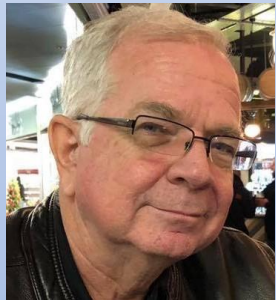


Should I Take a DNA Test?



Jan 6, 2024
Mesa Red Mountain Library



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<http://familytreeaz.com/presentations>

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Illustrations of.com #60477

All slides and handouts can be found at:

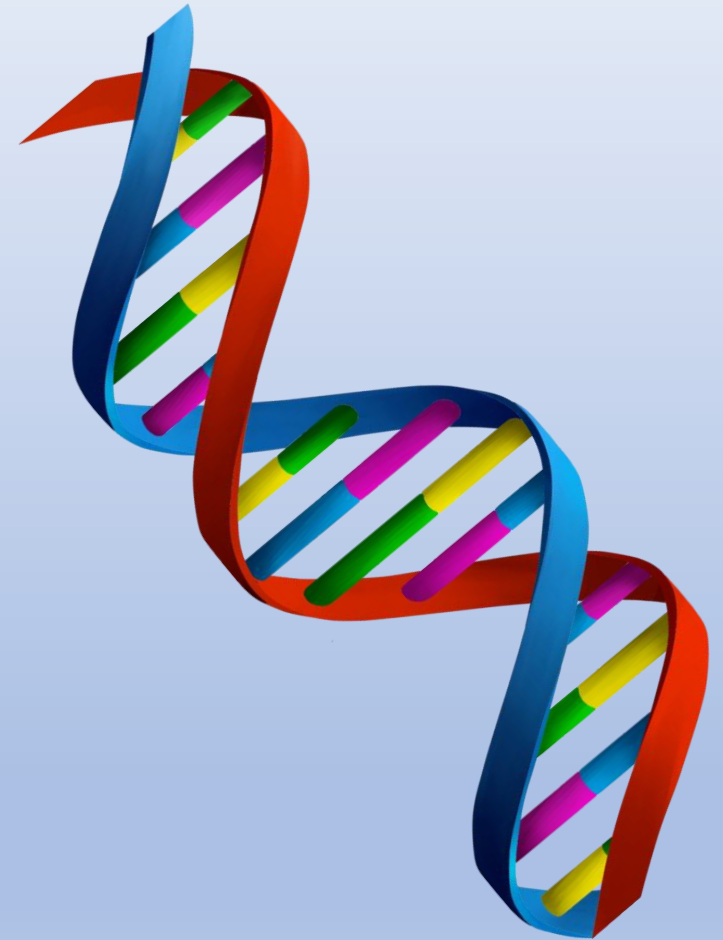
<http://www.familytreeaz.com/Presentations/>



QR Code: take photo to
open to presentations

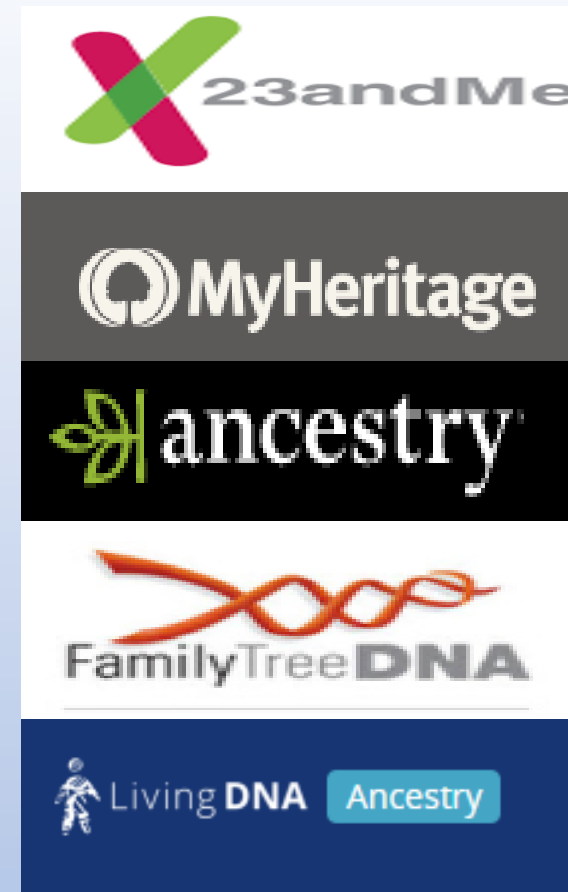
Reasons to Take a DNA Test

- Health information (genetic traits, etc.)
- Learn about my ethnicity (country/region origins, etc.)
- Genealogy
 - Working on family tree
 - Adoptee searching for parental lines
 - Find living cousins



First --- a quick review of what's available

- 5 primary testing companies
 - Ancestry, 23andMe, My Heritage, FamilyTree DNA, Living DNA
 - Each company has different policies, costs, features, and tools
- 3 primary types of DNA tests
 - **Autosomal** (sometimes abbreviated atDNA)
 - Y-DNA
 - Mitochondrial DNA (abbreviated mtDNA)
- For more on comparison of the companies and types of tests see my July 2023 presentation on DNA basics



The most common test done is autosomal and all 5 companies perform this test

Health Aspects

- Typically, this is primarily focusing on looking for specific genes
- 23andMe has long been the company focusing on these
- It should be noted that:
 - This is a consumer test and can not compare to a medically prescribed DNA test
 - Most results are probabilistic, meaning they focus on the “chance” of acquiring certain diseases or conditions



Health Aspects

- 23andMe offers an upgrade from their autosomal test to analyze various traits
- NOTE: Another site, <https://promethease.com/ondemandagreed>, offers similar analyses but uses autosomal tests from the other testing companies

Promethease Login




Promethease is a literature retrieval system that builds a personal DNA report based on connecting a file of DNA genotypes to the scientific findings cited in [SNPedia](#).

Customers of DNA testing services (such as [23andMe](#), [Ancestry.com](#), [FamilyTreeDNA](#), [Genos](#), etc.), biomedical researchers and healthcare professionals use Promethease to retrieve information published about their DNA variations. Reports cost \$12. Most reports are produced in under 10 minutes. Much larger data files (such as imputed full genomes) have increased runtime. Uploading additional data files to create a combined report costs an additional \$4 and must be done at the same time. It is not possible to add a new raw data file to one uploaded previously.

HEALTH RESEARCH FAMILY & FRIENDS

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-  **Wellness**
Learn how your genes play a role in your well-being and lifestyle choices.
-  **Health Predispositions***
Learn how your genetics can influence your risk for certain diseases.
-  **Carrier Status***
If you're starting a family, find out if you're a carrier for certain inherited conditions.

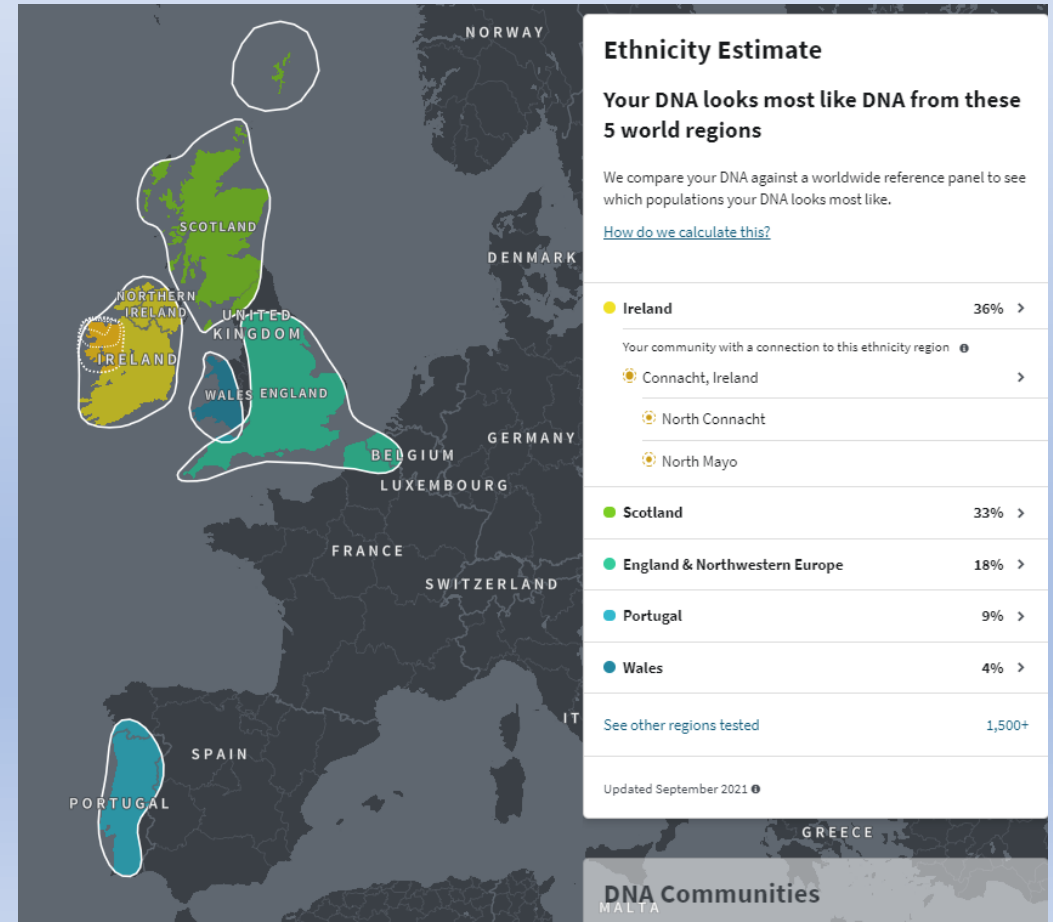
*The 23andMe PGS test uses qualitative genotyping to detect select clinically relevant variants in the genomic DNA of adults from saliva for the purpose of reporting and interpreting genetic health risks and reporting carrier status. It is not intended to diagnose any disease. Your ethnicity may affect the relevance of each report and how your genetic health risk results are interpreted.

[See more](#)

Ethnicity

1. Curious about ethnicity

E.g., Am I part Native American?



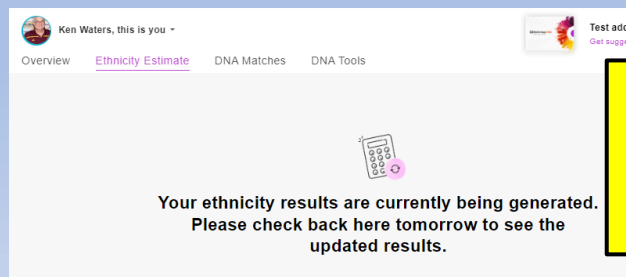
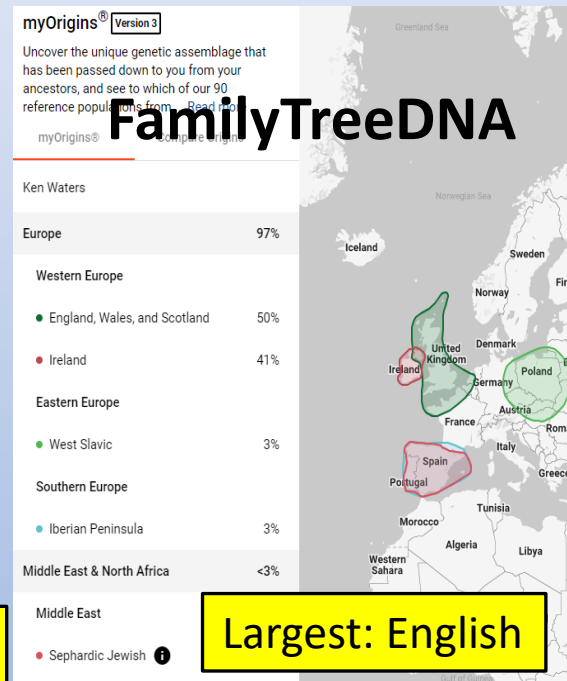
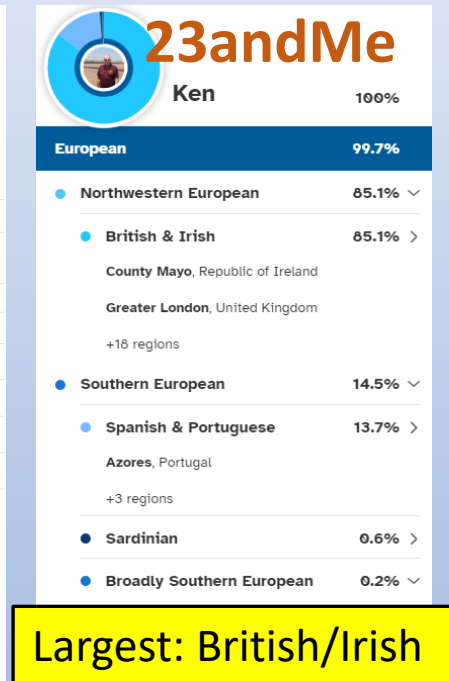
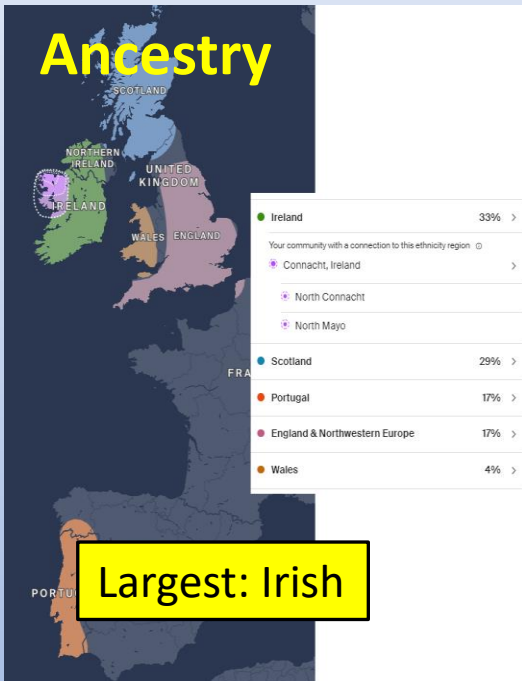
Ethnicity

- All DNA testing sites offer some sort of ethnicity estimates
- These are typically done by comparing your DNA to limited populations tested, for instance Iberian
- There is often a **wide variation** between the companies' estimates
 - Each company uses different algorithms to determine ethnicity as well as different testing panels
- Most important takeaway: these are purely estimates and should not be taken literally in any real way



My estimates from the 5 companies

- My DNA is in all 5 testing companies
- Note the significant variation and contrary indications



MyHeritage – results not immediately available (recent change)

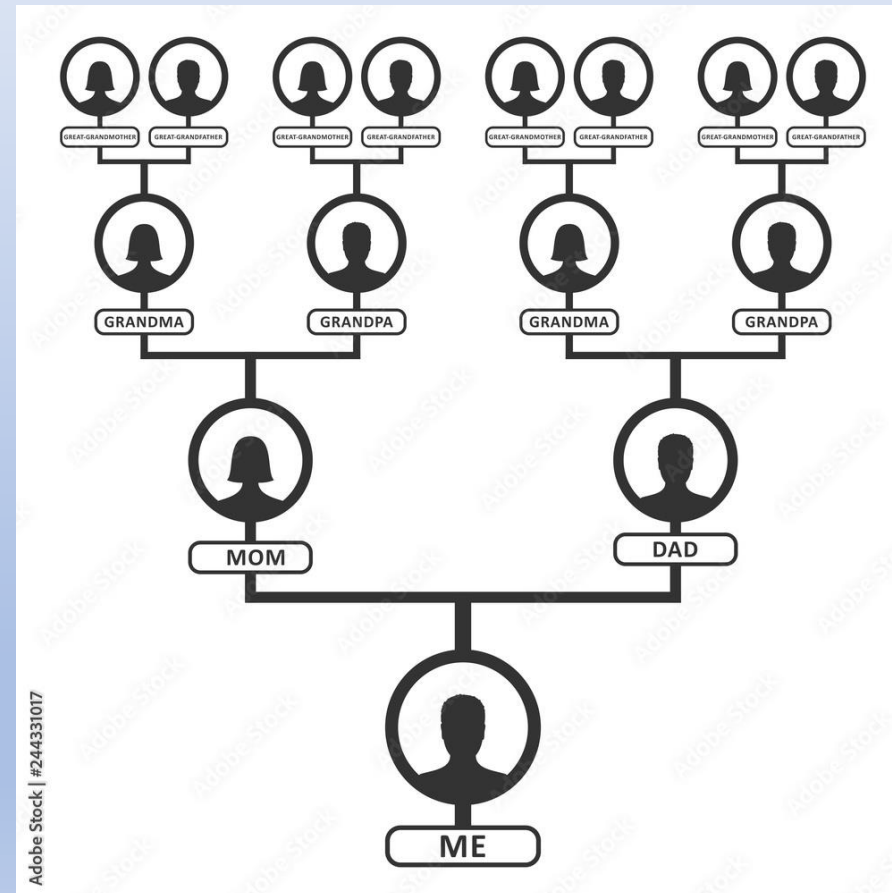
Genealogy

- Confirm close relative relationships (e.g., parent/child, full vs. half sibling, etc.) if both individuals take test
- Introduce you to an amazingly long list of potential cousins (especially for those with strong North American origins such as colonial roots)
- For unknown parentage cases it's likely to provide valuable hints to help solve the mystery



Genealogy

- Help you to build your family tree and make new discoveries of your ancestry



Cost of testing

- Prices vary, day-to-day, due to occasional sales
- Typically a non-discounted kit cost would be \$99-\$129
 - Frequent sales as low as \$39
- Additional optional costs can vary by different companies for:
 - More detailed analyses such as chromosome segment data (MyHeritage, FamilyTreeDNA, LivingDNA)
 - Ability to show shared matches (Ancestry)
 - Health information (23andMe)
 - Neanderthal and Viking estimates (LivingDNA)



Who Should I Test With?

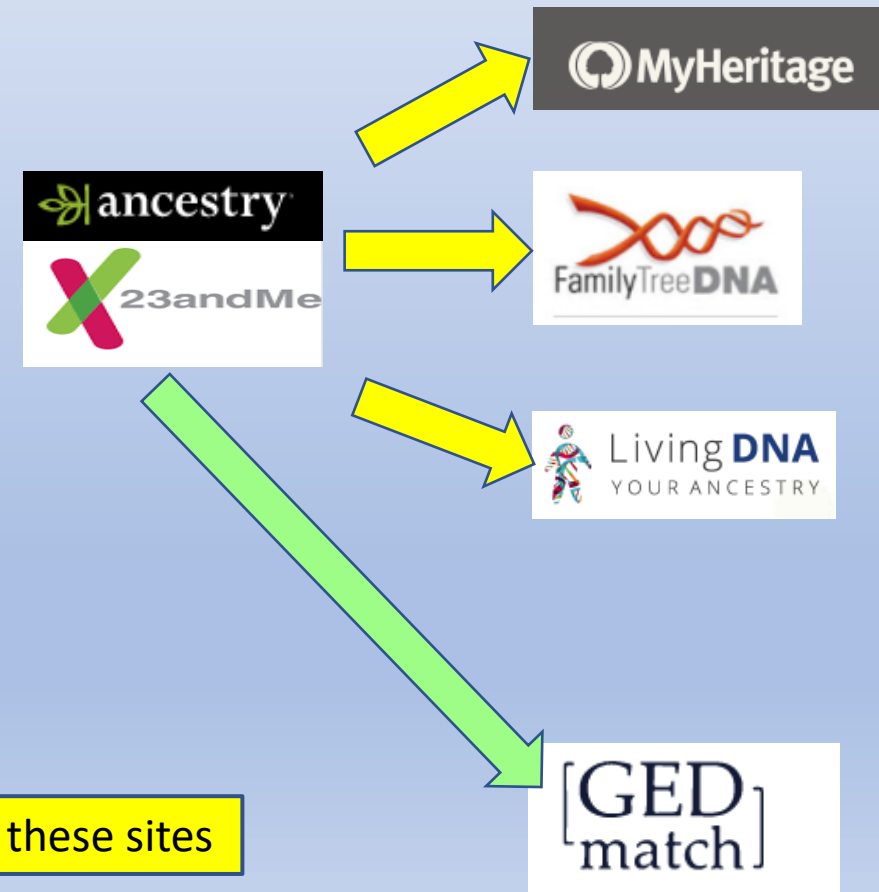
- No simple answer here as it depends on:
 - Your expectations and needs
 - Your background (e.g., recent European vs. deep U.S. roots)
 - Your budget
- Typically we recommend testing with the 2 companies that do not allow uploads, Ancestry and 23andMe
 - Then, share your results with the other 3 companies

IMPORTANT NOTE: As of the past few months there have been many changes with these companies regarding security efforts as well as changes putting existing features behind a “paywall”



One Strategy

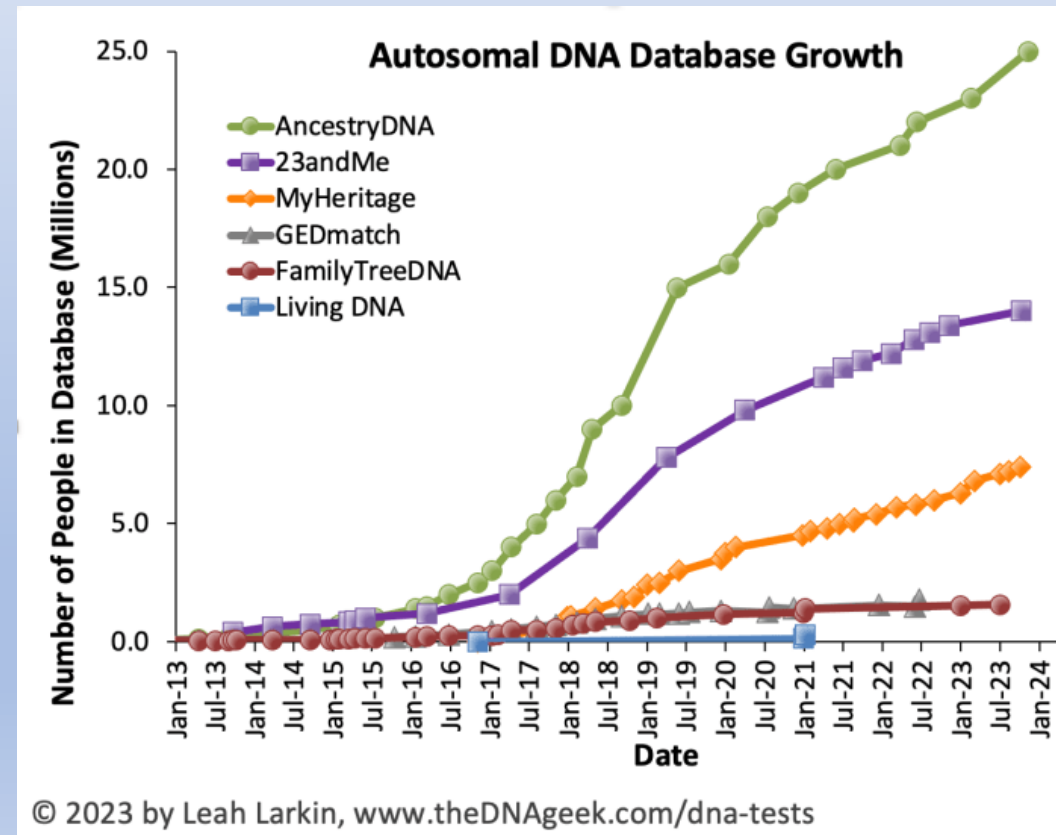
- Test with Ancestry first (largest database, excellent family tree tools)
- After Ancestry, test with 23andMe
- Download your DNA from either Ancestry or 23andMe
- Upload to:
 - My Heritage
 - Family Tree DNA
 - Living DNA
 - GEDMatch (not a testing company)
- The key here is to have your DNA in all 5 testing companies plus GEDMatch



Who Should I Test With?

- Another factor: how many have tested with each company
- Largest: 25 million Ancestry
- Smallest: < 1 million (est.) LivingDNA

Testing with a company with more tests will typically result in more DNA matches to cousins



What Will I Get From a DNA Test?

- List of DNA matches, sorted by the closest (most shared DNA)
- Ability to use tools to determine how you are related
- Ability to contact the DNA match for more information

The screenshot displays a user interface for 'Ken Waters's DNA Matches'. At the top, it shows the user's name and a link to view their DNA tree. Below this, there are filter options: 'All matches', 'By parent', 'By ancestor', and 'By location'. A 'Filter by' section includes 'Unviewed', 'Common ancestors', 'Notes', 'Trees', 'Shared DNA', and 'Groups'. The main content is a list of matches categorized into 'Parent/Child', 'Full Sibling', and 'Close Family'. Each match entry includes a profile picture, a relationship label (e.g., Mother, Daughter, Son, Brother, Uncle, 1st cousin), shared DNA statistics (cM and percentage), and links to 'Public linked tree' and 'Common ancestor'. A 'View match' button is present for each entry.

Relationship	Shared DNA	Public linked tree	Common ancestor	Action
Mother	3,474 cM 50% shared DNA Maternal side	2,904 People	Common ancestor	View match
Daughter	3,470 cM 50% shared DNA Both sides	2,904 People	Common ancestor	View match
Son	3,486 cM 50% shared DNA Both sides	2,904 People	Common ancestor	View match
Brother	2,491 cM 44% - 51% shared DNA Both sides	2,904 People	Common ancestor	View match
Uncle	1,583 cM 23% shared DNA Paternal side	2,904 People	Common ancestor	View match
1st cousin	941 cM 13% shared DNA Paternal side	64 People	Common ancestor	View match
1st cousin	716 cM 10% shared DNA Paternal side	2,904 People	Common ancestor	View match
1st cousin	604 cM 9% shared DNA Paternal side	11 People	Common ancestor	View match
Half niece	584 cM 8% shared DNA	34 People		View in tree

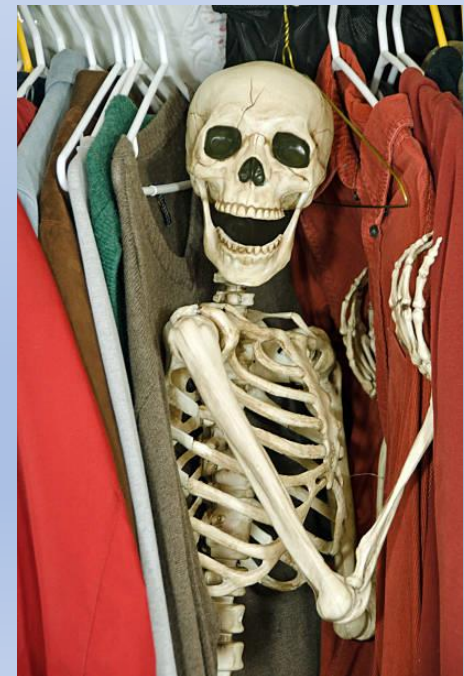
Example of DNA matches

Are there any reason I should NOT test?

Concerns

- The possibility that the test could reveal a most upsetting discovery
 - Learning that your father was not your actual birth father
 - Learning that your sibling is only your half sibling, sharing only one of your parents

This is a very real concern and there many examples of families being torn apart by these types of discoveries



Concerns

- Donor-Conceived
- A DNA test will often reveal that the person was donor-conceived and this might come as a shock, particularly if the truth had not been shared from the parent
- Can yield many unexpected half-siblings

SEPTEMBER 12, 2019 | 8 MIN READ

Consumer DNA Tests Negate Sperm-Bank-Donor Anonymity

Companies such as 23andMe and Ancestry.com have made it impossible for sperm banks to keep donors' identities secret

BY MEGHANA KESHAVAN & STAT



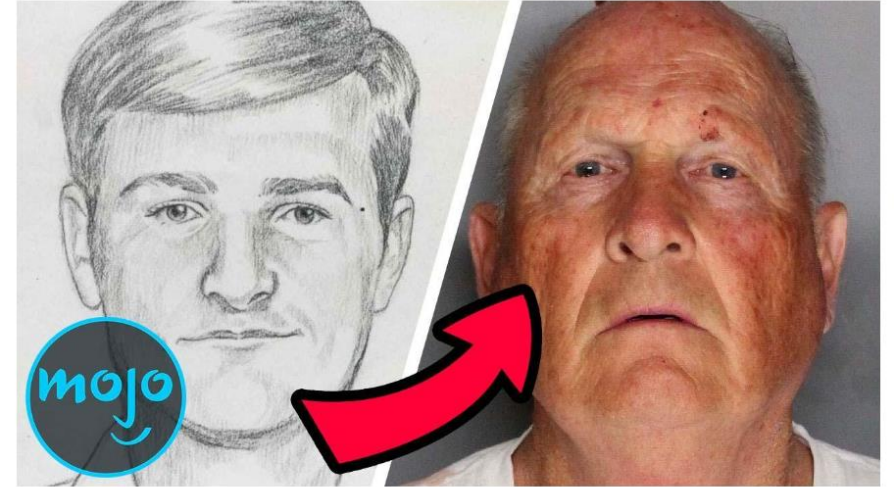
<https://www.scientificamerican.com/article/consumer-dna-tests-negate-sperm-bank-donor-anonymity/>

Concerns

- Privacy
 - Since 2018 there have been many examples of existing DNA kits being used to identify criminals of serious crimes as well as unknown victims
 - Your DNA kit could help identify these people --- if that bothers you then perhaps you should carefully reconsider taking a test

NOTE: for many this may not be a concern due to the overall benefit of identifying unknown individuals

Top 10 Cold Cases Solved With DNA



VOICE OVER: [Rebecca Brayton](#) WRITTEN BY: [Nathan Sharp](#)

Science wins again! For this list, we'll be looking at criminal cases that were solved years later with the help of DNA analysis. Our countdown includes The Murder of Sherri Rasmussen, The Boston Strangler, The Golden State Killer, and more.

Top 10 Cold Cases Solved with DNA

Welcome to WatchMojo, and today we're counting down our picks for the Top 10 cold cases solved with DNA.

For this list, we'll be looking at criminal cases that were solved years later with the help of DNA analysis.

Which of these stories do you find the most fascinating? Let us know in the comments!

Source: <https://www.watchmojo.com/articles/top-10-cold-cases-solved-with-dna>

Concerns

- Possibility of potential for leaks of DNA database to hackers
 - Example: October 2023 23andMe hack

One reassuring note: even in the worst case if the actual DNA data is stolen it is only a miniscule fraction of a person's full DNA

Genetic testing firm 23andMe admits hackers accessed DNA data of 7m users

US company says 'threat actor' responsible for security breach that affected nearly half of its 14m reported users



23andMe, the genetics and ancestry firm, is based in California. Photograph: Alamy

The genetic testing company 23andMe has said that nearly 7 million people have been affected by a security breach that put **DNA ancestry** information into the hands of hackers who broke into the site in early October.

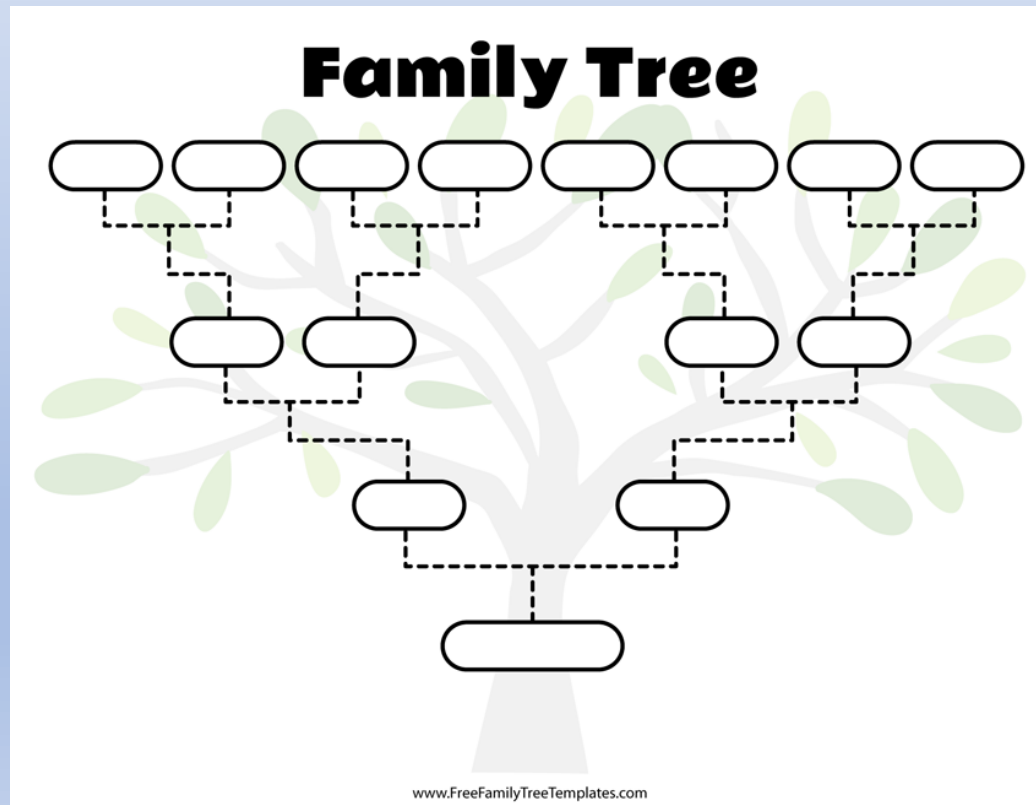
On Friday, the California-based company said in a regulatory filing that **the personal data of 0.1% of customers - or about 14,000 individuals** - had been accessed by "threat actors". But the filing warned that hackers were also able to access "a significant number of files containing profile information about other users' ancestry".

Source:

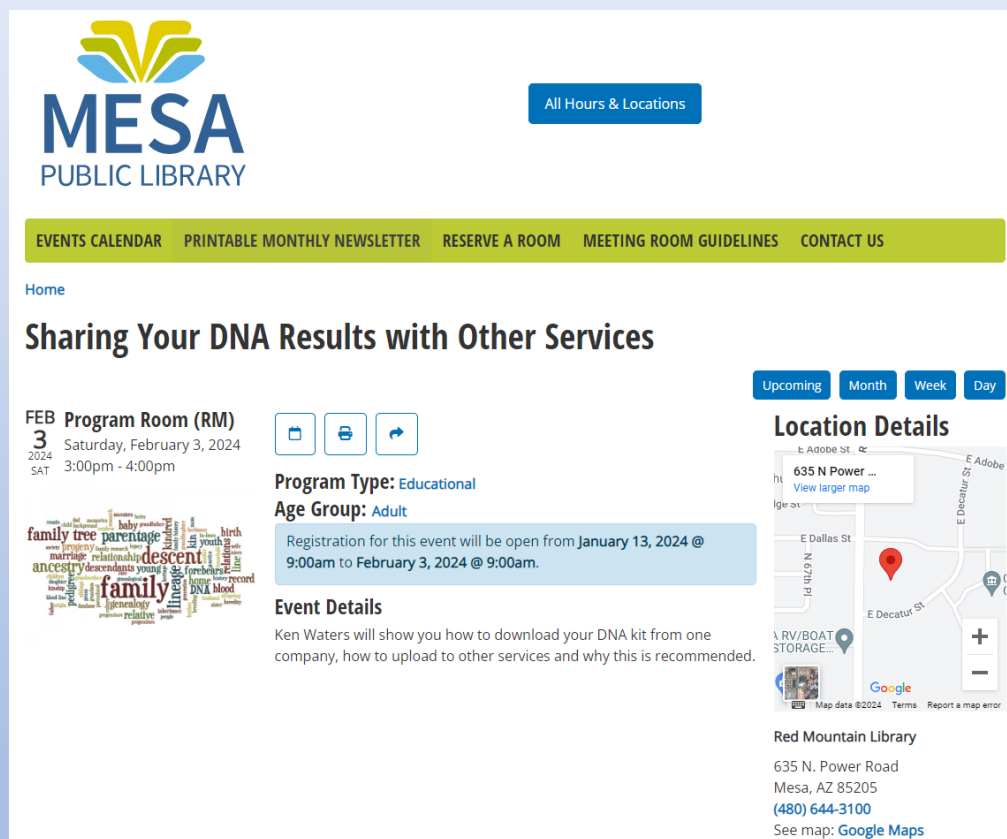
<https://www.theguardian.com/technology/2023/dec/05/23andme-hack-data-breach>

Bottom Line

- For most, taking a DNA test can be a richly rewarding effort that can help you build your family tree and learn about your origins



Upcoming Classes/Presentations



MESA PUBLIC LIBRARY All Hours & Locations

EVENTS CALENDAR PRINTABLE MONTHLY NEWSLETTER RESERVE A ROOM MEETING ROOM GUIDELINES CONTACT US

Home

Sharing Your DNA Results with Other Services

FEB 3 Program Room (RM)
2024 Saturday, February 3, 2024
SAT 3:00pm - 4:00pm

Program Type: Educational
Age Group: Adult

Registration for this event will be open from **January 13, 2024 @ 9:00am** to February 3, 2024 @ 9:00am.

Event Details
Ken Waters will show you how to download your DNA kit from one company, how to upload to other services and why this is recommended.

Location Details
635 N Power Road
Mesa, AZ 85205
(480) 644-3100
See map: [Google Maps](#)



All library classes that are highlighted in blue are free to attend and require no registration and held at the Red Mountain Mesa Public Library at 635 N Power Rd in Mesa (unless otherwise noted above).



Presentations:

<http://familytreeaz.com/Presentations>



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 [U.S., School Yearbooks, 1900-2016](#)

School lists & yearbooks



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Picture Ken Waters