Shugart DNA – paternal line by G. Eric Shugart 12/20/20

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This is a bit of a technical report. It is presented to document what I have learned and for someone who wants to dig further and deeper into the weeds or to supplement it someday with additional information, if and when it becomes available.

The first thing I learned was that the Y-Chromosome passes from father to son to son to son with the only variation occurring between generations being due to mutations. From what I can gather there are two types of measurements: STRs and SNPs which look at different parts or aspects of the Y-chromosome. These two measurements are independent, but the results they produce generally have high correlation.

With regards to STR's:

The term I use is 'marker'. There are many of them. I, and along with others that I will discuss later, have taken DNA tests and produced results on either 67 or 111 markers.

What is a 'marker'? A marker has a name, for example DYS#393 and each marker can take on one of several values. So maybe DYS#393 can take on a value of 10,11,12,13, or 14 while DYS#578 might take on a value of 7,8, or 9.

For each marker, some values are very common while other values are quite rare. Also, each marker also has a mutation rate. Some mutate quite quickly while others experience slow mutation rates.

Mankind has been around for only 250,000 years, which may be 15,000 - 20,000 generations, give or take. And while we are all 'related' somehow, the question may be "how recent is our common ancestor?"

The Y-chromosome analysis is most useful at suggesting two people are not recently related. If two men have vastly different values for many of their DYS#'s, we can say something like "they probably don't have a common ancestor within the last 20-30 generations."

When two men match on all but a few markers we have a little more confidence that the two men are related, but it is an enigma to say how they are specifically related (e.g., who was the common grandfather).

With regards to SNP's:

SNPs are apparently a different and independent type of measurement than STRs. The Big Y measurement offered by *Familytreedna.com* provides information on SNPs (and on 700 STRs, as an aside).

We all have a common ancestor that started about 250,000 years ago and that is called SNP A. He lived in Africa. When they look at your SNPs, or mine, or a complete male stranger, they see that we all have SNP A in us. There were other guys running around when our first ancestor was around, but apparently all those other branches died out and so everyone alive today started from one guy who started branch A.

As time marched forward, there were mutations and other SNP branches were formed, some of which continued and others which have died out. So, for me, as an example, I went from SNP A to SNP FM89 to SNP RM207.....to SNP RL1029....to SNP FT242243.....There are actually/apparently 100's of SNPs that my path went through. SNP FT242243 is about 1500 years old (There was some other male who was DNA tested and who matched me and hence, due to this, 'they' were able to define my terminal SNP FT242243.)

New SNPs are waiting to be discovered as more people get tested and new SNPs are formed today as a result of mutation.

With that background, as best that I understand it, I now move on to more specific results.

Four Shugart men

Years ago (circa 2000), I was working with a man named William Shugarts (with the trailing 's') and we knew there were four main Shugart branches which could not be connected with one another with any certainty:

1) John Shugart, who moved to NC
2) Zachariah Shugart who was a sheriff
3) Peter Shugart who was a sheriff
4) a John Shugart who remained in Chester Co. PA (born 1758)

How these four men relate was and remains a mystery that Shugart genealogists have struggled with for more than 100 years. There is simply no paper documentation that exists which shows 'proof' of relationship. One ***theory*** is that the John who moved to NC and the two sheriffs were brothers, and that the John who remained in Chester County, PA was a son of the John who moved to NC.

My Aunt Janet told me that there were three brothers that came over from Germany and I have heard the three brothers story from others, as had William. But anecdotal stories aren't proof and the story never provided any names that I am aware of.

DNA analysis was not at all common back when Bill and I were collaborating and we found a little company that offered to test Y Chromosome markers called *Familytreedna*. (This was back in 2001). They are much bigger now, but at the time, Bill and I were two of their first 1500 customers.

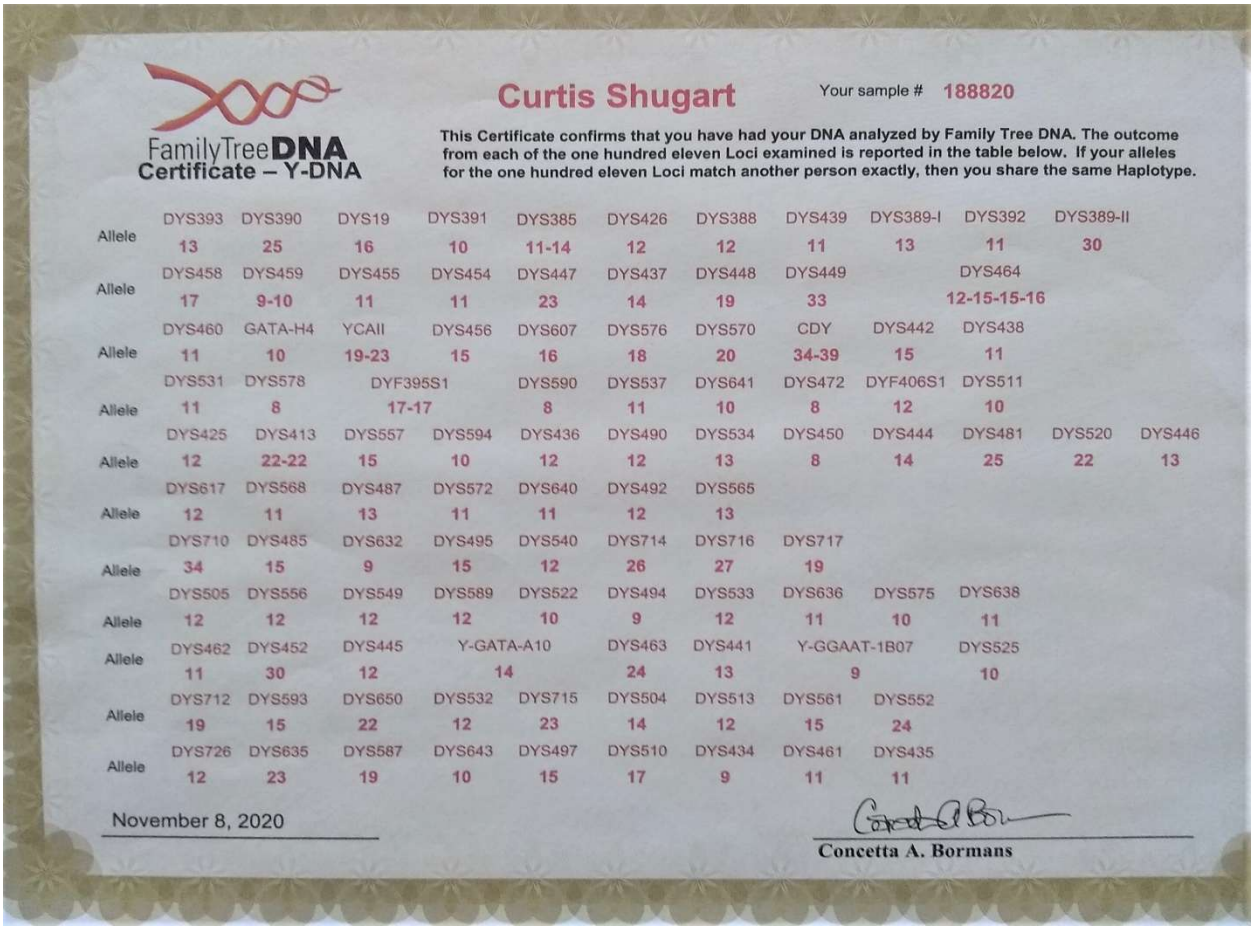
We started off with obtaining 25 'marker' values and as the years passed and the technology and availability increased, I eventually obtained values on 111 markers and then, just recently, the Big Y. I also have taken the *23andMe* test.

Now Bill descended from the John who remained in Chester County, PA and I descend from the John who moved to NC. We did our DNA test and were rewarded with the knowledge that we matched on all but 4 markers. We still didn't know how the two John's are related. Was one the son or nephew of the other? Or what kind of cousins were they to one another? But at least we now knew with some certainty that there was a fairly recent connection of some sort.

Bill eventually died 🙁. Over the years, I eventually found descendants of the two Sheriffs (Zach and Peter) and convinced the living Shugarts to help, by providing their saliva to *Familytreedna*.

As of this writing (12/2020) I have DNA results on 11 men including myself. One of the men's name is Curtis Shugart.

Curtis's DYS#'s results are very important. In my view, Curtis was the 'purest' Shugart and does not appear to have had any mutations in his values as you will see shortly. Here are his values on 111 DYS#'s:



FamilyTreeDNA
Certificate – Y-DNA

Curtis Shugart Your sample # **188820**

This Certificate confirms that you have had your DNA analyzed by Family Tree DNA. The outcome from each of the one hundred eleven Loci examined is reported in the table below. If your alleles for the one hundred eleven Loci match another person exactly, then you share the same Haplotype.

Allele	DYS393	DYS390	DYS19	DYS391	DYS385	DYS426	DYS388	DYS439	DYS389-I	DYS392	DYS389-II
	13	25	16	10	11-14	12	12	11	13	11	30
Allele	DYS458	DYS459	DYS455	DYS454	DYS447	DYS437	DYS448	DYS449		DYS464	
	17	9-10	11	11	23	14	19	33		12-15-15-16	
Allele	DYS460	GATA-H4	YCAII	DYS456	DYS607	DYS576	DYS570	CDY	DYS442	DYS438	
	11	10	19-23	15	16	18	20	34-39	15	11	
Allele	DYS531	DYS578	DYF395S1		DYS590	DYS537	DYS641	DYS472	DYF406S1	DYS511	
	11	8	17-17		8	11	10	8	12	10	
Allele	DYS425	DYS413	DYS557	DYS594	DYS436	DYS490	DYS534	DYS450	DYS444	DYS481	DYS520	DYS446
	12	22-22	15	10	12	12	13	8	14	25	22	13
Allele	DYS617	DYS568	DYS487	DYS572	DYS640	DYS492	DYS565					
	12	11	13	11	11	12	13					
Allele	DYS710	DYS485	DYS632	DYS495	DYS540	DYS714	DYS716	DYS717				
	34	15	9	15	12	26	27	19				
Allele	DYS505	DYS556	DYS549	DYS589	DYS522	DYS494	DYS533	DYS636	DYS575	DYS638		
	12	12	12	12	10	9	12	11	10	11		
Allele	DYS462	DYS452	DYS445	Y-GATA-A10		DYS463	DYS441	Y-GGAAT-1B07		DYS525		
	11	30	12	14		24	13	9		10		
Allele	DYS712	DYS593	DYS650	DYS532	DYS715	DYS504	DYS513	DYS561	DYS552			
	19	15	22	12	23	14	12	15	24			
Allele	DYS726	DYS635	DYS587	DYS643	DYS497	DYS510	DYS434	DYS461	DYS435			
	12	23	19	10	15	17	9	11	11			

November 8, 2020

Concetta A. Bormans

The 11 men that I have data on

So, let's dig down into some of the data that I have accumulated over the years. Including myself, there were eleven living men that I have been able to get DNA results on. The different highlighted colors indicate how each DNA sample ties back to one of the four oldest Shugarts.

A) My line goes, **G. Eric**, George, Harold, Albert, Cornelius, John V., George, Zachariah, and then the John who moved to NC.
B) **Curtis**, John A., Curtis S., John Thomas, John J, Leonard, Zachariah, and then the John who moved to NC
C) **Jason**, Jack G. Jr, Jack G. Sn, Benjamin W., John B, Thomas H, Eli, Zachariah, and then the John who moved to NC
D) **James D. *Harris,*** James C. Harris, William D. Harris, James Shugart, Edom, Zion, Nathan, Zachariah and then the John who moved to NC
E) **James *Spencer***; James has no idea how he connects in; he has gone back about 4 generations and was very shocked to find out he has Shugart DNA. James matches Curtis's markers exactly.
F) **John *Shugert***, Warner, Hamilton, Thomas Wesley, Moses Mendenhall, Joseph Bishop, and then the John who remained in Chester
G) My friend **William *Shugarts,*** William Sn, Aaron Jr *Shugarts* Jr., Aaron *Shugart Sn*, Zachariah, and then the John who remained in Chester
H) **Charles (C.Walter)**, Cecil, Walter L., Robert A., Earl BC, John Michael, and then the Zachariah who served as Sheriff
I) **Woodward E**, L. Asberry Jr, L. Asberry Sn., Timothy, Earl BC, John Michael, and then the Zachariah who served as Sheriff
J) **Richard *Shugert***, Max Talmage, Theodore Talmage, Zachariah, John, Zachariah II, Zachariah I, and the Peter who served as Sheriff
K) **Austin Wesley Spencer**, who has Shugart DNA but has no idea how this came to be. Austin has no idea how he relates to James Spencer.

Now, in a perfect world as an example, one would think or hope that all the men (in red) who descend from the John who moved to North Carolina would have an exact match on each of their DYS# values. This doesn't happen due to the mutations that have occurred through the generations. While all 11 men match on most of the DYS#'s values, the following chart shows the DYS#'s where at least one man differs from Curtis:

	A	B&E	C	D	F	G	H	I	J	K
	NC	NC	NC	NC	Chester	Chester	Zach	Zach	Peter	unknown
	John	John	John	John	John	John				
	Eric	*Curtis & Jim Spencer*	*Jason*	*James Harris*	*John Shugert*	*Bill Shugarts*	*C. Walter*	*Woodward*	*Richard Shugert*	*Austin Spencer*
DYS#										
19	15	16	16	16	16	16	16	15	16	16
389ii	30	30	30	30	30	30	30	27	29	30
458	17	17	17	17	17	17	17	17	18	17
447	23	23	23	23	23	23	24	24	23	23
437	14	14	15	14	14	14	14	14	14	14
448	19	19	19	19	19	19	19	19	20	19
GATAH4	10	10	10	11	10	10	10	10	10	10
576	17	18	18	18	18	18	18	18	18	18
570	20	20	19	20	19	20	20	20	20	19
CDYa	34	34	34	34	34	33	34	34	34	34
CDYb	39	39	39	39	38	39	40	39	39	40
442	15	15	15	15	15	14	14	15	15	15
438	11	11	9	11	11	11	11	11	11	11
537	11	11	11	11	10	10	11	11	11	11
511	10	10	10	10	10	10	10	10	9	10
413a	22	22	20	22	22	22	22	22	22	22
572	11	11	11	11	11	11	11	11	11	10
495	15	15	N/A	N/A	16	15	15	N/A	15	15
714	26	26	N/A	N/A	26	27	26	N/A	26	26
YGATAA10	13	14	N/A	N/A	14	14	14	N/A	14	14
712	18	19	N/A	N/A	19	19	19	N/A	19	20

What this chart tells you is that all 10 men have at most 4 deviations from Curtis. Surprisingly, Jim Spencer is an exact match to Curtis. (Most of us took the 111 Marker test but where you see N/A, those men only took the 67 Market test).

This chart does not tell us how the two Sheriffs and the two John's relate to one another but it gives strong support that the 4 men shared a recent common ancestor, given the closeness of fit we all have to Curtis. Curtis's values are the mode of the rest of us.

The other information I have relates to a discussion that I had with a geneticist about 15 years ago. He provided me with the probabilities of someone having the value that I have on each of my markers. As it turns out, on some of my markers I have some rare values. On all of these rare values, most of the eleven men share the same value. The geneticist called this a "Shugart footprint'. These probabilities are listed for each rare marker in the right most column.

DYS#	A	B&E	C	D	F	G	H	I	J	K	%*
439	11	11	11	11	11	11	11	11	11	11	**20**
458	17	17	17	17	17	17	17	17	18	17	**6**
448	19	19	19	19	19	19	19	19	20	19	**21**
449	33	33	33	33	33	33	33	33	33	33	**16**
GATAH4	10	10	10	11	10	10	10	10	10	10	**3**
570	20	20	19	20	19	20	20	20	20	19	**14**
442	15	15	15	15	15	14	14	15	15	15	**2**
406S1	12	12	12	12	12	12	12	12	12	12	**12**
481	25	25	25	25	25	25	25	25	25	25	**5**
446	13	13	13	13	13	13	13	13	13	13	**14**

*%'s shown are from 2005. In the last 20 years, a lot more is known on locus values and probabilities**

This research was a real breakthrough. Instead of pure speculation that these four men were related, we now have strong DNA evidence that there is a relationship. The conjecture that the John (who moved to NC) and the two sheriffs were brothers is stronger now. That John who remained in Chester County, PA was a son of one of these men is very plausible.

Probabilities

Familytreedna has a program which estimates the probability that two people share a common ancestor within 'X' number of generations. According to their program, G. Eric Shugart (me) has an 88.7% probability of having a common ancestor with Curtis within 8 generations, James Harris has a 95.22%, and Jason Shugart has a 69.23%.

However, Curtis, Eric, James Harris, James Spencer, and Jason all descend from the John who moved to NC and these probabilities *should* be 100%. The

reason these percentages are understated and aren't 100% is due to the mutations that have occurred on Eric, James Harris and Jason.

As far as the John (1758) who remained in Chester County, we have descendants John Shugert and William Shugarts in this branch who took DNA tests. Their probabilities with Curtis are respectively: 87.84% and 88.5%. These probabilities are also understated given the apparent mutations we see with John and William's DYS# values. We can conclude the John who remained in Chester County has a very close relationship of some sort with the John who moved to NC.

Since I show that both Sheriff Zach and Sheriff Peter each had a son named John, I believe that the younger John (born 1758) is likely the son of Old NC John.

Walter and Woodward descend from Sheriff Zachariah and their probabilities of sharing the ancestor with Curtis, according to *Familytreedna*, are respectively 95.5% and 85.5%. Again, we can conclude that the probabilities are understated and that Sheriff Zachariah was closely related to NC John.

Finally, Richard Shugert is the only descendant I have found who descends from Sheriff Peter and his probability of sharing a common ancestor within 8 generations with Curtis is 76.2%.

It would be nice to have another descendant of the Sheriff Peter in our sample. We do know that the 76.2% is likely understated due to mutations, so I think we can conclude it is also likely Sheriff Peter is also part of the family. As an aside, Sheriff Zachariah and Sheriff Peter lived close to one another and actually alternated turns being sheriff. This fact is also suggestive that Zach and Peter may have been brothers.

Interestingly, Curtis has a 99% chance of sharing a common ancestor with James Spencer and an 87.8% chance with Austin Spencer within 8 generations. It would be a real interesting mystery to figure out how Shugart DNA found its way in these two Spencer men, particularly since neither Spencer man knows how they relate to one another!

Back to SNP's

There is not a lot more I can say yet about SNPs. I am awaiting SNP results of William, Richard and Walter and we will see what their terminal SNP is. What follows below is my certificate from *Familytreedna:*

FamilyTreeDNA

Certificate – **Haplogroup**

Family Tree DNA certifies that a DNA sample from

Eric Shugart

Sample # 1469

was analyzed for Haplogroup determination using the Single Nucleotide Polymorphism test. The analysis shows that you are positive for the following SNPs: A2578, A2594, A2606, A2614, A2636, A2638, A2662, A2663, A2669, A2674, A2742, A2743, A2744, A2757, A2758, A2775, A2779, A2788, A2830, A2832, A2843, A2844, A2852, A2855, A2859

According to the current classification, you have been assigned to:

Haplogroup R-FT242243

Haplogroup R originated in Central Asia. Most descendants belong to one of two major lineages. They are present at low frequencies across Central Asia, South Asia, and Europe. Haplogroup R-M173 possibly originated in eastern Europe and then migrated eastward into Asia.

November 13, 2020

Concetta A. Bormans

John Shugert, who has not done the Big Y test but did do the *23andMe*, had a terminal SNP of RL1029.....which means, there was some guy, way back when, who is a common ancestor of John Shugert and me (since I too have RL1029) If John Shugert were to take the Big Y test, we can guess that he may also have SNP FT242243 (given we suspect we have a common ancestor in the 1700's)

Perhaps more importantly, if John Shugert and I are matching, SNP-wise, then it is pretty likely a new terminal SNP will be defined that is more recent than 1500 years ago. Likewise, if John Shugert doesn't go through FT242243, he and I will NOT have a recent common ancestor except going back in real deep historic times.

Once we have the SNP results on the Richard, William and Walter we will know a little more. (The following page is therefore left intentionally blank to make room for potential additional DNA results and comments)

Haplogroups

As a side point, unless one has royalty in their blood, written records really weren't maintained for most of the population prior to the 1500's. Thus, there becomes a point for all genealogists, where all we have is migration patterns of populations that might be gleaned from SNP analysis.

Continuing on in the discussion, there is something called a 'haplogroup'. Both *FamilyTreeDNA* and *23andMe* have all of the eleven men in the Haplogroup R1a. I found the following write-up on the internet which explains what a Haplogroup is:

"What is a haplogroup and how does it pertain to your family history? At its essence, a haplogroup is an ancestral clan. Some clans are the Vikings, Native Americans (all tribes), Celts, Aboriginal Australians, and other such groups. Your haplogroup tells you where your ancestors came from deep back in time.

There are also male and female haplogroups, so you can see where your male and female sides of the family originated back in pre-historic times. As with Y-DNA (which traces the male line from father to son) and mtDNA (which traces the female line from mother to daughter), haplogroups also follow straight male and female descendancy lines.

Initially, there was only one haplogroup, and it was in Africa. As African tribes moved off the continent and went to various other places on the planet, their DNA mutated and the number of haplogroups increased. New haplogroups are formed even today when a gene mutation occurs in someone from a particular ancestral clan. However, it takes generations for enough people to carry the mutation for it to be prevalent enough for it to be considered a haplogroup. Therefore, any haplogroups that start forming today will not be recognized as new ones for centuries.

Haplogroups today are divided into four main ones: European, African, Native American, and Asian. Within these haplogroups are many sub-haplogroups that further define where a person's earliest known non-African ancestor on the male and female sides of their family originated and when.

Haplogroups are names alphabetically in order of discovery. The sub-groups of haplogroups are named with letter and number combinations indicating where and when in time they were discovered, which main haplogroup they descend from, and sometimes even the very specific small geographical area where their earliest members lived.

The more letters and numbers in your haplogroup's sub-group, the more likely you are to be able to pinpoint an exact region, and maybe even a county or town. (I believe a subset of a haplogroup is called a subclade, just as an aside)

Right now, haplogroups are the only way to trace your family tree back to the time before surnames were invented. You can take your last known ancestor in a particular direct male or direct female line and connect them to a larger clan in the more distant past, knowing that their ancestors, the ones you can't identify and trace, wound back through time to the time and place where the known ancestor's haplogroup and sub-group originated."

We have a fairly decent paper trail going back to the 17th century. *23andMe* provides the following write-up of how my paternal line may have migrated:

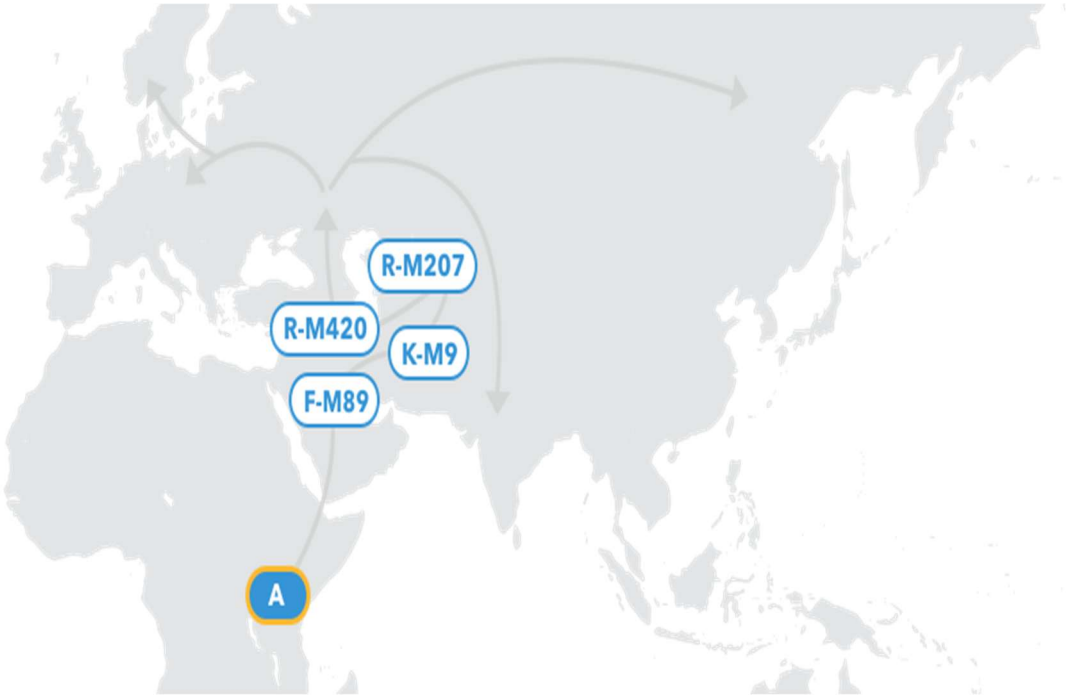
Haplogroup A

The stories of all of our paternal lines can be traced back over 275,000 years to just one man: the common ancestor of haplogroup A. Current evidence suggests he was one of thousands of men who lived in eastern Africa at the time. However, while his male-line descendants passed down their Y chromosomes generation after generation, the lineages from the other men died out. Over time his lineage alone gave rise to all other haplogroups that exist today.

From A, we went to the following

F-M89
76,000 Years Ago
K-M9
53,000 Years Ago

R-M207
35,000 Years Ago
R-M420
25,000 Years Ago



R-M512
25,000 Years Ago

Origin and Migrations of Haplogroup R-M512

From the Middle East, men bearing R-M420 likely passed through the Caucasus mountains to the steppes above the Black and Caspian Seas. The people of the steppes were the first to domesticate horses nearly 6,000 years ago, and their southern neighbors in the Caucasus developed the earliest bronze tools and weaponry. Equipped with these technologies and seeking new grazing land and natural resources, the people of the steppes swept west into northern Europe and east through Central Asia.

Your paternal line stems from a branch of R-M420 called R-M512. Today, the men who share your haplogroup are most common in Eastern Europe, Russia and Ukraine. The lineage is also quite common in Poland, but decreases in

frequency toward the Mediterranean countries. ***Farther to the west, about one-third of Norwegian men and a quarter of men from the far northern British Isles carry R-M512.*** *Their ancestors arrived with various groups over the past 2,000 years, including with the Anglo-Saxons from central Europe in the 5th century and the Vikings who came from Scandinavia beginning about 800 CE.*

Additionally, the haplogroup is still relatively common in the Middle East, as well as in Central and South Asia where it reaches levels of up to 60% among the Kyrgyz and the Tajiks.

R-L1029
< 6,000 Years Ago

Your paternal haplogroup, R-L1029, traces back to a man who lived less than 6,000 years ago.

It seems to me that our American forefathers came from Western Europe; I highlighted the above comment in bold. We can see from their map (above) that some of the R-M512 headed toward Europe.

(The above write up from *23andMe* stopped at R-L1029 and Familytreedna has provided the more recent ancestral results where *23andMe* has left off)