knows that you inherit half of your DNA from your mother and half from your father. However, this isn't exactly true. While each child does on the average receive half from each parent, the actual inheritance pattern varies much more than that and each sibling may receive far more than half of their markers from either parent.

We don't understand today how inheritance traits are selected to be passed to children. Some "groups" of genetic material are inherited together, and you may wind up with more or less genetic material from one of your parents. In time, certain genetic "traits" will be lost in some descendants, while not in others.

Therefore, you can't figure actual inheritance percentages by using the 50% rule. This means that if your father was 50% Native American, you are not necessarily 25%, genetically speaking. You may receive 40% Native genes and your sibling may receive 60%.

Let's use the Duffy Null allele we mentioned earlier as an example. This marker could have entered your DNA pedigree chart with a grandmother who carried the allele but had no obvious visible African ancestral traits, or from your father who might have been visibly African in ethnicity. The Duffy Null allele, which is just one marker, could have been passed in the inheritance of DNA for many generations, far after any visible African traits had disappeared, or it could be one of many African traits passed from parent to child.

The relevance of the Duffy Null allele is determined by the number of other "African" markers that appear in high quantity. If there are few other African markers, then your African ancestry was likely further back in time. If there are many, then your African ancestry was likely more recent. These statistical calculations are how the importance of autosomal markers are determined and how percentages or estimates of ethnicity are calculated.

Any one allele or marker can be lost permanently in any generation. Each child receives one gene from each parent. In the example below, let's say that the mother carried genetic markers A and B, and the father C and D, and D is the Duffy Null allele.



- Child 1 – A and C
- Child 2 – A and D
- Child 3 – B and C
- Child 4 – B and D

You can see that half the children received the D marker, but each inheritance event was a random recombination of the markers. It is also possible that none of the children would receive the D marker, or all of them would receive it. Statistically speaking, half will receive the marker, but statistics and individual inheritance are two different things. Random recombination is the reason why siblings who take autosomal tests sometimes show significantly different results.

You can also see how a marker that is very old ancestrally, meaning introduced many many generations ago, could be absent in one entire descendant line and present in another line.

From the above examples, we see that we have two variables that we need to deal with when attempting to use autosomal DNA for genealogy.

First, we need to take into consideration inheritance patterns which we can't determine retrospectively without testing several descendant lines. So, in essence, we can only deal with, and test, what we personally carry today as our genetic inheritance.

The second variable is determining population frequency for a particular marker and understanding its significance to us through comparative population genetics.

This is why autosomal testing can give us important hints, but are often considered "unreliable". The results are highly subjective today, but increase in accuracy as more research is completed, compiled, published and analyzed.

### **Types of Autosomal Tests**

There are two types of autosomal tests used today for genetic genealogy. One type of test uses the Codis forensic markers and the second type, biogeographical wide spectrum tests, use a much broader spectrum of marker results.

As of 2012, when I last updated this information, the Codis tests are significantly outdated, although some firms who have built their entire product offering on these tests continue to offer products using them. The new wide spectrum tests test upwards of 700,000 markers. The Codis tests test 21 markers or, in some cases, slightly more.

Let's look at both types of testing and the information they provide separately.

### **Codis Tests**

**Codis markers** are a standardized set of autosomal markers used for paternity testing. Additionally, they are used by police departments and forensics labs. The markers employed in these tests are selected specifically to differentiate between people in order to identify them individually, **not** to find common markers to place them in ethnic groups.

The results from these tests are only numbers, and the recipient is often left to their own devices as to how to interpret the results. These tests are available from numerous sources.

Below is an example of what Codis test results look like. They are very similar from any lab.

Location	Mother	Child
CSF1PO	10, 12	10, 12
D2S1338	17, 25	17
D3S1358	17, 18	17, 18
D5S818	11, 12	11, 12
D7S820	8	8, 9
D8S1179	12, 14	12, 13
D13S317	12, 13	13
D16S539	11, 12	11, 12
D18S51	12, 13	12, 20
D19S433	12, 14	14, 15
D21S11	30, 31.2	31, 31.2
FGA	20, 24	20, 24
TH01	6, 9.3	6, 9.3
TPOX	11	8, 11
vWA	17	17, 19

### Analysis of Codis Markers

Unless you're using the Codis marker results to determine siblingship or some other personal reason, these numbers are fairly useless genealogically. It's the analysis of these markers that matters.

There are different avenues to analyze Codis results. None are "right" or "wrong". DNAexplain ([www.dnaexplain.com](http://www.dnaexplain.com)) used to provide analysis of these tests, but we no longer encourage clients to take these tests, so we no longer offer analysis.

Tribes ([www.dnatribes.com](http://www.dnatribes.com)) has been compiling population data on CODIS markers for some years now and will compare your autosomal results with their data base. Take a look at their samples tab.

I would encourage you to consider the wide spectrum test instead of the much more limited Codis testing.

### Wide Spectrum Testing

There are currently two established test providers and one new one in this market space.

All 3 companies are using the same type of chip technology. It's what they do with the results, the size of their data base and their analytical tools that make a difference to genealogists.

This type of testing can give you three different types of information.

First, it gives you percentages of ethnicity. 23andMe is limited to 3 groups, African, Asian and European. Family Tree DNA has many groups, including Native American and Jewish, and breaks each continent down substantially.

Percentages of ethnicity as well as cousin matches tend to be quite accurate to about 6-10 generations when the percentage of DNA of any given ancestor drops below 1% (at 7 generations).

Second, this testing gives you a list of cousins whom you match. However, you don't know how you match these people and collaboration is required to figure out just how you connect. These cousins could be related to you on any genealogical line.

Third, one company, 23andMe, is focused on Health information. Most of their clients take the test for the health information and genealogy is only secondary to them (if they are interested in genealogy at all), so many people who tested there don't reply to genealogy queries.

Family Tree DNA offers wide spectrum testing as well through their Family Finder product. They provide tools for the genealogist. Most people who test at Family Tree DNA are genealogists and are much more inclined to have and provide historical family information than those who test at 23andMe. Family Tree DNA does not provide any medical or health information.

Both Family Tree DNA and 23andMe allow you to download your raw data so that you can use third party tools, and there are several, to further analyze your results to compare with cousins to unlock the secrets of your matches.

Ancestry.com is the third company. They have just recently entered this marketplace and are not yet accepting general orders. They gave away or sold at significantly discounted prices several thousand kits in order to begin building their data base, although they are several years behind the other two companies. An important consideration is that they are NOT allowing people to download their raw data files, so they cannot be further analyzed. This is a very large drawback to a serious researcher.

Ideally, as a genealogist, you would fish in several pools. I personally have tested with both 23andMe and Family Tree DNA simply so I can have the maximum number of cousin matches possible.

### **Services Provided by DNAexplain**

Confused about who should be tested by which test? DNAexplain does offer a consulting service to help you answer that question and create a test plan, based on your goals and particular family situation. You can order a DNA Test Plan on our website. <http://www.dnaxplain.com/shop/features.aspx>

After your results come back, we also offer a variety of analysis services and reports for clients as well.

## Summary

There are only two tests that can provide you with direct solid linear evidence of the source of your Native American ancestry. Those are yline and mitochondrial DNA tests. It's important to try to fill in the blanks in your family tree pedigree chart by testing relatives who carry the yline and/or mtdna of the lines of your tree that you cannot personally be tested for.

You can find a free Personal DNA pedigree chart to work with on our website under our Publications tab. Scroll down to the "Creating your Personal DNA Pedigree Chart" and click. There are lots of other free papers and information there as well. So check it out!

<http://www.dnaexplain.com/Publications/Publications.asp>

Autosomal wide spectrum testing from both 23andMe and Family Tree DNA can provide useful clues as to the percentage of your ethnic heritage and the geographical source, along with a list of matching cousins. Unless you are specifically interested in health information, I recommend testing with Family Tree DNA first and second, 23andMe, if the budget allows fishing in two pools.

Codis marker testing is obsolete for genealogists.

All genetic genealogy results need to be accompanied by genealogical research to unravel the historical context for the lives and trials of our ancestors. DNA testing may well answer the question what and who, but the why and often the where is typically revealed only by studying the history of the times in which our ancestors lived.

Happy ancestor hunting using the wonderful gift of DNA, passed down to you by your ancestors themselves!!!

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