

Y-DNA & MTDNA RESEARCH CHECKLIST

The complete guide to tracing a single direct ancestral line with specialised DNA testing

Before you begin — quick glossary:

Y-DNA — passed from father to son almost unchanged, tracing only the direct father's-father's-father line. Only people born male carry it.

mtDNA (mitochondrial DNA) — passed from mother to all her children, but only daughters pass it on further — it traces only the direct mother's-mother's-mother line. Everyone has it and can be tested.

Haplogroup — a broad genetic population group defined by shared markers, reflecting deep ancestral migration over thousands of years — not a recent, individual genealogical connection on its own.

STR markers / genetic distance — short tandem repeat markers compared between two Y-DNA testers; the number of differences between them ("genetic distance") indicates how closely related their direct lines are.

Big Y-700 — FamilyTreeDNA's deepest Y-DNA test, using SNPs (single letter changes) rather than STRs, giving far finer resolution for both deep ancestry and recent genealogy.

Surname project — a free, volunteer-run group (hosted on FamilyTreeDNA) that collects Y-DNA results from everyone testing under a specific surname, to help sort out which families share a common line.

Y-DNA and mtDNA are specialised tools for one very specific job each: tracing a single direct ancestral line back through deep time. They complement autosomal DNA — they don't replace it.

Phase 1 — Decide if Y-DNA or mtDNA is the right tool

- ☐ Confirm exactly which line you're trying to research — *Y-DNA traces ONLY your direct father's-father's-father line; mtDNA traces ONLY your direct mother's-mother's-mother line — neither covers any other branch of your tree*
- ☐ If you're female and want to research your paternal line, identify a male relative on that line to test instead — *your father, brother, paternal uncle, or a paternal male cousin all carry the same Y-DNA as your father's direct male line*
- ☐ If you want your father's mother's maternal line, identify the right person to test — *that line's mtDNA is only carried forward by women — you'd need your paternal grandmother's direct maternal-line descendant (not through your father) to test*
- ☐ Confirm you're not trying to use Y-DNA/mtDNA for a broader question autosomal DNA answers better — *these two tests are for ONE specific ancestral line each — for general match-finding or most parentage questions, autosomal DNA (see the other Genetic Voyage checklists) is the right tool*

Phase 2 — Choose the right test level

- ☐ Know that FamilyTreeDNA is essentially the only major provider offering standalone Y-DNA/mtDNA testing at genealogical depth — *AncestryDNA, MyHeritage, and 23andMe do not offer comparable standalone Y-DNA/mtDNA products*
- ☐ For Y-DNA, start with a Y-37 STR panel for a reasonable balance of cost and matching power — *Y-67 or Y-111 give finer resolution if your surname is common or you need to distinguish between closely related family branches*
- ☐ Consider the Big Y-700 test for deep haplogroup resolution or to break through a difficult brick wall — *this is the most expensive tier but gives the most precise possible placement on the Y-DNA tree*
- ☐ For mtDNA, the "mtFull Sequence" test is the standard choice — *partial mtDNA tests exist but give meaningfully less genealogical resolution*

Phase 3 — Order and prepare

- ☐ Check whether you can add Y-DNA/mtDNA to an existing FamilyTreeDNA sample — *if you already have a Family Finder (autosomal) kit with FTDNA, you can often add these tests to the same physical sample rather than providing a new one — look under "Add Ons" or "Upgrade" in your account*
- ☐ If testing a relative on your behalf, arrange the kit and collection together — *walk them through the same saliva/cheek-swab instructions as any DNA test, and register the kit under an account you can access*

Phase 4 — Understand your results

- ☐ Note your haplogroup assignment, but understand what it does and doesn't tell you — *a haplogroup reflects deep ancestral migration over thousands of years — it is not, by itself, a recent genealogical connection to any specific person or family*
- ☐ Locate your match list and note each match's genetic distance from you — *a genetic distance of 0 (Y-DNA) means an identical result — a very close line connection; each additional point of distance suggests a more distant common ancestor*
- ☐ Check each match's most distant known ancestor, if listed — *this is often the fastest way to see whether a match connects to a documented part of your tree*

Phase 5 — Research with your matches

- ☐ Join the relevant surname project for your line — *free to join, hosted on FamilyTreeDNA — search for your surname in their project list*
- ☐ Use genetic distance to estimate how many generations back your most recent common ancestor likely sits — *smaller genetic distance suggests a more recent common ancestor; the project administrators can often help interpret this for your specific surname*
- ☐ Cross-reference matches against your documented paper-trail tree — *a Y-DNA or mtDNA match confirms you share a direct-line ancestor with someone — it does not by itself tell you which specific ancestor, so paper-trail research is still required to pin that down*

Phase 6 — Use it for a specific research goal

- ☐ To confirm or refute a suspected biological line, compare against a known documented descendant of that family — *e.g. if you suspect your paternal line traces to a specific historical family, find a proven direct-line male descendant of that family willing to test, and compare results*
- ☐ To break through a brick-wall ancestor, look for close matches within your surname project who may share documentation you don't have
- ☐ Remember Y-DNA and mtDNA move far more slowly than autosomal DNA — *they reach much further back in time but give almost no information about recent generations — pair them with autosomal DNA and paper-trail research rather than relying on either alone*

Pro tip: Don't test Y-DNA or mtDNA hoping to solve a broad genealogical mystery — they only ever speak to one narrow line. Confirm exactly which specific ancestral question you're trying to answer before you order, and make sure the person testing is actually on the right line to answer it.