

Breakthrough:

How I Found the 10G Common Ancestor for Two of My Mitochondrial DNA Matches

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What's mtDNA? It's one of 3 types

- mtDNA (mitochondrial DNA) traces your mother's direct maternal line – her mother, her mother etc. It is the only **women-only** line you have (even if you're a man).
- Y-DNA for men only (tests the Y chromosome) traces a man's direct paternal/ surname line – his father, his father, his father, etc.
- Autosomal test: cousin-finder & ethnicity. Technically, it's *atDNA*, but no one calls it that.

What is DNA (deoxyribonucleic acid)?¹

- DNA is the hereditary material in humans and almost all other organisms. It's the **instruction code** that tells our cells how to build us.
- Nearly every cell in a person's body has the same DNA. Most DNA (autosomal & Y-DNA) is in the **nucleus** of each cell, packaged into thread-like structures called chromosomes. BUT, a small amount of additional DNA can be found **outside the nucleus** in the mitochondria (where it is called mitochondrial DNA or mtDNA).
- mtDNA is passed from a mother to her children (both sons & daughters). Only the daughters, when they become mothers, can pass it on. Men cannot pass their mtDNA to their children (except in very rare cases which are medical anomalies).
- mtDNA changes very little over time. Perfect matches with samples thousands of years old are very common. This means **that your match to a common ancestor can be many generations back** (from before written records exist).

mtDNA full sequence tests are available only at FamilyTreeDNA. (Some other companies offer *partial* results which are not useful for matching.) It's promoted to sound more promising than it really is for the great majority of people and costs \$159 (sometimes on sale for \$129).

"Seven Daughters of Eve" book by Bryan Sykes gives the early history of mtDNA research. Sykes pioneered the analysis of mitochondrial DNA for deep ancestry. He proved (via mtDNA) that Polynesians came from Asia, not from South America a la "Kon Tiki." He proved that the first inhabitants in the Americas came from Asia.

mtDNA in recent historical research

- Suspected remains of King Richard III, the last English king to die in battle, were found in Leicestershire in 2012.
- He left no living descendants, but **he had his mother's mtDNA, the same mtDNA as his eldest sister Anne of York, who had many descendants.** mtDNA in a tooth & femur compared to **Anne's** 17G grandson and an 18G granddaughter confirmed it is him.

¹ The first two bullets are from *medlineplus.gov*, U.S. National Library of Medicine.

What's a Haplogroup?

- A **maternal haplogroup** is a family of mitochondrial DNA that traces back to a single common ancestor.
- "Haplogroups are used to represent the major branch points on the mitochondrial phylogenetic tree. Understanding the evolutionary path of the female lineage has helped population geneticists trace the matrilineal inheritance of modern humans back to human origins in Africa and the subsequent spread around the globe."²
- **Haplogroups** are assigned letters of the alphabet, and refinements consist of additional number and letter combinations.
- It's your ancestral clan. For most of us, haplogroups are mostly an anthropological curiosity.

Case Study of my mtDNA Research

- I tested in January 2015. Early results showed one *Zero Genetic Distance* match and one *One Genetic Distance* match: their earliest maternal ancestors looked like sisters. Their last name (father's name) was Peter Van Nest in Kentucky. But who was their **mother**?
- I was completely blocked on my own maternal line, which stopped in Monmouth Co, NJ.
- I looked for a New Jersey-Kentucky link. I researched the surname Van Nest in New Jersey and early migration from New Jersey to Kentucky.
- April 2016: Made a research trip to New Jersey. Rutgers University Archives has a Van Nest Family File with documents. A letter in the file asked about a Peter Van Nest who married a Phoebe/Phebe.
- After this trip, I set down my research and promptly FORGOT what I'd seen in the letter mentioning Peter Van Nest **and Phebe**. I didn't find it again until at least a year later.

LESSON: process your research findings! D. Joshua Taylor, president of NYG&B, recommends blocking time on your calendar, **BEFORE you leave on your trip**, at a rate of TWO HOURS of processing time for EVERY HOUR you will spend away from home researching.

- A few more mtDNA matches in 2016 and 2017 were not helpful.
- Not remembering my Rutgers research clue re: Peter's wife, I looked at family naming patterns. Catherine and Ann each named daughters Phebe and Nancy.
- A year after my research trip, November 2017, I re-discovered the Rutgers clue re: Peter Van Nest and Phebe. It matched one of my guesses from the family naming patterns, I decided to go with Phebe as the mother of Anne Van Nest and Catherine "Caty" Van Nest, the brick wall ancestors of my two mtDNA matches. But what's her last name?
- More time went by, to April 2018. Checked Family Tree at FamilySearch.org to search for Peter Van Nest with spouse Phebe. Got a hit! Peter Van Nest married Phebe Hardenbroeck. Their marriage had been in FamilyTree since 2013. I just never looked until April 2018.

LESSON: use every available online tree to look for clues. FamilyTree at FamilySearch.org, Wikitree, Geni, subscription sites you belong to, etc. (Remember to treat un-sourced data as clues only. Ancestry.com trees are notoriously unreliable.)

² [Wikipedia.org/wiki/Human_mitochondrial_DNA_haplogroup](https://en.wikipedia.org/wiki/Human_mitochondrial_DNA_haplogroup)

- Family Tree at FamilySearch had a non-credible line for the next few generations from Phebe up her mother's line, but I found the correct info. From there, I could finish *my mtDNA matches' line* from Peter Van Nest's wife Phebe Hardenbroeck up to Johannes Theodorus Polhemus and his wife Catharina Van Der Werven, who I already had in my database as 8G grandparents via a non-direct-maternal line. Decided Catharina is the likely MRCA.
- Now I had to link my own direct matrilineal line to Van Der Werven. My brick wall was "Catherine" 1783-1871 who married Cyrenius Thompson. What was this Catherine's last name? It could be RHEA, based on family naming in the next two generations of descendants. Most Catherine Rhea women I found had dates that didn't work, until I found one that did: father's name David Rhea, mother Elizabeth. What was Elizabeth's last name?
- November 2019, found a book on my hard drive downloaded March 2016 (three years earlier). It had the answer: David Rhea married Elizabeth Hendrickson, and her parents were Daniel Hendrickson and Catherine Van Brunt.

THREE LESSONS: 1) **Look at what you find** when you first find it! (the book had been lost on my hard drive). 2) **Figure out how to file it so you know what it has and why you should look at it again** in future research. I should have saved/filed this book with RHEA in the filename, because I've since realized that's what I was searching for (the surname) in the FamilySearch Catalog when I found the book. 3) Look for **land records** (and also court records) when you have a brick wall. They can provide valuable clues for names and relationships (e.g. women's maiden names).

- I'd now made it from brick-wall Catherine RHEA up to Catherine VAN BRUNT. Found Van Brunt's parents at the Brouwer Genealogy Database online. Mother: Elizabeth VAN VOORHEES, was already in my database, 7G aunt, unmarried, sister of my 6G grandmother Altie Corte Van Voorhees. I already had a direct line from Elizabeth and Altie to their mother Sarah CORNELL, then to Sarah's mother Margrietje POLHEMUS, and then to her mother, Catharina VAN DER WERVEN. BINGO!

Summary re: my mtDNA matches

- My mtDNA matches on FTDNA.com, Priscilla and Nancy, are my 9C2R. They are 6C to each other because their common ancestor is Phebe Hardenbroeck.
- Nancy and I are exact (Zero Genetic Distance) matches. Why is Priscilla a 1 Genetic Distance?
 - There must be a mutation **between Priscilla and her 5G grandma Phebe Hardenbroeck** that did not happen on Nancy's line. **It would not be typical** to see this evidence of a mutation in such a short time frame (abt 260 years) when mtDNA mutates SO SLOWLY that the mutation could be thousands of years back.

Should you get an mtDNA test? I was VERY VERY LUCKY in many ways:

- Two early matches (Priscilla and Nancy) listed their furthest-back maternal ancestors whose names/dates suggested sisters.
 - If Priscilla and Nancy hadn't named their ancestors, I might not have emailed them to ask. If I had asked, they might not have answered.
- IF either Priscilla's or Nancy's furthest-back ancestor had been the generation **before** or **after** (e.g., if one of them had listed the mother Phebe Hardenbroeck), *the two female ancestor's surnames would not have matched*. I would not have been able to pursue the idea that my matches' ancestors were sisters, which was a big motivator.

- The direct maternal (mtDNA) lines for me and my matches went back to Dutch women in colonial New Jersey and New York (1600s-1700s). The Dutch kept VERY GOOD church records, AND decades ago, many genealogists did a lot of research about these very early colonialists, wrote books and society journal articles, and transcribed American colonial records that are now accessible online and in libraries and archives.
- Your results would be different for nationalities, religious groups and locations **that did not keep such good very early records**. (Remember: 90% chance of MRCA in *16 generations*). Who and where were **your** matrilineal ancestors in the 1600s and 1700s?
- Only because I happened to be cleaning up files on my hard drive did I find a book during my research, which happened to have been digitized (how many are not?), which was then made available online, which I then found, and happened to download and then forgot for two years, and then only when I **luckily** found it again and thought to check the index, did I find the page with the last name of Elizabeth Hendrickson, the wife of David Rhea and mother of my long-time brickwall Catherine, which then led straight up to the common ancestor.

Major lessons in this story, if you decide to get this test

- FOCUS – stay on it. Persist.
- Process research trip findings within a few weeks/months of returning home, and follow through on your online book discoveries as soon as you download them.
- **Create a plan** and execute it. I probably would have guessed at “Rhea” for Catherine’s last name **much sooner** if I’d focused on the project and had a plan.

So again, should you get an mtDNA test? I’d say only if:

- You have a brick wall on your direct maternal line (or that line of another relative or ancestor), it’s **really important** to you to trace this line back, you’ve seriously researched all possible resources, and you have run out of ideas on how to break through it.
- Your genealogy budget can easily cover \$129-\$159, you understand there’s a very good chance you won’t get any results that lead anywhere soon, and you won’t feel like you wasted your money if that happens.

Roberta Estes (DNA-explained.com) disagrees. She thinks the mitochondrial test is very helpful and recommends everyone get it done. She wrote an article on her blog, “*Thirteen Good Reasons To Test Your Mitochondrial DNA*,” [here](#). BUT she’s a professional genealogist and a DNA expert who seems to have unlimited time and resources.

Diahan Southard (YourDNAGuide.com) has said, “Typically, genealogists use mtDNA to explore their ancient ancestry or to weed out people who aren’t related through their maternal lines, rather than those who are.” Also, “You might be able to document a relationship between two exact [Zero genetic distance] matches, but two people with one or more differences in their mtDNA usually can’t determine their shared ancestor in a genealogically useful timeframe.” Her website suggests you could consider testing mtDNA for a dying-out female line, for a female ancestor with unknown ethnicity, and for a “total brick wall,” understanding that your MCRA could have lived in 1873 or in 1873 B.C.