

# Y-DNA Research Studies of Rabbinical Lineages and Their Importance to Jewish Genealogy

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## Abstract

For centuries, Jews have sought their *yichus* by connecting themselves to rabbinical families, either through marriage or by a paper trail. Thanks to recent advances in genetic genealogy and DNA technology, this is now possible to do for many more individuals of Jewish descent than ever before.

For a little over ten years now, my research team and I have been conducting Y-DNA research studies which utilize both traditional genealogical and current DNA methods and technology to identify the unique Y-DNA genetic signature and ethnic origin of some of the world's most esteemed and historically significant rabbinical lineages and dynasties. These include the Katzenellenbogen,<sup>1</sup> Lurie, Polonsky,<sup>2, 3</sup> Rappaport-Cohen, and Shapiro<sup>4</sup> rabbinical lineages, and the Twersky<sup>5</sup> and Wertheim-Giterman Chassidic dynasties.<sup>6</sup>

We have also conducted Y-DNA research studies on lineages descending from such luminaries and *tzaddiks*<sup>7</sup> as the Baal Shem Tov, Rabbi Levi Yitzchak of Berdichev, Rabbi Naftula Cohen of Belaya Tzerkov, Rabbi Raphael of Bershad,<sup>8</sup> Rabbi Yechiel Michel of Zlatchov, Rabbi Yehuda Heller-Kahana of Sighet, and the Shpoler Zeida.<sup>9</sup>

The goal of our rabbinical heritage Y-DNA research studies is to identify the Y-DNA genetic signatures of some of Jewry's most renowned *tzaddiks* and rabbinical families. We accomplish this by finding and testing pedigreed patrilineal descendants of these rabbinical families; if their Y-DNA genetically matches, it confirms their paper trail and provides the unique Y-DNA genetic signature for their lineage.

Anyone who matches one of these Y-DNA genetic signatures shares a common paternal ancestor with these pedigreed rabbinical descendants. Identifying that common ancestor would enable one to link to a pedigree and paper trail that may be many centuries old, and to rediscover their family's lost Jewish heritage.<sup>10</sup>

Many of our rabbinical heritage Y-DNA research studies have been published in the Jewish genealogy literature, and have also been posted online at Academia.edu: <https://independent.academia.edu/JeffreyMarkPaull>.

In this research update, I explain the importance of rabbinical heritage research studies to the practice of Jewish genealogy and present an overview of some new and interesting findings and observations drawn from our Y-DNA research studies of thirteen rabbinical lineages and dynasties, including the defining haplogroup<sup>11</sup> and subclade<sup>12</sup> that is associated with the Y-DNA genetic signature for each of these lineages.

## **Background – Why We Research Rabbinical Lineages**

The major challenges and difficulties that are associated with tracing Jewish ancestry are well-known to Jewish genealogists. They include:

- The lack of Jewish surnames prior to the early 19th century and surname changes subsequent to immigration during the late 19th and early 20th centuries.
- Frequent expulsions and migrations.
- The destruction of civil and Jewish community records, along with the repositories of Jewish learning and culture, including synagogues, yeshivas, and cemeteries.
- The lack of accessibility and difficulty in retrieving and translating existing archival records.

As a result of these difficulties, most Ashkenazi Jews cannot trace their ancestry back more than a few generations. Among those fortunate enough to be able to go back further, they run into a brick wall in the pre-Jewish surname era, before the mandated adoption of fixed, inherited surnames, during the late 18th to early 19th centuries in Eastern Europe and the Russian Empire.

The notable exceptions are the major rabbinical families, who adopted fixed surnames long before they were mandated by governmental authority. The lineages of these families have been preserved for centuries. Those who can connect to a major rabbinical family can thereby trace their ancestry back many more generations.

There were numerous well-documented rabbinical lineages, Chassidic dynasties, and *tzaddiks* in the Russian Empire, and throughout Eastern Europe. Many of these rabbinical lineages were huge families, with thousands of descendants, and were genetically interconnected through marriage with one another.

A wealth of genealogical information exists in the Jewish literature for individuals who can establish descent from these prominent rabbis or rabbinical families. Rabbinical sources can provide priceless genealogical information to Jews who might otherwise have no means of discovering who their ancestors were.

The key to tapping into this invaluable genealogical resource is identifying a prominent rabbi in one's lineage and then genealogically linking to him. Prior to the advent of DNA technology, this could only be accomplished through painstaking research of the paper trail. Now, however, it is possible to link to these rabbinical lineages through DNA testing, and Y-DNA rabbinical heritage studies play an essential role in making this possible.

Through our Y-DNA research studies of rabbinical lineages, we identify what we refer to as the unique Y-DNA genetic signature of that lineage.<sup>13</sup> If someone takes a Y-DNA test, and he genetically matches the Y-DNA genetic signature of a given rabbinical lineage, then he shares a common ancestor with the pedigreed rabbinical descendants of that lineage.

Depending on the closeness of their genetic match, previously unknown descendants may share a common ancestor who lived either before or after the founder of the lineage. In either case, these descendants have rediscovered an important part of their lost Jewish heritage, and they will also have a much better idea of how and where to focus their genealogical research efforts.

Many descendants of rabbinical lineages did not become rabbis but chose instead to become merchants, teachers, doctors, or craftsmen, or to pursue other secular occupations. Moreover, due to the endogamous nature of the Ashkenazi Jewish population, many, if not most, Jews descend from a prominent rabbi or rabbinical lineage, although they may not be aware of it.

In the 1987 *Avotaynu* article: "Ashkenazi Rabbinic Families," Neil Rosenstein states: "The implication is, at the lowest level of possibility, any Ashkenazic Jew living today has at least a one in fifty (2%) chance (if the sources and resources were available) of tracing back to a rabbinical dynastic lineage."<sup>14</sup> Questioned about this quote recently, Dr. Rosenstein stated: "I would say it could be even higher. In spite of all my work, I believe it's only the tip of the iceberg."<sup>15</sup>

Since Dr. Rosenstein made his original estimate in 1987, genetic genealogical research studies have demonstrated how genetically interconnected Ashkenazi and Sephardic Jews are, revealing much more of that iceberg.<sup>16, 17, 18, 19, 20</sup> Today, I don't believe that it would be overreaching to suggest that if the sources and resources were available, and all their lines of descent could be thoroughly researched, the vast majority of Ashkenazi and Sephardic Jews would be found to descend from a prominent rabbi or rabbinical lineage.<sup>21</sup>

In various Jewish genealogy venues, I often hear people tell me: "I can never accomplish what you did because our family isn't descended from any famous rabbis." My question to them is: "How do you know?" The past six generations of my family were not rabbis either, which is why our branch of the family was not documented in the rabbinical literature, and why much of our Jewish heritage became lost.

How many Ashkenazi Jews have comprehensive, well-documented family trees that extend back more than six generations? The answer is, not many. Hence, there are undoubtedly many thousands of such families of lost Jewish heritage.

By building out the family trees of the many interconnected rabbinical lineages and dynasties, validating their patrilineal lineages using Y-DNA, and identifying the unique Y-DNA genetic signature for those lineages, we are providing many more Jews than ever before with a means for rediscovering their lost heritage.

## **Y-DNA Research of Rabbinical Lineages**

Y-DNA testing is a very powerful tool when used in conjunction with traditional genealogical lineage studies. Because Y-DNA mutates very little over time, it is very useful for verifying patrilineal descent of pedigreed descendants from a rabbinical lineage that may be many centuries old. For non-pedigreed descendants whose Y-DNA genetically matches, and who share the same lineage, but who may have incomplete paper trails, it is also useful for estimating when their most recent common ancestor (MRCA) lived.

Y-DNA testing can also be used to identify the unique genetic signature of a lineage. If pedigreed descendants from at least two sons of the founder of the lineage can be located and tested, and their Y-DNA matches, their Y-DNA represents the genetic signature of the founder of the lineage. This Y-DNA genetic signature can then be used to discover previously unknown descendants of the lineage.

If lines of descent from two different sons of the founder of the lineage cannot be found, pedigreed descendants of cousinly lines would need to be identified for Y-DNA testing. Although more challenging to locate, cousinly lines offer the advantage of extending the Y-DNA genetic signature further back in time (more generations). Depending on the generation of the common ancestor, a Y-DNA genetic signature back to the founder of the lineage's ancestors can be identified.

For each rabbinical lineage, our current standard practice is to order FTDNA's Big Y-700 test<sup>22</sup> for one of the pedigreed descendants to identify the terminal single nucleotide polymorphism (SNP),<sup>23</sup> and to identify any unique SNP variants which may further distinguish the lineage. The terminal SNP is the defining SNP of the latest subclade known by current research. Once the terminal SNP has been identified, we then order that specific SNP for the other pedigreed descendants of that rabbinical lineage to verify that they all belong to the same haplogroup subclade.

Each of our Y-DNA rabbinical heritage research studies produces a great deal of useful genealogical information, including:

- Historical and biographical information for each rabbinical lineage under study.
- Descendant charts, verified by Y-DNA testing, including places (town names) and years of birth and death of descendants.
- Family trees showing marriage connections to other rabbinical families.
- The Y-DNA genetic signature and ethnic origin of the lineage, with updated Y-DNA results, including haplotype, haplogroup, subclade, and terminal SNP.
- Identification of previously unknown and potential descendants of the lineage, based upon their close genetic match to the Y-DNA genetic signature.
- A list of surnames that are associated with the lineage, either through a paper trail or based upon Y-DNA genetic matches.

There are, of course, many challenges involved with conducting Y-DNA research studies of rabbinical lineages.<sup>24</sup> These include:

- Pedigreed, son-after-son descendants of rabbinical lineages, having well-documented paper trails, are very difficult to find.
- For a variety of reasons, rabbinical descendants are frequently reluctant to take a Y-DNA test.
- Generally, only rabbinical descendants of rabbinical lineages were documented in the rabbinical literature. Non-rabbinical descendants were often omitted or not mentioned by name.
- Non-rabbinical descendants often adopted rabbinical surnames. This practice was particularly common among men married to female rabbinical descendants during the period of Jewish surname adoption.
- Many rabbinical descendants have only partial paper trails, and their *yichus* claims may be exaggerated or erroneous.

### **Summary of Results from Our Y-DNA Rabbinical Heritage Research Studies**

Having explained the primary goals and concepts underlying our Y-DNA rabbinical heritage research studies, this section presents an overview of our thirteen research studies conducted to date, with a brief summary of results. It is rare to conduct a Y-DNA rabbinical heritage research study that does not have some surprising results, or some unexpected twists and turns, and we shall report some of them here.

Some of these research studies have been published in the genetic genealogy literature, and some of them are still ongoing. Those interested in more detailed and complete information on methodology, data, results, and conclusions, will want to refer to our published research studies.

The science underlying genetic genealogy is evolving rapidly. When I published my first Y-DNA research study of the Polonsky rabbinical lineage in 2010, next-generation gene sequencing tests, such as FTDNA's Big Y test, were not yet available; they are now routinely used. In addition to discovering new SNPs by scanning millions of base-pairs on the Y chromosome, FTDNA's first Big Y test offered gene analysis at 111 STR markers. With FTDNA's Big Y-500 test, the gene analysis was increased to 500 STR markers, and now, with their Big Y-700 test, it has been upped again to 700 STR markers.<sup>25</sup>

With these advancements in DNA technology come greater specificity and refinements to the Y-DNA genetic signature, but this involves ordering new Y-DNA tests and re-analyzing the Y-DNA results of previously published research studies. In addition, as more people test their Y-DNA, additional descendants of rabbinical lineages are discovered.

Advancements in traditional genealogy are being made as well. More and more documents from the archives of the former Russian Empire are being digitized and made available online; these records help to fill in gaps in family trees and corroborate the paper trails of both fully and partially pedigreed descendants. They also assist in finding common ancestors for non-pedigreed descendants.

For these reasons, we plan to update and publish a compendium of all thirteen of our Y-DNA rabbinical heritage research studies. More information regarding the forthcoming book, entitled: “Discovering Your Lost Jewish Heritage Through Y-DNA: Unlocking the Genetic Code of the Great Rabbinical Lineages, Dynasties, and *Tzaddikim*,” is presented at the end of this article.

### **The Baal Shem Tov**

Yisrael ben Eliezer (c. 1698–1760), known as the Baal Shem Tov or *Besht*, was a Jewish mystical rabbi considered to be the founder of Chassidic Judaism.<sup>26</sup>

We have tested three pedigreed patrilineal descendants of the Baal Shem Tov whose Y-DNA results genetically matched. We received a surprising result when a pedigreed descendant of another notable rabbi matched the Y-DNA genetic signature, indicating that this rabbi and the Baal Shem Tov may share a common ancestor. We are in the process of identifying and testing other pedigreed descendants to help clarify this issue.

The predicted haplogroup to which the pedigreed descendants belong is J-M172; the confirmed haplogroup, as reported through a J2–M172 SNP Pack test, is J-Z6048; we are currently awaiting additional confirmation from the results of a Big Y-700 test. The pedigreed descendants have an average of 37 genetic matches at 37 STR markers, representing 25 different surnames for genealogically relevant genetic matches ( $\geq 33/37$  STR markers; the 90% probability prediction for the TMRCA<sup>27</sup> is within 12 generations).

We have recently discovered original census documents enumerating the Baal Shem Tov and his family members; we plan to publish these findings in our forthcoming book.

## **The Cohen Rabbinical Lineage**

Our research of the Cohen rabbinical line began as two separate Y-DNA research studies: one of the Cohen rabbinical lineage descending from Rabbi Yehuda Heller Kahana of Sighet (1743–1819),<sup>28</sup> and another of the Cohen rabbinical lineage descending from Rabbi Naftula Cohen of Belaya Tzerkov (1725–1796).

Y-DNA results from seven pedigreed descendants of both lineages genetically matched, leading us to combine them into a single study. We also identified a previously unknown descendant of this lineage based on his close genetic match to a pedigreed descendant.

The predicted haplogroup to which the pedigreed descendants belong is J-M267; the confirmed haplogroup, as reported through a J1-M267 SNP Pack test, is J-Z18271 for the descendants of Rabbi Yehuda Heller Kahana. We are currently awaiting additional confirmation from the results of a Big Y-700 test for the descendants of Rabbi Naftula Cohen of Belaya Tzerkov.

The eight Cohen descendants have an average of 402 genetic matches at 37 STR markers; about 40% of these are genealogically relevant genetic matches ( $\geq 35/37$  STR markers; the 90% probability prediction for the TMRCA is within 12 generations). Approximately 14% of these 402 genetic matches have the Cohen surname, or one of its variants (Cohn, Kahana, Kahn, Kaplan, Katz, Kohane, Kohen, Kohn).

## **The Katzenellenbogen Rabbinical Lineage**

The Katzenellenbogen rabbinical lineage descends from Rabbi Meir Katzenellenbogen, better known as the Maharam of Padua (c. 1482–1565). The lineage produced a long line of distinguished rabbis and notable personalities over the centuries and is tightly interwoven with many of the renowned Ashkenazi rabbinical families of Europe.

We tested three pedigreed patrilineal descendants and two partially pedigreed descendants of the Katzenellenbogen rabbinical lineage; the Y-DNA results of all five genetically matched. We also identified a number of previously unknown Jewish and Iberian *converso* descendants of the lineage.

Due, at least in part, to the German-derived surname of its founder, and to the fact that he was appointed rabbi of an Ashkenazi synagogue, the Katzenellenbogen rabbinical lineage has always been considered an iconic Ashkenazi rabbinical lineage.



The results of our Y-DNA research study, however, challenged this long-held belief and provided compelling evidence that the Katzenellenbogen rabbinical lineage is of Sephardic origin.<sup>29</sup> A new religious studies article, not yet submitted for publication, cites evidence from Rabbi Meir Katzenellenbogen’s rabbinical writings to support the conclusions of our Y-DNA research study regarding the Katzenellenbogen’s Sephardic ethnic origin.<sup>30</sup>

We identified three pedigreed and two partially pedigreed descendants of the Katzenellenbogen rabbinical lineage; their Y-DNA results genetically matched. The predicted haplogroup to which the pedigreed descendants belong is J-M267; the confirmed haplogroup, as reported through a Y Haplogroup Backbone test, is J-823. We are currently awaiting additional confirmation from the results of a Big Y-700 test.

The five Katzenellenbogen descendants have an average of 37 genetic matches at 37 STR markers representing 28 different surnames for genealogically relevant genetic matches ( $\geq 34/37$  STR markers; the 90% probability prediction for the TMRCA is within 12 generations). Five of these 28 surnames are of Iberian origin. This information is summarized in Table 1.

**TABLE 1**

**Summary of Results from the Katzenellenbogen Y-DNA Rabbinical Heritage Study**

<b>Study Variable</b>	<b>Identifiers and Y-DNA Results</b>
<b>Most Recent Common Ancestor (MRCA)</b>	<b>Rabbi Moses Katzenellenbogen (1589-1643)</b>
<b>Ancestral Town</b>	<b>Katzenelnbogen, Germany</b>
<b>Surnames of Pedigreed Descendants</b>	<b>Ellenbogen, Kellen, Selwyn</b>
<b>Surnames of Jewish Genetic Matches (<math>\geq 34/37</math> STR Markers) TMRCA &gt; 90% probability within 12 generations</b>	<b>Dacher, Flaster, Friedman, Gelfand, Gervai, Grancell, Greenspan, Harrold, Heilbrunn, Jacobson, Jaffe, Lefkin, Meister, Paulson, Permut, Purdy, Pyenson, Rosenberg, Rudolph, Schuster, Smener, Utevsky, Zaveloff</b>
<b>Surnames of Iberian Genetic Matches</b>	<b>Constanzo, Dominguez, Echeverria, Mendez, Ramirez</b>
<b>Mean Number of Genetic Matches (37 STR Markers)</b>	<b>37</b>
<b>Haplogroup</b>	<b>J-M267</b>
<b>Subclade</b>	<b>J-L823</b>
<b>Ethnic Origin</b>	<b>Sephardic</b>
<b>Study Status</b>	<b>Published</b>

## **The Lurie/Luria Rabbinical Lineage**

The Lurie/Luria rabbinical lineage has one of the oldest family trees in the world, claiming to trace back at least to King David (born c. 1037 BCE).<sup>31</sup> The first Luria in the lineage was Rabbi Aharon Luria (c. 1400–1480), who married Miriam Spira, the daughter of Rabbi Shlomo Spira, the founder of the Shapiro rabbinical lineage.

We tested two pedigreed patrilineal descendants of the Lurie/Luria rabbinical lineage whose common ancestor was Rabbi Jacob Aaron Luria of Mohilev (1753-1788).

The predicted haplogroup to which the two pedigreed Lurie/Luria descendants belong is E-M35. The confirmed haplogroup is awaiting the results of a Big Y-700 test. The previous nomenclature for this haplogroup (E1b1b1) was cited for Luria descendants of Rabbi Jechiel Luria (c. 1435 – bef. 1490).<sup>32</sup>

The two Lurie/Luria descendants have an average of 29 genetic matches at 37 STR markers, representing 21 different surnames for genealogically relevant genetic matches ( $\geq$  34/37 STR markers; the 95% probability prediction for the TMRCA is within 8 generations).

## **The Polonsky Rabbinical Lineage**

The Polonsky rabbinical lineage, from which the author descends, represents the first of our published Y-DNA rabbinical heritage studies.<sup>33</sup> The progenitor of the Polonsky rabbinical lineage was Rabbi Shmuel Polonsky (1761–1811), who married Sarah Rachel Sheindel Shapira, the daughter of Rabbi Pinchas Shapira of Korets.

Through marriage connections, the Polonsky rabbinical lineage is tightly interwoven with many renowned rabbinical families, including Katzenellenbogen, Lurie, Shapiro, Twersky, Wertheim-Giterman, the Shpoler Zeida, and many others.<sup>34</sup>

We tested six pedigreed descendants of the Polonsky rabbinical lineage; the Y-DNA results of all six genetically matched. The Y-DNA genetic signature for the lineage extends back one or two generations before the first Polonsky rabbi, as Dr. Edward Gelles (with whom the author published his first Y-DNA research article on the Polonsky rabbinical lineage) descends from Rabbi Shmuel Polonsky's grandfather, Rabbi Moses Gelles.<sup>35</sup>

The predicted haplogroup of the pedigreed descendants is M-124; their confirmed haplogroup is R-BY14642, based on the results of a Big Y-500 test. They have an average of 97 genetic matches at 37 STR markers, representing 29 different surnames for genealogically relevant genetic matches ( $\geq 35/37$  STR markers; the 90% probability prediction for the TMRCA is within 9 generations). This information is summarized in Table 2.

**TABLE 2**

**Summary of Results from the Polonsky Y-DNA Rabbinical Heritage Study**

<b>Study Variable</b>	<b>Identifiers and Y-DNA Results</b>
<b>Most Recent Common Ancestor (MRCA)</b>	<b>Rabbi Moses Gelles / Menachem Levush (c. 1700-1760)</b>
<b>Ancestral Town</b>	<b>Brody / Ekaterinopol, Ukraine</b>
<b>Surnames of Pedigreed Descendants</b>	<b>Gelles, Paulen, Paull, Pollen, Polonsky</b>
<b>Surnames of Jewish Genetic Matches (<math>\geq 35/37</math> STR Markers) TMRCA &gt; 90% probability within 9 generations</b>	<b>Bennett, Blecher, Brofsky, Duel, Effert, Fink, Gankin, Gelles, Goldberg, Harow, Heyman, Hoffman, Kupchik, Landes, Marcus, Nabutovsky, Olken, Rafkin, Riccio, Rudich, Savitt, Schaffer, Schochet, Sher, Shulman, Subotnick, Trager, Wein, Weisman</b>
<b>Mean Number of Genetic Matches (37 STR Makers)</b>	<b>97</b>
<b>Haplogroup</b>	<b>R-M124</b>
<b>Subclade (Big Y)</b>	<b>R-BY14642</b>
<b>Ethnic Origin</b>	<b>Mizrachi</b>
<b>Study Status</b>	<b>Published</b>

**Rabbi Levi Yitzchak of Berdichev**

Levi Yitzchak of Berdichev (1740–1809), also known as the Berdichever Rebbe, and the *Kedushes Levi*, was a Chassidic master and Jewish leader.<sup>36</sup> He was a native of the village of Husakow near Przemysl, Poland, and later moved to Berdichev, where his descendants became known by the unusual surname of Derbaremdiger.

We have tested four pedigreed patrilineal descendants of Rabbi Levi Yitzchak of Berdichev whose Y-DNA results genetically matched. The predicted haplogroup to which the pedigreed descendants belong is G-M201; the confirmed haplogroup as reported through a G SNP Pack test is G-M377. We are currently awaiting additional confirmation from the results of a Big Y-700 test.

The pedigreed descendants have an average of 45 genetic matches at 37 STR markers, representing 21 different surnames for genealogically relevant genetic matches ( $\geq 34/37$  STR markers; the 90% probability prediction for the TMRCA is within 12 generations). This information is summarized in Table 3.

**TABLE 3**

**Summary of Results from the Rabbi Levi Yitzchok of Berdichev Y-DNA Rabbinical Heritage Study**

<b>Study Variable</b>	<b>Identifiers and Y-DNA Results</b>
<b>Most Recent Common Ancestor (MRCA)</b>	<b>Rabbi Levi Yitzchak of Berdichev (1740-1809)</b>
<b>Ancestral Town(s)</b>	<b>Berdichev, Ukraine</b>
<b>Surnames of Pedigreed Descendants</b>	<b>Derbander, Derbaremdiger, Derbaremdiker</b>
<b>Surnames of Jewish Genetic Matches (<math>\geq 34/37</math> STR Markers) TMRCA &gt; 90% probability within 12 generations</b>	<b>Abraham, Baron, Breslauer, Brown, Feldman, Finn, Goldsamt, Halpern, Helmer, Johnson, Kazir, Krosnick, Landsman, Levine, Reinhold, Saltzman, Shanken, Shornick, Straus, Zaozerskiy, Zemel</b>
<b>Mean Number of Genetic Matches (37 STR Markers)</b>	<b>9</b>
<b>Haplogroup</b>	<b>G-M201</b>
<b>Subclade</b>	<b>G-M377</b>
<b>Ethnic Origin</b>	<b>Ashkenazi; Near Eastern origin (Turkey / Syria)</b>
<b>Study Status</b>	<b>Nearing Completion</b>

**Rabbi Raphael of Bershad**

During the period when Chassidic Judaism was still in its infancy, Rabbi Raphael of Bershad (c. 1751–1827) was a charismatic figure who was revered by his followers in the region that is now southwestern and central Ukraine. He was a beloved and influential spiritual leader and was known as a *tzaddik*. Rabbi Raphael and his sons acquired the rare and unique surname of “Fridgant,” meaning “peace hand.”

We have tested five pedigreed patrilineal descendants of Rabbi Raphael and one non-pedigreed descendant of the same lineage whose Y-DNA results genetically matched. The predicted haplogroup to which the pedigreed descendants belong is J-M267; the confirmed haplogroup as reported through a Big Y-500 test is J-YP2274.<sup>37</sup>

The pedigreed descendants of Rabbi Raphael have an average of 16 genetic matches at 37 STR markers, representing 7 different surnames for genealogically relevant genetic matches ( $\geq 34/37$  STR markers; the 90% probability prediction for the TMRCA is within 15 generations).

### **Rabbi Yechiel Michel of Zlatchov**

Rabbi Yechiel Michel of Zlatchov (c. 1721–1786) was a disciple of the Baal Shem Tov and the founder of the Zlotshov Chassidic dynasty. Yechiel Mechel's five sons all founded their own branches of the Zlotshov dynasty. Descendant dynasties include the Zvhil, Skolye, Zvhil-Mezhbizh, and Shotz dynasties.<sup>38</sup>

We tested five pedigreed patrilineal descendants of Rabbi Yechiel Michel and identified a sixth pedigreed descendant through their genetic match lists. The predicted haplogroup to which the six descendants belong is E-M35; we are currently awaiting additional confirmation from the results of a Big Y-700 test.

The pedigreed descendants of Rabbi Yechiel Michel have an average of 7 genetic matches at 37 STR markers, representing 5 different surnames for genealogically relevant genetic matches ( $\geq 33/37$  STR markers; the 90% probability prediction for the TMRCA is within 15 generations).

### **The Rappaport-Cohen Rabbinical Lineage**

The Rappaports are a long-distinguished rabbinical family that traces its roots back to Central Europe and Northern Italy in the 15th century; the various branches of this family claim a common *Cohanim* origin.<sup>39</sup> Rabbi Nachman ha-Cohen Lifshitz Rapoport (c. 1610–1674) was a rabbi in Belz, Kremnitz, and Dubno.<sup>40</sup>

We tested three pedigreed and three partially pedigreed patrilineal descendants of Rabbi Nachman ha-Cohen Lifshitz Rapoport whose Y-DNA results genetically matched. The predicted haplogroup to which the six descendants belong is J-M267; the confirmed haplogroup as reported through a Big Y test is J-Y113483.

The pedigreed descendants of Rabbi Nachman ha-Cohen Lifshitz Rapoport have an average of 21 genetic matches at 37 STR markers, representing 6 different surnames for genealogically relevant genetic matches ( $\geq 34/37$  STR markers; the 90% probability prediction for the TMRCA is within 9 generations).

## The Shapiro Rabbinical Lineage

Notable among European Ashkenazi Jewry's most esteemed rabbinical families is the Shapiro rabbinical lineage, which traces its descent from Rashi (1040–1105), through the Treves rabbinical lineage, and which has produced a long line of distinguished rabbis and other notables over the centuries.<sup>41, 42</sup> The illustrious ancestry of Rabbi Pinchas Shapira of Korets (1726–1791) is well-documented; he was the 4th-great-grandson of the *Megaleh Amukot* – Rabbi Natan Neta Spira of Krakow (1585–1633), a son-after-son descendant of Rabbi Shlomo Spira (1375–1463), the progenitor of the Shapiro rabbinical lineage.<sup>43, 44, 45</sup>

We tested three pedigreed patrilineal descendants of Rabbi Pinchas Shapira whose Y-DNA results genetically matched. The predicted haplogroup to which they belong is G-M201; the confirmed haplogroup as reported through a G SNP Pack test is G-FCG1107.<sup>46</sup> We are currently awaiting additional confirmation from the results of a Big Y-500 test.

The pedigreed descendants of Rabbi Pinchas Shapira have an average of 21 genetic matches at 37 STR markers, representing 12 different surnames for genealogically relevant genetic matches ( $\geq 34/37$  STR markers; the 90% probability prediction for the TMRCA is within 12 generations).

## The Shpoler Zeida

Yehuda Leib of Shpola (1725–1811),<sup>47</sup> better known as the *Shpoler Zeida* (Yiddish for “Grandfather of Shpola”), was a beloved Chassidic folk rebbe, a great kabbalist, and a revered *tzaddik* about whom many Jewish folk tales, stories, and legends abound.<sup>48, 49, 50</sup> He was a first-generation disciple of the Baal Shem Tov.<sup>51, 52</sup> His mentors were Rabbi Pinchas Shapira of Korets and Rabbi Yaakov Yosef of Polonnoye.<sup>53</sup>

We tested three pedigreed patrilineal descendants of the Shpoler Zeida whose Y-DNA results genetically matched. The predicted haplogroup to which they belong is R-M173; the confirmed haplogroup as reported through an R1a-Z93 SNP Pack test is R-Y2632.<sup>54</sup> We are currently awaiting additional confirmation from the results of a Big Y-700 test.

The pedigreed descendants of the Shpoler Zeida have an average of 36 genetic matches at 37 STR markers, representing 28 different surnames for genealogically relevant genetic matches ( $\geq 34/37$  STR markers; the 90% probability prediction for the TMRCA is within 12 generations). This information is summarized in Table 4.

**TABLE 4**

**Summary of Results from the Shpoler Zeida Y-DNA Rabbinical Heritage Study**

<b>Study Variable</b>	<b>Identifiers and Y-DNA Results</b>
<b>Most Recent Common Ancestor (MRCA)</b>	<b>Yehuda Leib Zeida (1725-1811)</b>
<b>Ancestral Town(s)</b>	<b>Shpola, Ukraine</b>
<b>Surnames of Pedigreed Descendants</b>	<b>Seide, Zeide</b>
<b>Surnames of Jewish Genetic Matches (≥34/37 STR Markers) TMRCA &gt; 90% probability within 12 generations</b>	<b>Abrams, Austin, Bennett, Beaumont, Craig, Elbaum, Eisenstein, Gabelnick, Gass, Harris, Kiesler, Kreynin, Leonas, Malin, Nederlander, Ptalis, Reiken, Rubin, Salomon, Sera, Shmugliakov, Shtaerman, Smith, Teitelbaum, Van Halen, Wooldridge, Zasler, Zunin</b>
<b>Mean Number of Genetic Matches (37 STR Markers)</b>	<b>36</b>
<b>Haplogroup</b>	<b>R-M173</b>
<b>Subclade</b>	<b>R-Y2632</b>
<b>Ethnic Origin</b>	<b>Ashkenazi; Eurasia origin</b>
<b>Study Status</b>	<b>Published</b>

**The Twersky Chassidic Dynasty**

The Twersky Chassidic dynasty was founded by Grand Rabbi Menachem Nachum Twersky (1730–1797), known by the title of his book, *Me’or Einayim* (“Light of the Eyes”). Grand Rabbi Twersky was a student of the Baal Shem Tov, and later, of his pupil and chief disciple, the *Maggid* (preacher) of Mezritch. Grand Rabbi Twersky lived a life of great piety and asceticism and is considered one of the pioneers of the Chassidic movement.<sup>55</sup> He had three daughters and eight sons; each of the sons established his own branch of the Twersky Chassidic dynasty in towns throughout Ukraine.<sup>56</sup>

We tested nine pedigreed patrilineal descendants of Grand Rabbi Twersky whose Y-DNA results genetically matched. The predicted haplogroup to which they belong is R-M173; the confirmed haplogroup as reported through a Big Y-500 test is R-BY14097.

The pedigreed descendants of Grand Rabbi Twersky have an average of 29 genetic matches at 37 STR markers, representing 19 different surnames for genealogically relevant genetic matches (≥33/37 STR markers; the 90% probability prediction for the TMRCA is within 15 generations). This information is summarized in Table 5.

**TABLE 5**

**Summary of Results from the Twersky Chassidic Dynasty Y-DNA Rabbinical Heritage Study**

<b>Study Variable</b>	<b>Identifiers and Y-DNA Results</b>
<b>Most Recent Common Ancestor (MRCA)</b>	<b>Grand Rabbi Menachem Nachum Twersky (1730-1792)</b>
<b>Ancestral Town(s)</b>	<b>Chernobyl, Ukraine</b>
<b>Surnames of Pedigreed Descendants</b>	<b>Tverskoy, Tversky, Twersky</b>
<b>Surnames of Jewish Genetic Matches (≥33/37 STR Markers) TMRCA &gt; 90% probability within 15 generations</b>	<b>Copeland, Friedman, Gerver, Gross, Helmuth, Kabacoff, Kabak, Kober, Langford, Lisker, Mannheimer, Mayner, Meyer, Myers, Sheflin, Sicklick, Simons, Swinehart, Topial</b>
<b>Surnames of Iberian Genetic Matches</b>	<b>Zamora</b>
<b>Mean Number of Genetic Matches (37 STR Markers)</b>	<b>29</b>
<b>Haplogroup</b>	<b>R-M173</b>
<b>Subclade</b>	<b>R-BY14097</b>
<b>Ethnic Origin</b>	<b>Sephardic</b>
<b>Study Status</b>	<b>Published</b>

**The Wertheim-Giterman (Savran-Bendery) Chassidic Dynasty**

The Wertheim-Giterman (Savran-Bendery) Chassidic dynasty was active from the late 18th century until the Holocaust. The founder of the dynasty was Rabbi Shimon Shlomo (circa 1750–1802). He was the *Maggid* of Savran and disciple of the *Maggid* of Mezeritch, the primary disciple of the Baal Shem Tov.

Shimon Shlomo’s two sons established independent Chassidic dynasties in Savran and Bendery. The elder son, Rabbi Aryeh Leib Wertheim (c. 1772–1854), settled in the town of Bendery in Bessarabia (now Bender, Moldova), where, in 1814, he founded the only Chassidic dynasty ever established in that region.<sup>57</sup> The Savran Chassidic dynasty was established by Rabbi Moshe Tzvi Giterman (1775–1838), the younger son of Shimon Shlomo of Savran, and a disciple of Barukh of Mezhibizh and Levi Yitzchak of Berdichev.

We tested four pedigreed patrilineal descendants of Rabbi Aryeh Leib Wertheim, and one pedigreed descendant of Rabbi Moshe Tzvi Giterman, whose Y-DNA results genetically matched. The predicted haplogroup to which they belong is E-L117; the confirmed haplogroup as reported through a Big Y-500 test is E-BY36959.



The pedigreed descendants of the Wertheim-Giterman rabbinical lineage have an average of 436 genetic matches at 37 STR markers, representing over 140 different surnames for genealogically relevant genetic matches ( $\geq 35/37$  STR markers; the 90% probability prediction for the TMRCA is within 12 generations).

## Data Summary

The following data tables and figures summarize the data presented for each of the thirteen rabbinical lineages in the previous section.

Table 6 provides a summary of the defining haplogroup and subclade that is associated with the Y-DNA genetic signature for each of these thirteen rabbinical lineages, and the number of descendants tested and found to match the Y-DNA genetic signature.<sup>58</sup>

**TABLE 6**

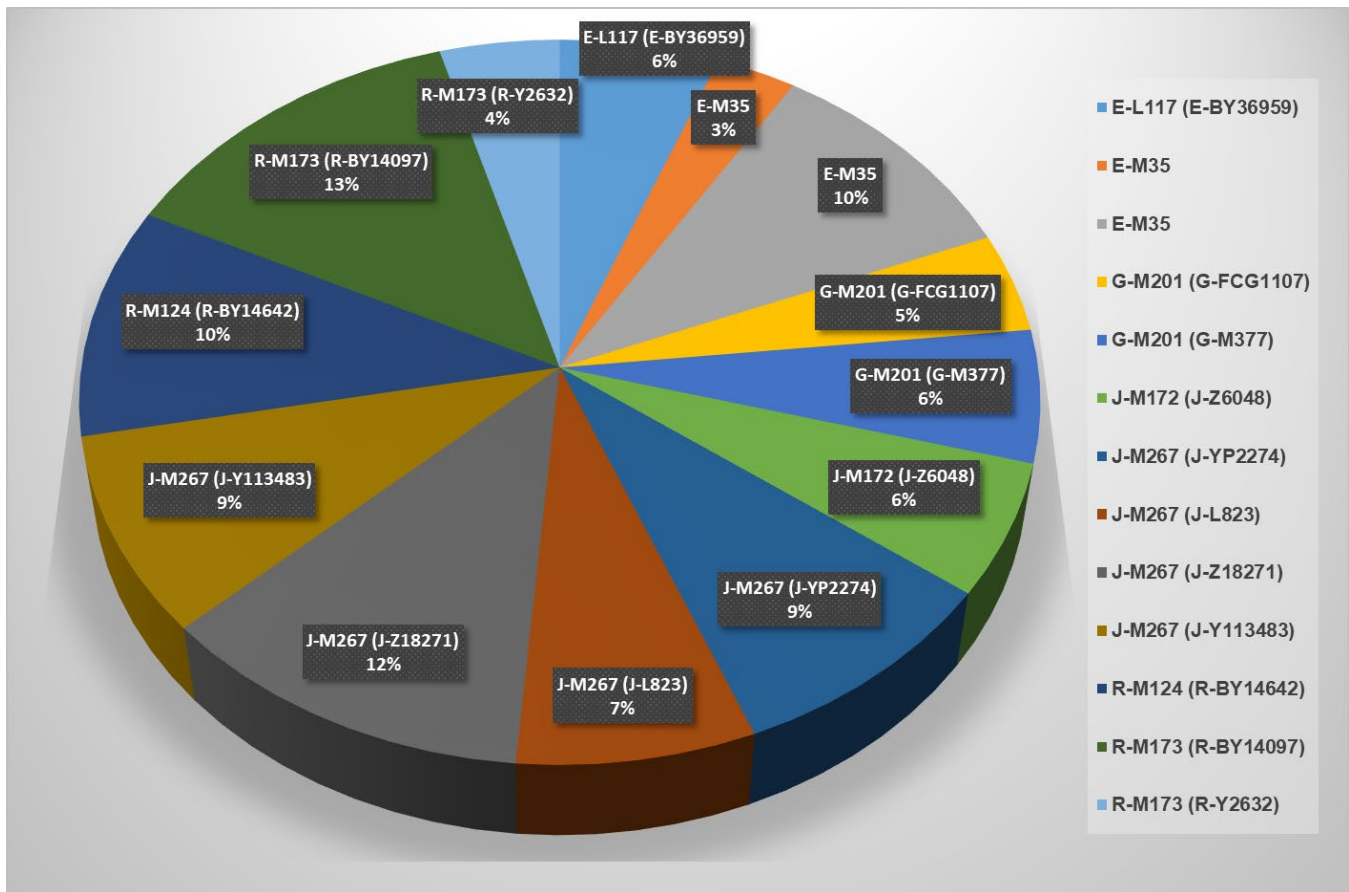
### Defining Haplogroup and Subclade for Thirteen Rabbinical Lineages

Rabbinical Lineage	Haplogroup	Subclade	Number of Descendants
Baal Shem Tov	J-M172	J-Z6048	4
Cohen Rabbinical Lineage	J-M267	J-Z18271	8
Katzenellenbogen Rabbinical Lineage	J-M267	J-L823	5
Lurie Rabbinical Lineage	E-M35		2
Polonsky Rabbinical Lineage	R-M124	R-BY14642	6
Rabbi Levi Yitzchak of Berdichev	G-M201	G-M377	4
Rabbi Raphael of Bershad	J-M267	J-YP2274	6
Rabbi Yechiel Michel of Zlatchov	E-M35		7
Rappaport-Cohen Rabbinical Lineage	J-M267	J-Y113483	6
Shapiro Rabbinical Lineage	G-M201	G-FCG1107	3
Shpoler Zeida	R-M173	R-Y2632	3
Twersky Chassidic Dynasty	R-M173	R-BY14097	9
Wertheim-Giterman Chassidic Dynasty	E-L117	E-BY36959	4

Figure 1 presents a graphical depiction of the defining haplogroup and subclade for each of the thirteen rabbinical lineages, and the percentage of the total number of Y-DNA-tested descendants in all studies, belonging to each haplogroup. It does not reflect the percentages at which these haplogroups naturally occur in the Jewish population.

**FIGURE 1**

**Distribution of Haplogroups among Thirteen Rabbinical Lineages**



An interesting observation about these thirteen rabbinical lineages is that four, or nearly one-third of them (30.8%), belong to the J-M267 haplogroup. This proportion is very close to the range of 35–43% that has been cited as the percentage of all Jewish men who belong to the J haplogroup and its subgroups.<sup>59</sup> Another three lineages, or nearly one-quarter of them (23.1%), belong to the E-M35/E-L117 haplogroup (E-L117 is the previous haplogroup classification for E-M35). This is right in the middle of the range of 15–30% that has been cited as the percentage of all Jewish men who belong to the E1b1b (E-M35) haplogroup.<sup>60</sup>

Of the remaining lineages, two of them (15.4%) belong to the G-M201 haplogroup, two (15.4%) to the R-M173 haplogroup, one (7.7%) to the J-M172 haplogroup, and one (7.7%) to the R-M124 haplogroup. Together, these four haplogroups account for 46.2% of the total.

Table 7 presents a summary of the mean number of genetic matches at 37 STR markers for the tested descendants for each of the thirteen rabbinical lineages. These mean numbers of genetic matches for each rabbinical lineage are depicted graphically in Figure 2.

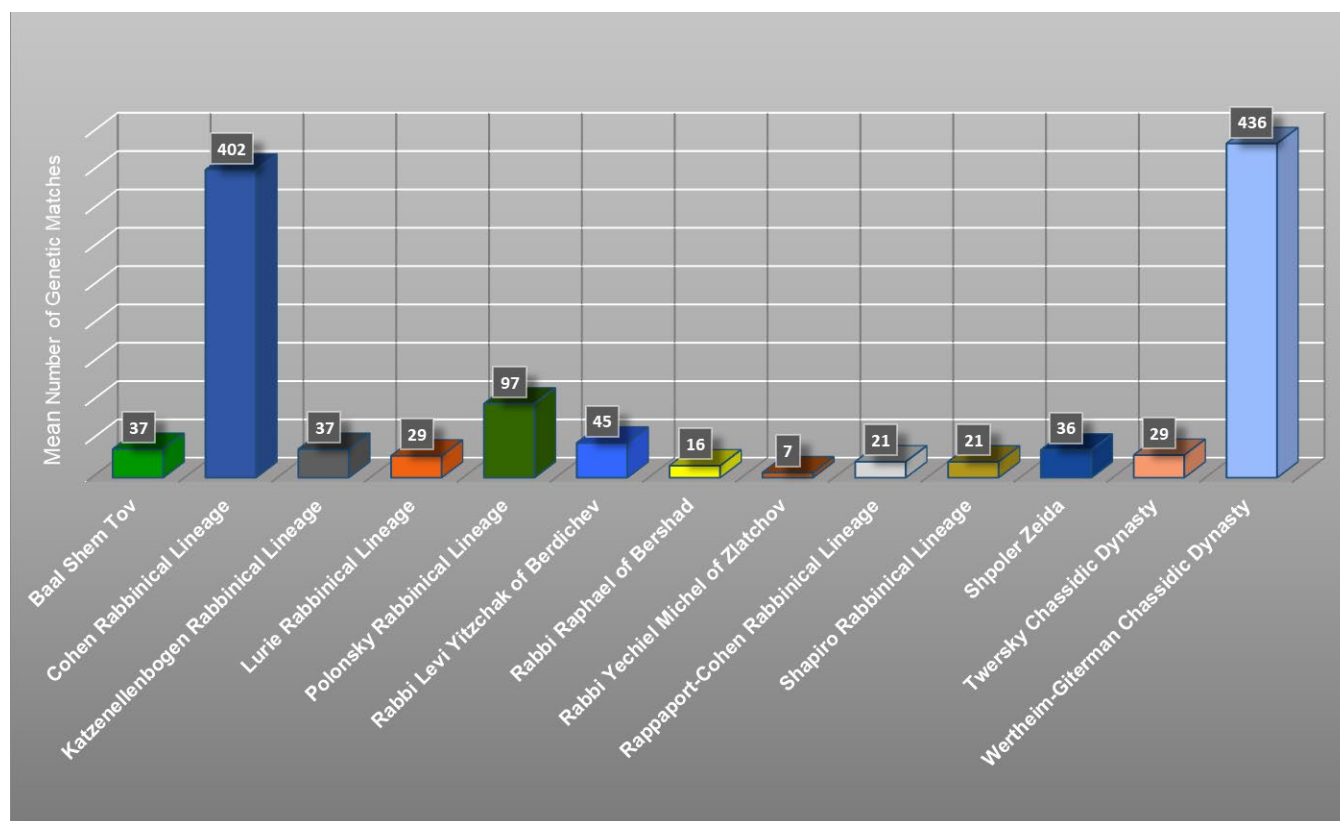
**TABLE 7**

**Mean Number of Genetic Matches for Thirteen Rabbinical Lineages**

<b>Rabbinical Lineage</b>	<b>Haplogroup</b>	<b>Subclade</b>	<b>Mean Number of Genetic Matches</b>
<b>Baal Shem Tov</b>	<b>J-M172</b>	<b>J-Z6048</b>	<b>37</b>
<b>Cohen Rabbinical Lineage</b>	<b>J-M267</b>	<b>J-Z18271</b>	<b>402</b>
<b>Katzenellenbogen Rabbinical Lineage</b>	<b>J-M267</b>	<b>J-L823</b>	<b>37</b>
<b>Lurie Rabbinical Lineage</b>	<b>E-M35</b>		<b>29</b>
<b>Polonsky Rabbinical Lineage</b>	<b>R-M124</b>	<b>R-BY14642</b>	<b>97</b>
<b>Rabbi Levi Yitzchak of Berdichev</b>	<b>G-M201</b>	<b>G-M377</b>	<b>45</b>
<b>Rabbi Raphael of Bershad</b>	<b>J-M267</b>	<b>J-YP2274</b>	<b>16</b>
<b>Rabbi Yechiel Michel of Zlatchov</b>	<b>E-M35</b>		<b>7</b>
<b>Rappaport-Cohen Rabbinical Lineage</b>	<b>J-M267</b>	<b>J-Y113483</b>	<b>21</b>
<b>Shapiro Rabbinical Lineage</b>	<b>G-M201</b>	<b>G-FCG1107</b>	<b>21</b>
<b>Shpoler Zeida</b>	<b>R-M173</b>	<b>R-Y2632</b>	<b>36</b>
<b>Twersky Chassidic Dynasty</b>	<b>R-M173</b>	<b>R-BY14097</b>	<b>29</b>
<b>Wertheim-Giterman Chassidic Dynasty</b>	<b>E-L117</b>	<b>E-BY36959</b>	<b>436</b>

**FIGURE 2**

**Mean Number of Genetic Matches among Thirteen Rabbinical Lineages**



As shown by the data in Table 7 and Figure 2, there is a great deal of variation in the number of genetic matches among the various haplogroups, ranging from a mean of 7 genetic matches for the lineage descending from Rabbi Yechiel Michel of Zlatchov (E-M35 haplogroup), to a mean of 436 genetic matches for the Wertheim-Giterman Chassidic dynasty (E-L117 haplogroup).

Interestingly, the J-M267 haplogroup is associated with two of the lowest numbers of genetic matches (18 for the lineage descending from Rabbi Raphael of Bershad, and 21 for the Rappaport-Cohen rabbinical lineage), as well as with two of the highest numbers of genetic matches (400 for the lineage descending from Rabbi Yehuda Heller Kahana of Sighet, and 403 for the Cohen rabbinical lineage).

Factors that influence the number of genetic matches for each rabbinical lineage, such as the haplotype, the haplogroup/subclade, and the number of testers in each haplogroup/subclade in the FTDNA database, poses an interesting research question for future study.

## **Summary and Conclusions**

Due to frequent migrations and expulsions, surname changes, limited or missing paper trails, and language barriers, most Ashkenazi Jews cannot trace their ancestry back more than a few generations, and fewer still can trace their ancestry back to the pre-Jewish surname era. However, a wealth of genealogical information exists in the Jewish literature for individuals who can establish descent from a prominent rabbi or rabbinical family. Rabbinical sources can provide priceless information regarding their lineage to Jews who might otherwise have no means of discovering who their ancestors were.

The key to tapping into this invaluable genealogical resource is in identifying a prominent rabbi in one's lineage and then genealogically linking to him. Prior to the advent of DNA technology, this could only be accomplished through painstaking research of the paper trail. Now, however, it is possible to link to prominent rabbinical lineages through DNA testing, and Y-DNA research studies of rabbinical lineages play an important role in making this possible.

Y-DNA testing is a very powerful tool when used in conjunction with traditional genealogical lineage studies. Because Y-DNA mutates very little over time, it is a very useful tool for verifying descent from the same patrilineal lineage and estimating when the most recent common ancestor lived. Y-DNA testing can also be used to identify the unique genetic signature of a lineage. This Y-DNA genetic signature can then be used to discover previously unknown descendants of the lineage who match the genetic signature.

By building out the family trees of the many interconnected rabbinical lineages and dynasties, validating their patrilineal lineages using Y-DNA, and identifying the unique Y-DNA genetic signature for those lineages, Y-DNA rabbinical heritage studies are providing many individuals of both Ashkenazi and Sephardic descent with a means for rediscovering their lost Jewish heritage.

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I would like to gratefully acknowledge my dear friends, colleagues, and valued members of my research team – Dr. Jeffrey Briskman, Susan K. Steeble, Yitzchak Meyer Twersky, and Rabbi Shmiel Gruber. We share a passion for Jewish genealogy, and I thank you all for your dedication to our research, and for the excellent work that you do. I would also like to express my gratitude to Bennett Greenspan, president and founder of Family Tree DNA, whose remarkable DNA laboratory made our research possible.

## Author's Note

I would like to personally thank our many readers from around the world for their continued interest in our Y-DNA research studies. As part of our ongoing research of these rabbinical lineages, we are always in the process of identifying new descendants, finding new documents, and evaluating new Y-DNA test results. If you are a pedigreed patrilineal descendant of any of the thirteen rabbinical lineages presented in this article, I invite you to contact us regarding joining one of our ongoing research projects.

I would also like to take this opportunity to inform our readers that a new book is currently under development which will contain a compendium of our completed rabbinical heritage Y-DNA research studies, both published and unpublished, conducted to date.

The book will contain historical and biographical information in a separate chapter for each rabbinical lineage, supplemented by maps of ancestral towns, archival documents, and tombstone photos; descendant charts verified by Y-DNA testing; places and years of birth and death of descendants; and family trees showing marriage connections to other rabbinical families.

Each chapter will identify the unique Y-DNA genetic signature and ethnic origin of the rabbinical lineage, with updated results from Big Y-700 tests, including haplotype, haplogroup, subclade, and terminal SNP; identification of previously unknown and potential descendants of the lineage; and a list of surnames that are associated with the lineage, either through the paper trail, or based upon Y-DNA genetic matches.

The book will also present a detailed explanation of how to utilize this compendium of traditional genealogical information and Y-DNA data to further Jewish genealogical research.

The current working title of the book is: "Discovering Your Lost Jewish Heritage Through Y-DNA: Unlocking the Genetic Code of the Great Rabbinical Lineages, Dynasties, and *Tzaddikim*." If you would like to receive a notification regarding when the book is published, please write us to have your name and email address added to our mailing list. You may address your request to Dr. Jeffrey Mark Paull at [nobleheritage@msn.com](mailto:nobleheritage@msn.com), or to Susan K. Steeble at [SSteeble@gmail.com](mailto:SSteeble@gmail.com).

## Conflicts of Interest

The author declares no conflicts of interest.

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Y-DNA haplogroups are determined by SNP tests. SNPs are locations on the DNA where one nucleotide has mutated to a different nucleotide. Haplogroup classifications and the SNPs within them are organized within branches on the Y-chromosome phylogenetic tree.
  - <sup>12</sup> A clade is a branch on the Y chromosome tree that constitutes haplogroup and includes all the descendants of a single most recent common ancestor (MRCA). A subclade is a downstream (occurring later in time) branch or subgroup of the haplogroup. [http://isogg.org/wiki/Y-DNA\\_project\\_help](http://isogg.org/wiki/Y-DNA_project_help).

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- <sup>13</sup> ISOGG defines the term “genetic signature” as: “Another name for a haplotype,” a Y-DNA haplotype being the numbered results of a genealogical Y-DNA STR test. [http://isogg.org/wiki/Genetics\\_Glossary](http://isogg.org/wiki/Genetics_Glossary). FTDNA defines it similarly. <https://www.familytreedna.com/learn/y-dna-testing/>. In our view, the haplogroup is also an essential part of the Y-DNA genetic signature of a paternal lineage (see the following endnote). Hence, STRs and SNPs serve as both essential and complementary components of the Y-DNA genetic signature.

The Y-DNA genetic signature for a lineage extends back to the most recent common ancestor of the pedigreed patrilineal descendants being tested. Ideally, we try to identify and test at least three pedigreed descendants who descend from different sons of the founder of the lineage. Sometimes this is not possible, such as in cases where the founder of the lineage only had one son, or where one or more branches of the lineage have no living male descendants. In these cases, the Y-DNA genetic signature may not extend back to the founder of the lineage, but rather to his son or grandson, if they are the most recent common ancestor.

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- <sup>21</sup> Janet Akaha and Rachel Unkefer: “Is a Rabbi Hiding in Your Family Tree? Lessons from Genetic Genealogy for Traditional Genealogists.” AVOTAYNU: The International Review of Jewish Genealogy, Vol. XXXI, No. 3, Fall 2015. Quoting from this article: “Because rabbis were among the elite, they traveled widely and likely had more surviving descendants; for all Ashkenazi Jews, the probability of having a distinguished rabbi somewhere in one’s ancestry is high. Possibly because of this and other bottlenecks most of the lines in the ‘Jews of Frankfurt Project’ are descended from Rashi in multiple ways.”
- <sup>22</sup> Family Tree DNA: “Big Y-700.” The Family Tree DNA Learning Center. <https://www.familytreedna.com/learn/y-dna-testing/big-y/big-y/>.
- <sup>23</sup> ISOGG: “Y-DNA Project Help.” International Society of Genetic Genealogy. [http://isogg.org/wiki/Y-DNA\\_project\\_help](http://isogg.org/wiki/Y-DNA_project_help). A SNP (single-nucleotide polymorphism) happens when a single place in the genome sequence is altered during the cell formation process, and this mutation persists in the progeny. A person has many inherited SNPs that together create a unique DNA pattern for that individual. SNPs clarify the branching of a tree-separation of different sub-haplogroups and to discover deep ancestry. A terminal SNP is the defining SNP of the latest subclade known by current research.



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- 59 Nadene Goldfoot: "Demographics of Jews in Israel and Their DNA Haplogroups Updated." June 13, 2013. <http://jewishbubba.blogspot.com/2013/06/demographics-of-jews-in-israel-and.html>. Quoting from this source: "We can also say that 35-43% of all Jewish men belong to the J haplogroup and its sub-haplogroups; 15 to 30% of all Jewish men belong to E1b1b (E-M35)."
- 60 *Ibid.*

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**Dr. Jeffrey Mark Paull** was born and raised in Pittsburgh, PA. He earned his BS in Chemistry and Master of Science in Industrial Hygiene (MS HYG) from the University of Pittsburgh, and his Master of Public Health (MPH) and Doctor of Public Health (DRPH) degrees from the Johns Hopkins University Bloomberg School of Public Health. Dr. Paull's career as an environmental toxicologist and scientific expert in the field of occupational and environmental health spans over thirty years (1976–2008).

Since that time, Dr. Paull has devoted himself to his passion for genealogical research and writing. His first book, entitled: *A Noble Heritage: The History and Legacy of the Polonsky and Paull Family in America*, traces his family's ancestry over a millennium of history and discovers their lost rabbinical heritage dating back to Rashi (1040–1105). His book was featured on the PBS website, "Finding Your Roots, with Henry Louis Gates, Jr." It was through his research for *A Noble Heritage* that Dr. Paull discovered that he is the 7th-great-grandson of Rabbi Pinchas Shapira of Korets, who is part of the same Shapiro-Treves rabbinical lineage that descends from Rashi.

Dr. Paull is very active in the field of genetic genealogy and has published numerous pioneering autosomal and Y-DNA research studies in which he has identified the unique genetic signature of some of Eastern Europe's most renowned rabbinical lineages and *tzaddiks*. In addition to his genealogical research studies of historically significant rabbinical lines, Dr. Paull conducted a pioneering Y-DNA research study of the patrilineal lineage of John Hart, one of America's Founding Fathers, and the thirteenth signer of the Declaration of Independence.

Jeff's many genealogy-related book chapters, research articles, and publications are available online at Academia.edu, where they have surpassed 30,000 views: <https://independent.academia.edu/JeffreyMarkPaull>. Jeff is a highly sought-after speaker, and he has presented talks on his pioneering genealogical research studies to many genealogical societies, and international genealogy conferences around the world.