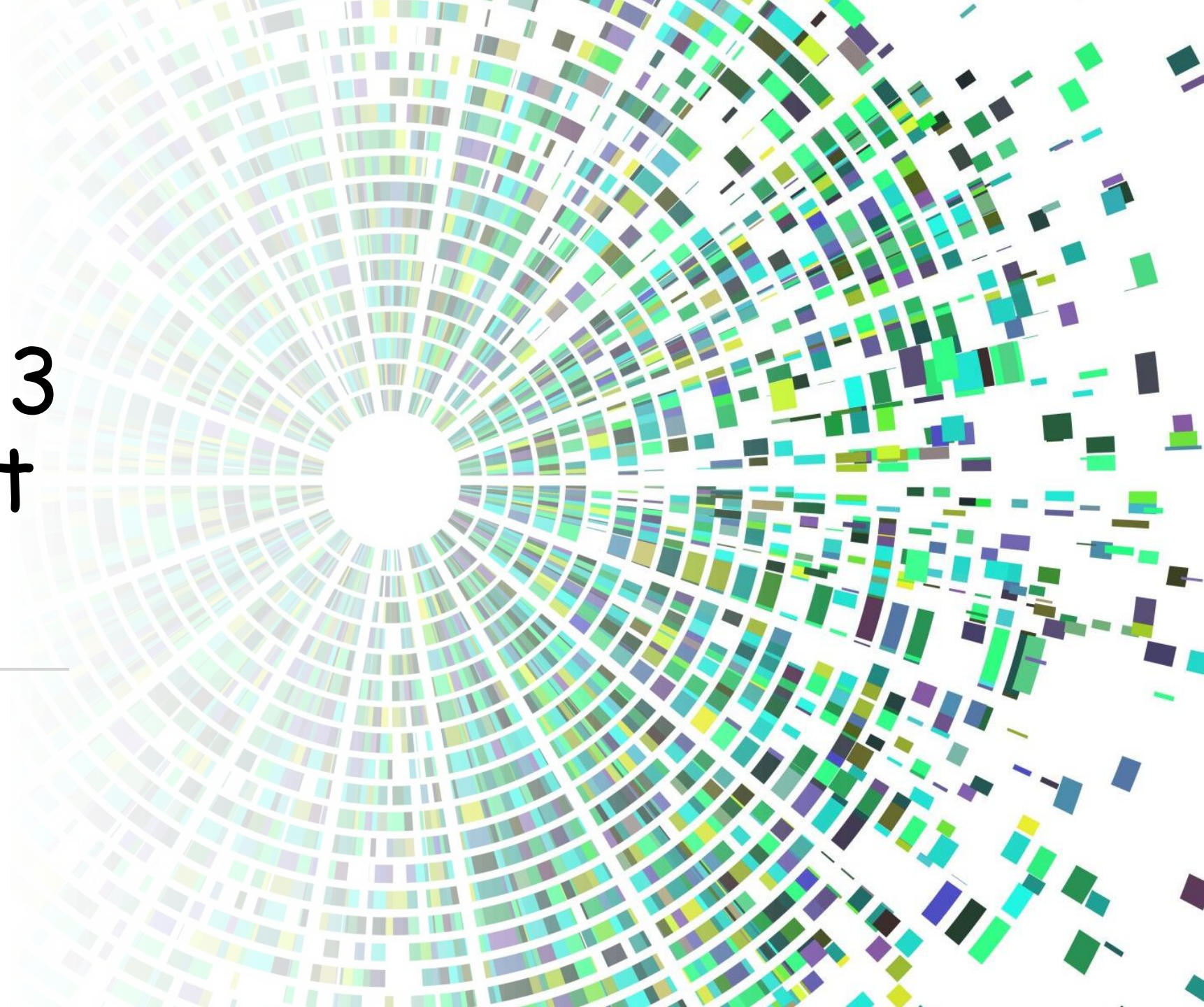


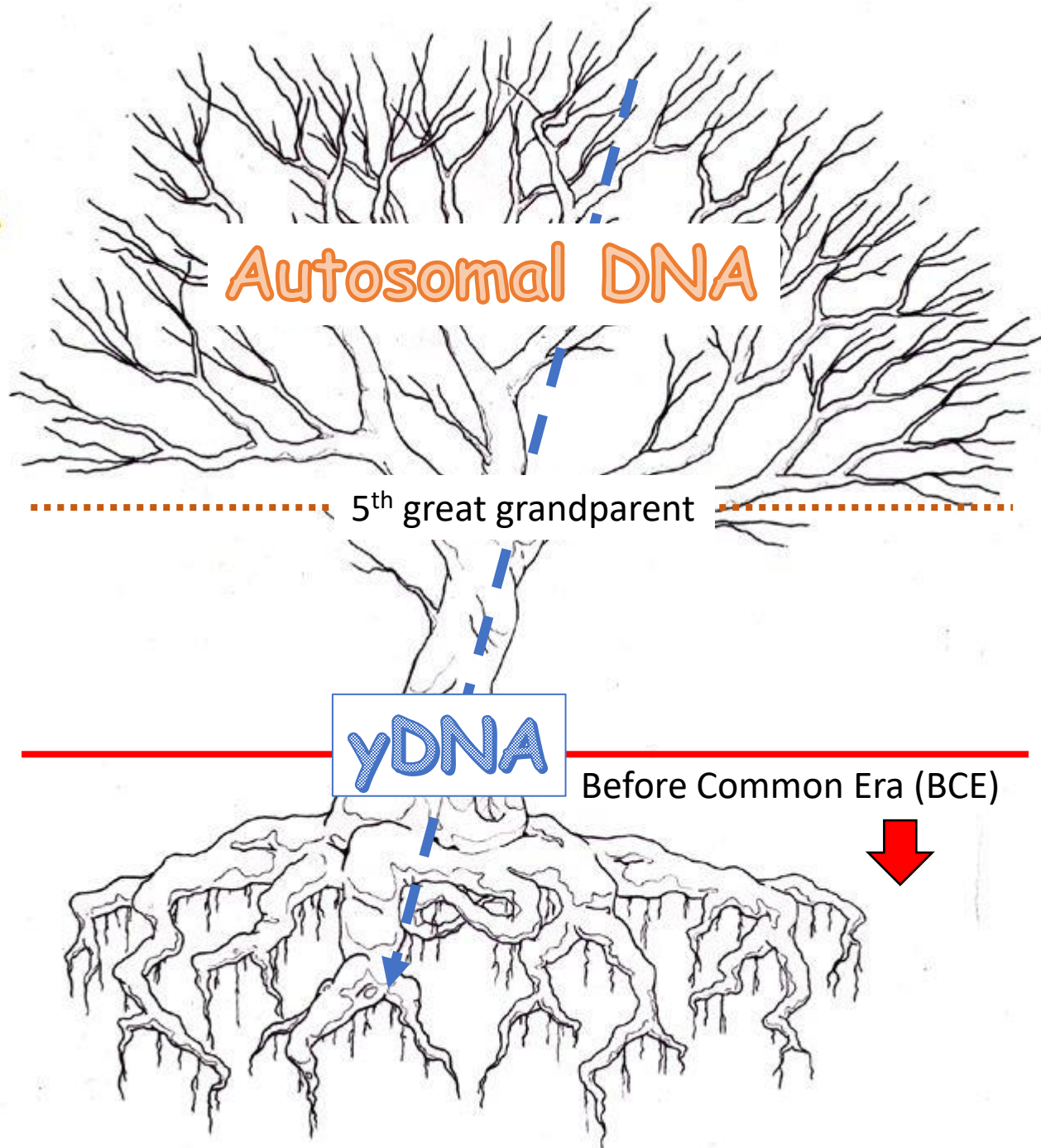


Brandywine Reunion 2023 DNA Project Report

Margie Romine
Tony Cox



DNA Project Goals



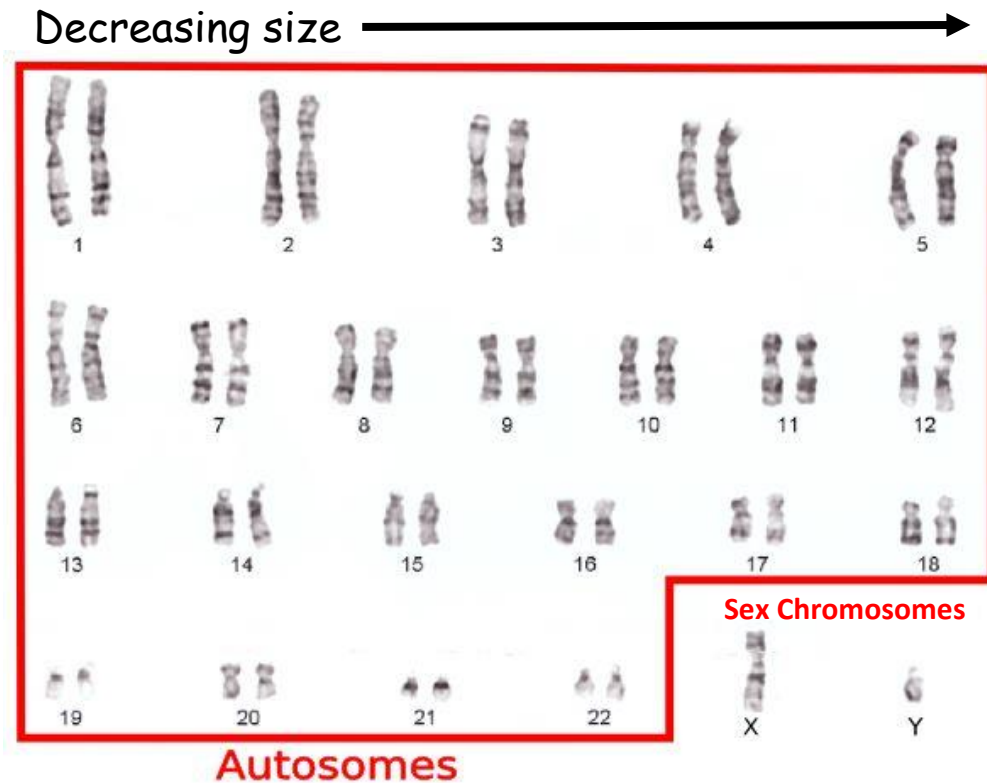
Use **Autosomal DNA** test results to add our recent ancestors to the Cox family tree

- Maternal and paternal lines
- Reaches back to ~5th great grandparents

Use **yDNA** test results to populate the Cox portion of the Tree of Mankind

- Direct Paternal line only
- Can connect to people that lived before the current era (BCE)

What is Autosomal DNA?



Autosomes are the 22 sets (pairs) of chromosomes that we each have.

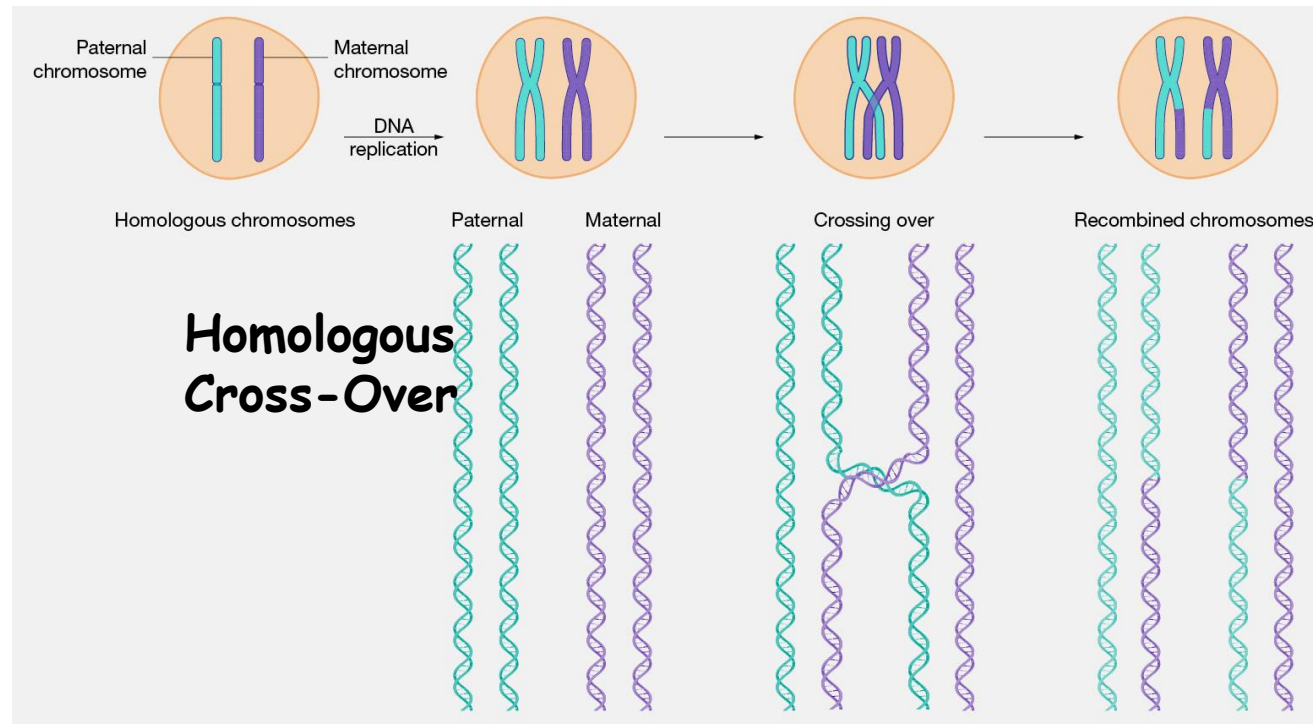
- Members of each set are similar in size and nucleotide sequence (homologous).
- Your parents gave you one member of each pair.

We each also have 2 sex chromosomes

- Women have 2 X sex chromosomes that are homologous.
- Men have one X and one Y sex chromosome.

Autosomal tests from most companies also provide sequence from the X chromosome.

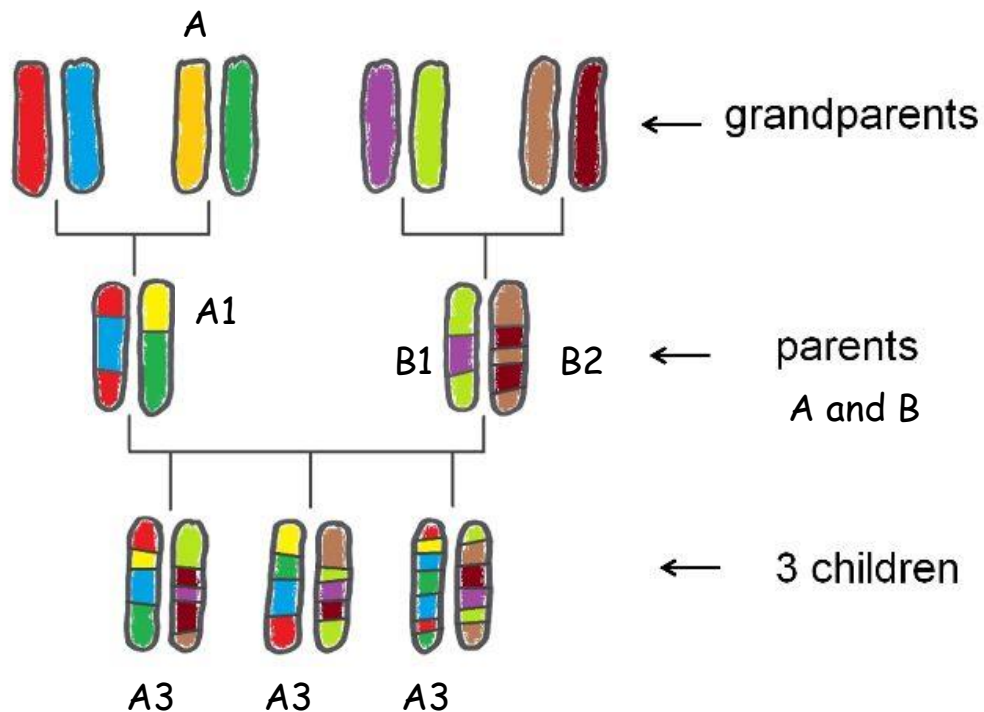
Why does having Homologous Chromosomes Matter?



Recombination yields new chromosomes that each a hybrid of both of your parents.

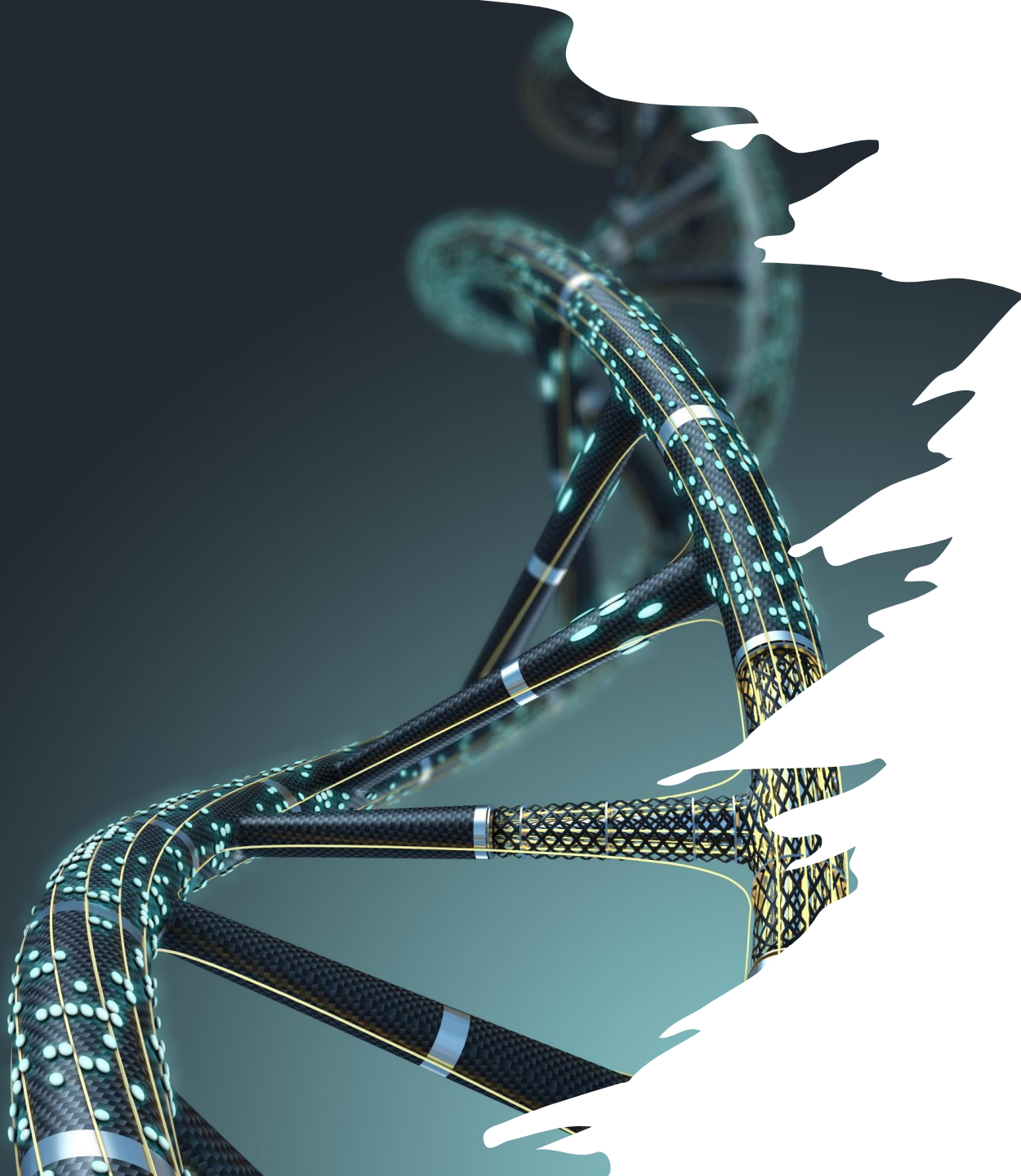
- All chromosomes (autosomes+sex chromosomes) in **women** undergo recombination
- Only the autosomes in **men** undergo recombination.
- Consequently, sex chromosomes in **men** are nearly identical to the ones they inherited from their parents.
- Only the y sex chromosome in **men** remains relatively unchanged from generation to generation.

What are the Long-Term Consequences of Recombination?



Each grandchild inherited a different segment of A1 that originally came from grandparent A

- The length of the segments (cM or centimorgan) inherited from the most ancestral couple reduces in size every generation
- After ~8 generations the size of the segments becomes too small to distinguish from other inherited segments
- Siblings do not inherit the same hybrid chromosome unless they are identical twins



YDNA Project Progress

Transition to the New BigY Test

We have 92 yDNA testers that are descendants of the direct ancestor of the Brandywine Cox's

21 testers have upgraded from an STR test (Y12, Y25, Y37, Y67, or Y111) to the Y700 (BigY) test. Two additional upgrade is currently being analyzed.

This upgrade provides us the ability for the first time to:

- build a tree showing the relationships of the testers
- Estimate the year that ancestors in their line were born
- Participate in Building the Tree of Mankind

How does the BigY Test Differ from the STR Tests?

Y12, Y25, Y37, Y67, Y111

Short Tandem
Repeat (STR)

ACCACACACACATT	(CA) ₅
ACCACACACA--TT	(CA) ₄
ACCACACA-----TT	(CA) ₃
ACCACA-----TT	(CA) ₂
ACCA-----TT	(CA) ₁

- Counts repeats; count unstable
- Placed Brandywine Coxes as descending from a man born around 4,350 BCE!

Y700 (BigY)

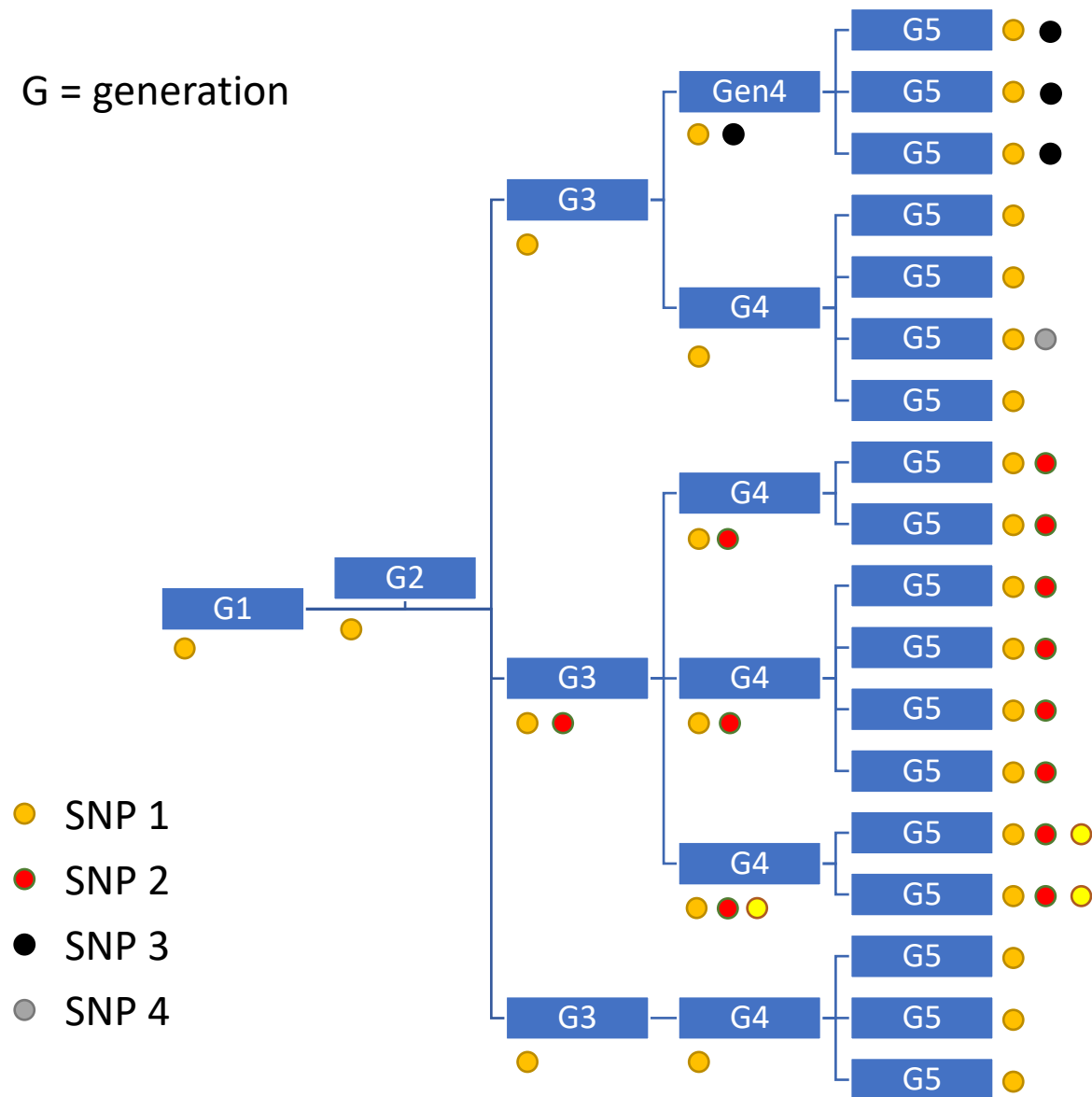
Single
Nucleotide
Polymorphism
(SNP)

ACAAGTTT
ACAAGTTT
ACA T GTTT
ACAAGTTT
ACAAGTTT

- Identifies point mutations in DNA (SNP)
- Establishes relationship between testers
- Identifies approx. time that common ancestor of testers was born

How We Use BigY to Build a Tree

G = generation



Male descendants have every yDNA mutation (SNP) that has occurred in their direct male ancestors (yellow dot in example)

New SNPs occur, **on average**, every 80 years (~3 generations)

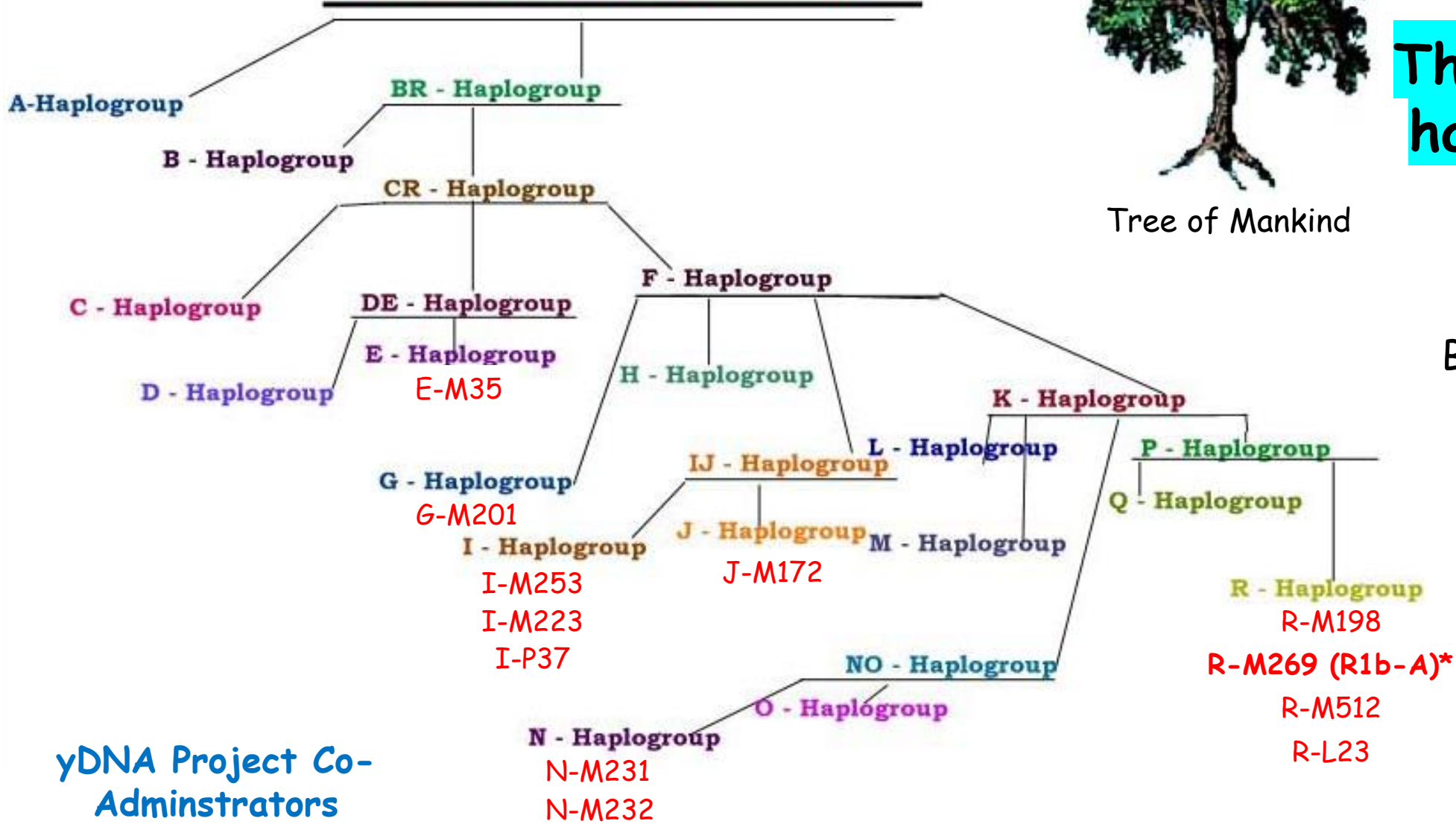
When **two males** have the same SNP it is named (given a haplotype ID) and a new branch point with that ID is added to the Tree of Mankind.

Y chromosome Adam
who belonged to an unknown haplogroup
(Sometimes called Y for Y chromosome)



Tree of Mankind

**The Cox surname
has arisen many
times!**

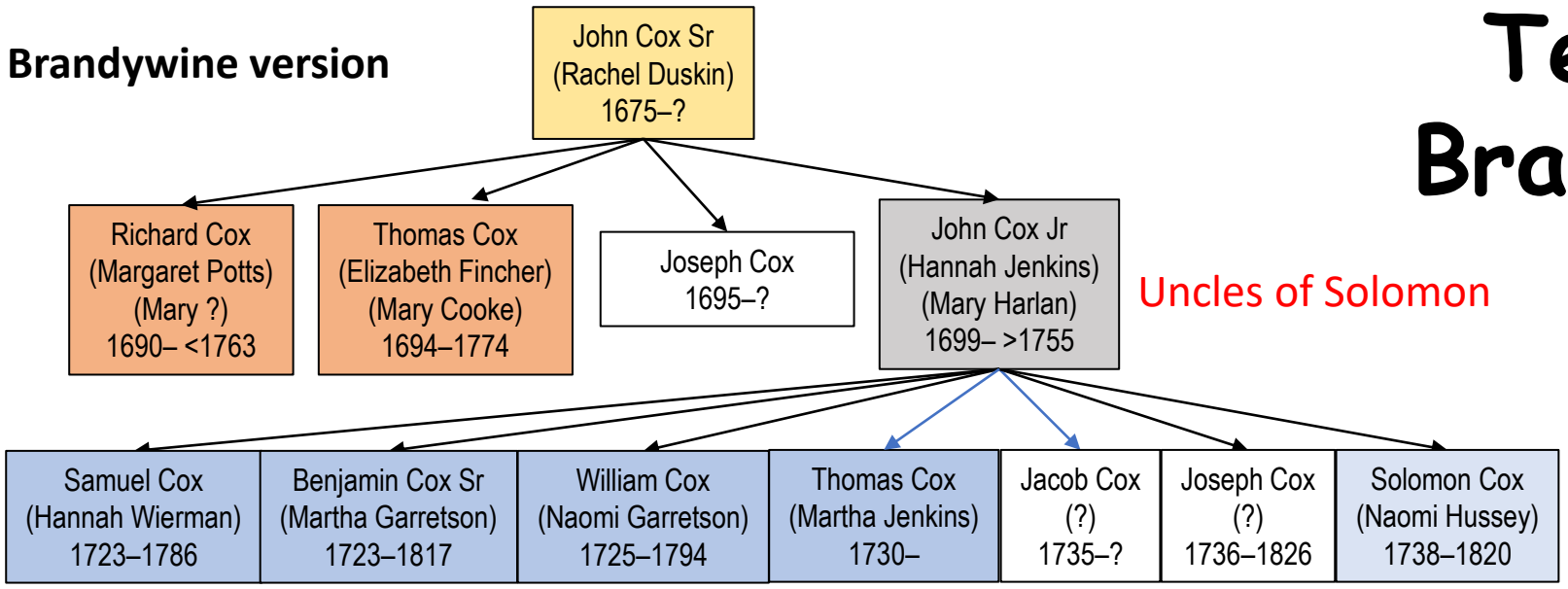


Brandywine Cox's

yDNA Project Co-
Adminstrators
Terry Barwin
Charles Cox

Testing Models of Brandywine Cox Tree

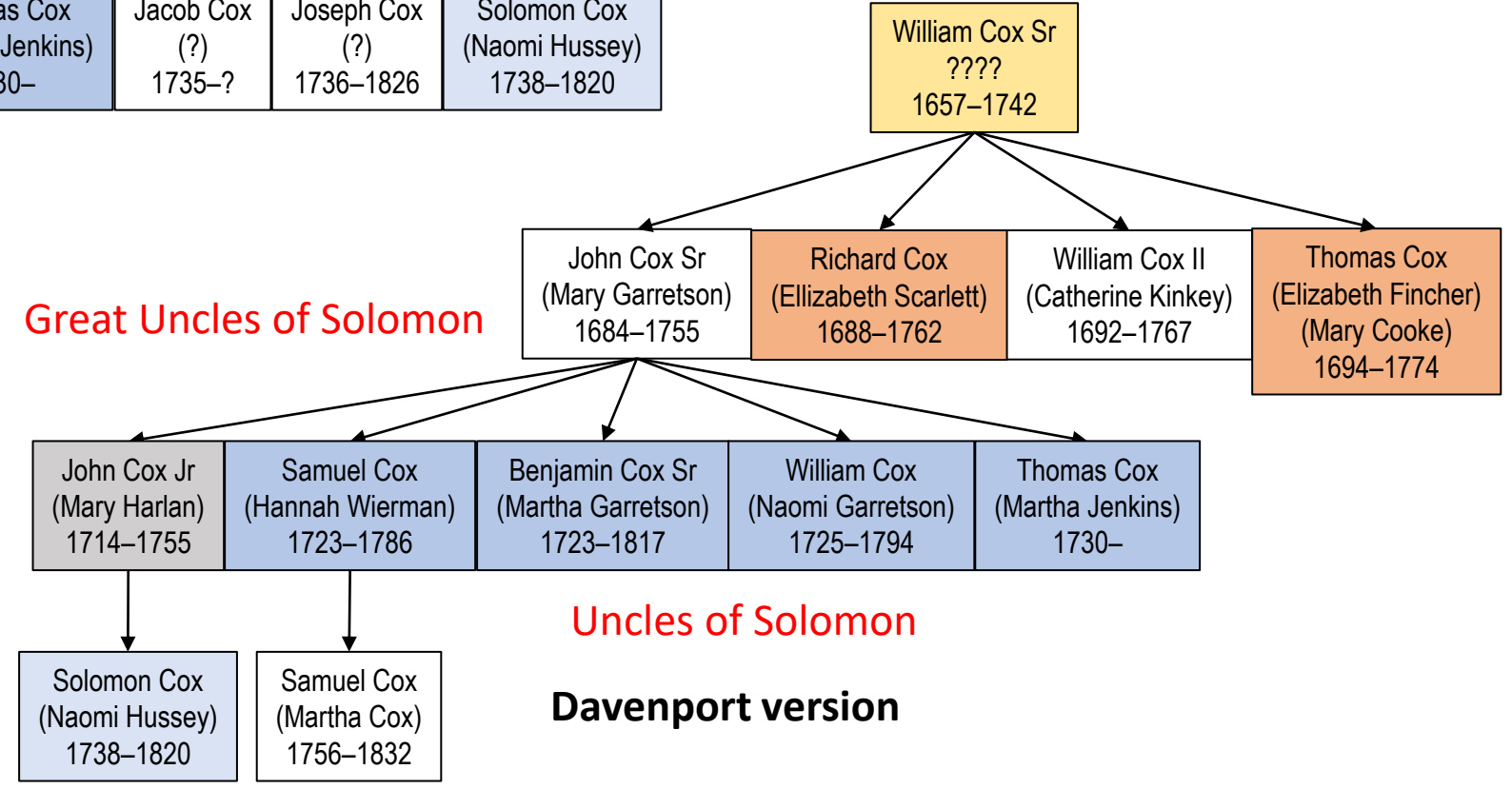
Brandywine version



Uncles of Solomon

Siblings of Solomon

Main difference is placement of ancestors in darker blue

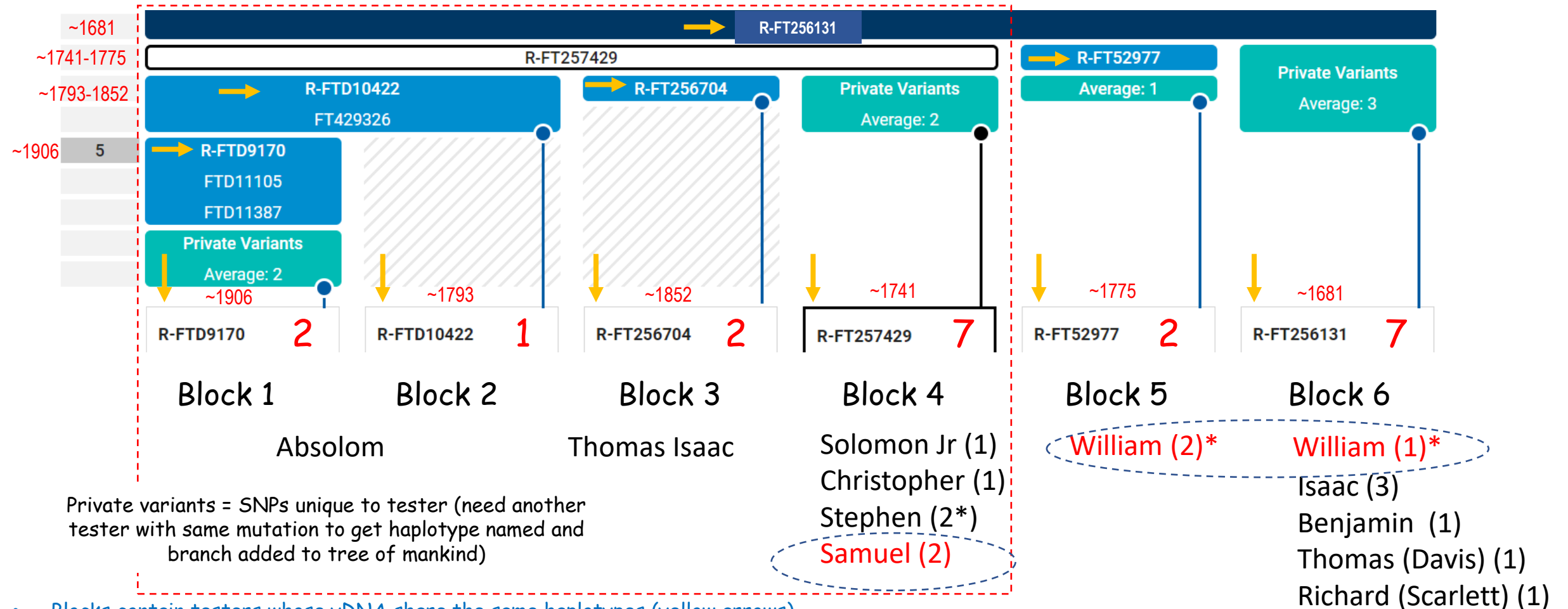


Great Uncles of Solomon

Uncles of Solomon

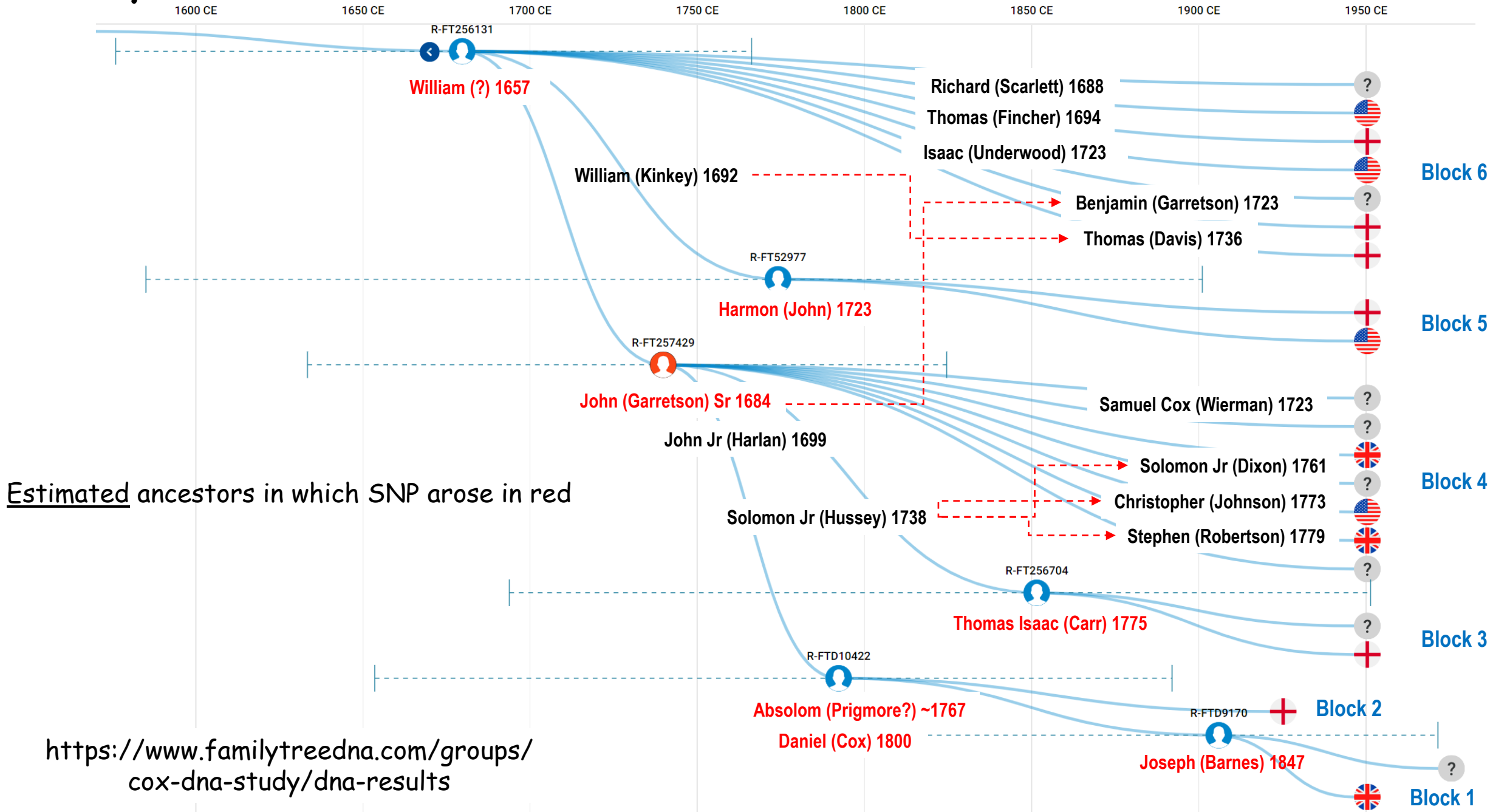
Davenport version

Challenge: Identify which Ancestors SNPs Arose In



- Blocks contain testers whose yDNA share the same haplotypes (yellow arrows)
- Red dates refer to estimated birth date of ancestor in which haplotype arose
- # testers in each block is in red
- Blocks 1-4 include descendants of Solomon Cox/Naomi Hussey as well as Samuel Cox/Hannah Wierman - places origin of haplotype R-FT25429 in ancestor of Solomon
- Descendants of William Cox/Catherine Kinkey in both Block 5 and 6; therefore, no SNP originated in William

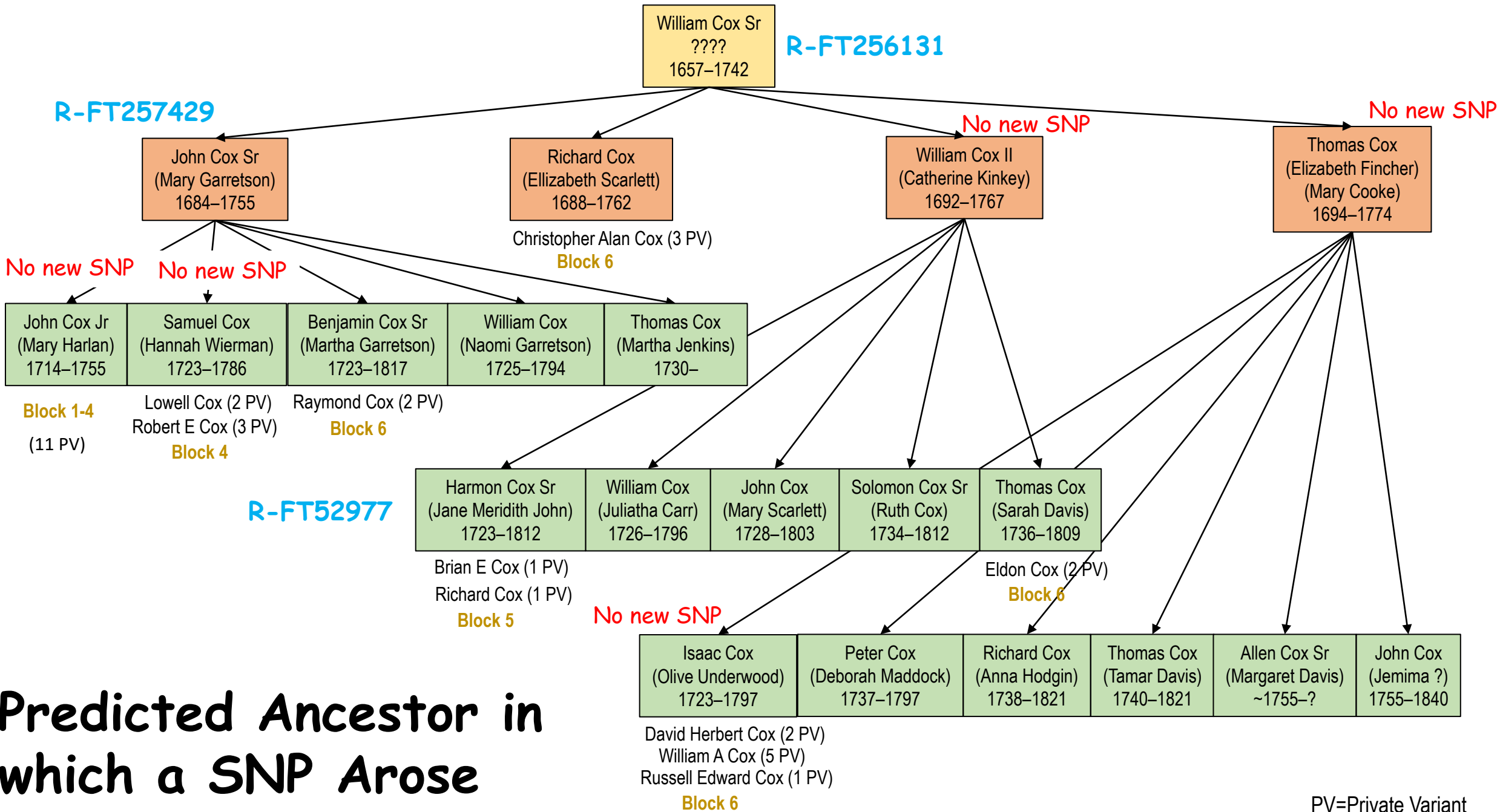
Brandywine Cox Time Tree



Estimated ancestors in which SNP arose in red

<https://www.familytreedna.com/groups/cox-dna-study/dna-results>

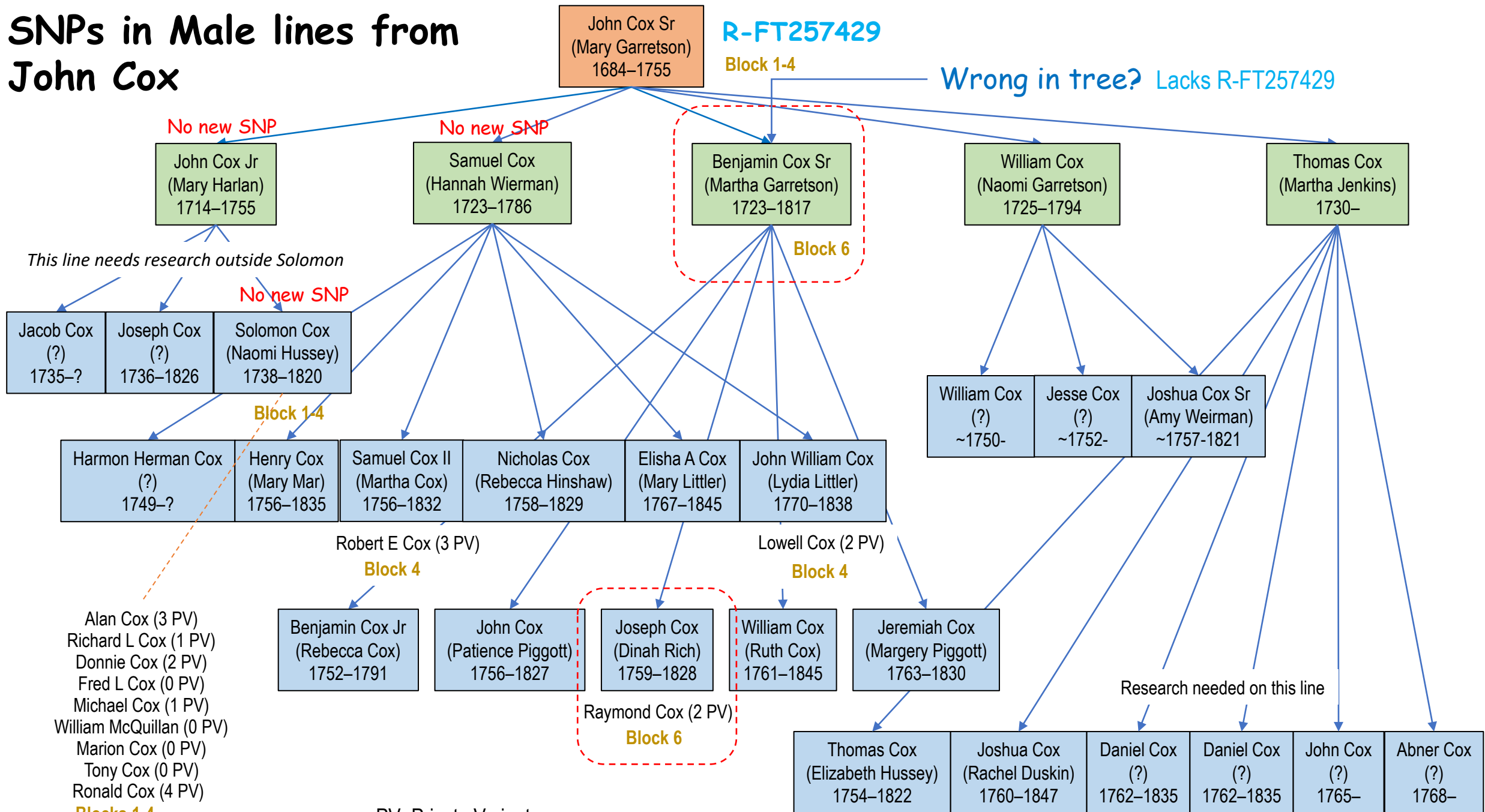
William of Gloucester



Predicted Ancestor in which a SNP Arose

PV=Private Variant

SNPs in Male lines from John Cox



PV=Private Variant

Male lines from Solomon Cox 1738-1820 and Naomi Hussey

Generation 1

Generation 2

Solomon Cox II
(Martha & Mary Dixon)
1761-1846

Joseph Cox
(Amy Baker)
1789-1869

Benjamin Cox
(Casiah Barbee)
1791-1888

Elkanoah Cox
(Nancy Ann Lee)
1792-1858

Nathan Cox
(?)
~1814-?

Stephen Cox
(Mary Dowell)
~1816-?

Solomon Cox
(Nancy Cooper)
1820-1880

Need another tester that descends from Joseph and other lines

Alan Cox (3 PV)

John Cox
(Margaret McCray)
1765-1810

Andrew J Cox
(Elizabeth Smith)
1792-1860

William Cox
(Elizabeth Erganbright & Martha Dunn)
1794-1869

Hypothetical line, not yet proven

Need any tester from this line

R-FTD10422

Absalom Cox Sr
(multiple proposed)
1767-1846

John Cox
(Sarah Cline)
1796-1839

Daniel Cox
(Amy Cox)
1800-1875

Absalom Barton Cox Jr
(Diannah Cox & Dialtha Bird)
1802-1884

Joseph Cox
(Hannah Helsey)
1804-1878

Need another tester in another Gen 2, not descendant of Daniel Cox

Richard L Cox (1 PV)
Donnie Cox (2 PV)
Fred L Cox (0 PV)

Christopher Cox
(Hannah Johnson)
1773-1863

William Cox
(Elizabeth Jackson)
1803-1873

Cornelius Cox
(Katherine Jackson)
1806-1856

Need another tester in another Gen 2 line

R-FT256704

Thomas Isaac Cox
(Rachel Carr)
1775-1845

Solomon Cox
(Elizabeth Johnston)
1798-1835

Nathan Columbus Cox
(Dorcus King)
1800-1887

Jehu Cox Sr
(Sarah Pyle)
1803-1893

Michael Cox (1 PV)

Randall Cox (2 PV)

No new SNP

Stephen Cox Sr
(Mary Robinson)
1779-1860

John Cox
(?)
1800-1845

Jesse Cox
(Elizabeth ?)
1805-?

Nathaniel Cox
(Mary Cox)
1806-1830

Solomon Cox
(Catherine)
1808-?

Stephen A Cox
(Rebecca Mahan)
1809-1860

Christopher Cox
(Charlota Jones)
1810-1876

Luke Cox
(Elizabeth Oliver)
1814-1843

Joseph Cox
(?)
1822-?

William McQuillan (0 PV)

Marion Cox (0 PV)

Tony Cox (0 PV)

Ronald Cox (4 PV)

William Henry Cox Sr
(Martha Cantrell)
1782-1856

Joshua Cox Sr
(Nancy Mitchel)
1806-1900

Nathaniel Henry Cox Sr
(Margaret Cantrell)
1810-1902

John T Cox
(?)
1812-1838

Hugh Cox
(Caroline Cantrell)
1814-1887

Silas Milas Cox
(Polly Helms)
1815-1837

William Henry Cox Jr
(Leticia Larrison)
1816-1891

Jessie Cox
(Hester Beckett)
1825-1900

Isaac Cox
(Mary Mouser)
1833-1916

Hypothetical line supported by DNA triangulation

Joshua Cox*

Father's day sale at
FamilyTreeDNA now
until Jun 18!

Cox Men



We need 2 tests that
share the same SNP to
fill out the Brandywine
Cox branch of the Tree
of Mankind!

Descendants of Solomon Cox/Naomi Hussey

- Absalom -> Daniel: 3 testers - 3 unnamed SNPs under son Joseph
- Thomas -> Nathan or Solomon: 0 testers (1 haplotype under Jehu, but 0 unnamed SNPs)
- Solomon Jr -> Joseph line: 1 tester - 3 unnamed SNPs
- Solomon Jr -> Elkanoah: 0 testers - Is he a descendent of Solomon?
- Christopher -> Cornelius: 1 tester - 1 unnamed SNPs
- Stephen -> Stephen: 1 tester - 4 unnamed SNPs (0 unnamed SNPs under son John)
- William -> Nathaniel: 1 tester - TBD (**Uvalde Cox line**)
- John or Michael: 0 testers - Is he a descendent?

Descendants of John Cox/Mary Garretson

- Samuel -> Samuel: 1 tester - 3 unnamed SNPs
- Samuel -> John: 1 tester - 2 unnamed SNPs
- Benjamin -> Joseph: 1 tester - 2 unnamed SNPs
- Thomas and William: 0 testers

Descendants of William Cox/Catherine Kinky

- Harmon -> William: 1 tester - 1 unnamed SNP
- Harmon -> Jacob: 1 tester - 1 unnamed SNP
- William, John, or Solomon: 0 testers!
- Thomas -> Charles: 1 tester - 2 unnamed SNPs

Descendants of Thomas Cox/Elizabeth Fincher

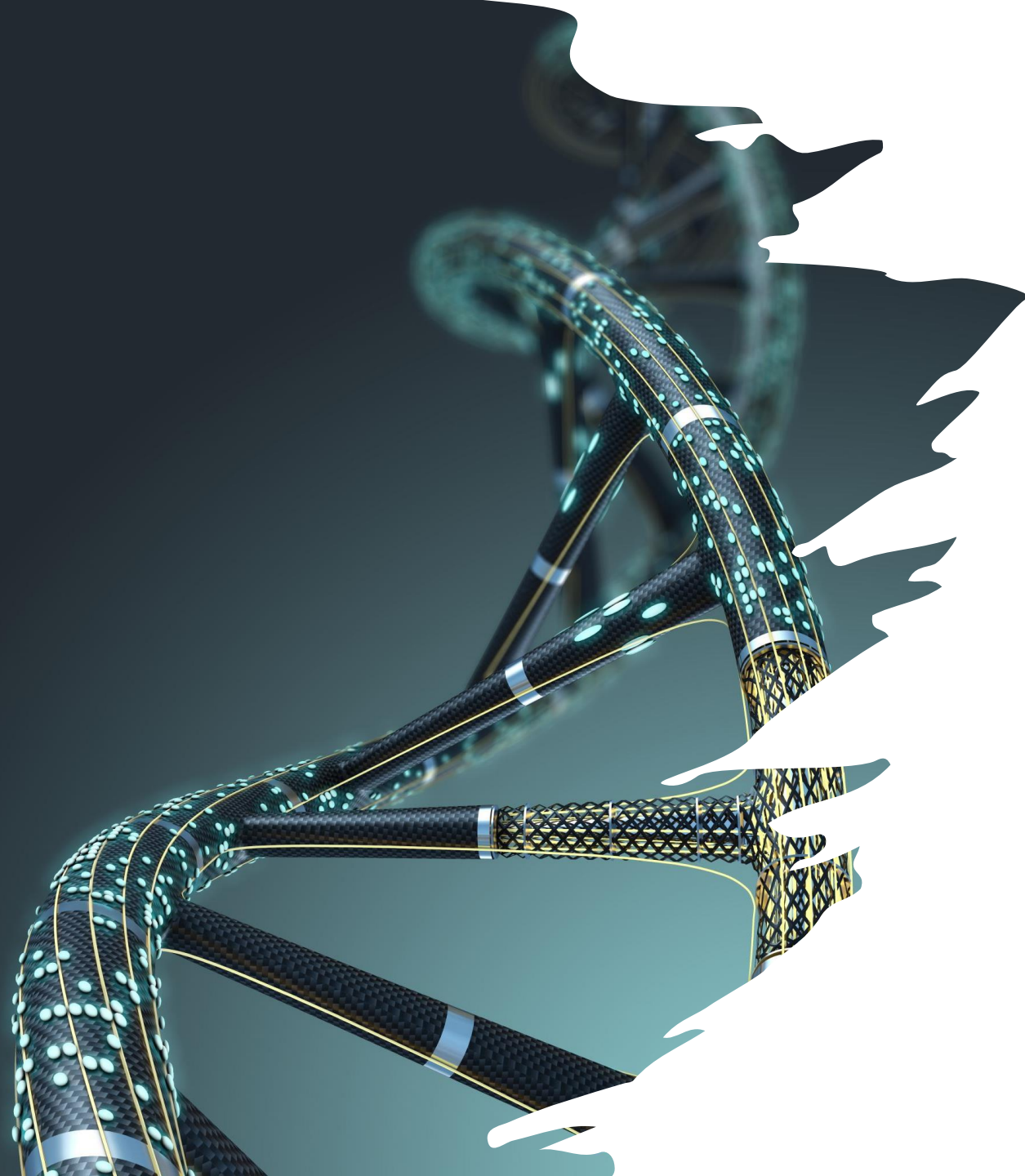
- Isaac -> Isaac: 1 tester - 1 unnamed SNPs
- Isaac -> Thomas: 2 testers - 7 unnamed SNPs
- Peter, Richard, Thomas, Allen, or John: 0 testers!

Descendants of Richard Cox/Elizabeth Scarlett

- Abraham -> Abraham: 1 tester - 3 unnamed SNPs
- Nathaniel, William, or Richard: 0 testers!

Block 4

Block 6



**Quaker Cox
Gedmatch
Ancestor Project
for autosomal
studies**

Autosomal Analysis at Gedmatch

Why Join?

- It is free to register (<https://www.gedmatch.com/>)
- Most autosomal test results are accepted
- Many of the tools are free
- You can find more matches
- You can get data to map your shared DNA segments to your genome
- You can join the [Quaker Cox Surname Ancestor Project](#) which **Tony Cox** and I use to identify new lines in our family tree.



Upload Your DNA

Generic Uploads (23andme, FTDNA, AncestryDNA, most others)



Free Tools

One-To-Many - Limited Version

One-To-Many - Original Version

Relationship Probability

One-to-One Autosomal DNA Comparison

One-to-One X-DNA Comparison

Admixture (heritage)

Admixture / Oracle with Population Search

People who match both, or 1 of 2 kits

DNA File Diagnostic Utility

Analyze DNA file upload for potential problems.

Are your parents related?

3-D Chromosome Browser

Archaic DNA Matches

Ancestor Projects

Goal: Identify most recent common ancestor (MRCA) between testers

How to use the Quaker Cox Ancestor Project

Segment Analysis Search Projects

Segment Analysis

Margie romine

Select a Project:

- Member - Duke/Dukes Surname Study
- Member - Meredith Family of Kentucky
- Member - Pfeiffer/Phifer Family World Project
- Administrator - Quaker Cox Surname Project
- Member - Schleswig-Holstein ancestor group

GEDmatch Kit Number:

Lower Segment cM Threshold: (Default=7)

Upper cM Segment Threshold: (Default=300)

Lower MRCA/generations limit: (Optional, Values: 1.0-99.0, Default: 1.0)

Selected Chromosome: (Optional)

Enter Gedmatch number here
(found on your home page under
"Your DNA Resources")



Consider raising this value to 10



Exclude Chromosome 23: (Optional)

Sort Options:

- Kit Number
- Name
- Email
- Segment Start
- Segment End
- cM
- Most Recent Common Ancestor
- Source
- Y-Haplo
- Mt-Haplo



At bottom of
screen click on
"Submit"

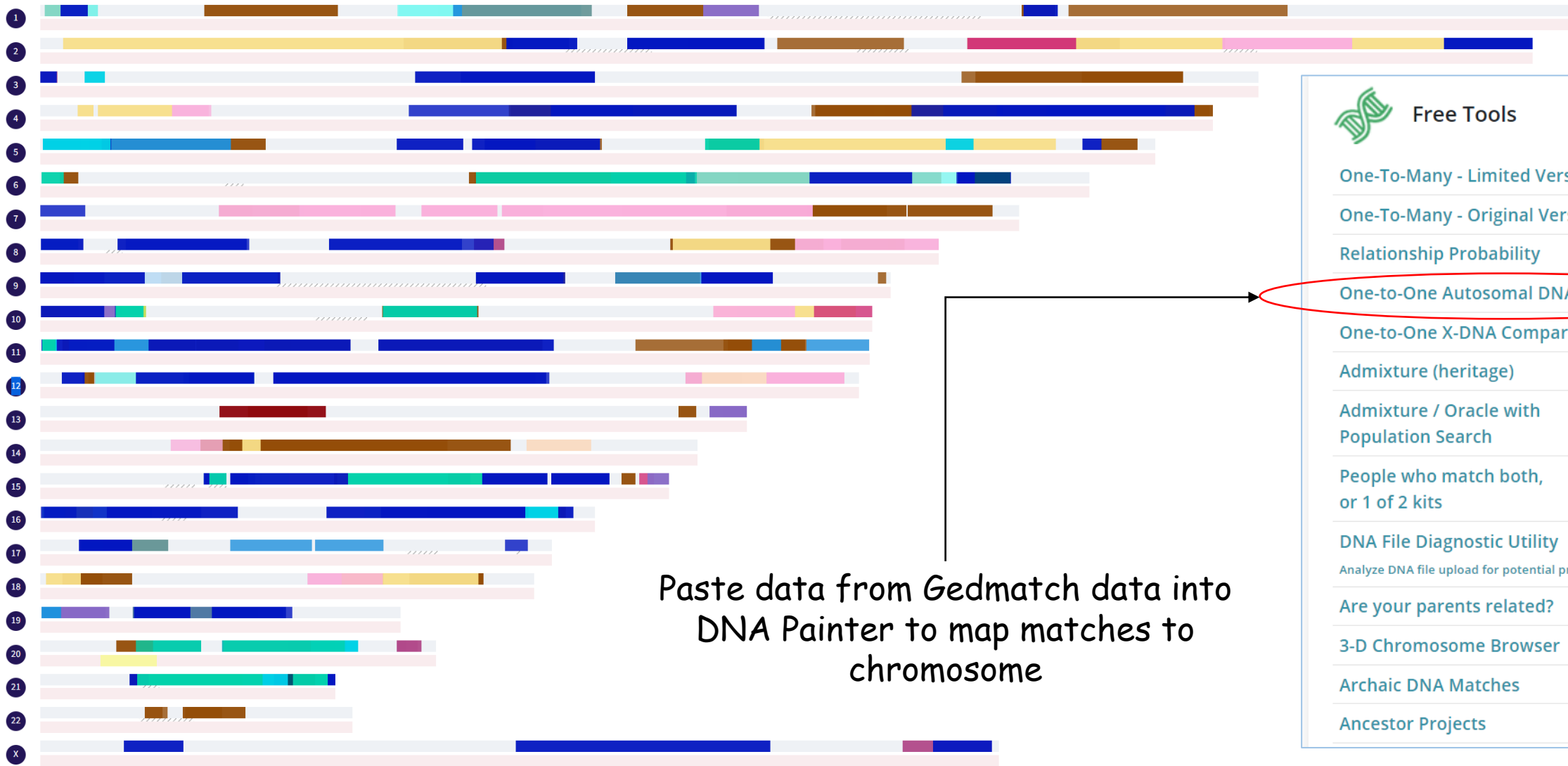
MKA	Kit	Name	Tree?	Chr	Start	End	cM	SNPs	Overlap	MRCA	Email	Y-haplo	MT-haplo	Source	Segment
✓		Kathy Hays Curtis	①	1	67209088	88057291	18.4	3001	445011	4.27	kfcemt@outlook.com		H6a1b	Migration - V3 - M	
✓		*DD Lilla	①	2	228507831	243044147	28.9	2731	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		Scott Wagner	①	3	61054494	90272326	29	4173	458770	3.63	scottwagnerhomes@gmail.com			Ancestry	
✓		*DD - MW	①	3	68480290	90272326	16.9	2332	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*DD Lilla	①	4	155786387	187969329	50.5	5091	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD - MW	①	4	167571068	183187854	21.5	2443	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		Connie L Birth	①	5	457261	8077509	21.8	1965	425309	4.68	clbirth@sbcbglobal.net			Migration - F2 - A	
✓		Lucretia Becker Neill	①	5	457261	11461920	29.9	3093	460993	4.45	lucretianell04@sbcbglobal.net			Ancestry	
✓		*DD Lilla	①	5	4407484	11539795	17.8	1713	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		Kathy Hays Curtis	①	5	11392036	31095369	20.2	2447	445011	4.27	kfcemt@outlook.com		H6a1b	Migration - V3 - M	
✓		*DD Lilla	①	5	72419041	91093880	22.2	2598	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		Tiffany Currin	①	6	70926334	105155782	24.1	4157	422400	4.61	tiffanycurrin@gmail.com			Migration - F2 - A	
✓		Scott Wagner	①	6	125276801	141964290	19.6	2607	458770	3.63	scottwagnerhomes@gmail.com			Ancestry	
✓		*DD - MW	①	9	46587	17008137	37.4	4470	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*DD Lilla	①	9	23073339	39098698	17.9	2517	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD Lilla	①	9	70961350	85168848	16.5	2317	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD Lilla	①	9	107624029	119172047	16.7	2314	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD Lilla	①	10	135656	10402541	25.7	2593	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		Alva Scott	①	10	3166345	12431367	22.1	2369	428012	3.98	bs_aggie@sbcbglobal.net			Migration - F2 - F	
✓		*DD Lilla	①	11	199256	12072099	24.5	2574	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD Lilla	①	11	17597381	50551954	37.9	4705	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD Lilla	①	11	54875038	83620940	25.3	3456	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		*DD - MW	①	12	15570079	34778715	22.6	3125	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*DD - MW	①	12	37942622	80613882	38.8	5531	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		Alva Scott	①	13	109101188	115090019	16.3	1300	428012	3.98	bs_aggie@sbcbglobal.net			Migration - F2 - F	
✓		*DD - MW	①	15	30958935	51968401	28.1	3136	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*Mom	①	15	50090256	71925114	28.1	3633	424412	4.5	always_impatient@yahoo.com			Migration - F2 - A	
✓		Myrtice Munday-Phears	①	15	50101072	65117822	16.3	1058	179912	4.89	kdmunday@pm.me			MyHeritage	
✓		Charles McDonald	①	15	50137718	72074505	28.3	3817	440753	4.49	cmcdonald@rytgolf.com	R-M269		Migration - F2 - A	
✓		Tamela Myree Thompson	①	15	50149120	66427278	17.9	2656	425648	4.82	tamela@palconhd.com	Y-46	mtDNA	Migration - F2 - A	
✓		*Mary Nell Vernor (nee Sweeten)	①	15	50150903	66401410	17.8	2660	427722	4.83	ruthforeman@rocketmail.com			Ancestry	
✓		Aaron J. Williams	①	15	50150903	70362560	25.2	4152	523356	4.58	gina.saporito@gmail.com			Ancestry	
✓		Rhonda Lynn Melton	①	15	50184767	71993353	28.2	3636	425201	4.5	always_impatient@yahoo.com			Migration - F2 - A	
✓		Lori Pyles	①	15	50208508	63215651	15.1	2223	411571	4.95	lorijpyles@outlook.com			Migration - F2 - A	
✓		*Mom_H	①	15	50551632	72103427	28.3	3596	425564	4.49	ace_reba@yahoo.com			Migration - F2 - A	
✓		V.B. Munday	①	15	58812199	71921635	20.1	1014	178647	4.74	kdmunday@pm.me			FTDNA	
✓		*DD - MW	①	16	10843085	32137965	32.1	3115	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*DD - MW	①	16	46539392	78823734	38.7	4732	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*DD Lilla	①	16	55512322	79997583	31.3	3811	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		Scott Wagner	①	16	62948963	79341575	19.1	2748	458770	3.63	scottwagnerhomes@gmail.com			Ancestry	
✓		Diana Elder	①	16	79008781	84307087	17.7	599	145390	4.83	delder999@gmail.com		U5b1c	23andMe	
✓		*DD - MW	①	17	6327551	14955334	28.2	2164	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		Alva Scott	①	19	3647901	10672493	19.3	1341	428012	3.98	bs_aggie@sbcbglobal.net			Migration - F2 - F	
✓		Wanda Baggett	①	20	29540629	49597117	23.4	2071	290140	4.63	teroy44w@yahoo.com		H	Migration - V4 - M	
✓		*Karen Ann Russell	①	20	29540629	51741616	27.4	3537	426538	4.52	karenhughes111@att.net			Migration - F2 - A	
✓		Raymond D Russell	①	20	29540629	51775840	27.4	3519	424068	4.18	karenhughes111@att.net			Migration - F2 - A	
✓		*DD - MW	①	21	14601415	48077812	69.8	6391	411326	2.71	lisambrogan@yahoo.com			Migration - F2 - A	
✓		*Misraelsen	①	21	15749857	32855150	30.6	3157	425690	4.44	misraelsen1@gmail.com			Migration - F2 - A	
✓		Mina Jenks	①	21	17655042	36228360	31.9	3688	460958	4.41	Kerrineilson@yahoo.com			Ancestry	
✓		Scott Wagner	①	21	17763748	33354764	26.5	3021	458770	3.63	scottwagnerhomes@gmail.com			Ancestry	
✓		Rhonda Knight	①	21	19472111	46822508	53.8	6935	523425	4.03	Carriekelley@aol.com			Ancestry	
✓		*DD Lilla	①	21	19666910	48077812	56.1	5488	411634	2.64	lillasandelin@aol.com			Migration - F2 - A	
✓		Raymond D Russell	①	21	28390248	38075313	16.2	1766	424068	4.18	karenhughes111@att.net			Migration - F2 - A	
✓		Jim Broomhall	①	21	36521655	45391752	23.1	2172	425844	4.64	mlass165@gmail.com	R-M269	T1	Migration - F2 - T	
✓		Charles McOmber	①	21	41160938	46859717	16.3	1505	417124	4.89	jared.m.pratt@gmail.com			Migration - F2 - T	
✓		Susan Lemmons	①	21	41221256	46807499	16	1929	523972	4.9	jared.m.pratt@gmail.com			Ancestry	
✓		Ruth McOmber Davis	①	21	41260194	46807499	15.9	1463	419190	4.91	jared.m.pratt@gmail.com		U3a1	Migration - F2 - A	

Using Triangulation to Identify MRCA

Triangulated groups all share a single common ancestor

- Match on same chromosome
- Match in same position of a chromosome
- At least 3 people in match group (not too closely related)

Viewing Inherited Segments in DNA Painter



Paste data from Gedmatch data into DNA Painter to map matches to chromosome

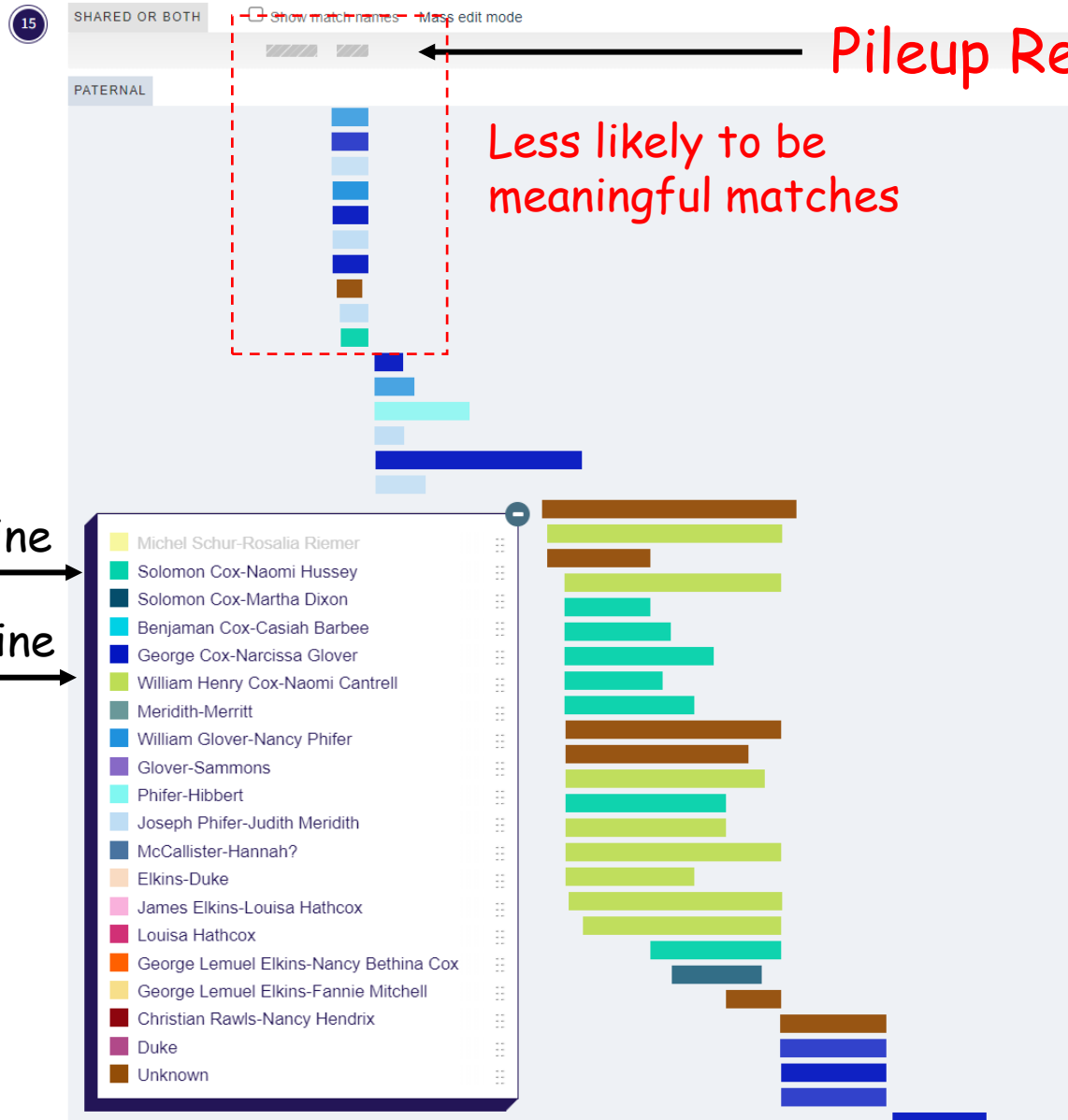


Free Tools

- One-To-Many - Limited Version
- One-To-Many - Original Version
- Relationship Probability
- One-to-One Autosomal DNA Comparison
- One-to-One X-DNA Comparison
- Admixture (heritage)
- Admixture / Oracle with Population Search
- People who match both, or 1 of 2 kits
- DNA File Diagnostic Utility
Analyze DNA file upload for potential problems.
- Are your parents related?
- 3-D Chromosome Browser
- Archaic DNA Matches
- Ancestor Projects

<https://dnainter.com/>

Discovery of new line under Solomon Cox/Naomi Hussey



My Cox Line

- 5th gg - Solomon Cox-Naomi Hussey
- 4th gg - Solomon Cox-Martha Dixon
- 3rd gg - Benjamin Cox-Casiah Barbee
- 2nd gg - William Cox-Elizabeth McAllister
- gg - George Riley Cox-Narcissa Glover
- Grandmother - Nancy Cox-George Elkins

In Ancestry.com I found 57 matches between myself and descendants of William Cox (b. ~1782) - Uvalde Cox line brick wall (7-42 cM)

Matches are descendants of children Joshua, Joseph, Nathaniel Henry, Hugh, William Henry, Lucinda, and Rebecca (8 of 14 children)

Common ancestors no earlier than Solomon/Naomi

Quaker Cox Ancestor Project: 255 Tests

Solomon Cox - Naomi Hussey (122)

- 35 Solomon
- 15 Martha
- 10 Absolom
- 1 Mary
- 8 Christopher
- 24 Thomas Isaac
- 6 Naomi
- 23 Stephen
- 0 Ruth

Other

- 18 Samuel Cox - Hannah Wierman
- 5 Benjamin Cox - Martha Garretson
- 1 Mary Dinah Cox - Finley McGrew
- 25 William Cox - Catherine Kinkey
- 8 Thomas Cox - Elizabeth Fincher line
- 14 Uvalde Cox line
- 46 with brick wall

- Tests in project are biased toward Cox-Hussey line
- Most useful tests are from people whose 5th great grandparents are the furthest generation back
- I need your Gedmatch ID and your Cox line (birth date, death date, spouses name) to add you to the project



Guys and Gals that descend from a Quaker Cox

Questions?

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