

# Combine Multiple DNA Test Types

(How atDNA+YDNA+mtDNA+atDNA=More Answers!)

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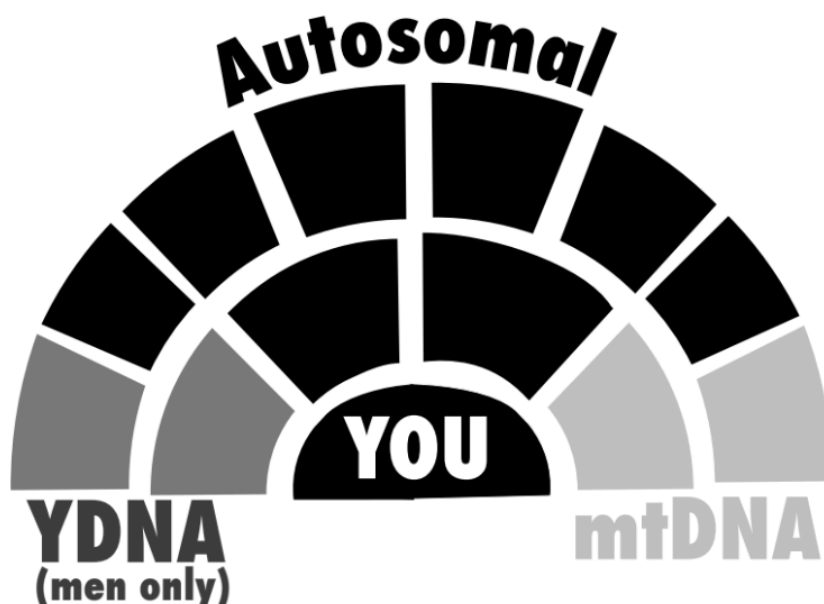
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Thursday, March 13, 2:00pm ET

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## Three Types of DNA Testing



# YDNA inheritance

Genetic males can take YDNA tests, which provide you with insights on the paternal line (father's father's father's father, etc.) . [FamilyTreeDNA](#)\* is your resource for YDNA testing for family history. [How many markers should I test with a YDNA test?](#)

Take our [YDNA Free Get-Started Mini-Course](#) (a beginner-basic introduction to YDNA, along with a sneak peek at our full YDNA for Family History Course).



YDNA test results come with two kinds of results:

**1. Haplogroups** can help with broad general questions about location and origin

**2. Your YDNA match list**

- Look for someone who meets our Best Match thresholds.
- A Best Mystery Match is someone with whom you can find a documented common ancestor.
- Ideally you are part of a group project and we can even trace your YDNA differences to help us understand relationships.
- If you have BigY we can turn to a better tool to help us find our Generation of Connection in the Time Tree.

# mtDNA inheritance

Everyone inherits mtDNA from their biological mother, so anyone can take an mtDNA test to explore their maternal line (mother's mother's mother, etc). However, only genetic females pass it along to their offspring. [FamilyTreeDNA](#)\* is also your resource for mtDNA testing for family history.

mtDNA test results come with two kinds of results:

**1. Haplogroups** can help with broad general questions about location and origin

**2. Your mtDNA match list**

- An mtDNA match is anyone showing up on your mtDNA match page.
- A Best Mystery Match is someone with whom you can find a documented common ancestor.
- Because mtDNA changes so slowly over time, from generation to generation, it's impossible to know how closely related you are to your matches. Even

full-sequence exact matches might not be closely enough related to you to make them genealogically useful.

- *Full sequence exact matches are almost always the only matches worth your time*
- Combining mtDNA matching with autosomal DNA matching is the best use of mtDNA data, because if you're an autosomal match, your connection will be in more recent generations (but remember that your autosomal connection and mtDNA connection may be different)

## atDNA (autosomal) inheritance

[Best DNA tests for family history: a comparison](#)

Autosomal test results come with two kinds of results:

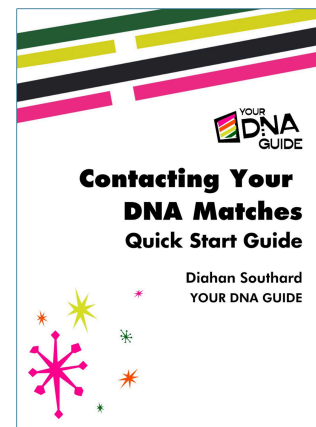
**1. Biogeographical Ancestry (Ethnicity) Results** have two components: the broad and deep region results that represent thousands of years ago, and the more-specific [AncestryDNA Ancestral Journeys](#) or [MyHeritage Genetic Groups](#) that represent connections within the past couple hundred years

### 2. Your match list

- Includes relatives across all branches of your family within the past few generations
- Again, not every match in your match list matters. You want to find your Best Mystery Matches: those that are relevant to your research goal
- Powerful Shared Matches of Matches tools can further enhance your understanding of people's relationships ([Learn more about our Shared Matches of Matches Course](#)—if you're at RootsTech 2025 in person, come by our booth because this course has a special offer!)

Contacting your DNA matches to see what they know about their ancestry can be a powerful way to discover your common ancestor(s), learn what they may know about their heritage that may not have been passed down on your branch of the family, and (optionally) to create new, personal connections.

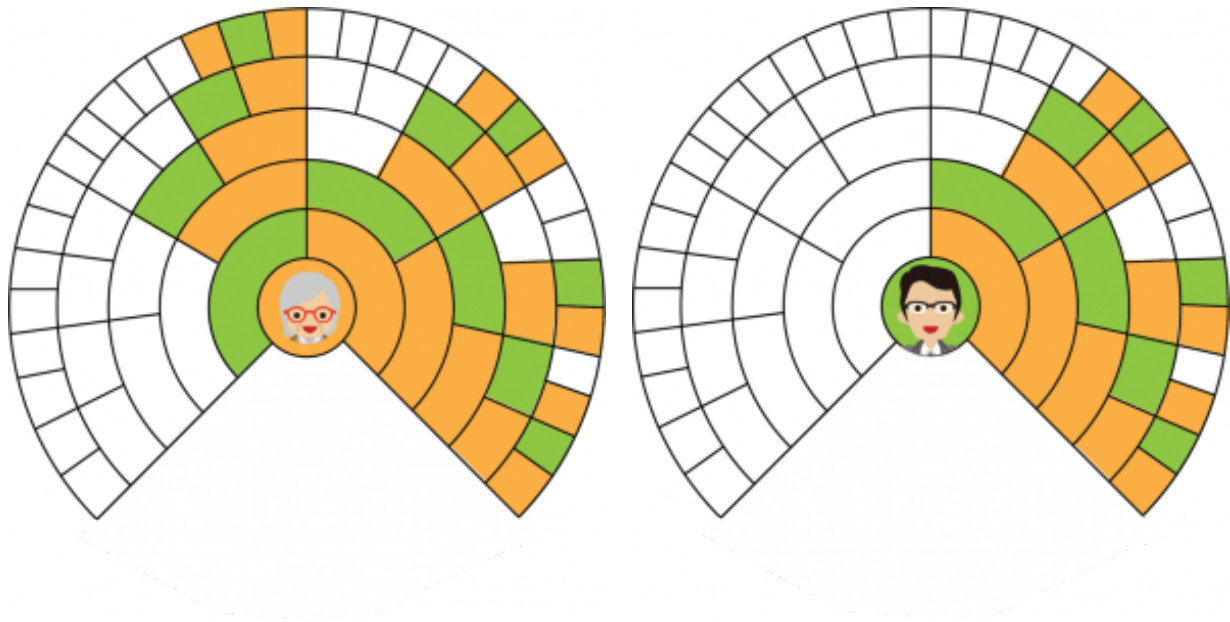
However, contacting your DNA matches can feel a little awkward—even discouraging if they don't respond. [Get our free guide to contacting your DNA matches.](#)



## XDNA inheritance

XDNA is a fourth category of DNA that can be useful in genetic genealogy. It can't be tested on its own, but is produced as part of an autosomal DNA test.

- Two DNA testing companies report XDNA information: [FamilyTreeDNA Family Finder test](#)\* and 23andMe.
- Genetic males have one XDNA from their mom, and a YDNA from their dad.
- Genetic females have two copies of the XDNA, one from each parent.
- XDNA has a very tricky inheritance pattern. In the charts on the following page, a genetic female's XDNA inheritance pattern appears on the left, and a genetic male's on the right. The orange boxes in the fan chart are the female ancestors, and the green are the males.
- Be wary of small XDNA segments



XDNA can be useful when combined with other information to help us determine how people can or cannot be connected because of the unique inheritance pattern.