



Working with the X Chromosome

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18 March 2017



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<https://dnasydney.wordpress.com>

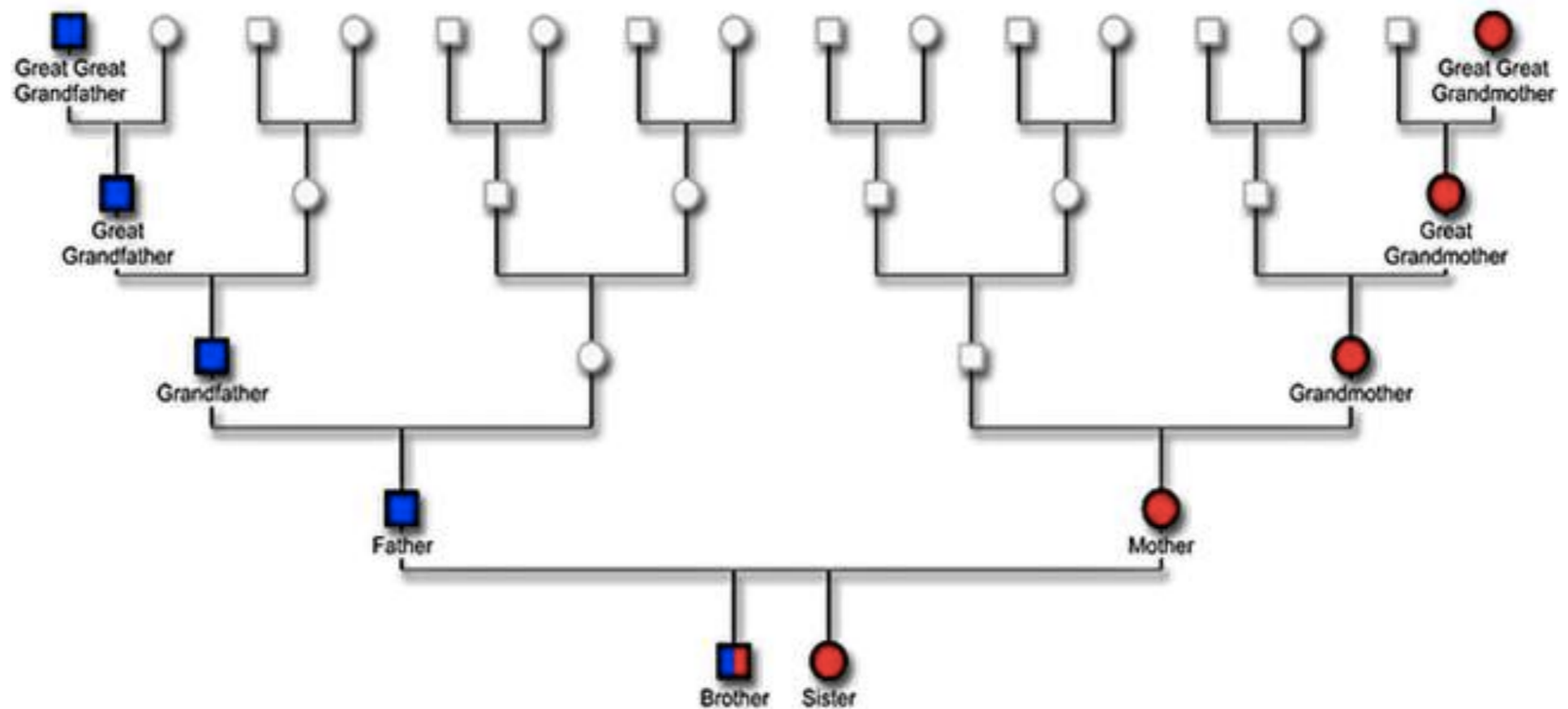
Working with 'X'

Session Outline

- DNA Inheritance - 3 main tests
- 4 Kinds of DNA for Research Purposes
- Inheritance patterns - men and women
- Tools and Research Techniques

DNA Inheritance

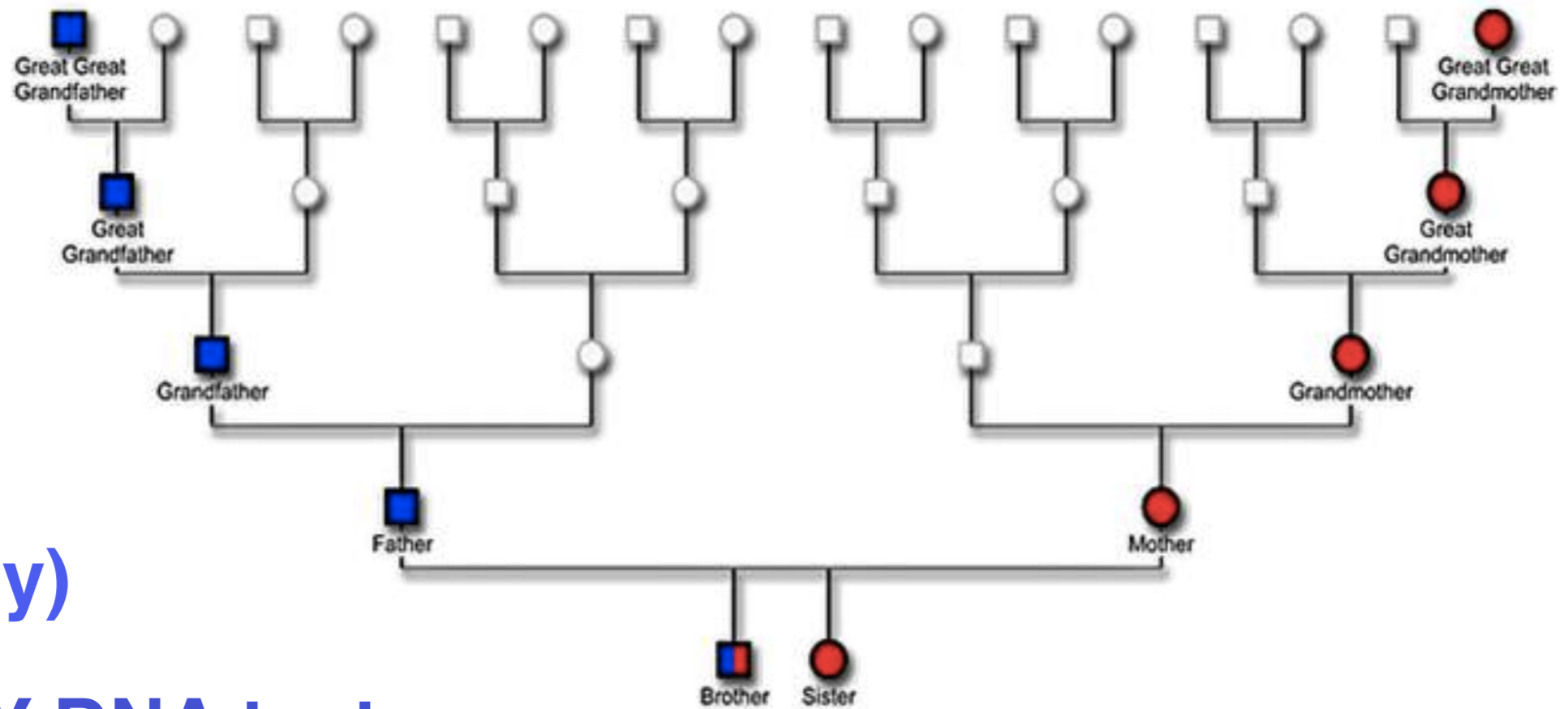
Key concepts



Three types of DNA tests

DNA Inheritance

Test #1

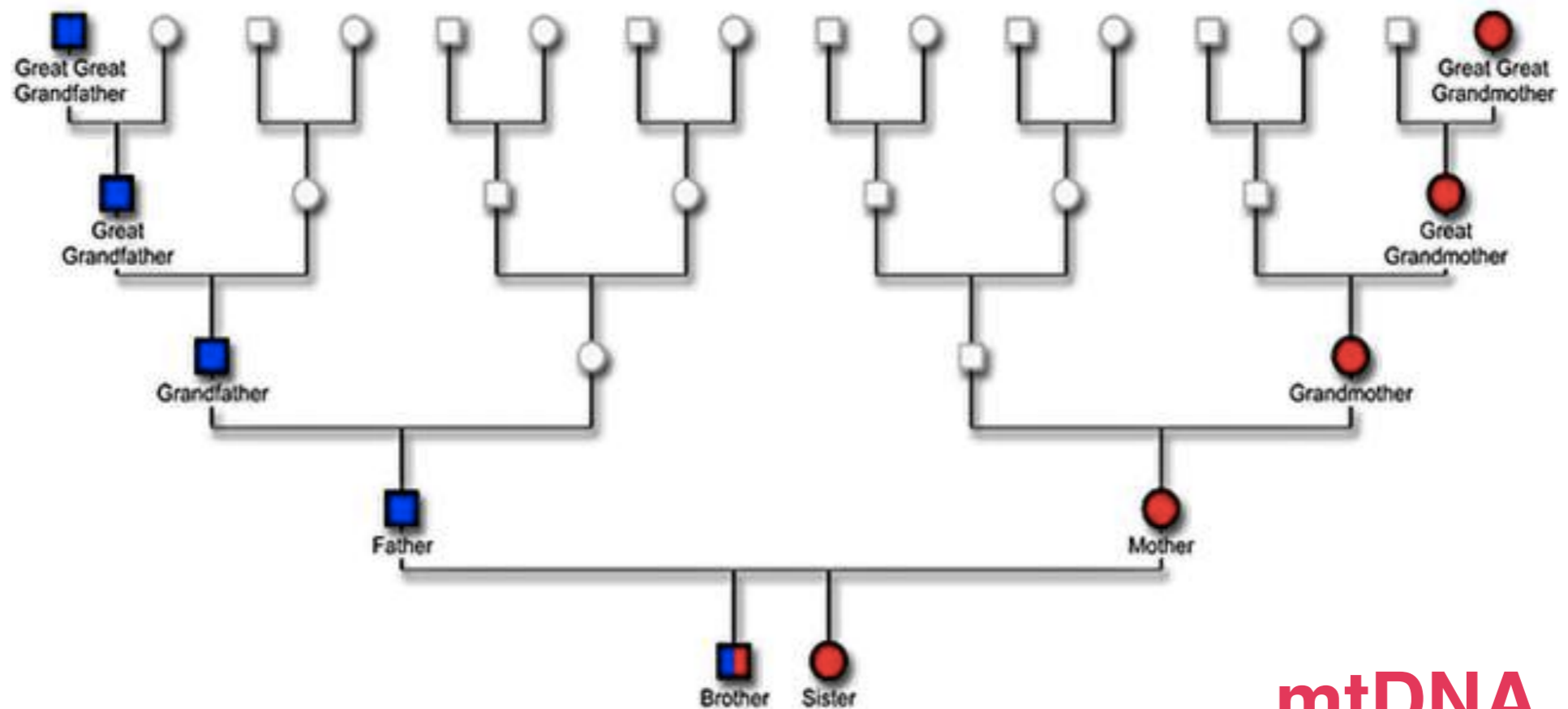


yDNA
(men only)

FTDNA - Y DNA test
at least 37 markers

DNA Inheritance

Test #2



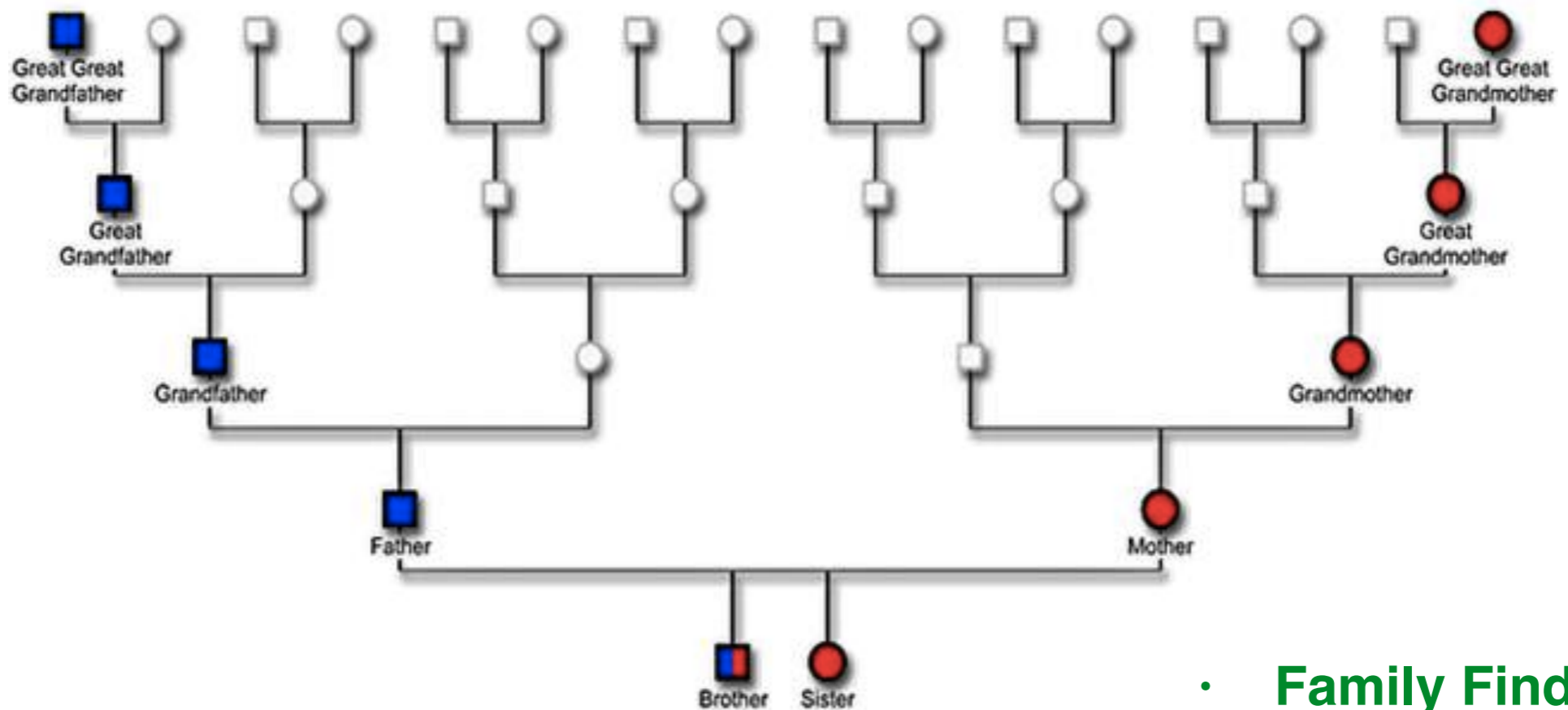
mtDNA

(men and women)

FTDNA - Full Sequence

DNA Inheritance

← Autosomal DNA 1 - 23 →

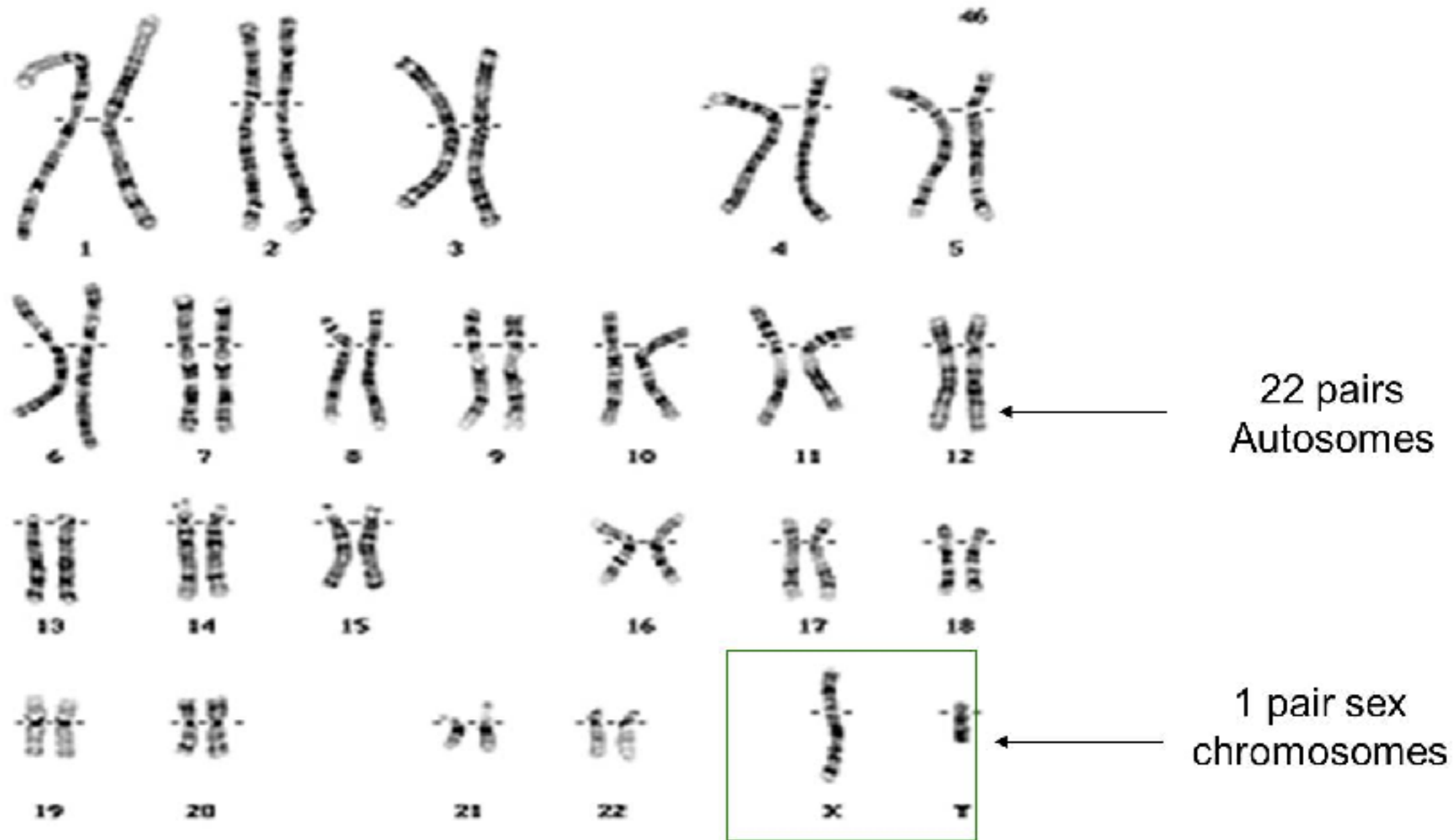


Test #3

Men and Women

- Family Finder
- AncestryDNA
- 23andMe
- My Heritage
- Living DNA

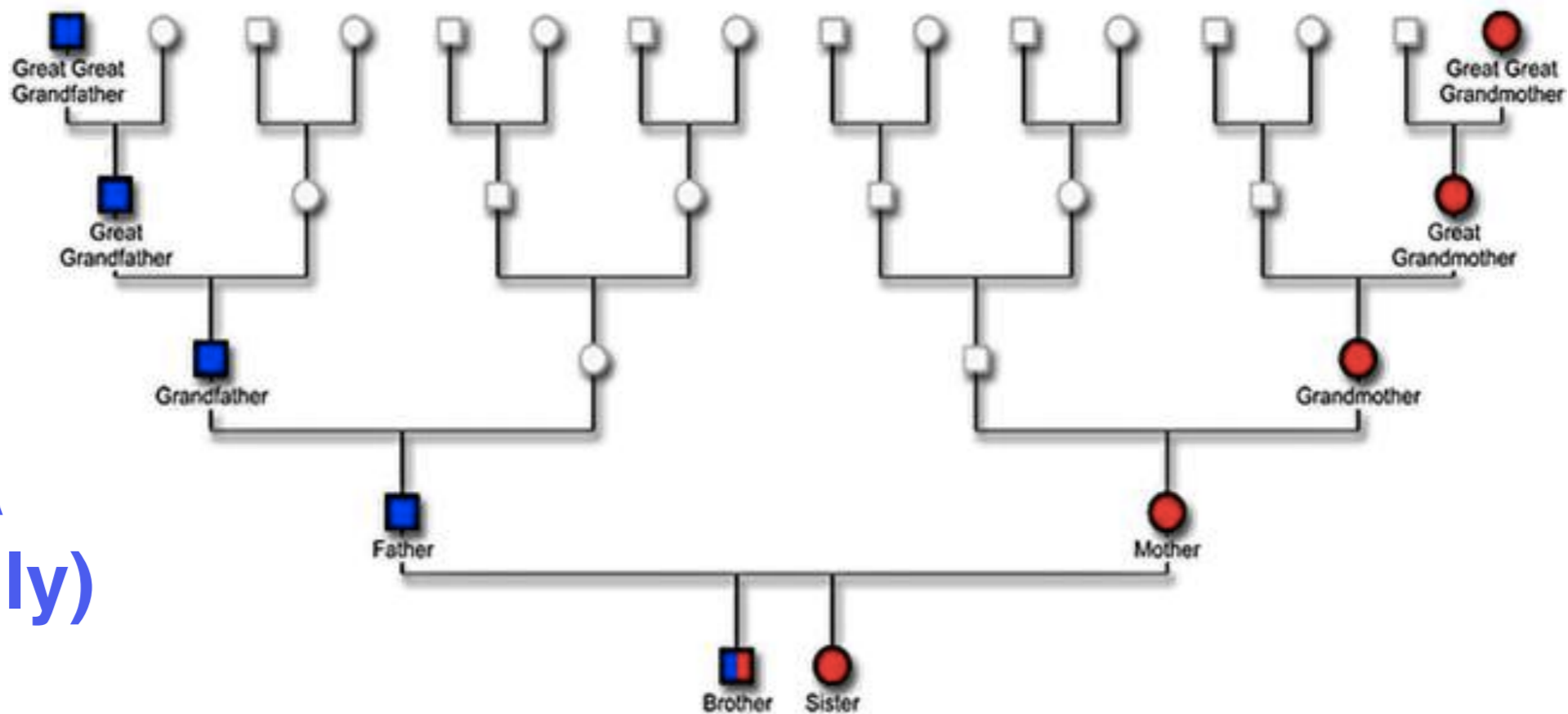
Autosomal DNA - 23 pairs



23rd chromosome or “X”

4 Types of DNA for Research

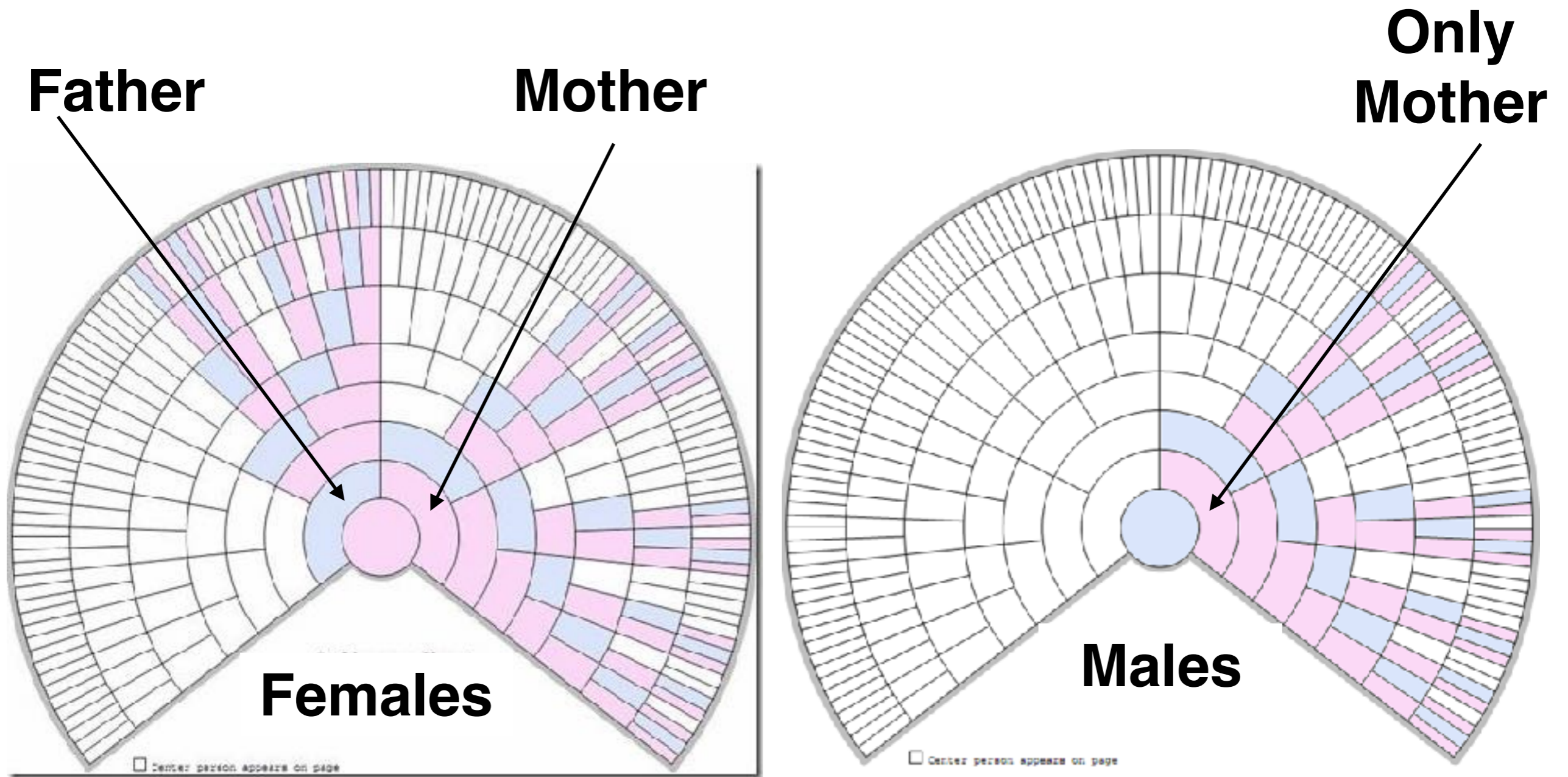
Autosomal DNA 1 - 22 PLUS X or #23
(men and women)



yDNA
(men only)

mtDNA
(men and women)

Unique Inheritance Patterns



X chromosome - Males

- Males only have one X chromosome, inherited from their mother
- The other part of the 'pair' is the Y chromosome inherited from their father - makes them male
- When a mother passes her X onto her sons, it goes through the process of 'recombination'
- Matches on the X chromosome can be coming from either his mothers maternal or paternal side
- BUT - as males don't recombine their X, matches on his mothers paternal side are coming from his paternal grandmother

X chromosome - Females



- Females have two X chromosomes, one inherited from each parent
- When a mother passes her X onto her children, it goes through the process 'recombination' - so it is a mix of her maternal and paternal segments
- When a father passes on his X to his **daughters**, it DOES NOT go through 'recombination' - he only has one X chromosome
- It is therefore an EXACT copy of his mother's X chromosome
- So any matches on the paternal side MUST come from the daughters paternal grandmother

X chromosome - Key Points

- Males only have one X chromosome, inherited from their mother
- Females have two X chromosomes, one inherited from each parent, mother and father
- When a mother passes her X onto **her children**, it goes through the process of 'recombination' = mix of her maternal and paternal
- When a father passes on his X to **his daughters**, it DOES NOT go through 'recombination' = exact copy of his mothers
- Only ancestors in the coloured boxes can contribute to your 'X'
- Using the 'X' can sometimes help to eliminate ancestors in the search for your common ancestor
- NOTE : May not follow normal % averages - often higher

How do I know I have an X match?

FTDNA - upfront

				Centimorgans				
	V. A. Williams	05/18/2011	Parent/Child	3,380	267	X-Match		ABURROW / ABURROW (Hampshire, England) / ASLATT / ASLATT
Longest Block(cM): 267		Tests Taken: FMS		mtDNA Haplogroup: J1c5		Y-DNA Haplogroup: N/A		

23andMe - FIA



HOME MY RESULTS FAMILY & FRIENDS RESEARCH & COMMUNITY

ANCESTRY TOOLS > FAMILY INHERITANCE: ADVANCED

Joan Coates vs. Veronica Williams X 1 154000000 182 cM 14565

AncestryDNA - Only reports total segments

 Predicted relationship: Parent/Child
Possible range: Parent, Child - immediate family member ([What does this mean?](#))
Confidence: Extremely High

Amount of Shared DNA
3,477 centimorgans shared across 38 DNA segments

Best tools at:



Tools and Techniques

- GEDmatch
- Wikitree
- Visual Phasing



GEDmatch Tools

- X 'one to many'
- X 'one on one'
- Multiple kit analysis
- Tier 1 Tools - Triangulation and Matching segment (\$'s)

www.gedmatch.com



GEDmatch

Analyze Your Data

DNA raw data

- 'One-to-many' matches
 - Information: Disappeared kits recovery information
 - Action: 'One-to-many' recovery no account email matches
- 'One-to-one' compare
- X 'One-to-one'
- Admixture (heritage)
- Admixture/Oracle with Population Search
- Phasing
- People who match one or both of 2 kits **Updated**
- Predict Eye Color
- Are your parents related?
- 3D Chromosome Browser
- Archaic DNA matches
- Multiple Kit Analysis **NEW**
- DNA File Diagnostic Utility
 - Analyze DNA file upload for potential problems.

One-to-many DNA comparison

Enter your kit number or select from dropdown:

Select the threshold of the largest segment to be included in the list :
and whether it is based on Autosomal or X
Selecting less than 7 cM may result in much slower response.

Autosomal
 X

Click here to display your results:

GEDmatch.Com X-DNA Comparison Entry Form

Kit Number 1:

Kit Number 2:

Show graphic bar for X-Chromosome?
 Graphics and Positions
 Position Only
 Graphic Only

For Full resolution graphic, check 'Full resolution'
 Window width in pixels:

X-DNA comparison matrix

Ver: Sep 9 2016 19:22:08

Value shown is cM total of matching segments over minimum threshold.

Kit	name	T350954	T485376	T545719	T756864
T350954	*Coat Roberts		182.0	67.5	47.0
T485376	*Roberts Murphy	182.0		166.6	76.8
T545719	*Roberts Uncle	67.5	166.6		60.9
T756864	*Roberts Uncle 2	47.0	76.8	60.9	



**and
traditional genealogy**

Working with real ancestors!

Wikitree - key features

- Add your DNA test - Your Profile
- **Find related people who have already tested!**
- DNA Ancestor List - Family Tree and Tools
- DNA Confirmation Aid - My Wikitree or FT&T
- DNA Descendants List - Confirmation Aid or FT&T
- DNA Connections - look for other possibilities



First - Add your DNA test

DNA Tested

Veronica Williams's [DNA has been tested](#) for genealogical purposes. It may be possible to confirm family relationships by comparing test results with Veronica or other carriers of [her ancestors' mitochondrial DNA](#). [Mitochondrial DNA](#) test-takers in the direct maternal line:

mt Veronica (Coat) Williams: [Family Tree DNA](#) mtDNA Test Full Sequence, haplogroup J1c5, [Mitosearch E8JZ9](#), FTDNA kit #194406 [\[test details\]](#)

mt Joan Patricia (Roberts) Coates ⇄: [Family Tree DNA](#) mtDNA Test HVR1, haplogroup J, [Mitosearch 7R7PZ](#), FTDNA kit #202210 [\[test details\]](#)

It is likely that these [autosomal DNA](#) test-takers will share DNA with Veronica:

au Veronica (Coat) Williams: [23andMe](#), GEDMatch T350954 [\[test details\]](#) + [AncestryDNA](#), GEDMatch T350954, Ancestry member genemonkey [\[test details\]](#) + [Family Tree DNA](#) Family Finder, GEDMatch T350954, FTDNA kit #194406 [\[test details\]](#)

24hrs - Populates DNA Ancestors

* <https://www.wikitree.com/treewidget/Coat-12/89>

DNA Confirmation Aid



* <https://www.wikitree.com/treewidget/Coat-12/899>

DNA Ancestor Confirmation Aid for Arthur George Courtney

- Suggests possible tests you might take
- Shows DNA testers

1. Goals: Use [yDNA](#) or [auDNA](#) to confirm he is the son of [2](#) and use [mtDNA](#) or [auDNA](#) to confirm he is the son of [3](#).



[Arthur George Courtney \(Courtney-412\)](#)

Born Marylebone, Middlesex, England abt 1841.

[DNA Ancestors](#) | [DNA Descendants](#) | [DNA Tests](#) | [DNA Confirmation Aid](#)



Two [descendants who carry George's Y-chromosome](#) need to take a [yDNA test](#). See the [DNA Confirmations help page](#) for advice on finding test-takers.

Two [descendants who carry George's mitochondrial DNA](#) need to take an [mtDNA test](#). See the [DNA Confirmations help page](#) for advice on finding test-takers.

Potentially useful autosomal DNA test(s):

[au](#) [Veronica \(Coat\) Williams \(Coat-12\) - 23andMe](#)

[DNA Ancestors](#) | [DNA Descendants](#) | [DNA Tests](#) | [DNA Confirmation](#) | [Relationship to Courtney-412](#)

Haplogroup J1c5

GEDMatch ID T350954

DNA Descendants

X Chromosome

Sons get their single X chromosome from their mother. Daughters get an X from each parent. Here are up to seven generations of possible carriers of portions of George's X chromosome. [more information](#)

1. Abigail Ann Maud (Courtney) Roberts (1870s - 1920s) [uncertain]

1. Unknown Roberts (1890s - 1920s) [confident]

2. Unknown Roberts (1890s - 1920s) [confident]

3. Unknown Roberts (1890s - 1920s) [confident]

4. Unknown Roberts (1890s - 1920s) [confident]

5. Unknown Roberts (1890s - 1920s) [confident]

6. Edward Roberts MM (1890s - 1950s) [DNA]

1. Living: au tested Joan Patricia (Roberts) Coates (unknown - unknown) [DNA]

1. Living: au tested Veronica (Coat) Williams (unknown - unknown) [DNA]

1. Living: Unnamed Coates (1980s - unknown) [DNA]

2. Living: Unnamed (Roberts) Gilbert (unknown - unknown) [confident]

3. Veronica Roberts (1920s - 2000s) [confident]

4. Mary Roberts (1930s - 2010s) [confident]

1. John Hopkins (1960s - 1960s) [confident]

7. James George Roberts (1890s - 1960s) [DNA]

DNA Connections

WikiTree Where genealogists collaborate

First Name:

My WikiTree

COURTENAY Genealogy

About 543 COURTENAYS. Related surnames: [COURTNEY](#) (1909) [CURTIN](#) (307) [KIRTON](#) (258) [CURTAIN](#) (71) [KERTON](#) (39) [CORFEN](#) (34) [CARTIN](#) (34) [COURTIN](#) (25) [CARTEN](#) (20) [CORTEEN](#) (15) [COURTENY](#) (14) [KORTEN](#) (13) [COERTEN](#) (9) [CUERTON](#) (9) [KURTEN](#) (9).

Quick links for members: [table view](#) | [alpha order](#) | [date order](#) | [error report](#) | [find matches](#) | [follow activity](#) | [genealogists](#) | [include current last name](#) | [limit to Watchlist](#) | [merging and matching](#) | [pending merges](#) | [orphaned](#) | [unconnected](#) | [unsourced](#) | [recent activity](#)

This COURTENAY index was pre-built so it loads quickly. [Click here for live data](#) and advanced tools for collaboration, genetic genealogy, surname projects, etc.

- [Athon \(Courtenay\) Sens](#) abt 0985 Of, Courtenay, Loiret, France - 1000 managed by Stephen Cerwing last edited 5 Mar 2017
- [Alix \(Courtenay\) Angoulême](#) abt 1160 Courtenay, Yonne, Bourgogne, France - abt Feb 1218 managed by European Aristocrats Project WikiTree last edited 5 Mar 2017
- [Robert \(Courtenay\) de Courtenay](#) aft 1145 - 1209 managed by Chet Spencer last edited 4 Mar 2017
- [Edward Courtenay](#) 1495 Landrake, Cornwall - abt 1540 managed by Chet Snow last edited 25 Feb 2017
- [Philippa \(Courtenay\) de Bulford](#) abt 1140 Buntingford, Suffolk, England last edited 23 Feb 2017

FIRST NAME



COURTENAY DNA Connections

There are 26 DNA test connections to people named COURTENAY. You can limit the display to one test, e.g. FamilyTreeDNA yDNA, or to one test type, e.g. Y-chromosome tests. Some names may not appear below for privacy reasons. Some names may appear multiple times because they are connected through multiple tests. Click to the test-taker's profile for all available information or to send them a message.

If you have taken a [DNA test for genealogy](#), [add it here](#). Allow 24 hours for updates.


Limit display to:

Sorted alphabetically by first name. Click a column to resort.

Display density:

Alphabetical	Birth	DNA Test	Test Taker
Baldwin, Rawskwin Courtenay (Courtenay-80?)	12..7	Other yDNA	Azul Bonason-Parrin
Baldwin, Rawskwin Courtenay (Courtenay-80?)	12..7	Other yDNA	John O'Brien
Elizabeth Courtenay (Courtenay-945)	1818	FamilyTreeDNA mtDNA	Brendy Andrew
Francis Courtenay (Courtenay-94)	1682	23andMe	J.BROOKS WATSON

My WikiTree

- Activity Feed
- Add New Project
- DNA Connections 
- Error Report

nes: [COURTNEY](#) (14) [COURTENAY](#) (543) [COURTENY](#) (14) [COURTIN](#) (25) [CARTEN](#) (20) [CORTEEN](#) (15) [COURTENAY](#) (14) [KURTEN](#) (9).

Visual Phasing



**an
advanced tool!**

What might be possible...

Brick walls

- Don't bark up the wrong tree
- Consider whether the X chromosome could be a factor
- Target your testing - Wikitree confirmation aid
- GEDmatch 'autosomal' one to ones don't show the X - always check
- Only 23andme and GEDmatch report matches on 'X' without first matching on other chromosomes

Resources

- ISOGG - https://isogg.org/wiki/X-chromosome_testing
- Blaine Bettinger - <http://thegeneticgenealogist.com/2008/12/21/unlocking-the-genealogical-secrets-of-the-x-chromosome/>
- Roberta Estes - <https://dna-explained.com/2012/09/27/x-marks-the-spot/>
- Visual Phasing - <http://thegeneticgenealogist.com/2016/11/21/visual-phasing-an-example-part-1-of-5/>
- Louise Coakley- X dna helpful inheritance patterns <http://www.genie1.com.au/blog/63-x-dna>
- Wikitree DNA Features - https://www.wikitree.com/wiki/DNA_Features
- Peter Roberts on Wikitree - <https://www.wikitree.com/blog/wikitree-uncovers-xchromosome-ancestral-treasure/>
- SAG Blog - X Inheritance charts, <https://dnasydney.wordpress.com/handouts/x-dna/>
- Charting companion - <http://progenygenealogy.com/products/family-tree-charts.aspx>
- Kerry Farmer - DNA and genealogy <http://www.familyhistoryresearch.com.au/courses/dna/index.htm>