The Rucker Surname Y-DNA Project

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QUARTERLY BULLETIN

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This Bulletin is located at: The Rucker Family Society Website
www.theruckerfamilysociety.org
or
scan the "**Ruckersaurus**" Quick sponse (QR) Code and it will take you to the website

THANK YOU TO OUR DONORS

by Alice Rucker, Project Administrator

Since our last bulletin, we are very grateful to announce that we have received almost $1,400 in donations for our DNA project! Special thanks go to our generous donors Dick Rucker, Robert Rucker, Verona Flint, Jesse Wayne Rucker, Mary R. Estes, Susan Rucker-Bradbury, Linda Howden, Sean Rucker and Mary Ann Kniuppa Spreen.

While we await a European match, there has been a growing need to financially assist new test takers who are unable to pay the full cost. These donations will be put toward financial aid for new testers.

Donations like these will ultimately help solve the mystery of where Peter Rucker came from.

Within the last month alone, we had more than 15 requests to join our project. This is an unprecedented number of Ruckers interested in proving their relationship to Peter, our immigrant. While many people can pay for testing, there are others that would like to test that are unable to do so due to the high cost of the Big Y-700 test. If you would like to contribute to the testing fund, truly any amount would be appreciated.

To assist testing funding go to: https://www.familytreedna.com/group-general-fund-contribution.aspx#:~:text=If%20you%20would%20like%20to,by%20Mail
On that page you must choose "R" and scroll till you find Rucker.
Or you could send a personal check payable to The Rucker Family Society, 13331 Gridley St., Sylmar, CA 91342

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DNA CORNER

by Alice Rucker

Over the last two decades, DNA testing has come a long way. Today, when Rucker men take a DNA test and join our Rucker Surname Project, we are now able to identify which son of Peter they descend.

Peter had 6 sons. It is believed that Peter's son Peter died as a child and had no progeny.

His five sons and grandsons appear below.

Seven sons of John[2]
Peter[3]
John[3]
Ambrose[3]
Benjamin[3]
Ruben[3]
Isaac[3]
Anthony[3]

Eight sons of Thomas[2]
Thomas[3]
Cornelius[3]
Peter[3]
John[3]
William[3]
Mauldin[3]
Isaac[3]
George[3]

Seven sons of William[2]
Gideon[3]
James[3]
William[3]
Joshua[3]
Mordecai[3]
Elisha[3]
Joseph[3]

Eight sons of James[2]
Dewitt[3]
Augustine[3]
James[3]
Ephraim[3]
Lemuel "Old"[3]
Wyatt[3]
Elzy[3]
Ambrose[3]

Four sons of Ephraim[2]
Angus[3]
Elliot[3]
John[3]
Julius[3]

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DNA, RESEARCH & REFERENCE SITES

Take a photo or scan the QR Code to direct you to these helpful sites

Family Tree DNA

ISOGG

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RESEARCH CORNER

by Phyllis Rucker

THE DNA AND RESEARCH JOURNEY OF TODD RUCKER

Continued from last Bulletin:

L to R: Todd's father Johnny, Todd and his uncle Joe

Recalling the first article from our 1Q 2025 Bulletin, Anthony Todd (Todd) Rucker took a Big Y-700 test to confirm whether he descended from Peter Rucker, our immigrant. Todd was also stuck on his paper trail at his 2nd Great Grandfather William Augusta Rucker. He was hoping the results of the test could help point him in the right direction so that he could determine his 3rd Great Grandfather to complete his paper trail.

The Big Y results came in and were not what anyone expected. Todd did not descend on his male line

from Peter Rucker. Instead of the Rucker name in his results, the prevalent name was Hancock!

Even though Todd does not descend from a male Rucker, it is believed that he may have descended from a female Rucker. To prove this theory, more DNA research combined with more paper trail research is needed.

Since publication of the last Bulletin, three more males have tested in his line. Some not all testing results have returned. Until then, it is prudent to wait before drawing solid conclusions.

While awaiting the test results, more paper trail information is being collected to help determine where his line they may have intersected with the Ruckers.

This type of work is like fishing. More time is spent waiting for something to come in than finding perfect pieces of information! Patience is truly a virtue when it comes to researching!

Stay tuned in to future issues as we continue to discover more documents and uncover new information on how Todd's line intersected with the Ruckers.

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LATEST BIG Y-700 PARTICIPANT'S DNA RESULTS ARE IN!

The Big Y-700 results for our 101st participant Donald Rucker are in! Donald (from New Mexico) has been confirmed to be a descendant of our immigrant Peter Rucker's son Thomas! Donald's lineage is: Donald[10], William[9], John[8], William[7], John[6], Robert[5], William[4], John[3], Thomas[2], Peter-Immigrant.

Don is 90 years young and wanted to do something nice for his son, grandson and great-grandson to honor his Rucker line by taking the Big Y-700. This test is a great way of preserving his lineage for generations to come!!!

L to R: Donald, his son Lynd, grandson Justin & great-grandson Asher Clide

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QUESTION CORNER

We have received a great question for this issue: "I am a male and have taken a couple of DNA tests and one test talks about centimorgan relationships and the other talks about haplogroup relationships. Can you explain the difference?"

Wonderful question! In genealogy, both centimorgans and haplogroups are ways of interpreting DNA test results, but they tell you different things about your ancestry and different timeframes.

CENTIMORGANS

Centimorgans are a unit of genetic distance that measures the length of shared DNA segments between two individuals. Essentially, they quantify how much DNA you share with someone else.

Centimorgans are primarily used in **autosomal DNA (atDNA) testing** (like Ancestry, MyHeritage etc.) to determine how closely related two people are. The more centimorgans you share, the more recent your common ancestor.

DNA testing companies use the total number of shared centimorgans (and the length of the largest shared segment) to

predict the likely relationship between you and a DNA match (e.g., first cousin, second cousin, etc.).

A centimorgan represents a 1% chance that a segment of DNA will "recombine" (or swap genetic material) during the formation of egg and sperm cells. This recombination process is why siblings, for example, don't share identical DNA even though they have the same parents.

While more cM generally means a closer relationship, different relationships can share similar amounts of DNA (e.g., a first cousin and a half-aunt might share a similar cM range). This means you need genealogical research to confirm the exact relationship.

Due to recombination, the amount of DNA inherited from a common ancestor can vary, even between full siblings. It all comes down to how DNA is passed and recombined!

HAPLOGROUPS

For purposes of answering this question, the male haplogroups will be addressed. The male haplogroups are large groups of men who share a common ancestor along a specific paternal direct line of descent. They are defined by specific genetic mutations (SNPs or Single Nucleotide Polymorphisms) that have accumulated over thousands of years.

They can connect you to broad ancestral groups and geographical regions from deep in human history. For example, a particular haplogroup might be associated with early human migrations out of Africa or with populations that settled in specific parts of Europe or Asia.

Male haplogroups look at a single line of descent. They only tell you about your direct paternal line. They don't provide information about all your ancestors from all branches of your family tree.

Because haplogroups in general are so ancient, a shared haplogroup with someone doesn't mean you're closely related in a genealogical timeframe (e.g., within the last few hundred years). Many people across the globe can share the same haplogroup. Therefore, haplogroups are telling about the past but not current relationships.

IN SUMMARY

Centimorgans are about **recent genetic relationships** and quantify the amount of shared DNA from *any* recent common ancestor. They are crucial for finding and confirming *living relatives*.

Haplogroups are about **deep ancestral origins** and track your direct paternal or maternal lines back through millennia, providing insights into ancient human migration and population movements.

This begs another question: if women have haplogroups too and why doesn’t our Project look at the Rucker female line?

Yes, women have haplogroups too. They are called Mitochondrial DNA or mtDNA. Both men and inherit mtDNA exclusively from their mothers. This means everyone, regardless of sex, has a maternal haplogroup, which traces their direct maternal line back through generations. Because this haplogroup follows the direct maternal line, it is not helpful for determining Peter Rucker’s lineage as he is male.

Again, only males have a paternal haplogroup (Y-chromosome DNA or Y-DNA) which is passed down from father to son. Females do not have a Y-chromosome and

thus do not have a paternal haplogroup.

However, a woman can learn about her paternal haplogroup by having a direct male-line relative like her father, brother, paternal uncle or paternal grandfather by having them take a Y-DNA test.

In summary, our Rucker Surname Y-DNA Project at Family Tree DNA follows only the paternal haplogroup or the Y-DNA back to our immigrant, Peter.

If you have a question that you would like to submit, feel free to email either Alice or Phyllis. Their email addresses are on the first page of the Bulletin.

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TRACING ROOTS: HOW DNA SPARKED A NEW ERA FOR THE RUCKER FAMILY SOCIETY

by Alice Rucker

In the annals of genealogy, a new chapter is being written, one that blends traditional research with the cutting edge of genetic science. For the descendants of Peter Rucker, the immigrant ancestor, this journey into DNA testing began in 2006, sparked by a newfound curiosity and the power of collaboration.

It was Alice Rucker, a dedicated member of the Southern California Genealogical Society, who first heard about the burgeoning field of DNA research. Intrigued by the possibilities, she reached out to Family Tree DNA (FtDNA), a pioneering company in the field of genetic genealogy. Her inquiry led to a remarkable opportunity: FtDNA offered to send a speaker to the 2006 Rucker Family Society (RFS) Reunion in Salt Lake City.

Leah Wark the speaker from FtDNA, delivered a presentation that captivated the audience. Her words ignited a spark of excitement among the attendees, who quickly grasped the potential of DNA to unlock family mysteries and confirm ancestral ties via Y-DNA testing to our male Ruckers. The enthusiasm was palpable, and it wasn't long before the first male Rucker volunteers stepped forward to take the plunge into genetic testing.

The initial testers were Loren Rucker, Alice's spouse, followed by RFS President Chris Rucker. Their willingness to be pioneers paved the way for a revolutionary approach to tracing the family's lineage. FtDNA operates on the principle that "DNA research is a marriage of science and paper trail." To ensure the most accurate and meaningful results, they requested that the RFS prepare and maintain a detailed male descendancy chart for Peter Rucker. This chart was approved by RFS founder Jeanne Brydon.

This collaborative effort has been a resounding success. To date, 101 participants have taken the DNA test, with several more tests pending. After each participant's test is processed, they are meticulously aligned with the appropriate sons of Peter, solidifying the family's branching lineages with genetic certainty.

As genetic testing becomes more and more detailed, we can identify not only a participant’s relationship with Peter, but in some cases, we can identify down the line to a grandson of Peter!

This groundbreaking project has not only confirmed ancestral connections but has also brought the Rucker family closer, uniting them in a shared quest to understand their heritage on a deeper, more scientific level. The journey continues, with each new test adding another piece to the grand mosaic of the Rucker family story.

All of this effort is the prelude to eventually discovering our true roots - where our immigrant, Peter Rucker came from across the pond!

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Why the Y Chromosome?

By KC Vavra, Ph. D

The Y chromosome is passed through the paternal line, so how can there be variants from father and son(s)?

A healthy human has 46 chromosomes (or 23 pairs of chromosomes) in each of their cells. Of each of these pairs of chromosomes, one chromosome is inherited from their maternal line and the other from their paternal line. Of these 23 pairs, 22 are the autosomal chromosomes that are not associated with the biological sex of an individual, and each chromosome in an autosomal pair are the same size and contain the same genes—but may not have the same exact genetic sequence. The remaining pair of chromosomes is considered the sex-determining chromosomes; one of these is received from each parent. The sex of a new child is determined by whether the father passed on the X or the Y chromosome to his offspring, since a male will have one of each and a female child will have two X chromosomes. The majority of the Y chromosome has a unique identity from the X chromosome (only 1.7% of the Y chromosome is homologous with the X chromosome), so the Y chromosome remains mostly unchanged when being passed between generations.

Geneticists can leverage this relative stability (defined as no significant changes in the genetic sequence) of the Y chromosome to build the family trees used in inheritance studies. However, there are minor differences that can be introduced as mutations when determining lineage of the family members, and this is also true of the Rucker family. Many of these mutations are random and introduced during reproduction, due to the passing of the Y chromosome through the generations. During the process of how genes get passed by the father through the sperm, there are two major components contributing to higher mutation rates. The first is the highly oxidative environment of the sperm, which contains reactive molecules that can degrade the DNA (in addition to leading towards issues with sperm count, viability, and ultimately infertility). Oxidative environments contain higher amounts of reactive oxygen molecules, such as peroxides, compared to the antioxidants that the body uses to neutralize the reactive-oxygen molecules. These reactive environments are high in peroxides both inside the sperm cells an in their environment, allowing the peroxides to react with DNA and introduce mutations to the genomic DNA that will ultimately be passed on to a child.

The second largest contributing factor to the introduction of variants in the Y chromosome is the process of sperm development, or spermatogenesis. In the production of gametes, which are both the eggs and sperm that ultimately will combine to yield an embryo, the number of chromosomes is halved through a cellular division process called meiosis. Egg cells do not go through any additional cellular divisions after meiosis, but sperm cells will go through two additional rounds of cellular division. During each step of cellular division, the cells are divided into two and the DNA in the original cell is copied so that each cell ideally receives two exact copies of the entire genome. During this replication process, the DNA copying machinery makes small mistakes (estimated to be at approximately 120,000 mistakes per each division), similarly to how there are imperfections introduced when sending a fax or making a copy of a document. Fortunately, there are "proofreading" molecules that are activating during DNA copying that manage to catch and correct most of these errors, but some mistakes still slip through the proofreading process. This is estimated to be approximately 1-3 mutations per cell division, and approximately

half of the human genome does not code for genes.

Both of these contributing factors can cumulatively allow for a family tree composed of a father and two sons to have almost the same exact Y chromosome sequence, but there could be minor differences. Since the human genome is approximately 50% non-coding, or not associated with the functions of genes, mutations in these regions likely do not impact the health of the embryo or child and are then passed on through that specific lineage.

Citations

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3) Tiemann-Boege *et al.* PNAS. (2002). 99 (23) 14952-14957
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5) Francis & Wörheide. Genome Biol Evol. (2017) Jun 13;9(6):1582–1598

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OPEN FOR DONATIONS

by Alice Rucker

As always, our Y-DNA project is ready for and can always make use of new donations. Our current focus is to help those who otherwise would not be able to completely afford to take the Big Y-DNA test. That is the test that delves much deeper into your genetics, and it is what has helped us to begin to understand small variants among male descendants that allow science to group the five sons of Peter Rucker, Immigrant. If you are reading this and not a biological Rucker, or you are female, don't be shy to help our project with kind and generous donations.

To contribute, go to: https://www.familytreedna.com/group-general-fund-contribution.aspx#:~:text=If%20you%20would%20like%20to,by%20Mail

On that page you must choose "R" and scroll till you find Rucker. Or you could send a personal check payable to Rucker Family Society, 13331 Gridley St., Sylmar, CA 91342

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SAVE THE DATE!

Do you want to learn more about DNA and enjoy other Ruckers and Rucker topics? Come to our next Rucker Family Society Reunion!!! It will be held in INDEPENDENCE, MO SEPTEMBER 23 – 27, 2026 Our theme is WAGON'S HO!

The schedule of events will be announced in the upcoming months. If you live in the area or know Ruckers that live in the area close to Independence, please spread the word!!

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First Class Mail

ADDRESS SERVICE REQUESTED