



Getting Started

Genetics for the Genealogist

www.YourDNAGuide.com

Quick Start

Do you want to use DNA to further your genealogy research? This guide will help you select the DNA test (and testing company) that is right for you. It's never been easier to get started. Let Your DNA Guide show you the way!

What Can DNA Do For Your Research?

DNA testing can verify and extend your family lines, mostly by helping you to identify those with whom you may share recent common ancestry. DNA also helps you identify your overall ethnic background. More on that in a minute.

What CAN'T DNA Do?

In most cases, DNA testing cannot immediately identify a shared ancestor, though several possibilities may be given. DNA testing cannot replace the need for traditional genealogical documentation.

Who Should Be Tested?

Everyone! Completing a DNA test for yourself and each family member is like obtaining an original vital record.

Some kinds of DNA tests can even accurately represent the DNA of a person's ancestors. This kind of vital record can only be obtained while someone is alive, and you never have to set foot in a library or search the internet.

Just Begin!

Like most genealogical inquiries, starting with a specific question will help determine the DNA test that will be the most helpful in your genealogical quandary.

You might ask: Was Great Grandfather Merrill Irish? Or, who was the father of Great Grandfather Merrill? Or both!

Use the guide on the back page to help you determine which test is right for your genealogical situation. If you are having trouble knowing where to start, choose the genealogical brick wall that you are currently working on, and use the guide to help you determine which relative and which test will be best suited to your situation.

FAQ

Sweet Talk

DNA testing is gaining in popularity and acceptance. It is easier than ever to recruit family members to your cause, even those who may have previously not shown any interest in genealogy. These tips will help you approach relatives about entering into a DNA testing partnership with you.

Tip: If possible meet in person

Step 1: Clearly define your goal.

Step 2: Present your relative with a simple, summarized version of the DNA testing plan.

Step 3: Emphasize that their DNA is a unique record containing valuable information about your shared genetic legacy.

Step 4: Reassure them that sharing their DNA test results with you will not compromise their medical privacy.

Example Conversation:

Summarize

Uncle Fred, you know I have been working on our family history, right? Did you know that great great grandpa Rupert was the mayor of their small town in Nebraska? It is funny that for a man of such notoriety I can't seem to find out much about his parents.

Unique Record

I learned at a genealogy conference that DNA might be able to help. In fact, your YDNA is exactly the same as g-g-grandpa Rupert's! That means we can test your YDNA and compare it to other Rupert males to help us determine how we are related. Would you be willing to help me figure out this mystery?

Q: How is my privacy protected?

A: There are two elements to your privacy protections in genetic genealogy: Those you control, and those controlled by the company.

When you submit your DNA sample you can choose how much of your personal information is shared with other test-takers. Many choose to test under their ancestor's name as "Descendant of Marvin Rupert b. 1828" as a way to clearly define their lineage without revealing their identity.

By submitting your sample you enter into an agreement with the testing company that they will not distribute your data without your knowledge or consent. 23andMe does encourage you to submit your data to research.

Once you have identified your question, the right person to be tested, and the test you should take, what happens? The first step is sample collection.

Sample Collection

Sample collection for every testing company can be handled via regular mail. Many companies ship internationally (Ancestry.com does not.) Shipping kits from 23andMe to or from New York and Maryland is not allowed due to state laws that protect residents' health information.

The test kit will include one of two sample collection methods. The first is a cheek "scraper" (not painful!) that you rub on the inside of your cheek. The second is a small tube which you fill with saliva. (This second method can be difficult for the extremely young or old.) Both methods require a clean palate. For best results, collect samples first thing in the morning.

FAQ

Q: Can I pay for a test for someone else?

A: Yes, you can pay for genetic tests for others. The DNA testing companies do not discriminate when it comes to who wants to give them money! You simply enter your credit card information and your relative's shipping address.

Q: Who has access to the account when I pay for someone else's testing?

A: When you pay for the kit to be sent you will either create the login or receive a automated login from the testing company. In either case, the login can be changed or shared. In this way you can usually come up with an arrangement that meets both your needs, and the needs or wishes of your willing relative.

Q: Whose email address should I use when creating a new account for a relative?

A: The email will be a primary source of contact for your DNA database matches, as well as a contact point for your testing company. Therefore, be certain that the email address you enter will be a good source of correspondence for those wanting to contact your family with important alerts and possible family connections.

Alternate Sample Types

Given the current limitations of genetic genealogy, you will not always be able to find a suitable living individual to be tested to answer your genealogical question. In most cases, you will be at a genetic genealogy dead end until more information becomes available, or the genetic testing industry sufficiently advances to be able to assist you.

However, if you do have family heirlooms, you may be able to help your ancestor testify from the grave. A few choices might be hair from a hairbrush (not cut hair), a razor blade, or if you can obtain it from the Tooth Fairy, a pulled tooth (preferably a molar, if you are given the choice) to try to obtain the DNA profile of your ancestor. Not all test types will support this sample type, with mtDNA being the most forgiving, but if you are really stuck, this may be an option.

As you might suspect, this "special" sample comes with a "special" price tag- upwards of \$500 with no guarantee of success, so it is not something that can be entered into lightly.

Choosing a Testing Company

Nearly 30 companies in the U.S. and U.K. offer DNA testing to help you understand your ancestry. For some tests, this means

your "deep ancestry," or your genetic heritage of about 30,000 years ago. Other tests provide you with tools to make genealogical connections with other living individuals with whom you may share ancestry within the past 6 generations or so.

Below are profiles of the top 3 companies that provide the latter service (although all offer some form of deep ancestry testing as well). Only one company currently fully supports

Quick Guide Glossary

Admixture Testing: The word "admixture" refers to the fact that we are all genetic mixes of different ethnicities. The admixture tests offered by genetic genealogy companies try to help you quantify your genetic inheritance from each of those locations across all of your lines.

Autosomal DNA Testing: In this test, offered by multiple companies, as many as 800,000 separate locations of DNA are tested across all 23 pairs of chromosomes.

BigY: An advanced YDNA sequencing test offered by FTDNA. This is currently an exploratory test to make new discoveries about YDNA. Its current application is for deep ancestry information, but it is hopeful that the future will bring applications to more recent ancestral searches.

Deep Ancestry: In general, this refers to your

ancestry back more than 1,000 years.

Direct maternal line: An unbroken female line from the tested person to the ancestor in question (mtDNA testing).

Direct paternal line: An unbroken male line from the tested person to the ancestor in question (YDNA testing).

FMS: Full Mitochondrial DNA Sequence is a test offered by Family Tree DNA and is the most extensive kind of mtDNA offered.

Junk DNA: This is a term most often used in reference to YDNA testing. The junk DNA is thus called because it is found in a section of the chromosome that does not appear to have any critical functions in the performance of the function of the chromosome.

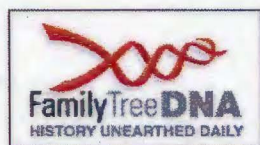
Marker: This term was developed as a user-friendly way to describe a location, most often a YDNA location, that is tested, as opposed to its more technical term "locus."

YDNA and mtDNA tests. But you'll comparison shop for autosomal DNA testing.

The actual laboratory procedures for each of the 3 companies are comparable. However, 23andMe offers a slight edge with the development of a new testing platform. The interpretation and presentation of findings varies by company. Unless you have \$300 to spend on tests at all 3 companies (which would certainly maximize your exposure and your results), choose one company based on which features are most important to you.

Family Tree DNA

www.ftdna.com



Family Tree DNA (FTDNA) is the leader in YDNA and mtDNA testing. If you need to pursue either of these test types, FTDNA is currently the clear choice.

Autosomal DNA testing at FTDNA

Test Name: Family Finder (*cheek scraper collection*)

Strengths: Excellent genetic and genealogical tools for sorting through matches to help you find out how you are related. The customer base is generally comprised of other genealogists who have pedigrees and know how to use them!

Needs Improvement: Could use a more integrated Ethnicity tool, and better pedigree comparison tools.

Price: \$99 **Bonus:** You can transfer your results from 23andMe (if received before November 2013) and AncestryDNA™ for a reduced fee.

MRCA: Most Recent Common Ancestor is a term generally used in YDNA and mtDNA testing. It refers to a statistical calculation that helps you determine when two genetically matching individuals could share a common ancestor.

mtDNA: Mitochondrial DNA. It is directly maternally inherited. A mother passes it to all of her children, but only the females pass it on to the next generation.

Mutation: When a change occurs in your DNA sequence. These changes are natural and occur all the time in everyone. Most mutations detected in genetic genealogy tests are not harmful but can be used as indicators of common origins, both recent and ancient.

SNP: Single Nucleotide Polymorphism (keep reading- it gets better!), called a "snip", is a kind of DNA mutation that helps track ancient migrations. When we test thousand of them,

they can help us make genealogical connections. These are the kinds of DNA markers used in Autosomal DNA testing.

YDNA: Y chromosome DNA. YDNA is directly paternally inherited, meaning that it is passed from a father to all of his sons, who pass it on to their sons. In this way the YDNA follows the same path as the surname in most Western cultures.

YDNA Test: An evaluation only on the Y chromosome, and therefore can only be taken by males. It reports the results found at any number of YDNA markers from 12 to 111. This test evaluates repeating segments of DNA that can differ between men who do not share a common paternal origin. It is used to help make connections on the direct paternal line.

23andMe

www.23andMe.com



Test Name: Only product available (*saliva collection*)

Strengths: The outstanding feature at 23andMe is the ability to use your admixture results to help identify the geographic origins of shared DNA segments between matching individuals.

Needs Improvement: Some of the genetic tools are a bit cumbersome, but the biggest drawback is that the general customer base is not heavily involved in genealogy.

Price: \$99

AncestryDNA™

www.ancestrydna.com



Test Name: AncestryDNA™ (*saliva collection*)

Strengths: True to its nature, Ancestry does a great job of finding clues within your genealogy to connect you to your matches.

Needs Improvement: Lacking any genetic tools to assist in making connections.

Price: \$99

FAQ

Q: Will the test results reveal anything about my health?

A: The short answer is "only if you want them to." Only 23andMe is openly interested in helping you learn about your health.

Having said that, only the YDNA tests are thus far completely free of health related information.

However, details about your health are not directly reported to you, and would require some third-party assistance to glean health information from the raw data that you receive.

Q: Will my insurance company have access to my results?

A: Your genetic results are protected under the Genetic Information Non Discrimination Act of 2008 (and updated in 2012) where it states that your employer and your insurance guy cannot have access to your genetic information, or even use the genetic information of tested relatives (up to 4th cousins) to determine your eligibility for employment or coverage.

Need more **HELP?**
Contact **Your DNA Guide,**
Diahan Southard
for information on
DNA consultations at
www.yourDNAguide.com

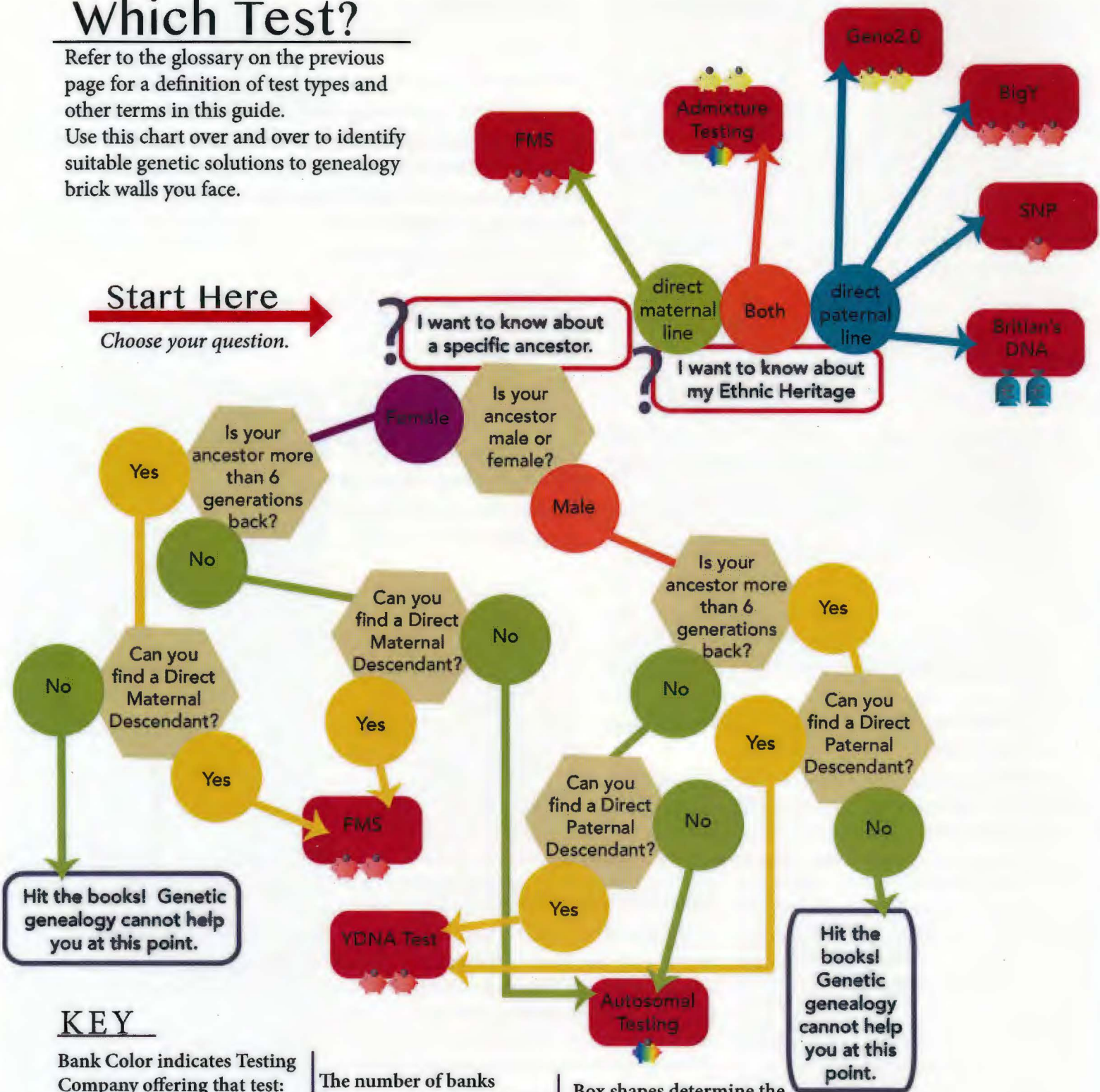
Which Test?

Refer to the glossary on the previous page for a definition of test types and other terms in this guide.

Use this chart over and over to identify suitable genetic solutions to genealogy brick walls you face.

Start Here

Choose your question.



KEY

Bank Color indicates Testing Company offering that test:

- Family Tree DNA
- Britain's DNA
- Geno2.0
- Ancestry.com, FTDNA, 23andMe

The number of banks (regardless of color) reflects the price of the test:

- Under \$100
- Under \$300
- Over \$300

Box shapes determine the kind of action required:

- Recommended Genetic Testing
- Traditional Genealogical Research Needed



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