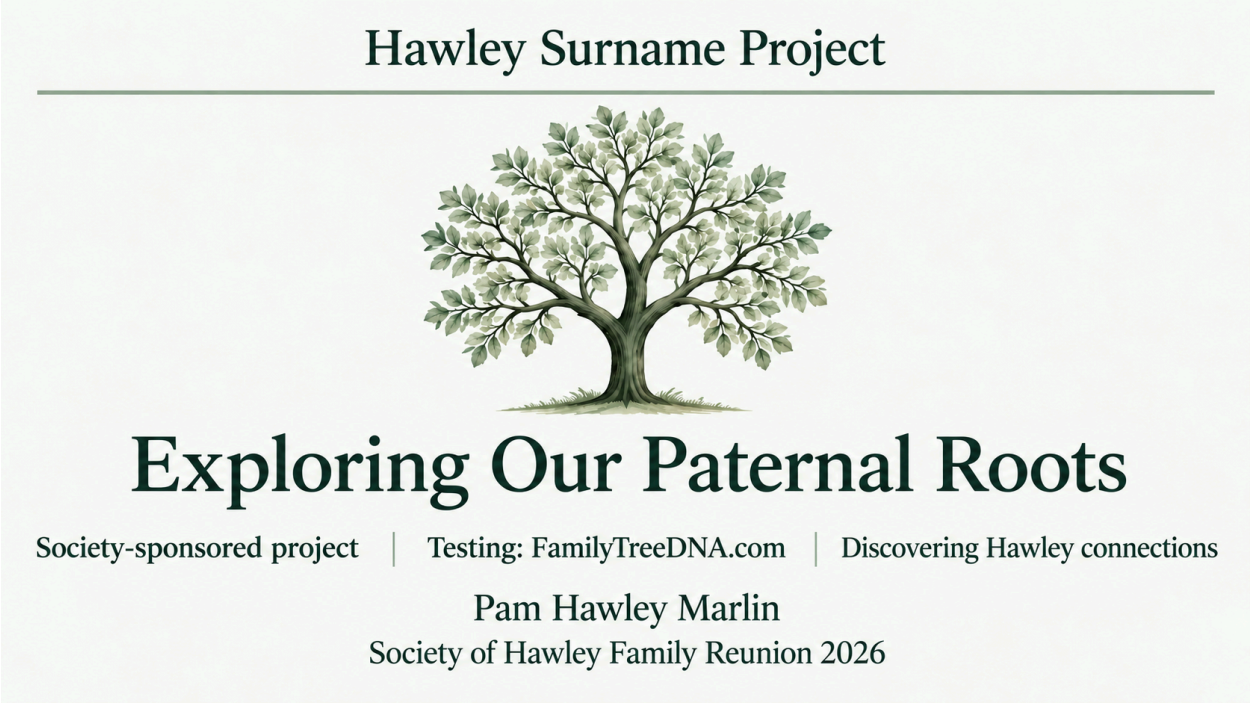
The Hawley Y-DNA Project: What We're Learning

and What Comes Next

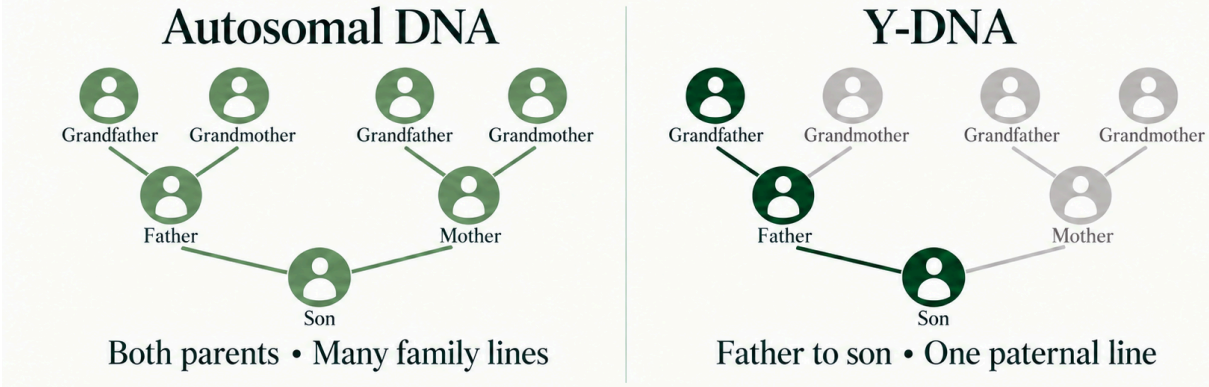


Intro Slide

- The Hawley Society sponsors the Hawley Surname Project, bringing together Y-DNA results to explore how Hawley families connect through their direct paternal lines.
- We test through FamilyTreeDNA at FamilyTreeDNA.com.
- Dr. Jim Hawley started the project, and Trudy Hawley has guided it for many years. Their work has given us a foundation to build on.
- In today's talk, we'll explore the science behind Y-DNA testing, look at the results from the Hawley DNA project, and discuss what they reveal about our shared ancestry and family connections.

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How is Y DNA different from Autosomal DNA?

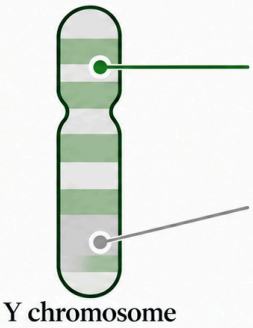


Y-DNA follows the paternal branch of your family tree.

- Autosomal DNA tests, such as AncestryDNA, look at DNA inherited from both parents.
- Y-DNA follows one direct paternal line: father to son, generation after generation.
- My parents' ancestors followed similar paths from England to colonial America and then along many of the same migration routes resulting in matches overlapping. This makes it difficult to identify my paternal line through autosomal DNA matches alone
- Autosomal DNA and Y-DNA tests are not comparable.

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What does FamilyTreeDNA test on the Y chromosome?



Standard Y-DNA tests: STRs
Compare short repeating DNA patterns.
Help find possible paternal relatives.

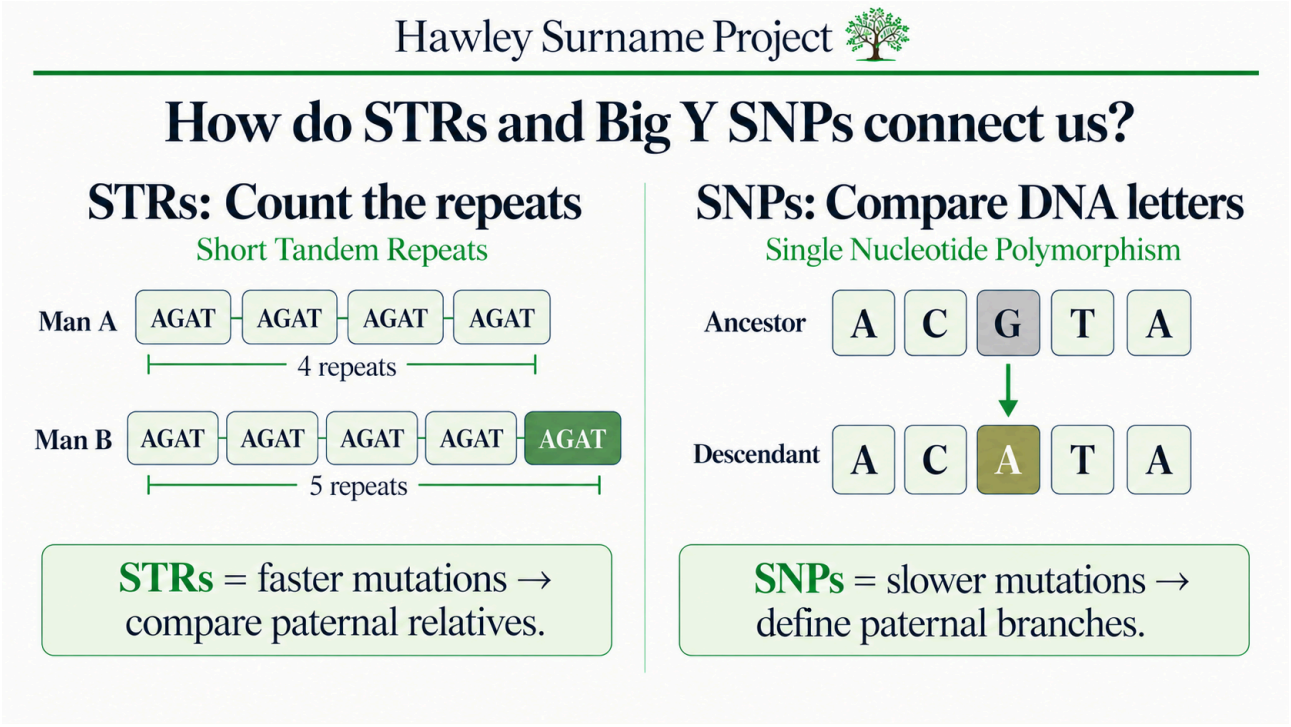
Big Y-700: STRs + SNPs
Includes STRs and examines DNA-letter changes.
Helps define more specific paternal branches.

Standard Y (STRs) help find paternal relatives.
Big Y (SNPs) help define paternal branches.

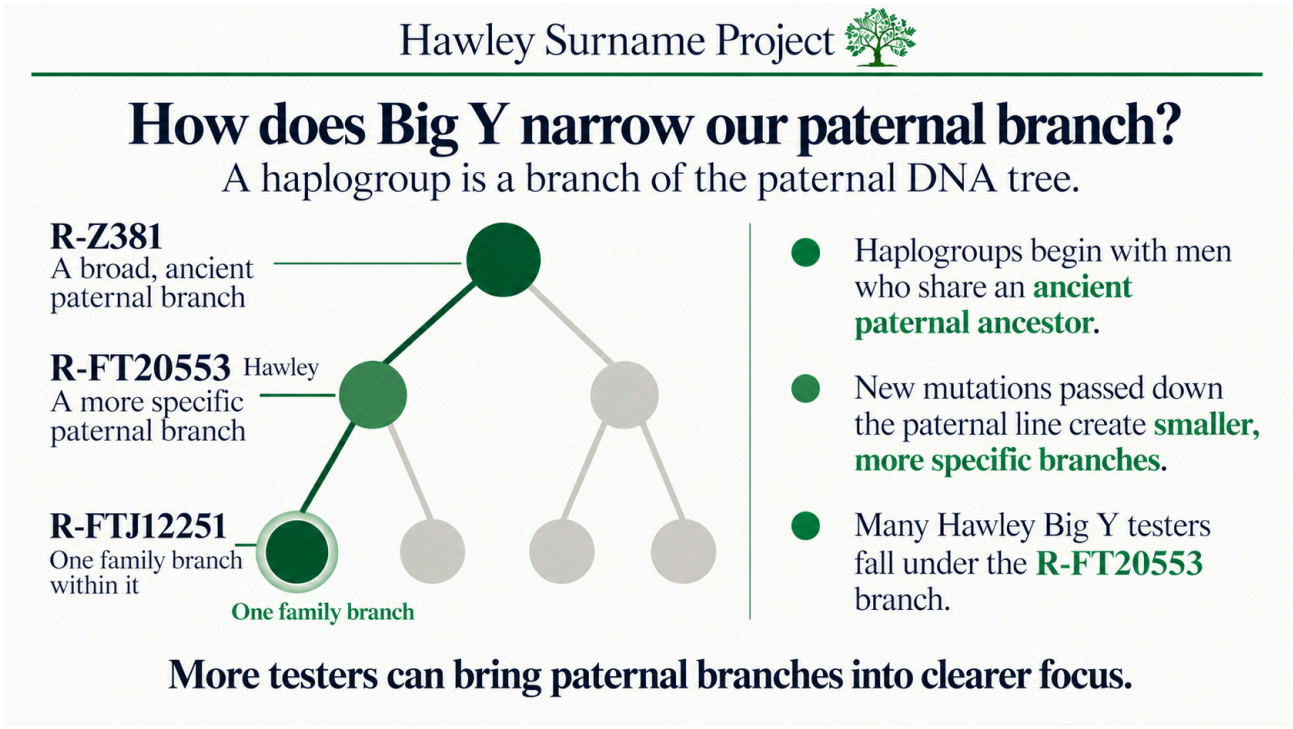
- Humans have 23 pairs of chromosomes. The first 22 pairs are autosomes, which are the chromosomes tested in autosomal DNA tests. The 23rd pair are the sex chromosomes—males typically have XY and females typically have XX.
- FamilyTreeDNA's Y-DNA tests examine two types of genetic markers on the Y chromosome: STRs and SNPs.
- STR markers measure how many times a short DNA pattern repeats. Comparing these repeat counts can help identify possible paternal relatives and measure genetic distance.
- SNP markers are individual DNA-letter changes, or mutations, passed down from father to son.
- The Big Y-700 examines both STRs and SNPs, using SNP mutations to place testers on increasingly specific branches of the paternal tree.

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How do STRs and Big Y SNPs connect us?

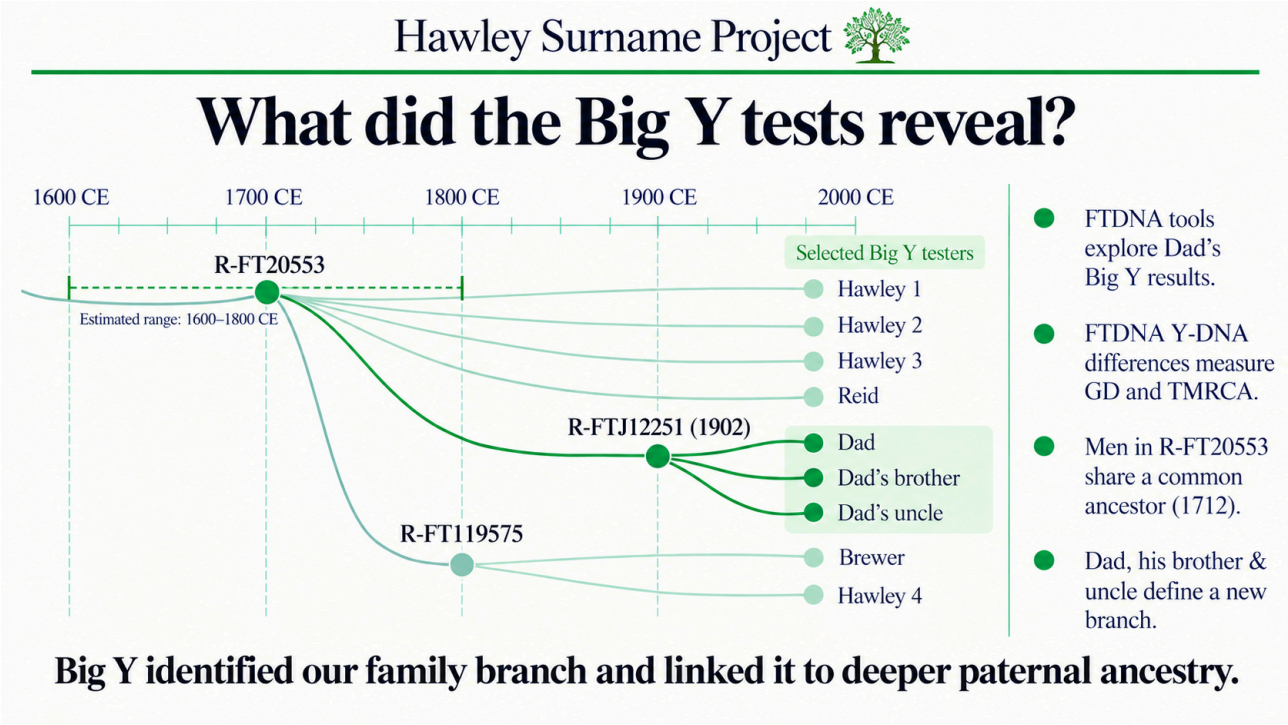


- STRs, or short tandem repeats, are short DNA sequences that repeat at specific locations, called markers, on the Y chromosome. These markers are passed from father to son, but occasionally the number of repeats changes.
- At this level, FamilyTreeDNA tests 111 markers, including those covered by the 12-, 25-, 37-, and 67-marker tests.
- At this example marker, Man A has four repeats and Man B has five. That counts as a one-step difference at this marker. FamilyTreeDNA compares repeat counts across a set of markers to identify men whose Y-DNA profiles are similar enough to be considered matches.
- The differences across those markers are summarized as genetic distance. Together with the number of markers tested, this helps estimate how many generations ago two men might have shared the most recent common ancestor (TMRCA).
- A smaller genetic distance generally suggests a closer paternal relationship, while a larger distance generally suggests a more distant one.
- The next level of testing is Big Y, which examines the actual DNA letters across large portions of the Y chromosome. This gives us a more detailed view of the paternal family tree than STR testing alone.
- The letters A, C, G, and T stand for adenine, cytosine, guanine, and thymine—the four chemical bases that make up DNA. Their sequence forms the genetic information we inherit.
- Big Y looks for changes at individual positions in that sequence, called SNPs, or single nucleotide polymorphisms. For example, one man might have an A at a particular position where another man has a G.
- When a new SNP occurs and is passed from father to son, it can become a marker for that paternal branch. Men who share that SNP inherited it from a common paternal ancestor.
- As additional SNPs accumulate over generations, they help identify smaller, more recent branches—allowing us to place men more precisely within the paternal family tree.



- A haplogroup is a branch of the paternal DNA tree. We begin with a broad group of men who share an ancient paternal ancestor.
- As new DNA mutations—changes in DNA letters—are passed from father to son, they help define smaller, more specific branches within that larger group.
- Big Y identifies these changes and helps place our Hawley family on increasingly specific branches of FamilyTreeDNA's Y-DNA haplotree.
- For our project, many Hawley men who have completed higher-level Y-DNA testing fall under R-FT20553. We can think of this as a parent branch, with more recent Hawley family branches beneath it.

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- **I had my father tested at the Big Y level. These next few slides show his results and some of the tools FamilyTreeDNA provides to help interpret them.**
- When Dad first tested, he was placed in **R-FT20553**, the broader Hawley haplogroup we've been calling our "parent branch." This table shows 9 of his 12 matches at this level.
- The results also include an estimated timeline. Using the SNP differences between tested men and estimates of how frequently mutations occur, FamilyTreeDNA estimates when their **most recent common paternal ancestor** lived.
- For this broader Hawley branch, the estimated range shown is approximately **1600 to 1800**, with a central estimate around **1712**. These dates give us a period to investigate in our family records; they do not identify a specific ancestor by themselves.
- I wanted to take this a step further: **could testing Dad's close paternal relatives identify a more specific branch within this larger Hawley group?**
- So I also had **Dad's brother and his paternal uncle** take Big Y tests. Comparing their results revealed shared SNPs that identified a new branch, **R-FTJ12251**, beneath R-FT20553. FamilyTreeDNA then notified me that it was adding this new branch under our parent haplogroup.
- For this smaller branch, the DNA-based estimate for the common ancestor was approximately **1902**. That estimate came from the genetic evidence, rather than our family records. Our genealogy points to my great-grandfather, who was born in **1898**—just four years from the DNA estimate. That close agreement is encouraging, while remembering that the DNA date is an estimate with a range of uncertainty.

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Where does this paternal line's story begin?



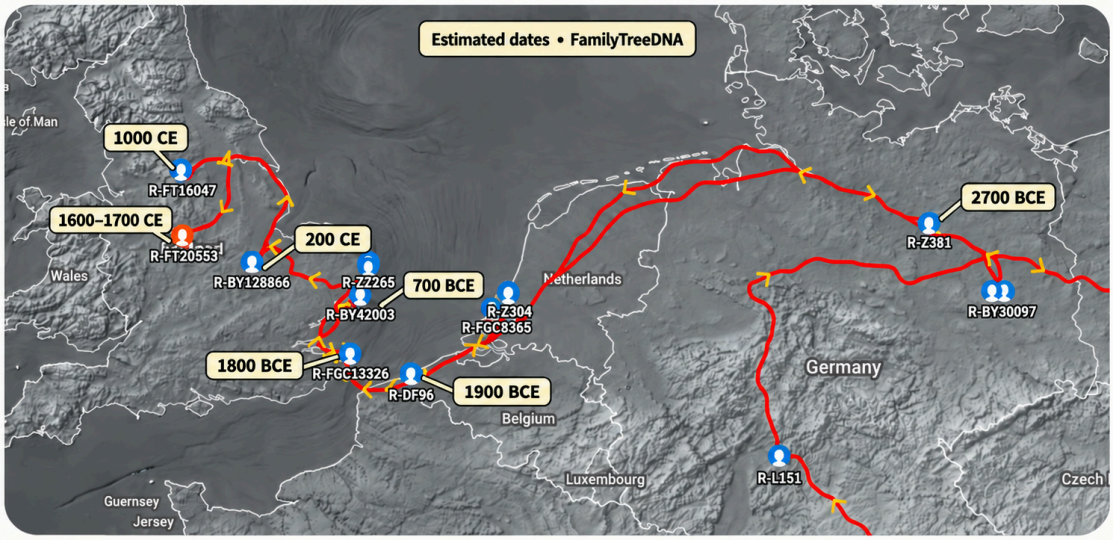
- This FamilyTreeDNA.com Big Y Globetrekker (migration) map places one paternal line within a much longer human history.
- Beginning with Y-Adam, this map follows a paternal line through increasingly specific haplogroups, or branches of the paternal DNA tree.

Estimated ancestral locations at select genetic branch points.

- Globetrekker gives us a big-picture view of how our direct paternal line may have moved across the world over thousands of years. It places our Hawley branch within a much older story of human ancestry and migration.
- The story begins with Y-chromosomal Adam, the most recent common ancestor of all living men along their direct paternal lines. He was not the first man or the only man alive at the time; he is the man whose direct paternal line survives in all living men today.
- From there, Globetrekker follows successive haplogroup branches toward our Hawley line. At each branch, we share a paternal ancestor with other men who belong to that haplogroup. For the broader branches, those connections reach back thousands of years.
- The map uses genetic evidence and geographic information to estimate where these ancient ancestors may have lived and how their descendants may have migrated. The routes are a reconstruction, with uncertainty about the exact locations and paths.
- For our talk, this provides the ancient geographic context for our paternal line. It does not trace the documented journeys of individual Hawley ancestors; those more recent connections come from combining DNA results with family records.

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FamilyTreeDNA Globetrekker map



- This is a closer look at the Globetrekker map.
- Following the suggested route (note R-Z381), the line passes through areas that are now Germany and the Netherlands, with later branches placed in England.
- For the more recent part of the map, our primary Hawley Society Y-DNA tester supplied the ancestral location (Derbyshire) associated with R-FT20553 based on Hawley family research.
- Thousands of years of SNP mutations (letter changes) trace Dad's paternal line from the Bronze Age R-Z381 (~2700 BCE), through Roman-era branches, to the medieval R-FT16047 (~1050 CE) and eventually R-FT20553. Each new SNP marks another branch along that paternal line.
- That genetic timeline provides historical context. Dad's Y-DNA connections span the Bronze Age, Roman, Anglo-Saxon, Viking, and later periods in England, suggesting the broader paternal line had connections to Britain before the Norman Conquest of 1066. However, the DNA cannot tell us exactly when our direct paternal ancestors arrived in Britain or prove continuous residence there.
- Extra point: After the Norman Conquest of 1066, surnames became increasingly common in England, often based on a person's location, occupation, family relationship, or personal characteristic. Over time, these names became hereditary and passed from one generation to the next.

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FamilyTreeDNA Ancient Connections



- Ancient Connections map compares Dad's paternal DNA with DNA recovered from archaeological remains.
- On this map, I matched the shovel symbols with the ancient burial sites identified in Dad's FamilyTreeDNA Ancient Connections results.
- These ancient men share older paternal DNA branches with Dad, with some common ancestors estimated roughly 3,800 years ago, long before the Hawley surname existed.
- These connections add another layer of historical context to the migration story we just saw. I plan to provide a closer look at this information at the 2027 Hawley Reunion.

Hawley Surname Project

Where does our Y-DNA project stand today?

232
Project members
Members contributing to our shared research.

32
Big Y kits identified
31 Big Y-700 • 1 Big Y-500

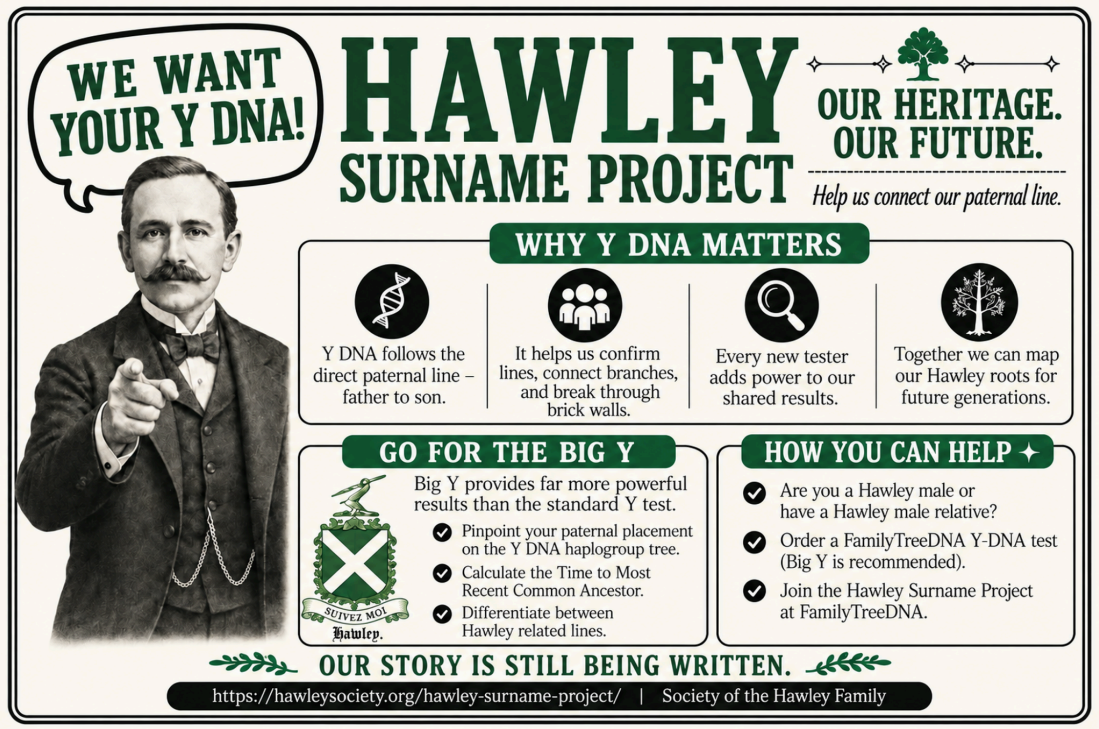
26
Reported haplogroups
Among those 32 Big Y kits.

The project includes Hawley, surname variations, and other surnames.
Different haplogroups can be branches within a shared larger lineage.

More Big Y testers can help clarify how our paternal lines connect.

- The project has 232 members; this results export identifies 32 Big Y kits, about one in seven members have taken the Big Y. At the Big Y level, dad has 12 matches.
- More Big Y testers from the Joseph and Thomas Hawley lines, as well as our English cousins, could help reveal additional branches and clarify how those lines connect. Joseph and Thomas' parentage is still to be determined.
- **Some of our Big Y matches have surnames other than Hawley. Some have reached brick walls in their family research, and others don't yet know how their paternal lines connect to ours. Placing them on a more specific branch can help narrow their search and give them new clues to pursue.**
- **Big Y requires an investment of both money and time. It may not answer every question you have about your own ancestry, but your results can contribute to the larger Hawley project—helping identify paternal branches, break through research brick walls, and clarify connections among families.**

What can you do to help the Hawley Surname Project? (Handout)





Further Reading

- FamilyTreeDNA – Big Y-700 & Discover — Y-DNA testing, haplogroups, TMRCA, matches, and Discover tools.
- Navigating the Paternal Line: The Hawley Surname & Big Y DNA Test — Pam Hawley Marlin, *Past Prologue / dmarlin.com*. My detailed account of Dad's Big Y-700 results and Hawley research.
- Genetic Genealogy in Practice - Blaine T. Bettinger and Debbie Parker Wayne. Provides family historians and genealogists who have just begun to explore genetic genealogy practical, easy to understand information that they can apply to their research.
- DNA: A Guide for Family Historians - Graham S Holton. A straightforward guide explaining DNA testing for British genealogists, interpreting results to uncover ancestry beyond documentary evidence.
- The Family Tree Guide to DNA Testing and Genetic Genealogy — Blaine T. Bettinger. A broad, accessible guide to DNA testing for genealogy, including Y-DNA.
- Advanced Genetic Genealogy: Techniques and Case Studies - Debbie Parker Wayne. Assists intermediate researchers move up to the next level and advanced researchers apply the new DNA standards and write about DNA.
- The Genealogist's Guide to Y-DNA Testing for Genetic Genealogy: Second Edition— David Vance. Particularly useful for understanding Y-DNA, STRs, SNPs, and Big Y testing.
- Surnames, DNA, and Family History — George Redmonds, Turi King & David Hey.