

Group 2 & 2A

Haplogroups

August 2026 Update

Introduction

• **Y-STRs** (aka Y-Chromosome-Short Term Repeats from Y-DNA testing) and **Y-SNPs** (aka Y-Chromosome Single Nucleotide Polymorphism - pronounced Y-Snip) form two types of Y-DNA testing for researching surnames.

It is very important to understand the purpose of each as they are quite different from one another. Failure to do so can lead to misinterpretation of Y-STR matches.

For example - I once assumed that a Y-DNA marker (aka Y-STR) mutations could trigger a new Y-SNP. This was due to observation and an inappropriate assumption. But I was wrong. The causation of one impacting the other is not correct.

The Y-STR and the Y-SNP have independent types of genetic changes on the Y chromosome with completely different biological mechanisms. [[1](#)]

- **Y-STRs (Short Tandem Repeats):** These mutate through replication slippage, where repeating sequences (like DYS393) gain or lose units frequently during cell division. [[1](#), [2](#), [3](#), [4](#)]
- **Y-SNPs (Single Nucleotide Polymorphisms):** These mutate through single base-pair substitutions, copying errors, or DNA damage during replication. [[1](#), [2](#), [3](#)]
-

The Relationship between them

- **Independence:** A change in the number of short tandem repeats does not physically or chemically induce a point mutation elsewhere on the chromosome.
- **Correlation vs. Causation:** While they do not trigger one another, they accumulate over time along the same patrilineal descent. Higher Y-STR diversity can be found nested within specific Y-SNP haplogroups, which helps scientists map human migration and genealogical timelines together. [[1](#), [2](#), [3](#), [4](#), [5](#)]

Y-STRs mutate thousands of times faster than Y-SNPs.

Because of this massive difference, genetic genealogists use them for completely different timeframes.

Comparison Table

Feature	Y-STR (Short Tandem Repeat)	Y-SNP (Single Nucleotide Polymorphism)
Mutation Mechanism	Slippage of the DNA copying mechanism.	Single chemical base error or damage.
Average Rate	~1 mutation per 300 to 500 generations.	~1 mutation per 7,000 to 10,000 generations.
Time equivalent	roughly 20 to 150 years per change.	roughly 80 to 150 years per change.
Direction	Reversible (can gain, lose, or mutate back).	Permanent (almost never mutates back).
Utility	Recent history (genealogy, last 1–15 generations).	Deep history (anthropology, thousands of years).

Key Differences in Behavior

- **STRs fluctuate:** Because an STR is just a repeating pattern (e.g., GATA-GATA-GATA), it can grow to 4 repeats, drop to 3, and go back to 4 over a few centuries. [[1](#), [2](#), [3](#)]
- **SNPs lock in:** An SNP is a single-letter swap (e.g., A changes to G). Once it changes, it stays that way for all future descendants. This creates an unbending branch on the human family tree (haplogroup). [[1](#), [2](#)]

[1] <https://help.familytreedna.com>

[2] <https://www.sciencedirect.com>

[3] <https://www.sciencedirect.com>

[4] <https://www.sciencedirect.com>

[5] <https://www.whodoyouthinkyouaremagazine.com>

The above was partly generated by Google AI.

Current Status of Group 2 & 2A Haplogroups

Recently there was some new Y-SNP news in Group 2 (Providence, RI Carpenters). Group 2 now has three Y-SNPs based on six group members who participated in Big Y testing at FTDNA.com.

FTDNA kit #200834 & #1024818 had a private variant or two that solidified into a new Haplogroup.

Previous: R-FTE20711

Updated: **R-FTG90340**

As a recap, the common Haplogroup for Group 2, 2A & 3 is: R-YP65281
This Haplogroup has two separate descendants.

1. Group 3 has Haplogroup R-BY146444. This is not discussed in this report.
2. **Group 2** appears to start with Haplogroup R-FT159367. **Green color** on the image cited below.

Then Group 2 has TWO sub-groups or descendant Haplogroups.

They are:

Haplogroup **R-FTG90340**. **Dark blue color** on image.

Haplogroup **R-FTE20711**. **Brown color** on image. This includes Group 2A.

The impact of these six members Big Y testing is significant. In the image (see link below) it shows the Group 2 drop down pedigree of members who have Y-DNA tested. Overlaying that in three colors are the six member lineages and how they relate.

It should be fairly obvious when looking at the image, how one can fill in the gaps for those who have not Big Y-700 tested for what their Haplogroup would be. Yes, there are a few minor exceptions.

Please see this image at:

<https://carpentercousins.com/Group2-2023/images/Group2-2A-Haplogroups-Aug-2026.jpg> - Zoom in as needed.

If you have any questions, please let me know.

John R. Carpenter

La Mesa, CA USA

Jrcrin001@gmail.com

Carpenter Cousins Y-DNA Project

<https://carpentercousins.com/carpdna.htm/>

Carpenter Cousins Project Admin

<https://carpentercousins.com>

Guild of One Name Studies

https://one-name.org/name_profile/carpenter/