



Autosomal DNA Tests – Part 2

Using Autosomal DNA to find your cousins



Autosomal DNA – Part 1

- **Basic genetics: DNA, mutations & SNPs**
- **The DNA testing process**
- **Compared the 3 companies**
- **Reviewed their ‘Ethnicity Reports’**



SURVEY

Attended ‘Autosomal DNA – Part 1’?

Have tested and received results?

Company used?

- **FamilyTreeDNA?**
- **23&Me?**
- **AncDNA?**
- **Tested at 2 DNA Co’s? 3 DNA Co’s?**



Goals

- **What really is a match?**
- **Review of each company's tools**
- **Chromosome Browsers & Associated Tools**
- **The importance of 'Triangulated Groups'**
- **A comprehensive plan based on segment analysis**
- **Two Key '3d Party Tools'**



Part 1: Key Points

- DNA is passed down more unevenly for distant ancestors
- Eventually we receive no DNA from some ancestors
- atDNA testing limited to 5-6 generations (4th cousins)
- Siblings inherit varying segments of parental DNA
- DNA test can't tell which parent contributed which base in a pair*

(* unless you test at least one parent and do a bit of work)



Matches

- The more segments you share the closer you are to your match
- The more DNA you share in large segments the closer you are
- Shared segments are often measured in centiMorgans (cM)

“A centiMorgan is equal to a 1% chance that a marker at one genetic locus on a chromosome will be separated from a marker at a second locus due to crossing over in a single generation”

- centiMorgans are statistical estimates of equal distance (genetically) from one point to another – ‘DNA yardsticks’



Working with Cousins Who Match Your DNA

Here is where the work begins

Matches displayed highest to lowest relationship (default)

Make it easy on your matches:

- up-to-date email address
- oldest known paternal/maternal ancestor, date, location
- detailed list of ancestral surnames, dates, locations
- pedigree chart (GEDCOM or PDF) for them to use



What Is A Match?

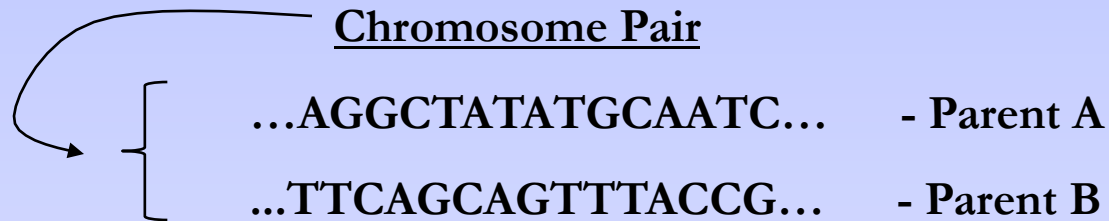


What Is A Match?

“A genetic match is another tester who has a run of identical SNPs long enough to exceed the testing companies threshold for relatedness.”

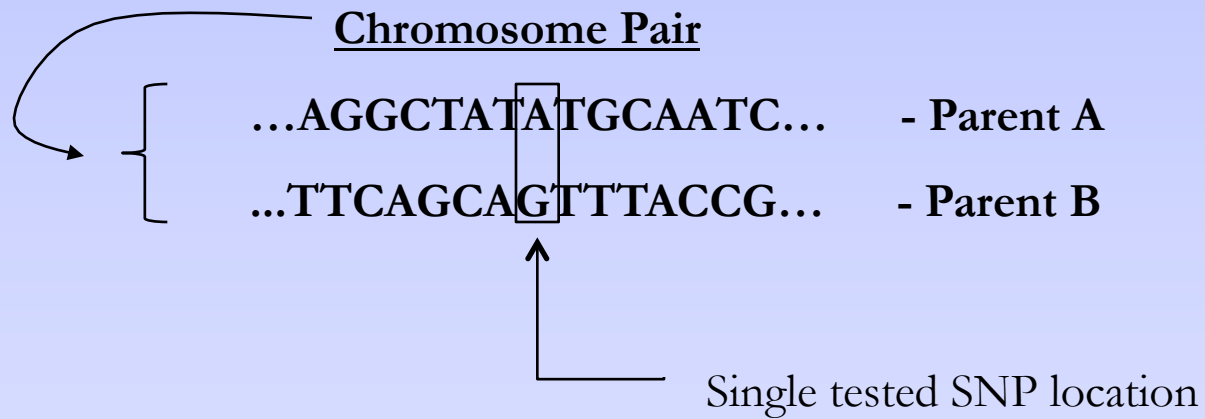


What Is A Match?





What Is A Match?





What Is A Match?

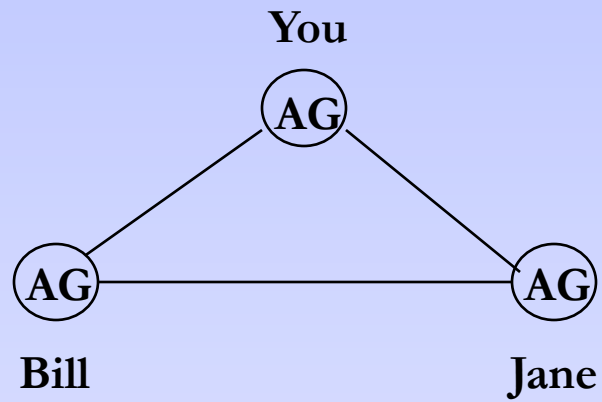
Your result = 'AG'

Match 1 = Bill

Match 2 = Jane

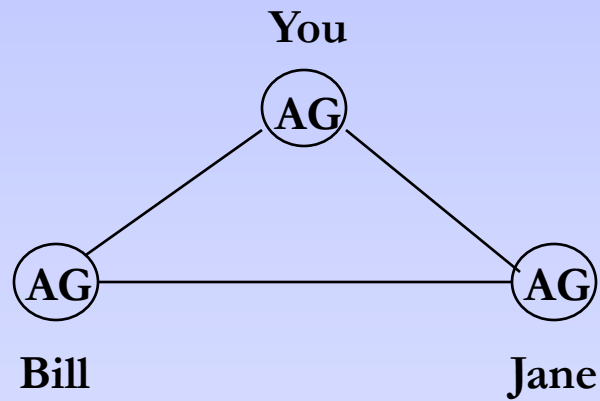


What Is A Match?





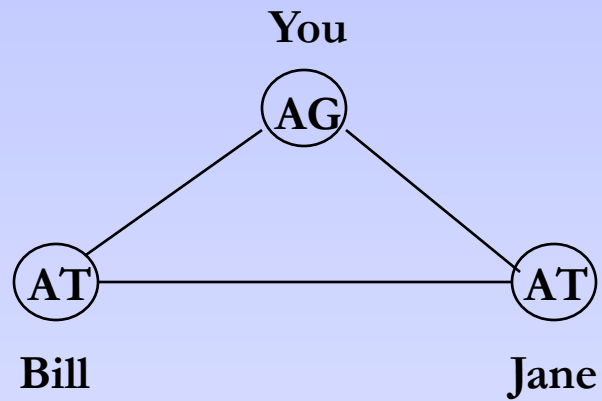
What Is A Match?



You match with 'Full-Identical Regions' – both 'A' & 'G' in this case



What Is A Match?



You match with 'Half-Identical Regions' – either 'A' or 'G' ('A' in this case)

Most matches are Half-Identical Regions (HIR)



What Is A Match?

You = 'AG'

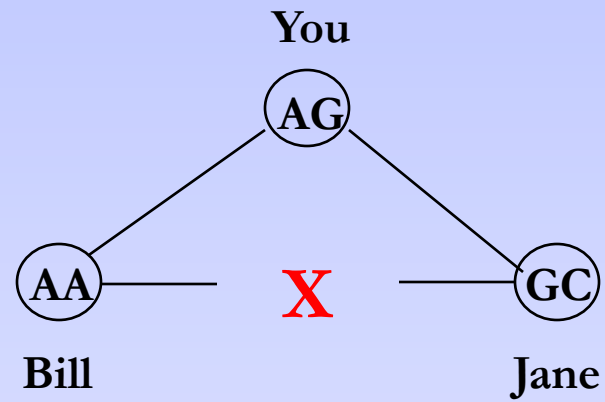
Match 1 = Bill

Match 2 = Jane

KEY: initially you only know that Bill & Jane each match you – either with an A or G

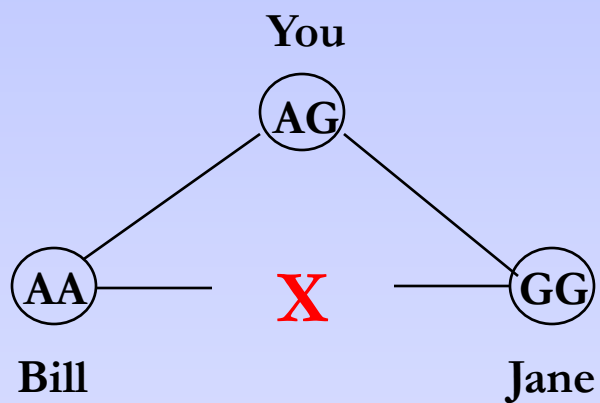


What Is A Match?





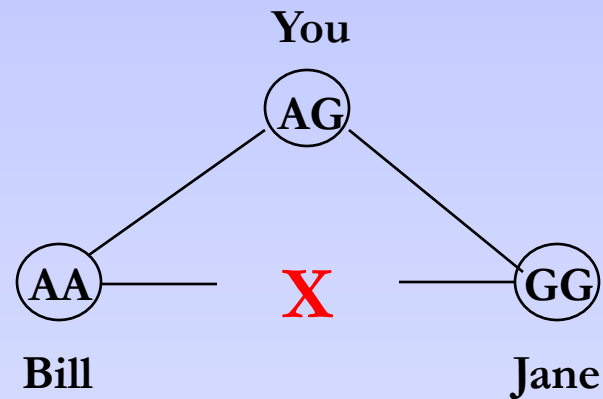
What Is A Match?



They match **YOU** but not each other



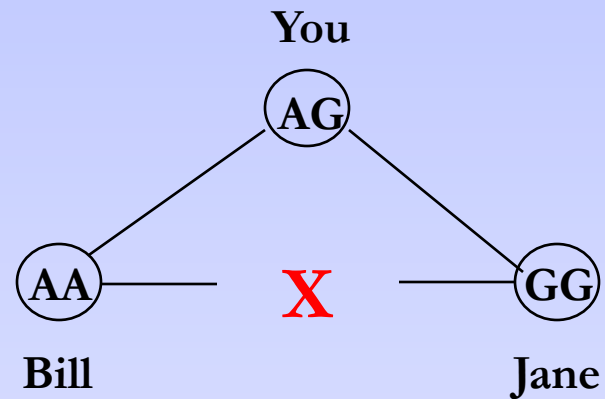
What Is A Match?



Which side of your family is Jane on ??



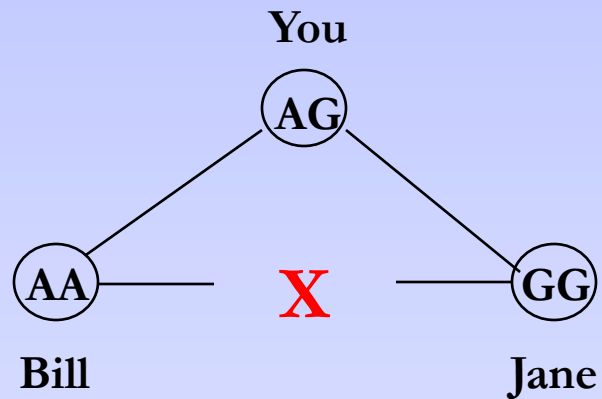
What Is A Match?



**Option 1: Search Jane's tree & yours for common ancestor
(a lot of work for each & every match)**



What Is A Match?

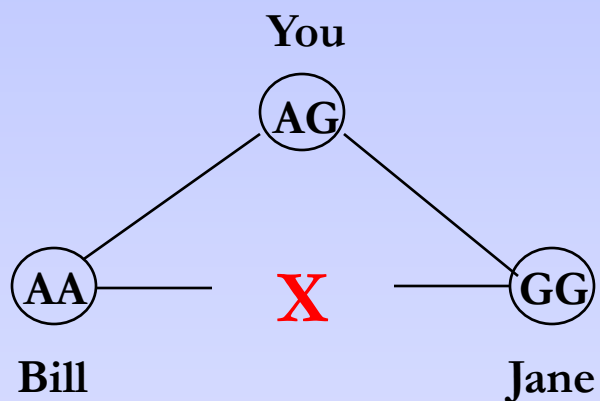


Option 1: Search Jane's tree & yours for common ancestor

(If you found one would that be proof that's where DNA matched ?)



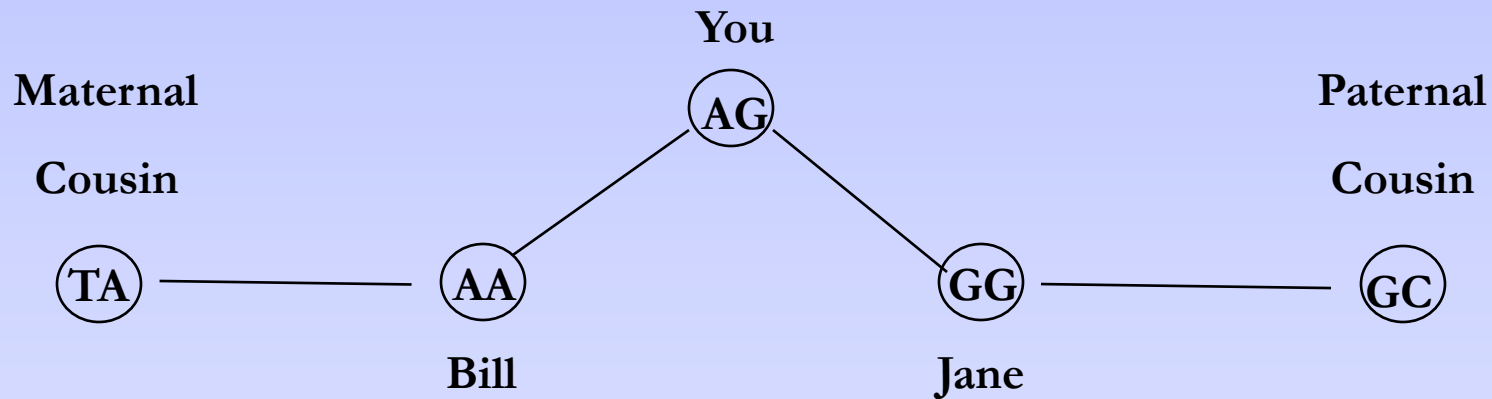
What Is A Match?



Option 2: Test known cousins on both sides of your tree



What Is A Match?



Option 2: Test known relatives on both sides of your tree



Quick Overview of Each Company's Tools



Common Information From Each Company

List of matches

Genealogy data – user dependent

Method to contact your matches



AncestryDNA

List of matches

Genealogy data – user dependent

Method to contact your matches



AncestryDNA Matches Page

AncestryDNA Results for Edward Mcguire

Filters

Hints

New

Starred

Search matches

Sort by: Relationship | Date

4TH COUSIN

- ☆ **janerj** No family tree Review Match

Possible range: 4th - 6th cousins
 Confidence: 96%
Last logged in Nov 10, 2013
- ☆ **deedtheweed** 4462 people Review Match

Possible range: 4th - 6th cousins
 Confidence: 96%
Last logged in Nov 10, 2013
- ☆ **S. P.** 2418 people Review Match

(administered by maggie8680)
 Possible range: 4th - 6th cousins
 Confidence: 96%
- ☆ **janetphillips38** 9945 people Review Match

Possible range: 4th - 6th cousins
 Confidence: 96%
Last logged in Nov 11, 2013



AncestryDNA

2012 – 4Q2014 Status

Ancestry match threshold very low...often 10,000 matches

Minimal linkage between Ancestry Trees & AncestryDNA data

No tools to work with segment data (chromosome browser)

Little information on how Ancestry analyzed actual data



AncestryDNA

4Q2014 Upgrade

Ancestry announces change to match-selection scheme

Far fewer matches – most appear to be better choices

DNA data & Tree data better coordinated – “DNA Circles”

No tools to work with segment data (chromosome browser)

Little information on how Ancestry determines DNA Circles



| | Yesterday | Today | Shakey Leaves Yesterday | Shakey Leaves Today |
|-------------------------------|-----------------------|----------------------------------|-------------------------------|--|
| Total Matches | 13,100 | 3,350 | | |
| 2nd Cousins | 1 – 99% confidence | 0 – shifted to third cousin | 0 | 0 |
| 3rd Cousins | 10 | 8 – shifted to fourth cousins | 2 | 1 (shifted to 4 th cousin) |
| 4th Cousins | 243 | 161 | 10 | 14 |
| Distant Cousins | 12,846 | 3,181 | 36 | 18 |

Source: Roberta Estes, <http://dna-explained.com/category/ancestry-com/>



| Confidence Score | Details |
|------------------|--|
| Extremely High | <p>Approximate amount of sharing: More than 30 centiMorgans Likelihood you and your match share a single recent common ancestor (within 5 or 6 generations): Virtually 100%</p> <p>Description: You and your match share enough DNA to prove that you're both descendants of a common ancestor (or couple)—and the connection is recent enough to be conclusive.</p> |
| Very High | <p>Approximate amount of sharing: 20-30 centiMorgans Likelihood you and your match share a single recent common ancestor (within 5 or 6 generations): 99%</p> <p>Description: You and your match share enough DNA that we are almost certain you're both descendants of a recent common ancestor (or couple).</p> |
| High | <p>Approximate amount of sharing: 12-20 centiMorgans Likelihood you and your match share a single recent common ancestor (within 5 or 6 generations): 95%</p> <p>Description: You and your match share enough DNA that it is likely you're both descendants of the same common ancestor or couple, but there's a small chance the common ancestor(s) are quite distant and difficult to identify.</p> |
| Good | <p>Approximate amount of sharing: 6-12 centiMorgans Likelihood you and your match share a single recent common ancestor (within 5 or 6 generations): More than 50%</p> <p>Description: You and your match share some DNA, probably from a recent common ancestor or couple, but the DNA may be from distant ancestors that are difficult to identify.</p> |
| Moderate | <p>Approximate amount of sharing: 6 centiMorgans or less Likelihood you and your match share a single recent common ancestor (within 5 or 6 generations): 20-50%</p> <p>Description: You and your match might share DNA because of a recent common ancestor or couple, share DNA from very distant ancestors, or you may not be related.</p> |

Source: Blaine Bettinger, www.thegeneticgenealogist.com/2014/11/19/



ancestry RobertaEstes13 Help

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We've improved DNA Matching!
We've completely re-written the book on how DNA matches are determined, creating new and improved ways to identify genetic relationships. What this means is that our matching is far more accurate with far fewer low confidence matches. [Learn More](#) [View Matches](#)

AncestryDNA [View order history](#) [Activate a test](#)

Roberta Estes
This test is shown to matches as RobertaEstes13
Linked to Roberta Estes [SETTINGS](#)

Ethnicity estimate

Regions:
79% Europe West
10% Scandinavia
4% Great Britain
+ 5 Other regions

[See full ethnicity estimate](#)

DNA matches

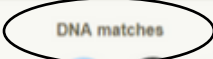
Quick Links:
33 Shared ancestor hints
★ Stared matches
169 4th cousins or closer

[View All DNA matches](#)

DNA Circles BETA

| | | | |
|---|---|--|---|
| Nancy Mann 3rd Great-Grandmother (1780-1841) Circle members: 12 | Nicholas Speaks 4th Great-Grandfather (1782-1852) Circle members: 9 | Sarah Faires 4th Great-Grandmother (1786-1862) Circle members: 8 | Joel Vannoy 2nd Great-Grandfather (1813-1895) Circle members: 4 |
|---|---|--|---|

Ancestry DNA matches page





AncestryDNA Matches Page



deedtheweed

Highland Village, Texas - Member since 2009, last logged in 5 days ago

Predicted relationship: 4th Cousins
Possible range: 4th - 6th cousins ([What does this mean?](#))
 Confidence: 96%

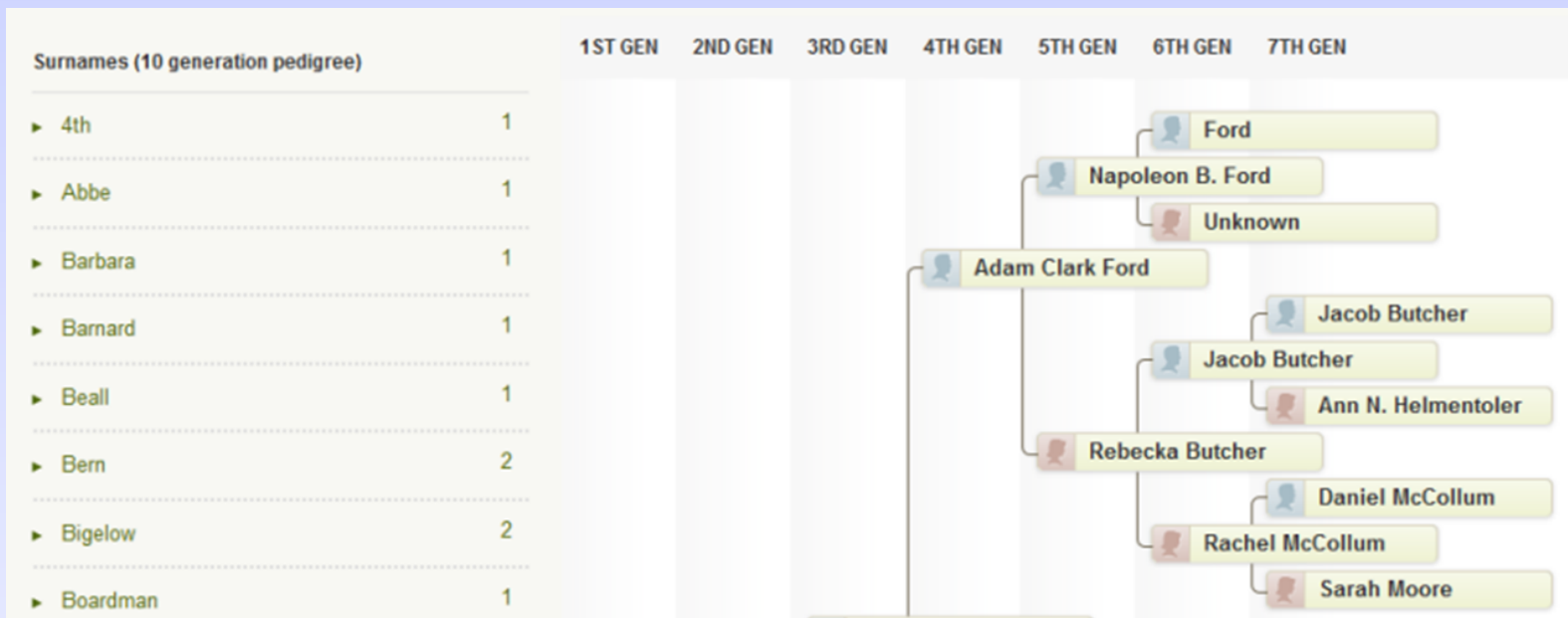
[Add note](#)

Ethnicity

Regions: Great Britain, Europe West, Iberian Peninsula, Italy/Greece

Trace Regions: Europe East, European Jewish, Scandinavia, Ireland, Caucasus, Near East

Send Message





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Circle members: 8
- Joel Vannoy**
2nd Great-Grandfather (1813-1895)
Circle members: 4

33 Shared ancestors hints



Shared Ancestor Hint

Joel Vannoy
2nd Great-Grandfather

&

Phebe Crumley
2nd Great-Grandmother

Elizabeth "Betty" Ann Vannoy
Great-Grandmother

William George Estes
Grandfather

William Sterling Estes
Father

Roberta Estes
Self

James H. Vannoy
Great-Grand uncle

James Abija Vannoy
1st Cousin (2x removed)

Everett Abija Vannoy
2nd Cousin (1x removed)

EHVannoy
3rd Cousin

SHARED SURNAMES
Direct ancestor surnames that appear in both EHVannoy's tree and Roberta Estes's tree

| | |
|----------|-----------|
| Anderson | Brown |
| Crumley | Faulkner |
| Gilkey | Hickerson |
| Lytie | Mason |
| McNiel | Mercer |
| Rash | Roberts |
| Shepherd | Vannoy |
| VanOy | Webb |

1ST GEN 2ND GEN 3RD GEN 4TH GEN 5TH GEN 6TH GEN 7TH GEN

James H. Vannoy

- Joel Vannoy
 - Elijah Vannoy
 - Daniel Vannoy
 - Sarah Hickerson
 - William McNiel
 - Lois McNeil
 - Elizabeth Shepherd



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Circle members: 8
- Joel Vannoy**
2nd Great-Grandfather (1813-1895)
Circle members: 4

DNA Circle for
your ancestor



DNA Circles

You must have a PUBLIC tree to be placed in a DNA Circle

You will share DNA with at least one other person in the DNA Circle, but you might not share with everyone in that circle. Those you don't share DNA with will share DNA with someone other than you in that circle

DNA Circles algorithm looks back 7 generations for a match, so the more complete your tree – the more likely you are to find a match

DNA Circles tool does require Ancestry subscription

About 50% of those with public trees will have at least one circle

→ DNA Circle is a potential team of researchers!

Source: Blaine Bettinger, www.thegeneticgenealogist.com/2014/11/19/goodbye-false-positives-ancestrydna-updates-matching-algorithm/



AncestryDNA

- + very easy to see 'proposed' common ancestor
- + improved value to matches list
- + DNA Circles identifies group to do joint research!
- many verified errors with chosen common ancestor
- many verified errors with DNA Circle results
- no segment analysis tools
- no understanding of how Ancestry is making calls



23andMe Analysis Tools

23andMe has robust tools for segment analysis & triangulation

Tools are split into 3 areas of the site

1. Matches list is at – ‘DNA Relatives’

(Home/DNA Relatives)

2. Chromosome browser is at – ‘Family Inheritance: Advanced’


(My Results/Ancestry Tools/ Family Inheritance: Advanced)

3. Unique location tool – ‘Countries of Ancestry’

(My Results/Ancestry Tools/ Countries of Ancestry)

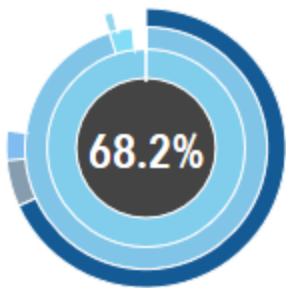
‘Match’ thresholds vary by tool (see Table 1 in your handout)



 **HOME** MY RESULTS FAMILY & FRIENDS RESEARCH & COMMUNITY


ED

RECOMMENDED FOR YOU




68.2%

BRITISH & IRISH

 **ANCESTRY COMPOSITION**

| CLOSE FAMILY | 2nd & 3rd COUSINS | 4th COUSINS | DISTANT COUSINS |
|--------------|-------------------|-------------|-----------------|
| 0 | 1 | 430 | 522 |

DNA RELATIVES



ANCESTRY OVERVIEW



DNA Relatives Match List

[List View](#) [Map View](#) [Surname View](#)

 Show: both sides ▾ Sort: relationship ▾ 25 per page ▾ ⏪ ⏩ 1 - 25 of 951 ⏪ ⏩

| | | | |
|--|---|--|--|
| <p>Ed McGuire Male, b. 1948</p> | You | United States Batiscan, Quebec Trois-Rivieres, Quebec Buffalo, New York 32 more Northern Europe McGuire Austin Lehouillier 67 more J1c3b1 R1b1b2a1a2 | UPDATE YOUR PROFILE |
| <p>Female</p> | <p>3rd to 4th Cousin 0.95% shared, 4 segments</p> | Northern Europe T2b | Introduction Sent View · Cancel |
| <p>margaret campisi Female</p> | <p>3rd to 5th Cousin 0.53% shared, 2 segments</p> | United States A2 | Sharing Genomes Send a Message |
| <p>Male</p> | <p>3rd to 5th Cousin 0.46% shared, 2 segments</p> | H10 R1b1b2a1a | Introduction Sent View · Cancel |
| <p>Female</p> | <p>3rd to 5th Cousin 0.45% shared, 2 segments</p> | Canada Cotnoir Tétreault H1 | Introduction Sent View · Cancel |
| <p>Female</p> | <p>3rd to 5th Cousin 0.44% shared, 2 segments</p> | W | Send an Introduction |
| <p>Male</p> | <p>3rd to 5th Cousin 0.43% shared, 2 segments</p> | H1 R1b1b2a1a1a | Send an Introduction |



DNA Relatives Match List

- You can see no data until you request 'sharing' & they accept
- Many testers not interested in genealogy

| Profile | Name | Gender | Relationship | Shared DNA | Segments | Tags | Actions |
|---------|------------------|---------------|-------------------|--------------------------|----------|---|------------------------------------|
| | Ed McGuire | Male, b. 1948 | You | | | United States, Batiscan, Quebec, Trois-Rivieres, Quebec, Buffalo, New York, 32 more, Northern Europe, McGuire, Austin, Lehouillier, 67 more, J1c3b1, R1b1b2a1a2 | UPDATE YOUR PROFILE |
| | | Female | 3rd to 4th Cousin | 0.95% shared, 4 segments | | Northern Europe, T2b | Introduction Sent View · Cancel |
| | margaret campisi | Female | 3rd to 5th Cousin | 0.53% shared, 2 segments | | United States, A2 | Sharing Genomes Send a Message |
| | | Male | 3rd to 5th Cousin | 0.46% shared, 2 segments | | H10, R1b1b2a1a | Introduction Sent View · Cancel |
| | | Female | 3rd to 5th Cousin | 0.45% shared, 2 segments | | Canada, Cotnoir Tétreault, H1 | Introduction Sent View · Cancel |
| | | Female | 3rd to 5th Cousin | 0.44% shared, 2 segments | | W | Send an Introduction |
| | | Male | 3rd to 5th Cousin | 0.43% shared, 2 segments | | H1, R1b1b2a1a1a | Send an Introduction |

No Replies



Family Inheritance: Advanced

ANCESTRY TOOLS > FAMILY INHERITANCE: ADVANCED

Compare your DNA, bit by bit, to see what segments you share with close and distant family.

Use this tool to discover how a DNA Relative may be related to your family. Select a DNA Relative that you are sharing with and up to 5 profiles for comparison. Shared IBD segments will be painted onto a map of your 23 chromosomes.

Compare:

With:



Family Inheritance: Advanced

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Compare:

Select a profile ▼

17

- Ed McGuire
- margaret campisi
- Dave Inbody
- Hilary Flexer
- Eric Bower

With:

Ed McGuire ▼

Optional Family Member ▼

Optional Family Member ▼

Optional Family Member ▼

Optional Family Member ▼



Family Inheritance: Advanced

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Compare:


 margaret campisi ▼


With:

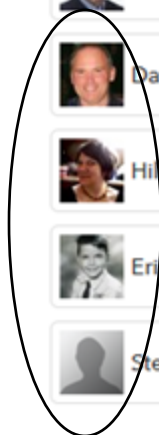
 Ed McGuire ▼

 Dave Inbody ▼

 Hilary Flexer ▼

 Eric Bower ▼






 Steven F ▼





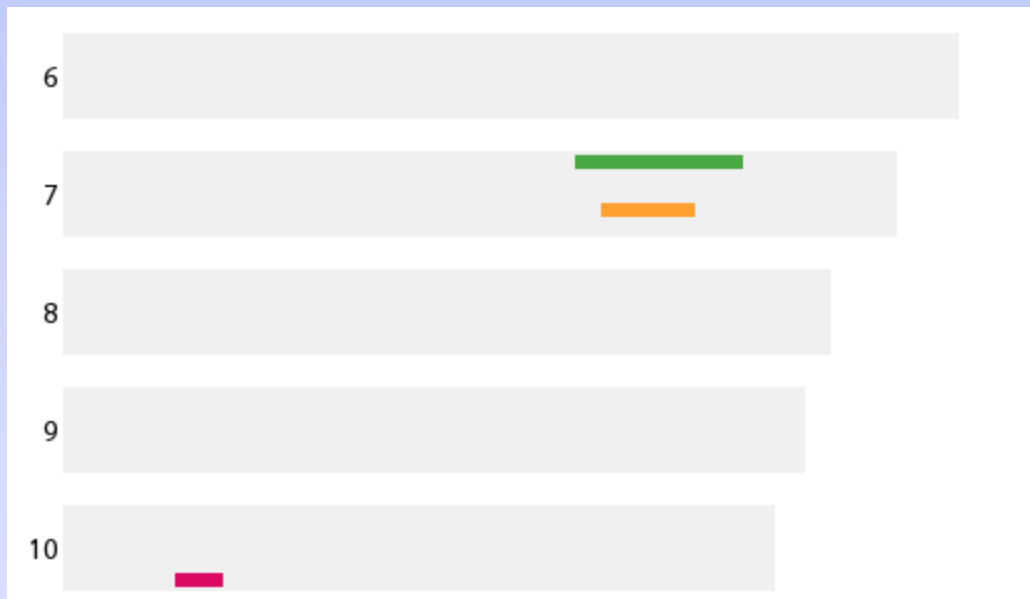
Family Inheritance: Advanced

[View in a table](#), or [download table](#).

| Comparison | Half IBD | # segments |
|---|----------|------------|
|  Ed McGuire vs. margaret campisi | 39 cM | 2 |
|  Ed McGuire vs. Dave Inbody | 20 cM | 1 |
|  Ed McGuire vs. Eric Bower | 16 cM | 1 |
|  Ed McGuire vs. Lauren Brothers | 16 cM | 1 |
|  Ed McGuire vs. Michael Marsh | 12 cM | 1 |



Family Inheritance: Advanced



{ Margaret Campisi &
Lauren Brothers
overlap on CHR 7



Family Inheritance: Advanced

- Unique feature allows you to compare matches against each other
- If they match you at same segment...do they match each other??


Compare your DNA, bit by bit, to see what segments you share with close and distant family.

Use this tool to discover how a DNA Relative may be related to your family. Select a DNA Relative that you are sharing with and up to 5 profiles for comparison. Shared IBD segments will be painted onto a map of your 23 chromosomes.

Compare:

 Dave Inbody ▼

With:

 Hilary Flexer ▼

▼

▼



Countries of Ancestry

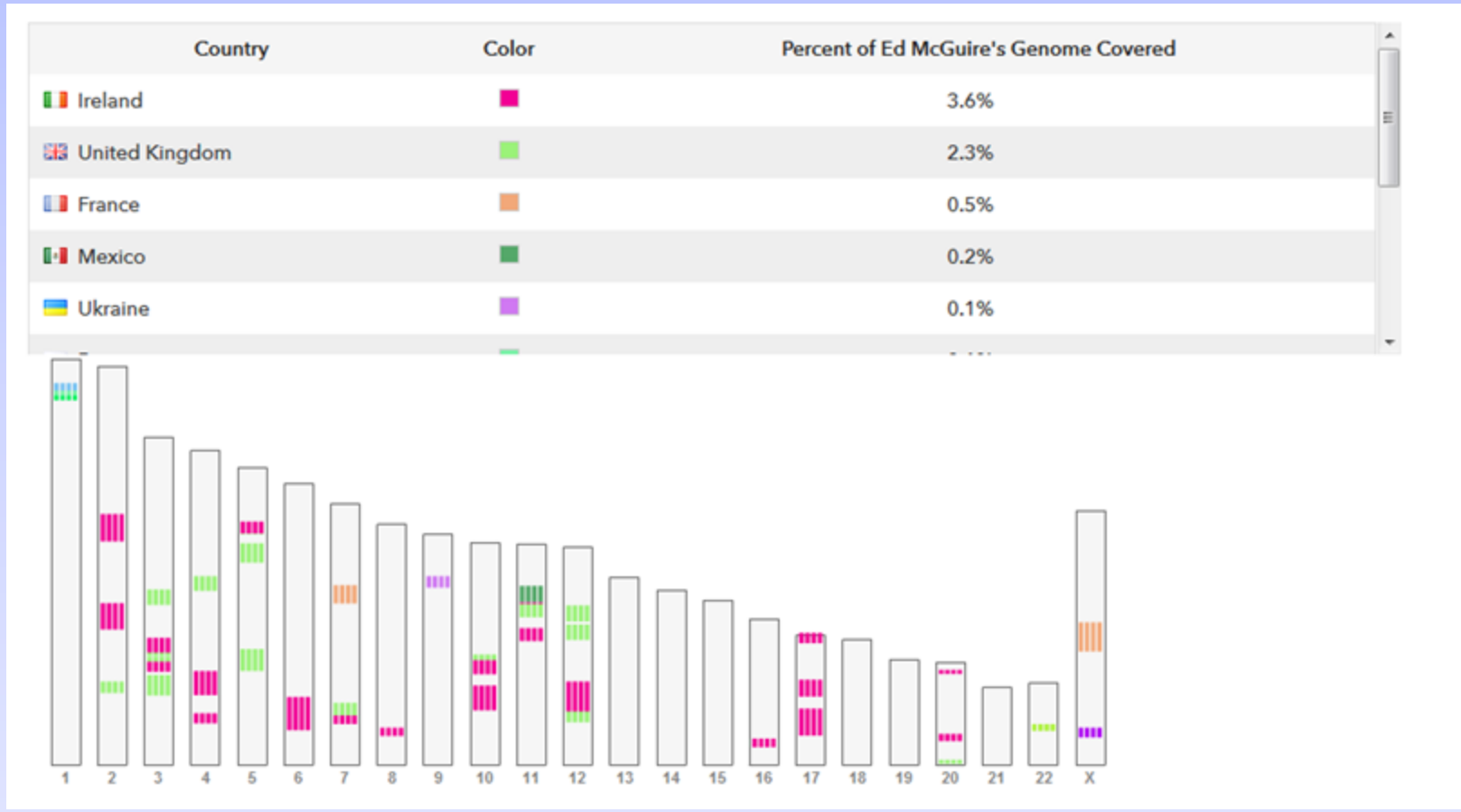
- Testers must 'opt in' and add their grandparents' homeland
- You must 'opt in' to utilize this data
- If you match anyone in that DB – where their GPs all one country
→ paints that DNA with ancestors homeland

Note: 5cM threshold here...lots more matches are available

- Very helpful feature!!

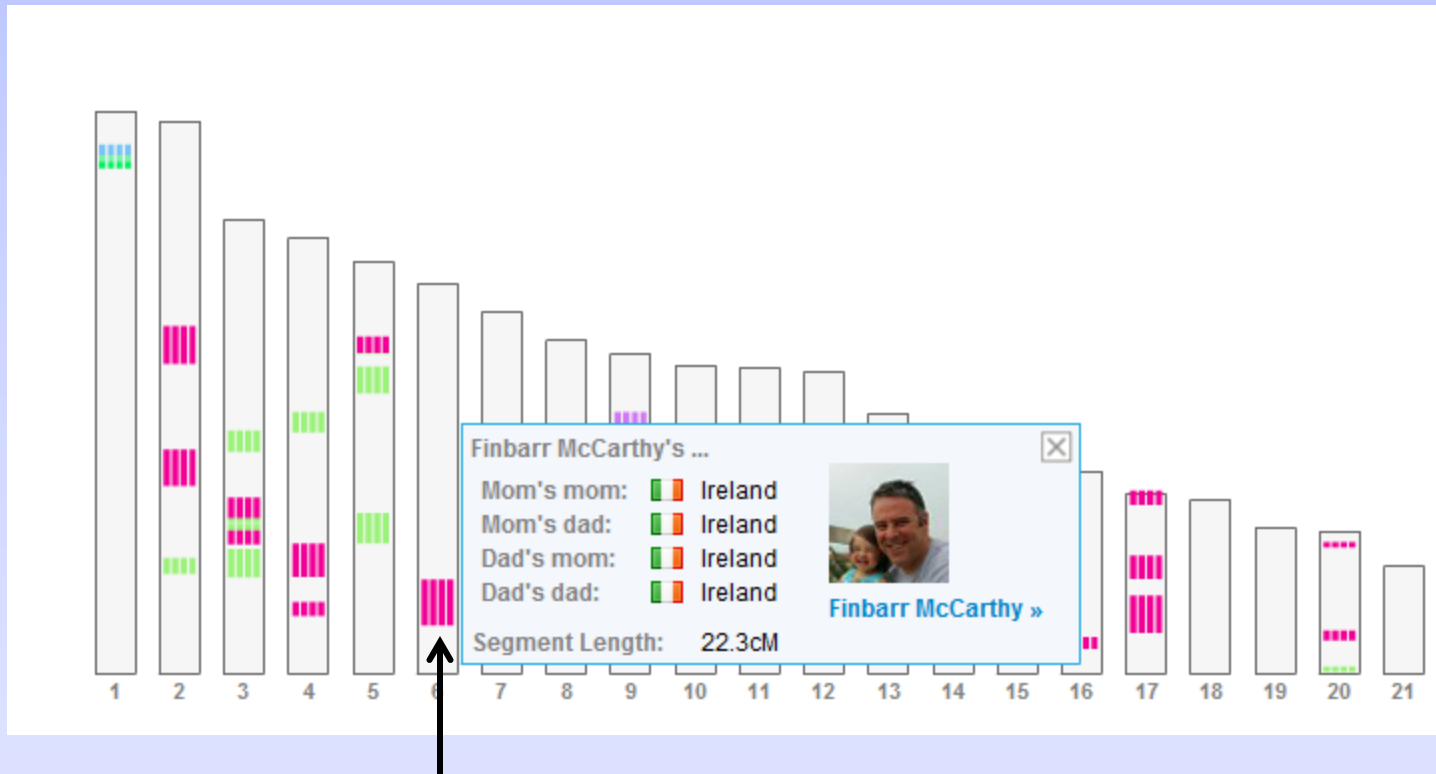


Countries of Ancestry





Countries of Ancestry





Countries of Ancestry



Finbarr McCarthy
Health and Ancestry

You are not sharing with Finbarr McCarthy.

[Why can't I invite this user to share genomes?](#)

You have sent an invitation to Finbarr McCarthy to share genomes. [Click here](#) to cancel it.

 SEND A MESSAGE

Personal Information

Sex: Male

Ancestry Information

Birthplace: Ireland

Family Surnames: McCarthy, Hamilton, Lanigan, O'Sullivan, Dunne, Fleming, Leary, McGrath, Killen

Family Locations: Cork, Bantry, Kilkenny, Tipperary, Ireland



23andMe

- + robust chromosome browser
- + ability to triangulate multiple matches to segment
- + allows comparison of matches to each other
- + COA tool matches testers homeland to DNA segments
- much lower response rates (but big user base)
- very difficult system for contacting matches
- focus remains mostly medical genetics



FamilyTree DNA Analysis Tools

FTDNA has robust tools for segment analysis & triangulation

Tools are all located in one area

Site is well-organized



FamilyTreeDNA Home Page

Family Tree

myFamilyTree **NEW**

mtDNA [?] Results Completed: 9/18/2014

Matches Ancestral Origins Matches Maps Migration Maps Haplogroup Origins

Results Print Certificates

[Advanced Matches](#) | [Learn More](#)

Family Finder [?] Results Completed: 11/1/2013

Matches Chromosome Browser Known Relationships myOrigins

[Matrix](#) | [Advanced Matches](#) | [Download Raw Data](#) | [Learn More](#)

Y-DNA [?] Results Completed: 5/8/2013 [Upgrade](#)

Matches Ancestral Origins Haplotype & SNPs Matches Maps Migration Maps

SNP Map Haplogroup Origins Y-STR Results Print Certificates

[Advanced Matches](#) | [Learn More](#)




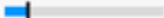




FamilyTreeDNA 'FamilyFinder' Tool

FAMILY FINDER - MATCHES Feedback Refer Friends & Family Page Tour

Most Common Surnames: **10** Smith **4** O'Brien **3** Hill

↑ Relations: [Show All Matches](#)
Sort By: [Relationship Range](#)
Name:
Ancestral Surnames:
[Apply](#)

| Show Full View | Match Date | Relationship Range ↑ | Known Relationship | Shared cM | Ancestral Surnames |
|---|------------|-------------------------|--------------------|---|------------------------------------|
|  <p>Cecilia Madeleine Bergeron</p> | 1/30/2015 | 2nd Cousin - 4th Cousin | |  47.80 | |
|  <p>Mr. John Gregory Seymour</p> | 1/16/2015 | 2nd Cousin - 4th Cousin | |  46.34 | Lepera (Italy) / O'Neill (Ireland) |
|  <p>John R. Newell</p> | 11/1/2013 | 2nd Cousin - 4th Cousin | |  48.74 | |






FamilyTreeDNA 'FamilyFinder' Tool

FAMILY FINDER - MATCHES Feedback Refer Friends & Family Page Tour

Most Common Surnames: **10** Smith **4** O'Brien **3** Hill

Relations: [Show All Matches](#) Sort By: [Relationship Range](#) **Name:** **Ancestral Surnames:** [Apply](#)

| Show Full View | Match Date | Relationship Range | Known Relationship | Shared cM | Ancestral Surnames |
|---|------------|-------------------------|--------------------|-----------|------------------------------------|
|  Cecilia Madeleine Bergeron | 1/30/2015 | 2nd Cousin - 4th Cousin | | 47.80 | |
|  Mr. John Gregory Seymour | 1/16/2015 | 2nd Cousin - 4th Cousin | | 46.34 | Lepera (Italy) / O'Neill (Ireland) |
|  John R. Newell | 11/1/2013 | 2nd Cousin - 4th Cousin | | 48.74 | |



FT-DNA Matches Page

| | | | | | | | |
|--|--------------------|------------|-------------------------|--|--|-------|---|
| | Eileen Arnold | 10/31/2013 | 2nd Cousin - 4th Cousin | | | 47.36 | |
| | Mr. Christian Hill | 10/31/2013 | 2nd Cousin - 4th Cousin | | | 53.59 | Adams (Ireland) / Bonilla (Costa Rica)... |
| | LaCoursiere | | | | | 46.72 | |
| | John R. Newell | 10/31/2013 | 2nd Cousin - 4th Cousin | | | 48.74 | |

Notes

Judie LAUER administers; her daughter; related on Lehoullier side several times; 8-9 Rivard lines & others. She gave me great pedigree for my line. Continue discussion of Graydon/Roy info.





















FamilyTreeDNA 'FamilyFinder' Tool

FAMILY FINDER - MATCHES Feedback Refer Friends & Family Page Tour

Most Common Surnames: **10** Smith **4** O'Brien **3** Hill

↑ Relations: [Show All Matches](#)
Sort By: [Relationship Range](#)
Name:
Ancestral Surnames: [Apply](#)

| Show Full View ← ◀ ◀ ◀ 1 2 3 4 5 ... 55 ▶ ▶ ▶ | Match Date | Relationship Range ↑ | Known Relationship | Shared cM | Ancestral Surnames |
|--|------------|-------------------------|---|--|------------------------------------|
|  Cecilia Madeleine Bergeron     | 1/30/2015 | 2nd Cousin - 4th Cousin |  | <div style="width: 47.80%;"><div style="width: 47.80%;"></div></div> 47.80 | |
|  Mr. John Gregory Seymour     | 1/16/2015 | 2nd Cousin - 4th Cousin |  | <div style="width: 46.34%;"><div style="width: 46.34%;"></div></div> 46.34 | Lepera (Italy) / O'Neill (Ireland) |
|  John R. Newell     | 11/1/2013 | 2nd Cousin - 4th Cousin |  | <div style="width: 48.74%;"><div style="width: 48.74%;"></div></div> 48.74 | |



FamilyTreeDNA 'FamilyFinder' Tool

Chromosome Browser: visual layout of segments

| Show Simple View | Match Date | Relationship Range ↑ | Known Relationship | Shared cM | Ancestral Surnames |
|--------------------------------|----------------------|-------------------------|----------------------|---------------------|------------------------------------|
| ◀ ◀ 1 2 3 4 5 ... 55 ▶ ▶ | | | | | |
| Cecilia Madeleine Bergeron | 1/30/2015 | 2nd Cousin - 4th Cousin | | 47.80 | |
| Common Matches | Tests Taken: FMS | | Longest Block: 22.36 | Y: N/A mt: H6a1a | |
| Mr. John Gregory Seymour | 1/16/2015 | 2nd Cousin - 4th Cousin | | 46.34 | Lepera (Italy) / O'Neill (Ireland) |
| Common Matches | Tests Taken: Y-DNA37 | | Longest Block: 21.03 | Y: R-M269 mt: N/A | |

In Common With (ICW) Tool: find all who match target cousin



FamilyTreeDNA

- + robust chromosome browser
- + ability to triangulate multiple matches to segment
- + allows comparison of matches to each other
- + best response rates (but smaller user base)
- + most open & efficient communications
- no tool to compare one match to another
- only identifies HIRs (23andMe can also do FIR)



Chromosome Browsers

and

Triangulation



FT-DNA Chromosome Browser

Blank Chromosome Map of my Aunt Rita

Family Finder - Chromosome Browser Feedback Refer Friends & Family Page Tour

Chromosome Browser Tutorial | Optional Views:
▶ Download to Excel (CSV Format) ▶ View this data in a table

Compare List 5+ cM Remove

Select up to 5 matches to compare from the list below.

Reset Defaults Clear Compare List

Filter Matches by... 1 - 10 of 259

- (Wetzel) Attwaters, Laura
- Aiken, Sharon Kay
- Allie, Suzanne
- Arnold, Eileen



FT-DNA Chromosome Browser

Shared block of DNA between LaCoursie & Aunt Rita

Family Finder - Chromosome Browser Feedback Refer Friends & Family Page Tour

Chromosome Browser Tutorial | Optional Views:
▶ Download to Excel (CSV Format) ▶ View this data in a table

Compare List 5+ cM Remove

LaCoursiere
Shared Segments: 13

Reset Defaults Clear Compare List

Filter Matches by... 1 - 10 of 252

- (Wetzel) Attwaters, Laura
- Adam, Jimmie Charles
- Allen, James Edward

The visualization shows 11 chromosomes. Chromosomes 7 and 8 have orange segments, while chromosome 1 has a grey segment. The segments are positioned to show shared DNA between the two individuals.



FT-DNA Chromosome Browser

Shared block of DNA between LaCourse & Ed McGuire

Family Finder - Chromosome Browser Feedback Refer Friends & Family Page Tour

Chromosome Browser Tutorial Optional Views:
▶ Download to Excel (CSV Format) ▶ View this data in a table

Compare List 5+ cM Remove

LaCourse
Shared Segments: 8

[Reset Defaults](#) [Clear Compare List](#)

Filter Matches by... 131 - 140 of 268

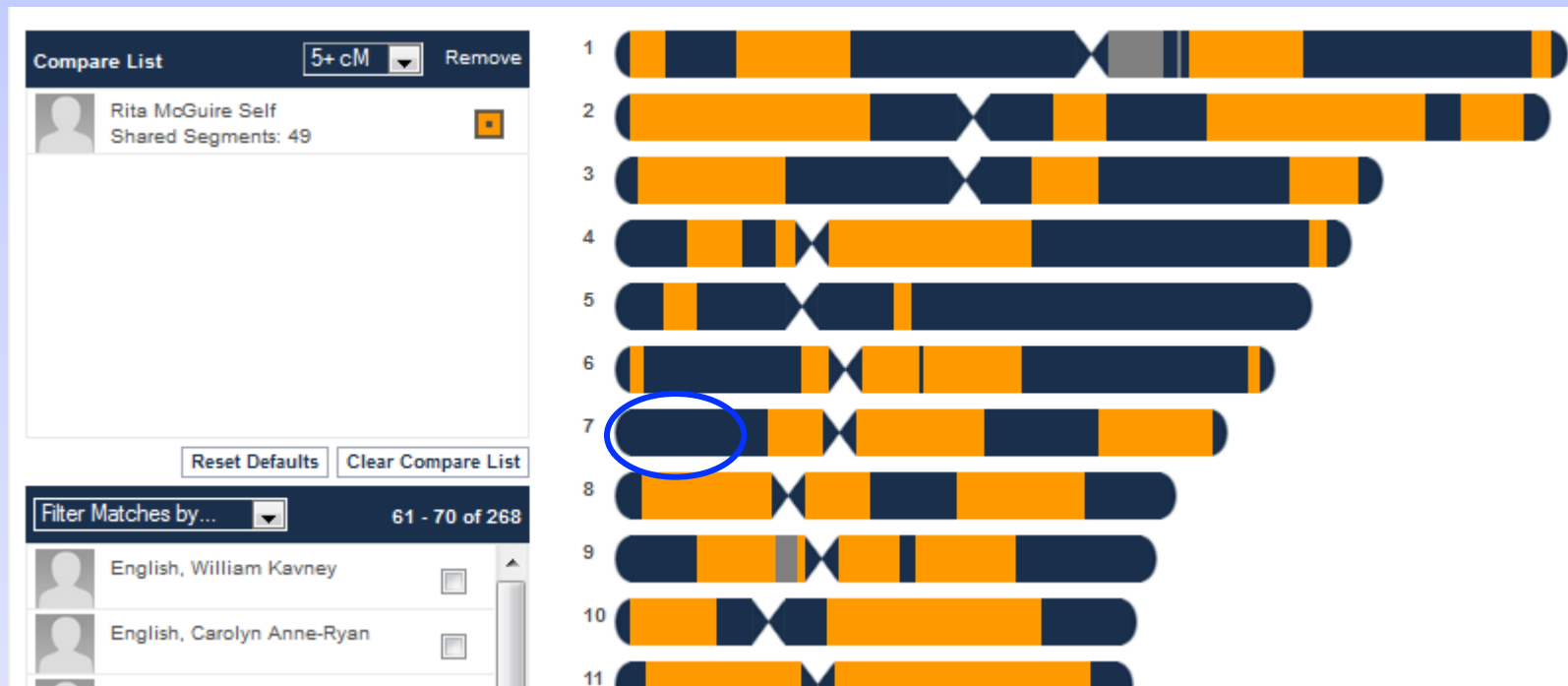
- Kerr, Eleanor
- Kikendall, Bethel Elizabeth
- klawonn, sara elizabeth

The visualization shows 11 chromosomes (1-11) with shared DNA segments between LaCourse and Ed McGuire. Chromosome 8 has a highlighted orange segment, indicating a shared block of DNA.



FT-DNA Chromosome Browser

Chromosome Map of Shared DNA with my Aunt Rita





FT-DNA Chromosome Browser

Family Finder - Chromosome Browser Feedback Refer Friends & Family Page Tour

Chromosome Browser Tutorial Optional Views:
Download to Excel (CSV Format) ▶ View this data in a table

Compare List 1+ cM Remove

LaCoursiere
Shared Segments: 8

Reset Defaults Clear Compare List

Filter Matches by... 131 - 140 of 268

- Kerr, Eleanor
- Kikendall, Bethel Elizabeth
- klawonn, sara elizabeth

1
2
3
4
5
6
7
8
9
10
11

LaCoursiere matches you on chromosome 3 from position 95122010 to 98877827 for a total of 1.09 cM.









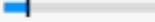





Autosomal DNA Tools

Using the 'In Common With' Tool

Show Simple View

◀◀ 1 2 3 4 5 . 27 ▶▶

| | Match Date | Relationship Range ↑ | Known Relationship | Shared cM | Ancestral Surnames |
|---|----------------------|---------------------------------|---|---|--|
|  Mrs. Eunice McGuire Fappiano [Email] [Message] [Share] [Compare] | 10/31/2013 | | Aunt |  1710.90 | Bergeron / Cottin / Duclos / Durocher / Graydon...  |
| ▶ Triangulate | Tests Taken: HVR2 | + Compare in Chromosome Browser | | Longest Block: 123.15 | Y: N/A mt: U5 |
|  Mrs. Rita McGuire Self [Email] [Message] [Share] [Compare] | 10/31/2013 | | Aunt |  1442.17 | Bergeron / Bertrand / Brossard / Cottin...  |
| ▶ Triangulate | Tests Taken: HVR2 | + Compare in Chromosome Browser | | Longest Block: 126.40 | Y: N/A mt: U5 |
|  Mr. David Elmond Doyel Ph.D. [Email] [Message] [Share] [Compare] | 10/31/2013 | 2nd Cousin - 4th Cousin |  |  59.71 | |
| ▶ Triangulate | Tests Taken: Y-DNA37 | + Compare in Chromosome Browser | | Longest Block: 31.04 | Y: N/A mt: N/A |
|  Eileen Arnold [Email] [Message] [Share] [Compare] | 10/31/2013 | 2nd Cousin - 4th Cousin |  |  47.36 | |
| ▶ Triangulate | Tests Taken: N/A | + Compare in Chromosome Browser | | Longest Block: 28.30 | Y: N/A mt: N/A |



Autosomal DNA Tools

Compare in Chromosome Browser [Clear](#)

[Mr. David Elmond Doyel Ph.D. \[x\]](#) compare

[Triangulate](#) [In Common With](#) [David Elmond Doyel](#)

Show Simple View Match Date Relationship Range ↑ Known Relationship Shared cM Ancestral Surnames

| Profile | Match Date | Relationship Range | Known Relationship | Shared cM | Ancestral Surnames |
|--|------------|-------------------------|--------------------|-----------|--|
| Mrs. Rita McGuire Self 10/31/2013 Aunt 1442.17 Bergeron / Bertrand / Brossard / Cottin... | 10/31/2013 | | Aunt | | Bergeron / Bertrand / Brossard / Cottin... |
| ▶ Triangulate Tests Taken: HVR2 + Compare in Chromosome Browser Longest Block: 126.40 Y: N/A mt: U5 | | | | | |
| Eileen Arnold 10/31/2013 2nd Cousin - 4th Cousin 47.36 | 10/31/2013 | 2nd Cousin - 4th Cousin | | | |
| ▶ Triangulate Tests Taken: N/A + Compare in Chromosome Browser Longest Block: 28.30 Y: N/A mt: N/A | | | | | |
| Mr. John William Simpson 10/31/2013 2nd Cousin - 4th Cousin 47.22 Aiden / ALDIN / Allen / Brooker / Douglas... | 10/31/2013 | 2nd Cousin - 4th Cousin | | | Aiden / ALDIN / Allen / Brooker / Douglas... |
| ▶ Triangulate Tests Taken: Y-DNA12 + Compare in Chromosome Browser Longest Block: 19.76 Y: N/A mt: N/A | | | | | |



FT-DNA Chromosome Browser

Triangulation: People in common w/ McGuire & Doyel





FT-DNA Matrix Tool

Run Matrix Tool on People in common w/ McGuire & Doyel

My DNA **1** My Projects Resources

- My Y-DNA
- My mtDNA
- Family Finder** **2**
 - Matches
 - Advanced Matching
 - Chromosome Browser
 - Download Raw Data
 - Known Relationships
 - myOrigins
 - Matrix** **3**
- myFamilyTree
- Other Results

FAMILY FINDER - MATCHES

Common Surnames: **10** Smith

Relationships: [Show All Matches](#) Sort By: [Relationship Rank](#)

| Match | Date | Relationship |
|-------------------------|-----------|--------------|
| ... 55 ▶▶ | | |
| Eunice McGuire Fappiano | 11/1/2013 | |

Match Date Relationship Rank

... 55 ▶▶

Eunice McGuire Fappiano 11/1/2013

✉ 🗨 👤 🔄



FT-DNA Matrix Tool


FAMILY FINDER - MATRIX BETA

The **Family Finder Matrix** page allows you to select up to 10 people and compare their Family Finder relationships in

The page defaults to two lists:

- Matches: These are Family Finder matches who can be added to the grid.
- Selected Matches: These are Family Finder matches who are currently included in the grid.

Add matches to the matrix by clicking a name or names on the Matches list and then clicking the Add button. Remove Selected Matches list and then clicking the Remove button. The grid displays under the list as you begin to add matches. A match indicates a genetic relationship according to Family Finder results with a white check mark on a blue background. When a match is not present, a white square is shown.

| Matches | | Selected Matches | |
|---|--|---|--|
| Schmidt, Marilyn SCHNEIDER, DONALD LE Schroedl, Eleanor Magdele Schulz, Sonja Murlene Schweitzer, Lynne All Scot, Gossard Sears, Steve Keith Selfridge, James Robert Serrano, Peninnah Shaffer, Billie Harris Shanklin, G L | <div style="text-align: center;">  <input type="button" value="Add »"/> <input type="button" value="« Remove"/> </div> | Self, Rita McGuire Doyel, David Elmond Arnold, Eileen Simpson, John William Seymour, John Gregory | <input type="button" value="Move Up"/> <input type="button" value="Move Down"/> |



FT-DNA Matrix Tool

| Matrix Matches | | | | | |
|----------------------|-------------------|--------------------|---------------|----------------------|----------------------|
| | Rita McGuire Self | David Elmond Doyel | Eileen Arnold | John Gregory Seymour | John William Simpson |
| Rita McGuire Self | | ✓ | ✓ | ✓ | ✓ |
| David Elmond Doyel | ✓ | | ✓ | ✓ | ✓ |
| Eileen Arnold | ✓ | ✓ | | ✓ | ✓ |
| John Gregory Seymour | ✓ | ✓ | ✓ | | ✓ |
| John William Simpson | ✓ | ✓ | ✓ | ✓ | |

✓ - This person is identified as a match.



FT-DNA Matrix Tool

| Matrix Matches | | | | | | |
|-------------------------|-------------------|--------------------|---------------|----------------------|----------------------|-------------------------|
| | Rita McGuire Self | David Elmond Doyel | Eileen Arnold | John William Simpson | John Gregory Seymour | Eunice McGuire Fappiano |
| Rita McGuire Self | | ✓ | ✓ | ✓ | ✓ | ✓ |
| David Elmond Doyel | ✓ | | ✓ | ✓ | ✓ | |
| Eileen Arnold | ✓ | ✓ | | ✓ | ✓ | |
| John William Simpson | ✓ | ✓ | ✓ | | ✓ | |
| John Gregory Seymour | ✓ | ✓ | ✓ | ✓ | | |
| Eunice McGuire Fappiano | ✓ | | | | | |

✓ - This person is identified as a match.

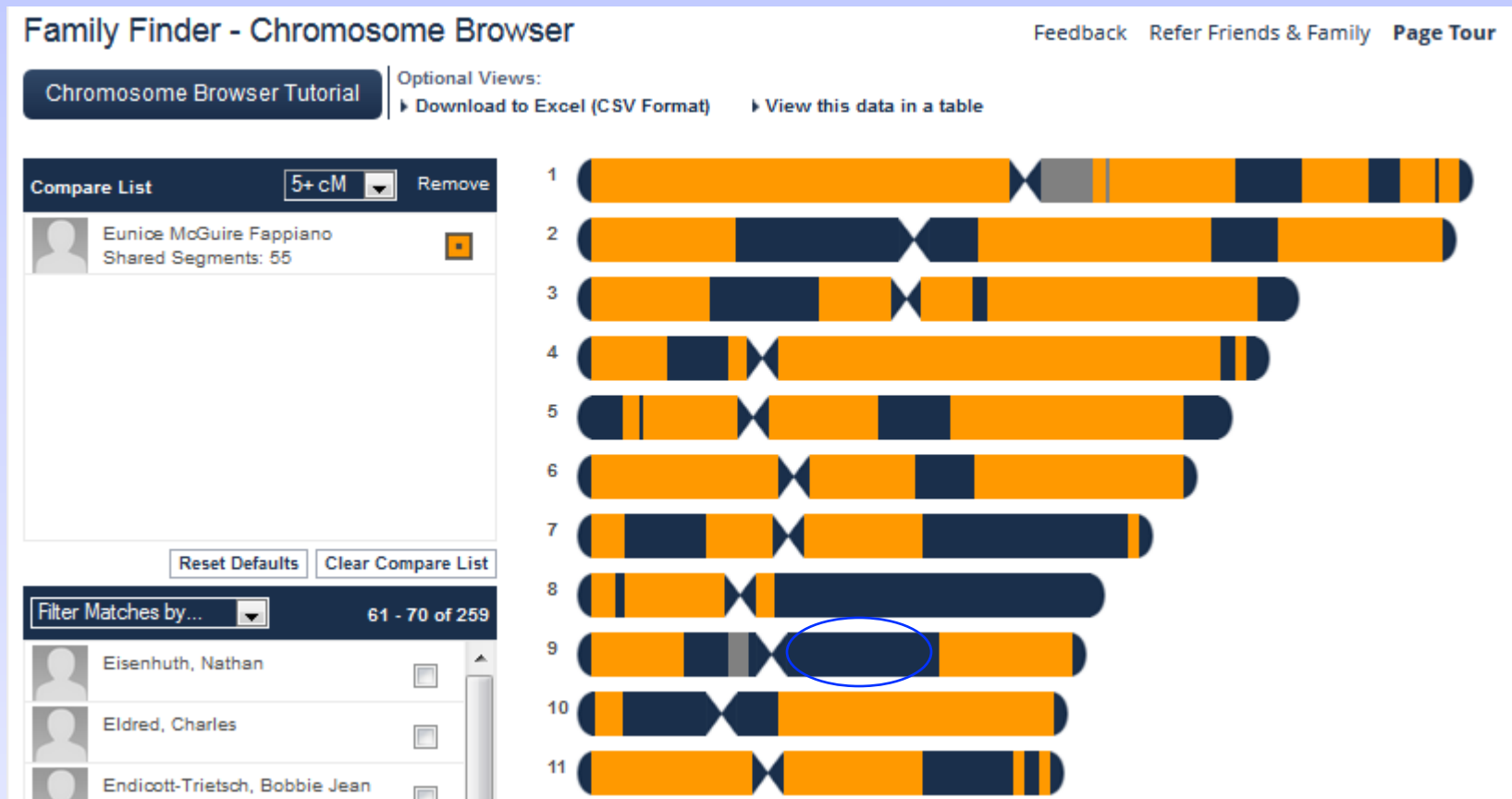
Person can match another tester – but at another segment (rare)

Solution would be to compare matches to each other in browser (like 23andMe)



FT-DNA Chromosome Browser

Chromosome map for sisters Rita and Eunice





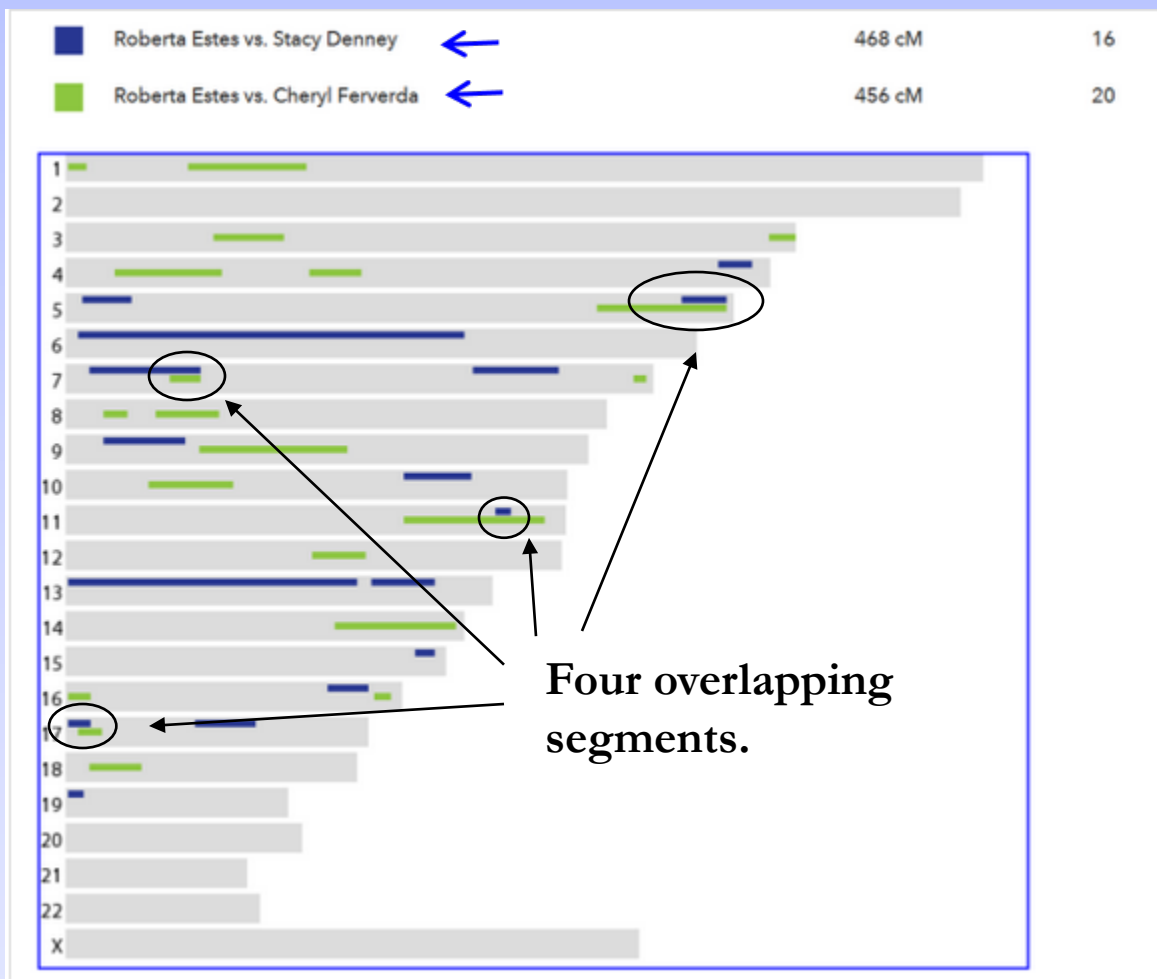
FT-DNA Chromosome Browser

Two Aunts don't share this segment on Chromosome 9





23andMe Chromosome Browser for Roberta Estes



Source: <http://dna-explained.com/2013/06/07/navigating-23andme-for-genealogy/>

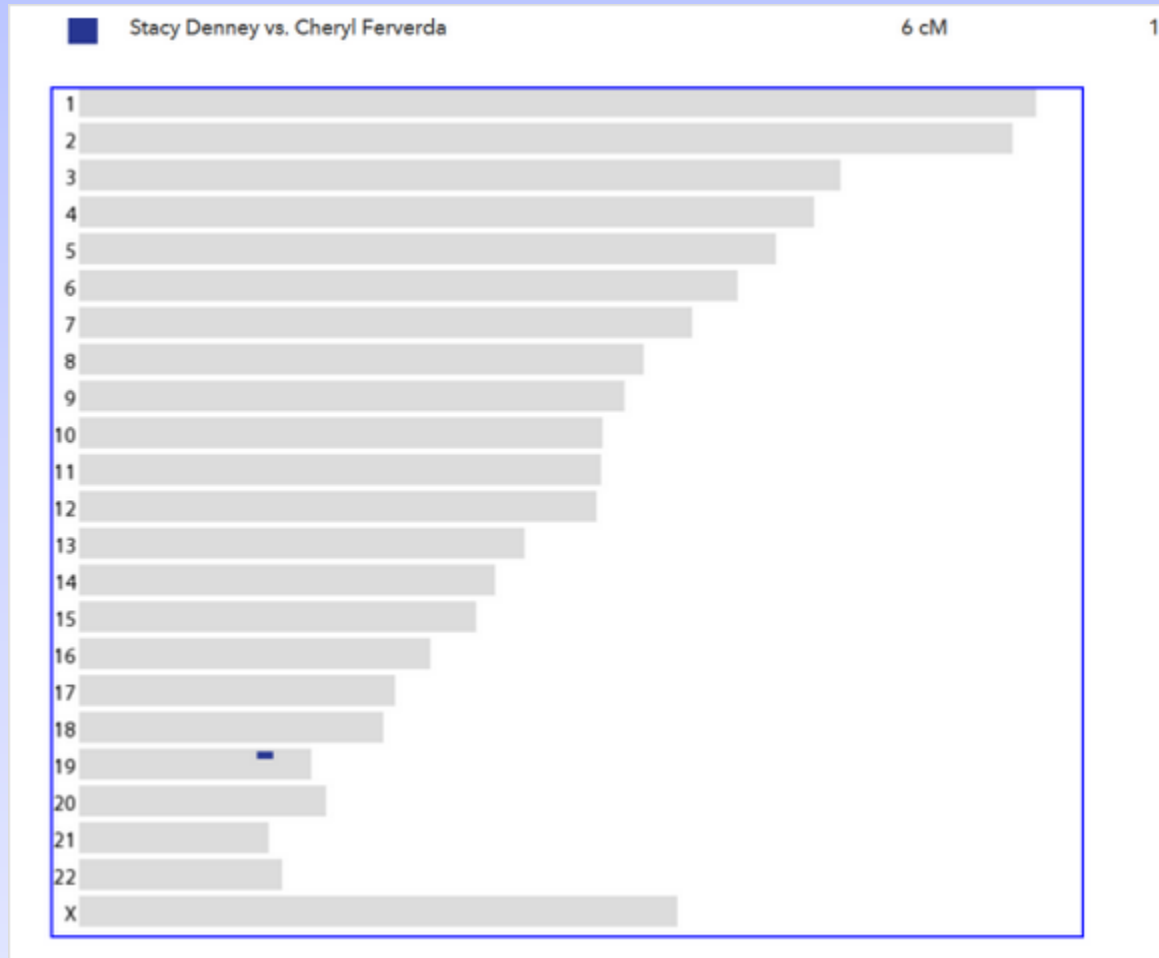


Chromosome Browser – Inferring Matches

- data show Stacy & Cheryl share DNA w/ Roberta
- data imply Stacy & Cheryl share w/ each other in 4 places
- both have lines from Ohio in 1800s name Miller



Stacy vs Cheryl – 4 matches disappear



Source: <http://dna-explained.com/2013/06/07/navigating-23andme-for-genealogy/>



Chromosome Browser – Inferring Matches

- data show Stacy & Cheryl share DNA w/ Roberta
- data implies Stacy & Cheryl share w/ each other in 4 places
- both have lines from Ohio in 1800s name Miller

- but Stacy matches Roberta's dad; Cheryl matches Roberta's mom!



Remember: each chromosome pair has two sides

Net: matching on same chromosome not always conclusive

(P.S. – and AncestryDNA needs a chromosome browser!!)



Triangulated Groups



What is a Triangulated Group?

- Three or more testers who all match each other
- They overlap segments in Chromosome Browser
- All of the matches match each other - at that segment



The Value in Finding Triangulated Groups

Working on individual matches can lead to success but is very inefficient

- communication workload is higher than for groups
- you & your single match may not have records deep enough
- teams can divide tasks and keep each other motivated
- team has more chance someone has rec'd for 'Common Ancestor'

Finding several matches who all match each other at the same spot

- far more reliable DNA result than you and single match
- anomalies in data more likely to show up & be recognized



Key Steps in Finding Triangulated Groups

1. **Develop organization system (logs and spreadsheet)**
2. **Contact matches – especially at 23andMe to ‘share genomes’**
3. **Download match information & family tree data to spreadsheet**
4. **Locate multiple matches who appear to share common segments**



Key Steps in Finding Triangulated Groups


2. Arrange them by Chr + Start – End with this

| Rel | Co | KIT | MA LN em | Chr | Start poi | End poin | cMs | SNPs | TG | Czn | Surnames | Tree |
|--------|-----|-----|-------------------|-----|-----------|----------|------|-------|----|------|-------------------------|---------------------------------|
| | | 23 | jvb Jani Sa' RF | 1 | 30.4 | 37.5 | 9.4 | | | | | |
| JGm | Gm | jvb | Alle Wi ma | 1 | 102.1 | 110.6 | 8.2 | 1,833 | | | | |
| D | | 23 | jvb Che Asi RF | 1 | 116.1 | 152.9 | 17.3 | 1,609 | | | 2gp=Norway | |
| | | 23 | jvb Cyn Bri RF | 1 | 242.4 | 245.8 | 8.2 | 759 | | | | |
| | | 23 | jvb Cat Dv RF | 4 | 28.3 | 35.3 | 7.6 | 1,228 | | 8C | SANFORD | http://t |
| | | 23 | jvb Luc Co noF | 6 | 24.6 | 35.3 | 7.2 | | | | [4gp= UK, Can, Ger, Ire | |
| UGm | | 23 | jvb Der Ril der | 6 | 24.7 | 39.1 | 12.1 | 4,770 | | | | |
| ICW-O | F37 | jvb | She Sh jea | 6 | 24.7 | 37.0 | 9.3 | 9,000 | | | [MOORE, OSBORN] | |
| U37 | F37 | jvb | ROF Seirise | 6 | 24.7 | 39.3 | 12.2 | 9,700 | | | | |
| JGm | Gm | jvb | () Jess | 6 | 24.8 | 38.8 | 10.1 | 8,693 | | | | |
| D | | 23 | jvb Kev Mc RF | 6 | 24.9 | 37.3 | 9.5 | 4,173 | | | >[Ireland] | http://t |
| D | | 23 | jvb Mic Mc Mc | 6 | 24.9 | 36.7 | 8.3 | 3,995 | | | | http://t |
| | | 23 | jvb Mai Ch RF | 6 | 24.9 | 37.3 | 9.5 | 4,168 | | | [n cent WV | |
| UGm | Gm | jvb | Windia dia | 6 | 24.9 | 40.6 | 12.8 | 8,593 | | | | |
| | | 23 | jvb FleurDe Tro | 6 | 25.0 | 37.5 | 9.5 | | | | | |
| | | 23 | jvb Will He whs | 6 | 25.0 | 40.0 | 12.4 | | | 9C | DICKENSON? | |
| DR37 | F37 | jvb | Mai Ro gok | 6 | 25.1 | 36.4 | 8.3 | 8,700 | | | | |
| J37 | F37 | jvb | Kev Mc kev | 6 | 25.1 | 37.3 | 9.3 | 9,000 | | | | http://t |
| J37 | F37 | jvb | Cat Fe cth | 6 | 25.1 | 37.3 | 9.3 | 9,000 | | | [MOORE?] | FFTree |
| U37 | F37 | jvb | Jam Gr jgra | 6 | 25.1 | 39.3 | 12.1 | 9,600 | | | | |
| UGm | | 23 | jvb Frei Ril lize | 6 | 25.1 | 39.2 | 11.6 | 4,672 | | | | |
| U37 | F37 | jvb | Elsi We lsi | 6 | 25.4 | 37.7 | 9.8 | 9,000 | | | | |
| UGm | Gm | jvb | FEN Mc lov | 6 | 25.5 | 40.9 | 12.5 | 9,023 | | | | |
| J37 | F37 | jvb | Stej Ay stev | 6 | 25.6 | 37.3 | 9.2 | 8,800 | | | | |
| J37 | F37 | jvb | Tra Jol tbe | 6 | 26.1 | 37.3 | 9.0 | 8,600 | | | | |
| JGm | Gm | jvb | Jacl Sa Des | 7 | 83.2 | 94.8 | 8.7 | 2,504 | | | | |
| | | 23 | jvb Adr Ellswor | 7 | 83.3 | 105.5 | 18.1 | 4,029 | | | | |
| J37,BV | F37 | jvb | Lari Ha larr | 7 | 83.5 | 105.3 | 20.0 | 5,200 | | 5C-1 | HATHAWAY | |
| D | | 23 | jvb Oliv Cli ollk | 8 | 111.2 | 126.9 | 15.9 | 3,111 | | | | |
| JA37,D | F37 | jvb | Glo Fur gful | 8 | 111.5 | 124.3 | 14.0 | 2,693 | | 10C | OVERTON/GARDINER | |

jim4bartletts@verizon.net 240-475-7664



Sorting Matches Into Correct Triangulated Groups



| KIT | MA | LN | em | Chr | Start po | End poir | cMs | SNPs | TG | Czn | Surnames |
|-----|------------|-----|------|-----|----------|----------|------|-------|-----|-----|-------------------------|
| jvb | Luc | Co | noF | 6 | 24.6 | 35.3 | 7.2 | | A | | [4gp= UK, Can, Ger, Ire |
| jvb | Der | Rik | der | 6 | 24.7 | 39.1 | 12.1 | 4,770 | B | | |
| jvb | She | Sh | jeat | 6 | 24.7 | 37.0 | 9.3 | 9,000 | A | | [MOORE, OSBORN] |
| jvb | ROI | Se | rse | 6 | 24.7 | 39.3 | 12.2 | 9,700 | B | | |
| jvb | () | | jess | 6 | 24.8 | 38.8 | 10.1 | 8,693 | A | | |
| jvb | Kev | Mc | RF | 6 | 24.9 | 37.3 | 9.5 | 4,173 | A | | >[Ireland] |
| jvb | Mic | Mc | Mc | 6 | 24.9 | 36.7 | 8.3 | 3,995 | A | | |
| jvb | Ma | Ch | RF | 6 | 24.9 | 37.3 | 9.5 | 4,168 | B | | [n cent WV |
| jvb | Windia | | dial | 6 | 24.9 | 40.6 | 12.8 | 8,593 | B | | |
| jvb | FleurDeTro | | | 6 | 25.0 | 37.5 | 9.5 | | IBS | | |
| jvb | Will | He | wh | 6 | 25.0 | 40.0 | 12.4 | | B | 9C | DICKENSON? |
| jvb | Ma | Ro | gol | 6 | 25.1 | 36.4 | 8.3 | 8,700 | A | | |
| jvb | Kev | Mc | kev | 6 | 25.1 | 37.3 | 9.3 | 9,000 | A | | |
| jvb | Cat | Fe | cth | 6 | 25.1 | 37.3 | 9.3 | 9,000 | A | | [MOORE?] |
| jvb | Jam | Gr | jgra | 6 | 25.1 | 39.3 | 12.1 | 9,600 | B | | |
| jvb | Fred | Rik | lize | 6 | 25.1 | 39.2 | 11.6 | 4,672 | B | | |



Key Steps in Finding Triangulated Groups

1. **Develop organization system (logs and spreadsheet)**
2. **Contact matches – especially at 23andMe to ‘share genomes’**
3. **Download match information & family tree data to spreadsheet**
4. **Locate multiple matches who appear to share common segments**
5. **Investigate (chromosome browser, ICW, and confirm joint matches)**
6. **Organize all rows (matches) by segments they share in common**



Sorting Matches Into Correct Triangulated Groups

| KIT | MA LN em | Chr | Start po | End poin | cMs | SNPs | TG | Czn | Surnames |
|-----|----------------|-----|----------|----------|------|-------|-----|------|-------------------------|
| jvb | Luc: Co noP | 6 | 24.6 | 35.3 | 7.2 | | A | | [4gp= UK, Can, Ger, Ire |
| jvb | She Sh: jea | 6 | 24.7 | 37.0 | 9.3 | 9,000 | A | | [MOORE, OSBORN] |
| jvb | () jess | 6 | 24.8 | 38.8 | 10.1 | 8,693 | A | | |
| jvb | Kev Mc RF | 6 | 24.9 | 37.3 | 9.5 | 4,173 | A | | >[Ireland] |
| jvb | Mic Mc Mcl | 6 | 24.9 | 36.7 | 8.3 | 3,995 | A | | |
| jvb | Mar Ro gold | 6 | 25.1 | 36.4 | 8.3 | 8,700 | A | | |
| jvb | Kev Mc kev | 6 | 25.1 | 37.3 | 9.3 | 9,000 | A | | |
| jvb | Cat Fei cth | 6 | 25.1 | 37.3 | 9.3 | 9,000 | A | | [MOORE?] |
| jvb | Ste: Ayl stev | 6 | 25.6 | 37.3 | 9.2 | 8,800 | A | | |
| jvb | Trav Jol kbe | 6 | 26.1 | 37.3 | 9.0 | 8,600 | A | 5C-1 | HATHAWAY |
| jvb | Der Ril den | 6 | 24.7 | 39.1 | 12.1 | 4,770 | B | | |
| jvb | RO: Se: rlse | 6 | 24.7 | 39.3 | 12.2 | 9,700 | B | | |
| jvb | Mar Ch RF | 6 | 24.9 | 37.3 | 9.5 | 4,168 | B | | [n cent WV |
| jvb | Windia dia | 6 | 24.9 | 40.6 | 12.8 | 8,593 | B | | |
| jvb | Will He whe | 6 | 25.0 | 40.0 | 12.4 | | B | 9C | DICKENSON? |
| jvb | Jam Gr: jgra | 6 | 25.1 | 39.3 | 12.1 | 9,600 | B | | |
| jvb | Fred Ril lize | 6 | 25.1 | 39.2 | 11.6 | 4,672 | B | | |
| jvb | Elsie We elsie | 6 | 25.4 | 37.7 | 9.8 | 9,000 | B | | |
| jvb | FEM Mc love | 6 | 25.5 | 40.9 | 12.5 | 9,023 | B | | |
| jvb | FleurDeTro | 6 | 25.0 | 37.5 | 9.5 | | IBS | | |



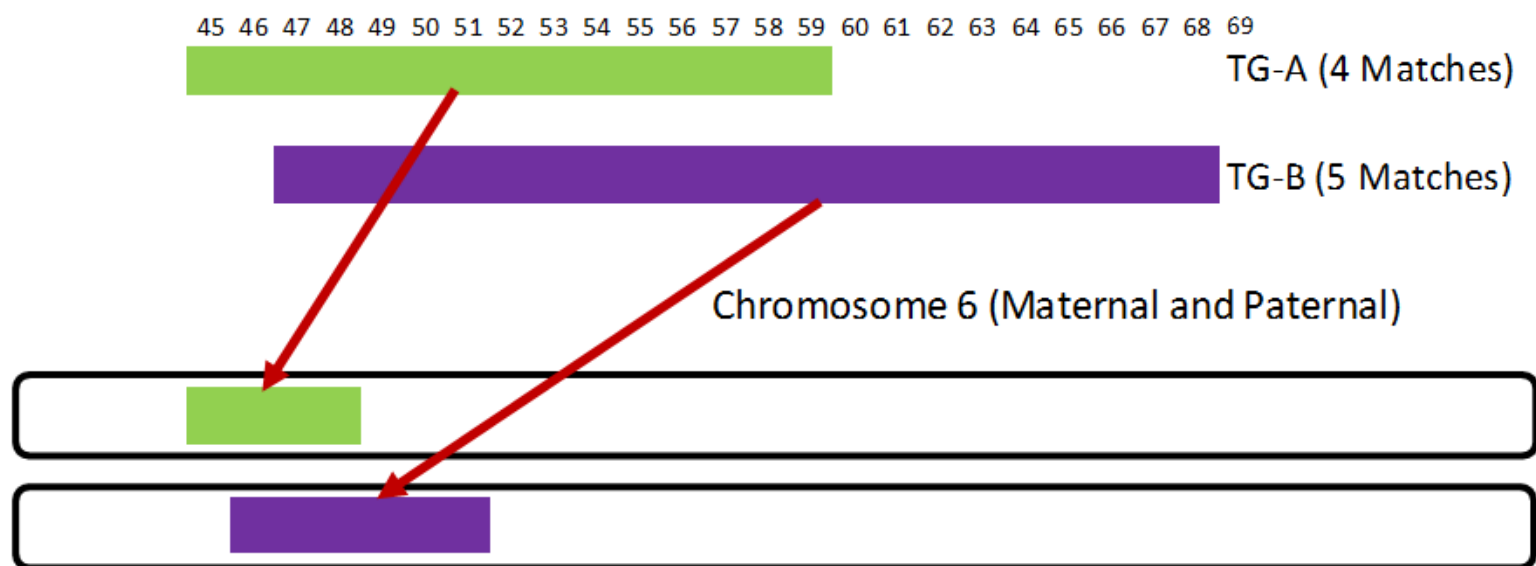
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3. **Download match information & family tree data to spreadsheet**
4. **Locate multiple matches who appear to share common segments**
5. **Investigate (chromosome browser, ICW, and confirm joint matches)**
6. **Organize all rows (matches) by segments they share in common**
7. **Use know relatives to determine which side of your tree (mom vs dad)**
8. **Use TG as team of experts to chase down Common Ancestor**
9. **Assign that segment to the Common Ancestor**



Sorting Matches Into Correct Triangulated Groups

- Individual Match Segments rolled up into TG Segments
- Two overlapping TGs, each with Matches
- Each TG is a part of a different Chromosome 6
- Each TG comes from a different Common Ancestor



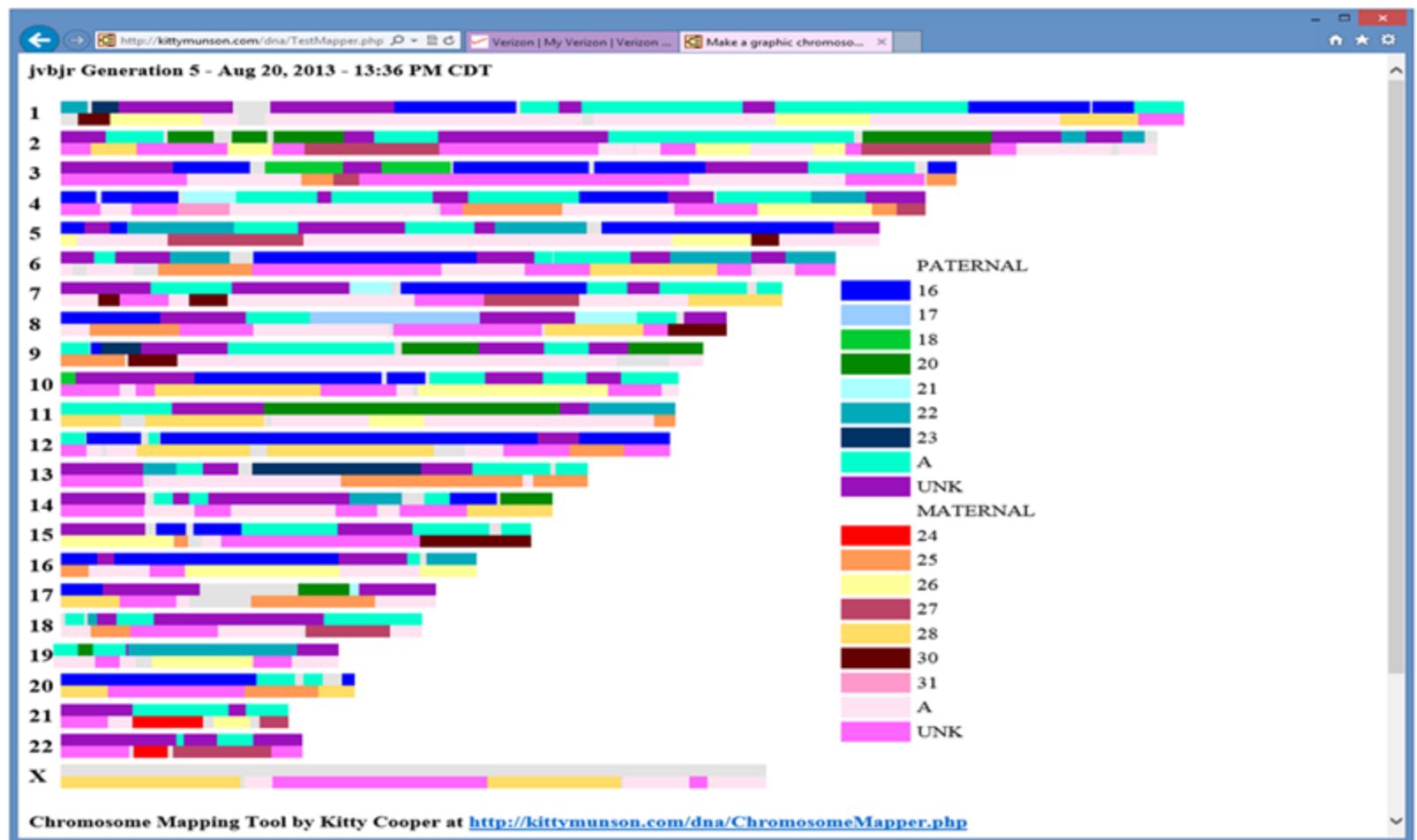
jim4bartletts@verizon.net 240-475-7664

9



The Final Goal – Chromosome Map of Your Ancestors

Phase 5 – Chromosome Mapping – about 40%





Two Key 3rd Party Tools

GEDmatch

Autosomal DNA Segment Analyzer



GEDmatch

Location: <http://v2.gedmatch.com/login1.php>

One to Many Report

| Kit Nbr | Type | List | Select | Sex | Haplogroup | | Autosomal | | | | X-DNA | | |
|---------|------|-------------------|--------------------------|-----|------------|--------|-------------------|----------|------------|-----|-------------------|----------|------------|
| | | | | | Mt | Y | Details | Total cM | largest cM | Gen | Details | Total cM | largest cM |
| ▼ ▲ | | | | | ▼ ▲ | ▼ ▲ | | ▼ | ▼ | ▼ ▲ | | ▼ | ▼ |
| M181251 | V4 | L | <input type="checkbox"/> | M | u5 | r1b1b2 | A | 3587.1 | 281.5 | 1 | X | 196 | 196 |
| A710015 | F2 | L | <input type="checkbox"/> | M | J | R1b1a2 | A | 3585.8 | 214.5 | 1 | X | 186.8 | 97.7 |
| F294401 | F2 | L | <input type="checkbox"/> | F | U5 | | A | 1843.9 | 126.8 | 1.5 | X | 0 | 0 |
| F294399 | F2 | L | <input type="checkbox"/> | F | U5 | | A | 1523.3 | 126.6 | 1.6 | X | 0 | 0 |
| F261918 | F2 | L | <input type="checkbox"/> | M | U5 | I-M223 | A | 1559.7 | 111.5 | 1.6 | X | 67.8 | 67.8 |
| A373877 | F2 | L | <input type="checkbox"/> | F | | | A | 49.4 | 15.9 | 4.1 | X | 3.7 | 3.7 |
| A413529 | F2 | L | <input type="checkbox"/> | F | | | A | 46.3 | 12.3 | 4.1 | X | 0 | 0 |
| F296954 | F2 | L | <input type="checkbox"/> | F | | | A | 41.8 | 13.6 | 4.2 | X | 0 | 0 |
| A962374 | F2 | L | <input type="checkbox"/> | F | | | A | 44.7 | 13.1 | 4.2 | X | 0 | 0 |
| FB4683 | F2 | L | <input type="checkbox"/> | F | H7 | | A | 43.9 | 10.8 | 4.2 | X | 0 | 0 |
| F325072 | F2 | L | <input type="checkbox"/> | F | | | A | 40.2 | 10.7 | 4.2 | X | 0 | 0 |
| F285837 | F2 | L | <input type="checkbox"/> | M | | I-M253 | A | 40.9 | 10.6 | 4.2 | X | 0 | 0 |
| A973047 | F2 | L | <input type="checkbox"/> | M | | | A | 35.3 | 21.6 | 4.3 | X | 0 | 0 |
| A615370 | F2 | L | <input type="checkbox"/> | F | | | A | 36 | 21.2 | 4.3 | X | 0 | 0 |



GEDmatch

One to One Report

| | |
|--|--|
| Kit Number 1: | <input type="text" value="F267073"/> |
| Kit Number 2: | <input type="text" value="A373877"/> |
| Show graphic bar for each Chromosome? | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| For compressed graphic, enter width in pixels (zero or blank for expanded graphic, default=1000) | <input type="text" value="1000"/> |
| SNP count minimum threshold to be considered a matching segment (Leave blank for default value = 700) | <input type="text"/> |
| Minimum segment cM size to be included in total: (Leave blank for default value = 7) | <input type="text"/> |



GEDmatch

One to One Report

GEDmatch.Com Autosomal Comparison

Comparing Kit F267073 (*ebmvt) and A373877 (*jmstevens)

Minimum threshold size to be included in total = 700 SNPs

Mismatch-bunching Limit = 350 SNPs

Minimum segment cM to be included in total = 7.0 cM

| Chr | Start Location | End Location | Centimorgans (cM) | SNPs |
|-----|----------------|--------------|-------------------|------|
| 12 | 12063116 | 21813381 | 15.9 | 2992 |

Largest segment = 15.9 cM

Total of segments > 7 cM = 15.9 cM

Estimated number of generations to MRCA = 4.9

Comparison took 0.16551 seconds.



Autosomal DNA Segment Analyser (ADSA) Tool

Location: <http://www.dnagedcom.com/>

| cMs | SNPs | EMAIL | ICW | SEGMENTS |
|-------|-------|-----------------------|-----|----------|
| 63.98 | 11858 | edmcguire.vt@gmai... | | 63.98 |
| 18.19 | 3483 | edmcguire.vt@gmai... | | 18.19 |
| 10.06 | 1883 | BRFulton@aol.com | | 10.06 |
| 9.85 | 1783 | pblvndr@gmail.com | | 9.85 |
| 9.85 | 1783 | gredden@sbcglobal... | | 9.85 |
| 9.85 | 1783 | rasadak@hotmail.co... | | 9.85 |
| 9.85 | 1783 | fabercove@aol.com | | 9.85 |
| 8.38 | 1497 | andi_w00@yahoo.c... | | 8.38 |
| 64.16 | 14668 | edldmr@aol.com | | 64.16 |
| 53.31 | 12606 | edmcguire.vt@gmai... | | 53.31 |
| 22.6 | 5300 | dannyredcab@gmail... | | 22.6 |
| 11.12 | 2800 | curtishorn@mac.com | | 11.12 |
| 22.38 | 5400 | edmcguire.vt@gmai... | | 22.38 |
| 9.59 | 1900 | gregirvin@yahoo.co... | | 9.59 |
| 9.42 | 1800 | r@rkerr.eclipse.co.uk | | 9.42 |
| 8.98 | 1700 | marylee123@comca... | | 8.98 |
| 9.35 | 2600 | sjohnston@givensjo... | | 9.35 |
| 0.03 | 2500 | crowley@gmail.com | | 0.03 |



Tuesday, 24 March – DNA Special Interest Group

(6:30 – 8:00 PM)

Layout of GEDmatch tools

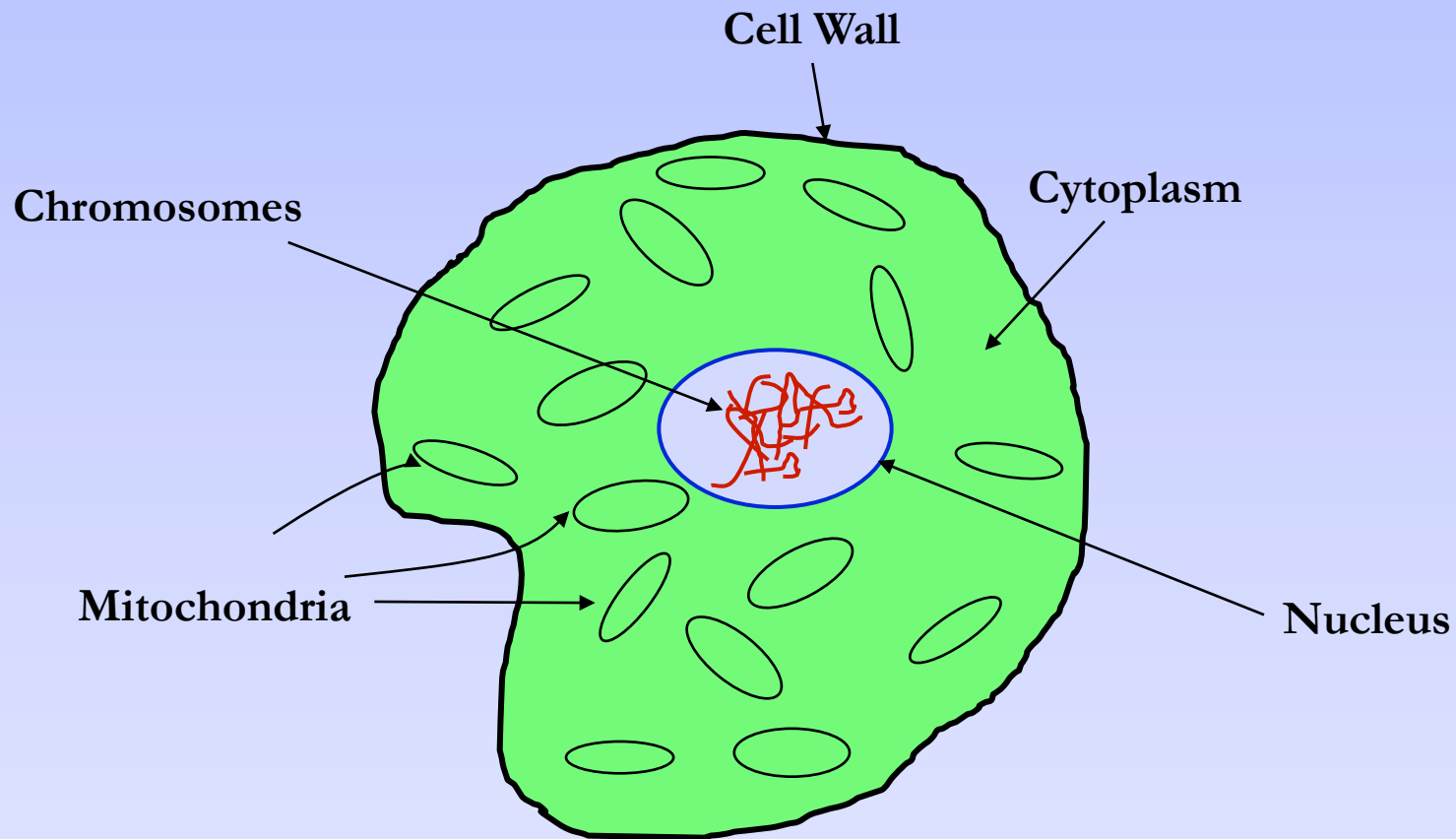
Where to get instructions for uploading data

Demonstrations using the tool



Thank You

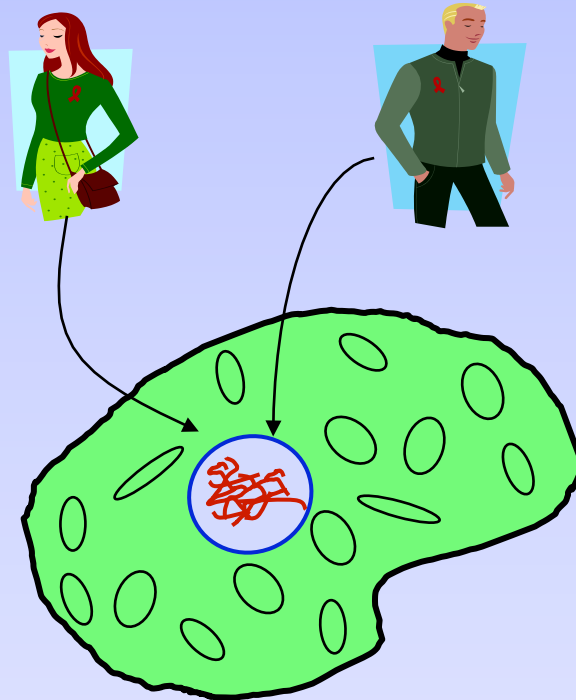
Any Questions?



Hominid Cell



Parental Contributions to Autosomal DNA





Each Cell's 23 Chromosome Pairs



Karyogram of Human Male Cell

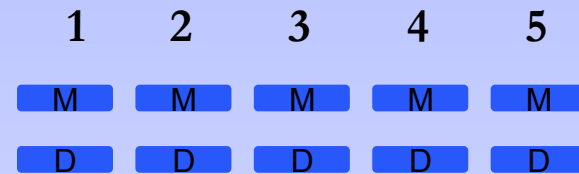
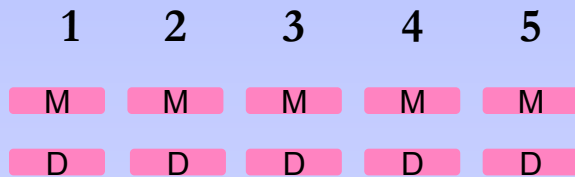
Source: *Wikipedia.org* (en.wikipedia.org/wiki/Karyotype)



Variation in the Inheritance of Autosomal DNA



Random Assortment of Chromosomes



Gramma = Adams

Grampa = Jones

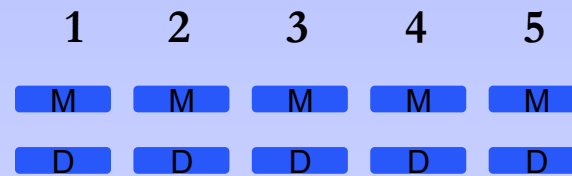
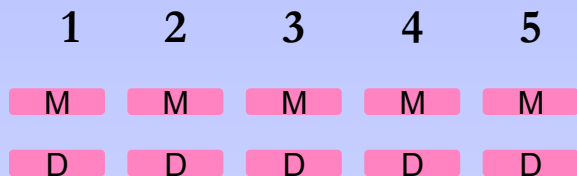
Gramma = Meyer

Grampa = Provost

(Simplified example with 5 chromosome pairs instead of full 22 pairs)



Random Assortment of Chromosomes

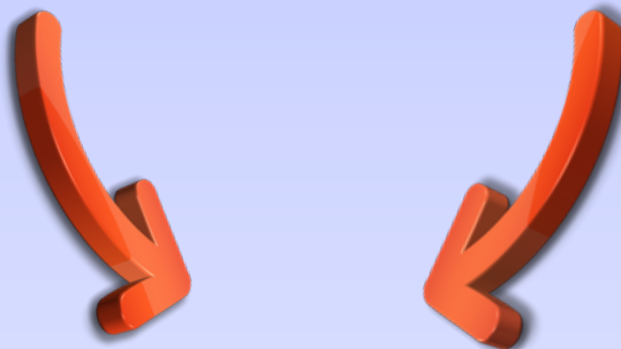


Gramma = Adams

Grampa = Jones

Gramma = Meyer

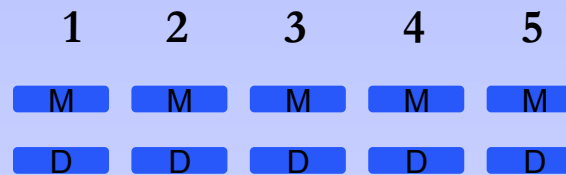
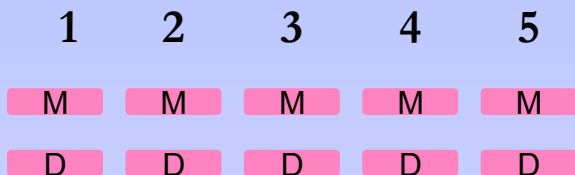
Grampa = Provost



(Mom: $2^5 = 32$ possibilities) & (Dad: $2^5 = 32$ possibilities) $\rightarrow 32 \times 32 = 1024$



Random Assortment of Chromosomes

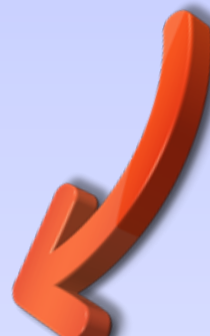


Gramma = Adams

Grampa = Jones

Gramma = Meyer

Grampa = Provost



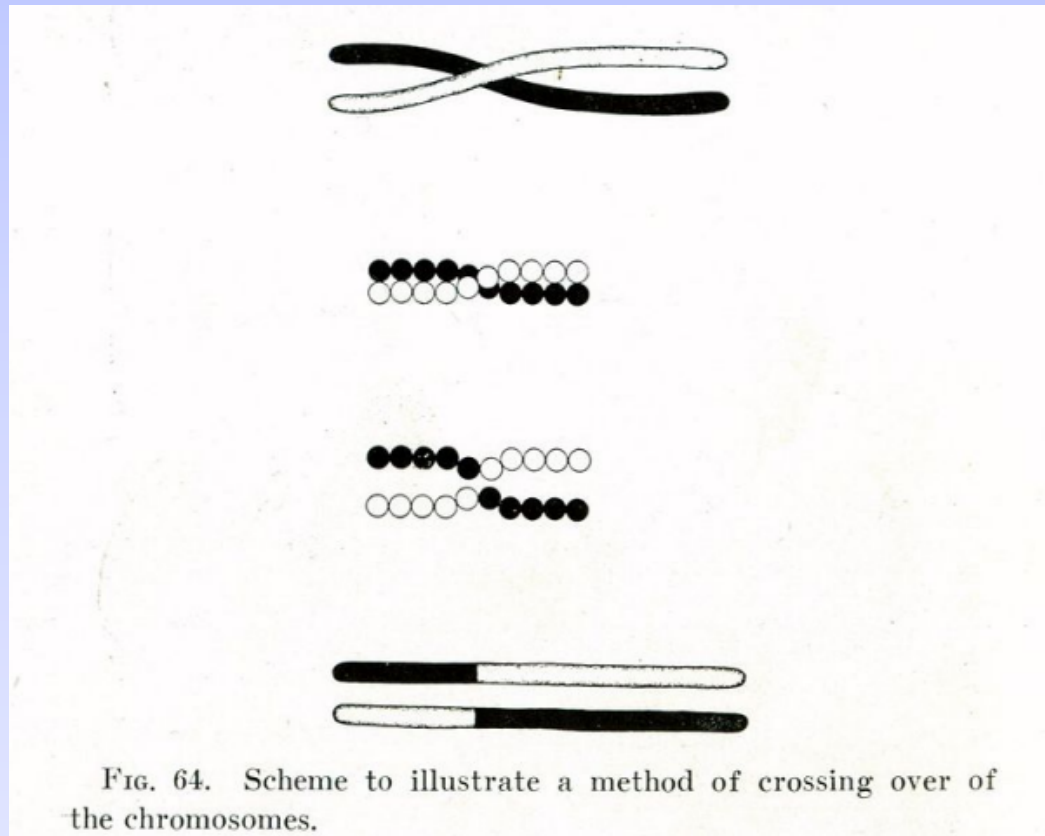
$(2^5 = 32 \text{ possibilities})^2$

$(2^{22} = 4M+ \text{ possibilities})^2$



Autosomal DNA and Recombination

Thomas Hunt Morgan's illustration of crossing over (1916)

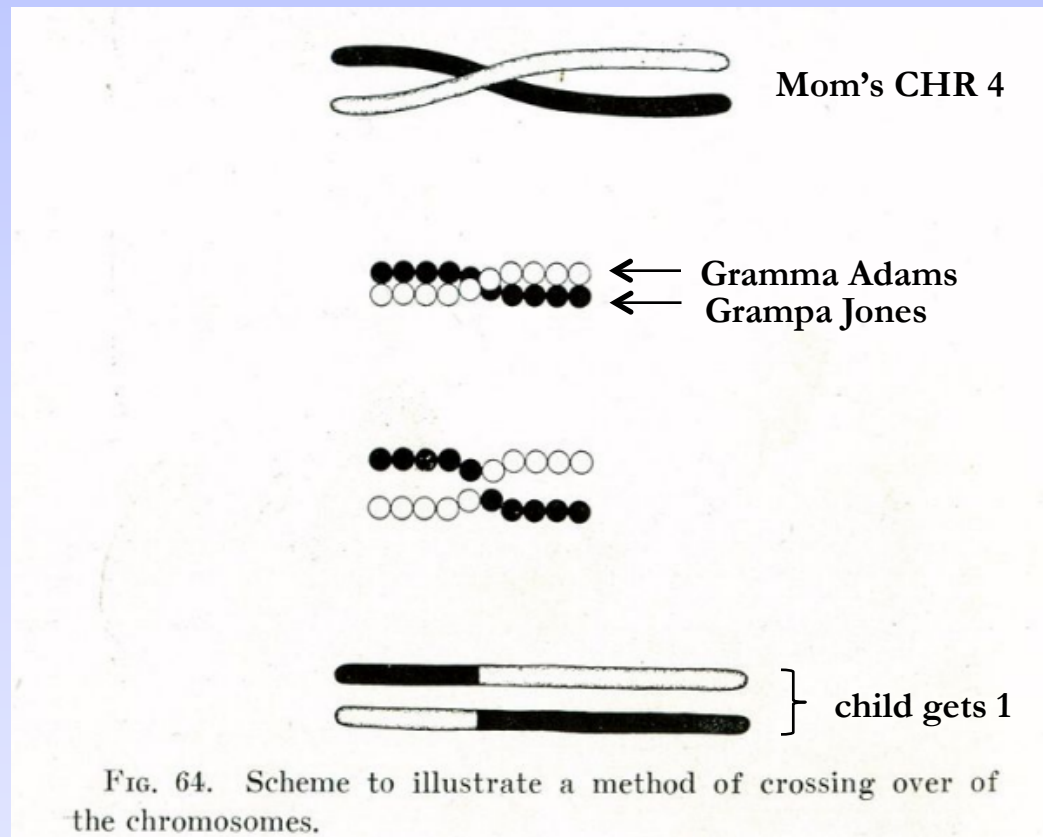


http://en.wikipedia.org/wiki/File:Morgan_crossover_1.jpg



Autosomal DNA and Recombination

Thomas Hunt Morgan's illustration of crossing over (1916)



http://en.wikipedia.org/wiki/File:Morgan_crossover_1.jpg



What Do We Inherit?

- 2 parents have total of 44 chromosome pairs
- 4 grandparents have total of 88 pairs
- 1 child only has room for 22 pairs

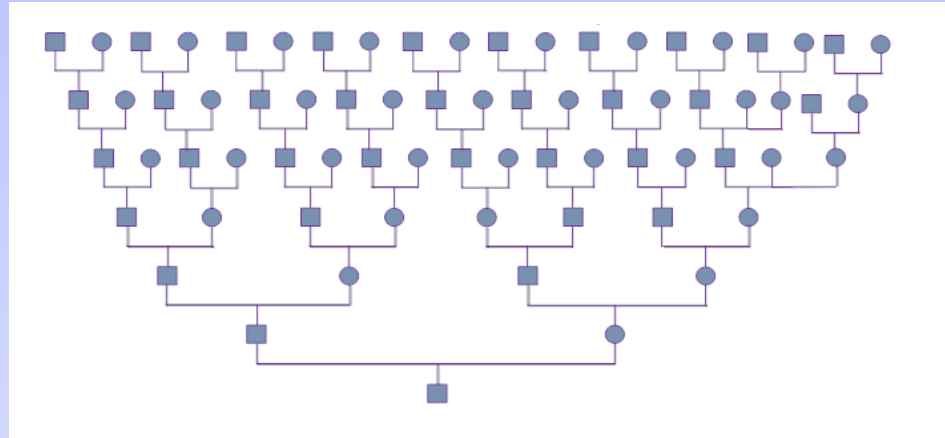
We must have less and less DNA from older ancestors

NET: Our oldest ancestors start to disappear from our genetic tree !!

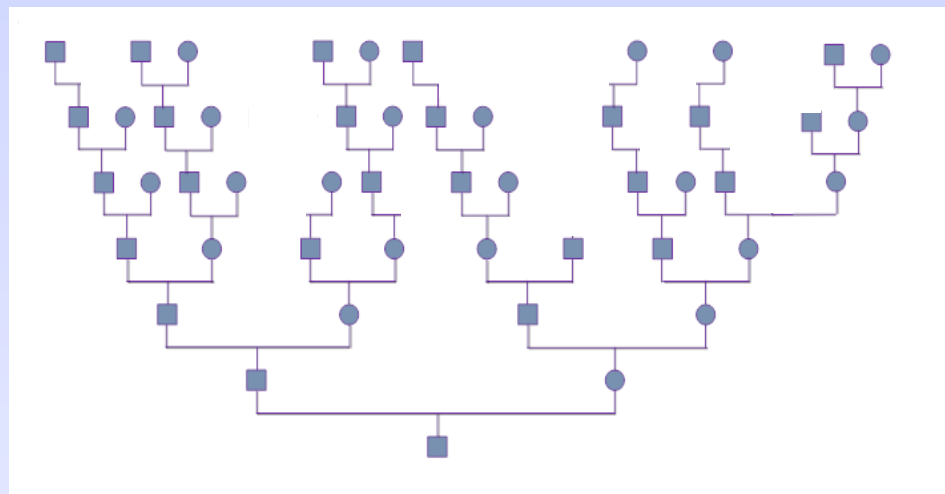


What Do We Inherit?

Genealogical Tree



Genetic Tree





What Do We Inherit?

- Parents have total of 44 chromosome pairs (12 billion bases)
- Grandparents have total of 88 pairs (24 billion bases)
- Children only have room for 22 pairs (6 billion bases)

We must have less and less DNA from older ancestors

NET: Our oldest ancestors start to disappear from our genetic tree !!

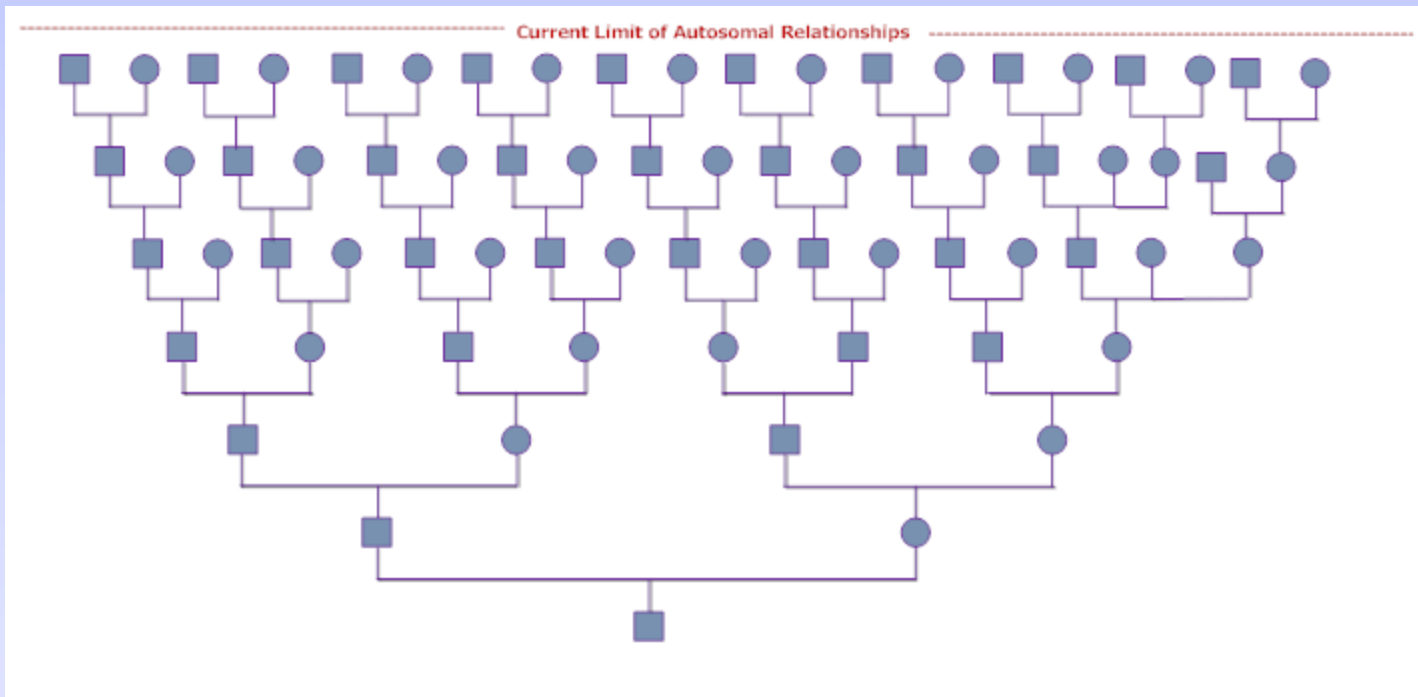
BUT: Due to recombination random pieces from distant ancestors can persist

(i.e. – we occasionally get 21 cM segment from 10th GG parent)



Autosomal DNA Testing Finds More Relationships

Limitation Is 5 to 6 Generations





GEDMatch Table With Anyone Who Uploads Data

| Kit Nbr | Type | Triangulate | GEDCOM | List | Select | Sex | Haplogroup | | Autosomal | | | | X-DNA | | | Name |
|---------|------|-------------------|-------------------|-------------------|--------------------------|-----|------------|-----------------|-------------------|----------|------------|-----|-------------------|----------|------------|--------------------------|
| | | | | | | | Mt | Y | Details | Total cM | largest cM | Gen | Details | Total cM | largest cM | |
| ▼ ▲ | | | | | | | ▼ ▲ | ▼ ▲ | | ▼ | ▼ | ▼ ▲ | | ▼ | ▼ | ▼ ▲ |
| A710015 | F2 | I | | L | <input type="checkbox"/> | M | J | R1b1a2 | A | 3585.8 | 214.5 | 1 | X | 186.8 | 97.7 | *mcgvtedw |
| F294401 | F2 | I | | L | <input type="checkbox"/> | F | U5 | | A | 1843.9 | 126.8 | 1.5 | X | 0 | 0 | *emfct |
| F294399 | F2 | I | | L | <input type="checkbox"/> | F | U5 | | A | 1523.3 | 126.6 | 1.6 | X | 0 | 0 | *rmsct |
| A373877 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 49.4 | 15.9 | 4.1 | X | 3.7 | 3.7 | *jmstevens |
| A413529 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 46.3 | 12.3 | 4.1 | X | 0 | 0 | Mary Jo Hiestand |
| F296954 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 41.8 | 13.6 | 4.2 | X | 0 | 0 | Erin Elizabeth Rodriguez |
| A962374 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 44.7 | 13.1 | 4.2 | X | 0 | 0 | G E |
| FB4683 | F2 | I | | L | <input type="checkbox"/> | F | H7 | | A | 43.9 | 10.8 | 4.2 | X | 0 | 0 | *"Duffy" |
| F325072 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 40.2 | 10.7 | 4.2 | X | 0 | 0 | *Rbailey |
| F285837 | F2 | I | | L | <input type="checkbox"/> | M | | I-M253 | A | 40.9 | 10.6 | 4.2 | X | 0 | 0 | Dan Matthews |
| A973047 | F2 | I | | L | <input type="checkbox"/> | M | | | A | 35.3 | 21.6 | 4.3 | X | 0 | 0 | *K.A. through Melissa |
| A615370 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 36 | 21.2 | 4.3 | X | 0 | 0 | *Wendyl |
| F227166 | F2 | I | G | L | <input type="checkbox"/> | M | | R1b1a2 | A | 37.7 | 13.3 | 4.3 | X | 0 | 0 | *ROBERTS Uncle |
| F31300 | F2 | I | | L | <input type="checkbox"/> | M | H7 | R-L2 | A | 34.6 | 10.7 | 4.3 | X | 0 | 0 | *Jacques |
| A141470 | F2 | I | | L | <input type="checkbox"/> | M | | | A | 35.8 | 10.5 | 4.3 | X | 0 | 0 | Kenneth Wood |
| A602490 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 30.6 | 23.5 | 4.4 | X | 0 | 0 | Alison June Moore |
| M203920 | V3 | I | | L | <input type="checkbox"/> | F | T2e | | A | 33.1 | 15.9 | 4.4 | X | 3.7 | 3.7 | Julia Stevens |
| M195557 | V3 | I | | L | <input type="checkbox"/> | F | T2e | | A | 33.1 | 15.9 | 4.4 | X | 3.7 | 3.7 | Julia Stevens |
| F252553 | F2 | I | | L | <input type="checkbox"/> | M | | | A | 33 | 13 | 4.4 | X | 0 | 0 | phil whitelock |
| F293138 | F2 | I | | L | <input type="checkbox"/> | U | K | R1b1a2 (R-M269) | A | 30.8 | 12.5 | 4.4 | X | 0 | 0 | *Susan Whalen |
| F103192 | F2 | I | | L | <input type="checkbox"/> | F | H1am1 | | A | 32 | 10.5 | 4.4 | X | 3.2 | 3.2 | Dora Smith |
| A738433 | F2 | I | | L | <input type="checkbox"/> | M | H5a1 | R1b1b2a1a2d | A | 29.7 | 23 | 4.5 | X | 0 | 0 | Dave Inbody |
| M070626 | V3 | I | | L | <input type="checkbox"/> | F | | | A | 27.6 | 21.2 | 4.5 | X | 0 | 0 | *Wendyl |



Autosomal DNA Analyzer (ADSA)

CHROMOSOME 1
34 matching segments
Longest is 104.33 cMs

| MATCH NAME | START | END | cMs | SNPs | EMAIL | ICW | SEGMENTS |
|---------------------------|-----------|-----------|-------|-------|-------------------------|-----|----------|
| Eunice McGuire Fapp... | 72017 | 10595681 | 19.2 | 2986 | edldmr@aol.com | | 19.2 |
| Rita McGuire Self | 72017 | 10595681 | 19.2 | 2986 | edmcguire.vt@gmai... | | 19.2 |
| Glen Austin | 72017 | 11839927 | 21.92 | 3375 | edmcguire.vt@gmai... | | 21.92 |
| Eunice McGuire Fapp... | 19695400 | 29684992 | 11.33 | 2600 | edldmr@aol.com | | 11.33 |
| Glen Austin | 28147571 | 61623798 | 36.88 | 8565 | edmcguire.vt@gmai... | | 36.88 |
| Rita McGuire Self | 29685855 | 59716284 | 33.41 | 7665 | edmcguire.vt@gmai... | | 33.41 |
| Jacqueline Tessier Car... | 30017434 | 36632339 | 8.26 | 1800 | jckeller2@gmail.com | | 8.26 |
| Thomas Alexander G... | 63922287 | 70824008 | 7.9 | 1800 | tmrgull@msn.com | | 7.9 |
| Dee Fennell | 67855642 | 80089390 | 9.24 | 2800 | Smarsh34@cinci.rr... | | 9.24 |
| Robert F. McCoy | 67855642 | 81490003 | 10.72 | 3200 | rfinccoy@verizon.net | | 10.72 |
| Aaron M Summer | 76790866 | 86724394 | 9.49 | 2700 | aaronmsummer@g... | | 9.49 |
| Lynn Leonard | 78384318 | 93047038 | 15.02 | 3797 | lynn@brassingfarm... | | 15.02 |
| Eunice McGuire Fapp... | 94298211 | 149505675 | 29.5 | 8024 | edldmr@aol.com | | 29.5 |
| Glen Austin | 100779165 | 175552623 | 54.43 | 13321 | edmcguire.vt@gmai... | | 54.43 |
| Victor Stanley Dunn | 103128353 | 112374032 | 10.21 | 2400 | victor.dunn@virgini... | | 10.21 |
| Tommy McManus | 103927079 | 110902085 | 7.88 | 1700 | tomarn@warwick.net | | 7.88 |
| Karen Jean Horton | 103927079 | 111711482 | 8.8 | 2000 | egrnd@aol.com | | 8.8 |
| Gail Lynne Lyons | 103927079 | 113537116 | 11.18 | 2600 | rodngail.lyons@yah... | | 11.18 |
| Robert McNichols | 106616587 | 114104489 | 9.6 | 2200 | kay-stanton@cfl.rr.c... | | 9.6 |
| Bruce Murduck | 108087714 | 114399681 | 7.95 | 1900 | murduck@one-nam... | | 7.95 |
| Teresa Jenkins | 112676556 | 148683537 | 10.54 | 2524 | tlj137@yahoo.com | | 10.54 |

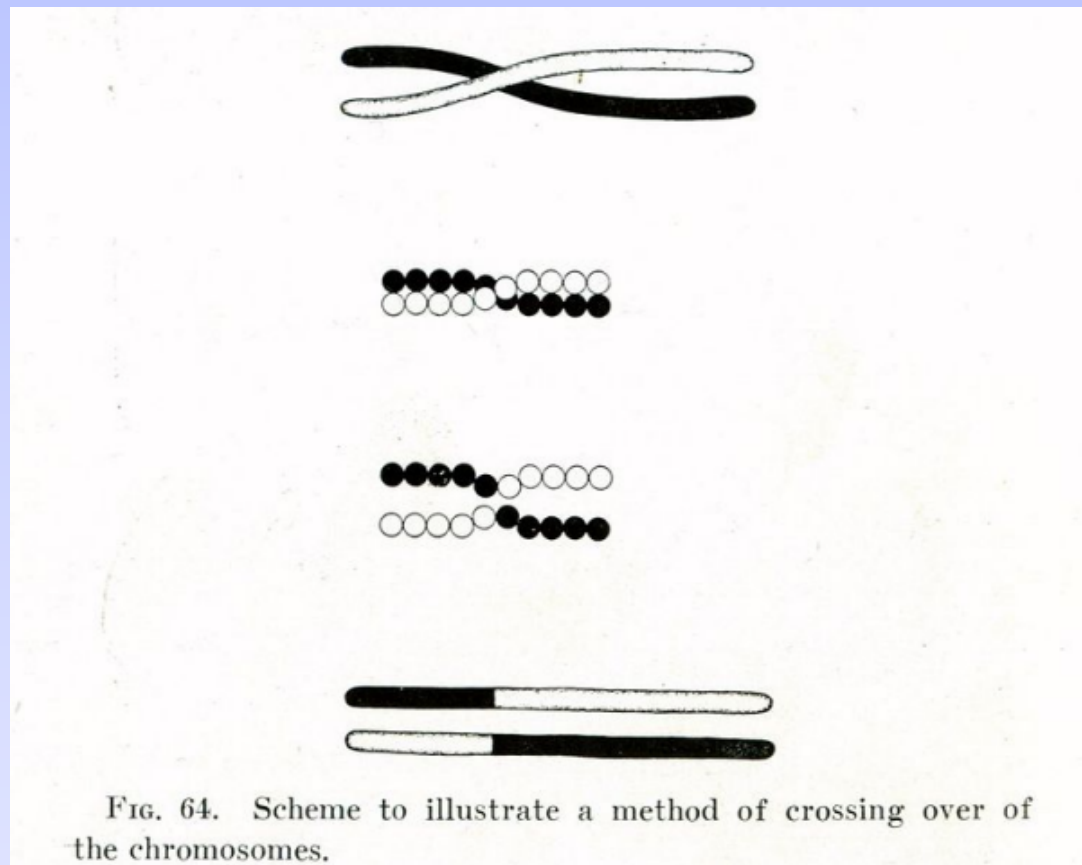


Autosomal DNA Analyzer (ADSA)

| cMs | SNPs | EMAIL | ICW | SEGMENTS |
|-------|-------|-----------------------|-----|----------|
| 63.98 | 11858 | edmcguire.vt@gmai... | | 63.98 |
| 18.19 | 3483 | edmcguire.vt@gmai... | | 18.19 |
| 10.06 | 1883 | BRFulton@aol.com | | 10.06 |
| 9.85 | 1783 | pblvndr@gmail.com | | 9.85 |
| 9.85 | 1783 | gredden@sbcglobal... | | 9.85 |
| 9.85 | 1783 | rasadak@hotmail.co... | | 9.85 |
| 9.85 | 1783 | fabercove@aol.com | | 9.85 |
| 8.38 | 1497 | andi_w00@yahoo.c... | | 8.38 |
| 64.16 | 14668 | edldmr@aol.com | | 64.16 |
| 53.31 | 12606 | edmcguire.vt@gmai... | | 53.31 |
| 22.6 | 5300 | dannyredcab@gmail... | | 22.6 |
| 11.12 | 2800 | curtishorn@mac.com | | 11.12 |
| 22.38 | 5400 | edmcguire.vt@gmai... | | 22.38 |
| 9.59 | 1900 | gregirvin@yahoo.co... | | 9.59 |
| 9.42 | 1800 | r@rkerr.eclipse.co.uk | | 9.42 |
| 8.98 | 1700 | marylee123@comca... | | 8.98 |
| 9.35 | 2600 | sjohnston@givensjo... | | 9.35 |
| 0.03 | 2500 | crowlea@gmail.com | | 0.03 |



Thomas Hunt Morgan's illustration of crossing over (1916)



Source: Wikipedia.org

http://en.wikipedia.org/wiki/File:Morgan_crossover_1.jpg



Special Interest Groups

| Interest Group | Week of the Month |
|---------------------|-----------------------------------|
| Scottish | 1 st Tuesday (6:30 pm) |
| Quebec Research | 2 nd Tuesday (6:30 pm) |
| Irish | 3 rd Tuesday (6:30 pm) |
| → Genetic Genealogy | 4 th Tuesday (6:30 pm) |



AutosomalDNA Testing Recommendations

My top choice is FamilyTreeDNA (in my opinion)

If looking for African-American cousins & origins – AncestryDNA

If not intending to ever work with segment data - AncestryDNA

If also doing medical testing – 23andMe

If mainly interested in ethnicity percentages – 23andMe

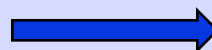
If adoptee / unknown parentage – need to test with all three

If someone in your family tested w/ company A – you might follow lead



Autosomal Test Results

You can search for those common ancestors in a **bigger** pond!!





GEDMatch Table With Anyone Who Uploads Data

| Kit Nbr | Type | Triangulate | GEDCOM | List | Select | Sex | Haplogroup | | Autosomal | | | | X-DNA | | | Name |
|---------------------|------|-------------------|-------------------|-------------------|--------------------------|-----|---------------------|---------------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|-------------------|--------------------------|
| | | | | | | | Mt | Y | Details | Total cM | largest cM | Gen | Details | Total cM | largest cM | |
| ▼ ▲ | | | | | | | ▼ ▲ | ▼ ▲ | | ▼ | ▼ | ▼ ▲ | | ▼ | ▼ | ▼ ▲ |
| A710015 | F2 | I | | L | <input type="checkbox"/> | M | J | R1b1a2 | A | 3585.8 | 214.5 | 1 | X | 186.8 | 97.7 | *mcgvtedw |
| F294401 | F2 | I | | L | <input type="checkbox"/> | F | U5 | | A | 1843.9 | 126.8 | 1.5 | X | 0 | 0 | *emfct |
| F294399 | F2 | I | | L | <input type="checkbox"/> | F | U5 | | A | 1523.3 | 126.6 | 1.6 | X | 0 | 0 | *rmsct |
| A373877 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 49.4 | 15.9 | 4.1 | X | 3.7 | 3.7 | *jmstevens |
| A413529 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 46.3 | 12.3 | 4.1 | X | 0 | 0 | Mary Jo Hiestand |
| F296954 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 41.8 | 13.6 | 4.2 | X | 0 | 0 | Erin Elizabeth Rodriguez |
| A962374 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 44.7 | 13.1 | 4.2 | X | 0 | 0 | G E |
| FB4683 | F2 | I | | L | <input type="checkbox"/> | F | H7 | | A | 43.9 | 10.8 | 4.2 | X | 0 | 0 | *"Duffy" |
| F325072 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 40.2 | 10.7 | 4.2 | X | 0 | 0 | *Rbailey |
| F285837 | F2 | I | | L | <input type="checkbox"/> | M | | I-M253 | A | 40.9 | 10.6 | 4.2 | X | 0 | 0 | Dan Matthews |
| A973047 | F2 | I | | L | <input type="checkbox"/> | M | | | A | 35.3 | 21.6 | 4.3 | X | 0 | 0 | *K.A. through Melissa |
| A615370 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 36 | 21.2 | 4.3 | X | 0 | 0 | *Wendyl |
| F227166 | F2 | I | G | L | <input type="checkbox"/> | M | | R1b1a2 | A | 37.7 | 13.3 | 4.3 | X | 0 | 0 | *ROBERTS Uncle |
| F31300 | F2 | I | | L | <input type="checkbox"/> | M | H7 | R-L2 | A | 34.6 | 10.7 | 4.3 | X | 0 | 0 | *Jacques |
| A141470 | F2 | I | | L | <input type="checkbox"/> | M | | | A | 35.8 | 10.5 | 4.3 | X | 0 | 0 | Kenneth Wood |
| A602490 | F2 | I | | L | <input type="checkbox"/> | F | | | A | 30.6 | 23.5 | 4.4 | X | 0 | 0 | Alison June Moore |
| M203920 | V3 | I | | L | <input type="checkbox"/> | F | T2e | | A | 33.1 | 15.9 | 4.4 | X | 3.7 | 3.7 | Julia Stevens |
| M195557 | V3 | I | | L | <input type="checkbox"/> | F | T2e | | A | 33.1 | 15.9 | 4.4 | X | 3.7 | 3.7 | Julia Stevens |
| F252553 | F2 | I | | L | <input type="checkbox"/> | M | | | A | 33 | 13 | 4.4 | X | 0 | 0 | phil whitelock |
| F293138 | F2 | I | | L | <input type="checkbox"/> | U | K | R1b1a2 (R-M269) | A | 30.8 | 12.5 | 4.4 | X | 0 | 0 | *Susan Whalen |
| F103192 | F2 | I | | L | <input type="checkbox"/> | F | H1am1 | | A | 32 | 10.5 | 4.4 | X | 3.2 | 3.2 | Dora Smith |
| A738433 | F2 | I | | L | <input type="checkbox"/> | M | H5a1 | R1b1b2a1a2d | A | 29.7 | 23 | 4.5 | X | 0 | 0 | Dave Inbody |
| M070626 | V3 | I | | L | <input type="checkbox"/> | F | | | A | 27.6 | 21.2 | 4.5 | X | 0 | 0 | *Wendyl |



Genetic Genealogy At Our Library

4th Tuesday is ‘DNA Night’ for members

- **DNA forum for discussions, questions and answers**
- **A focus on tools, tips and deeper understanding of the technology**

“We’re Here To Help”



Don't Forget!

- Use our [online forum](#) on DNA testing (in Members Only area)
- Best books on genetic genealogy on sale here
- [NEW](#): DNA testing laminated guides (6 topics)
- Big selection of other genealogy books & laminate guides
 - we do take credit cards & cash & checks
- Memberships (\$30)



Thank You!

Questions?

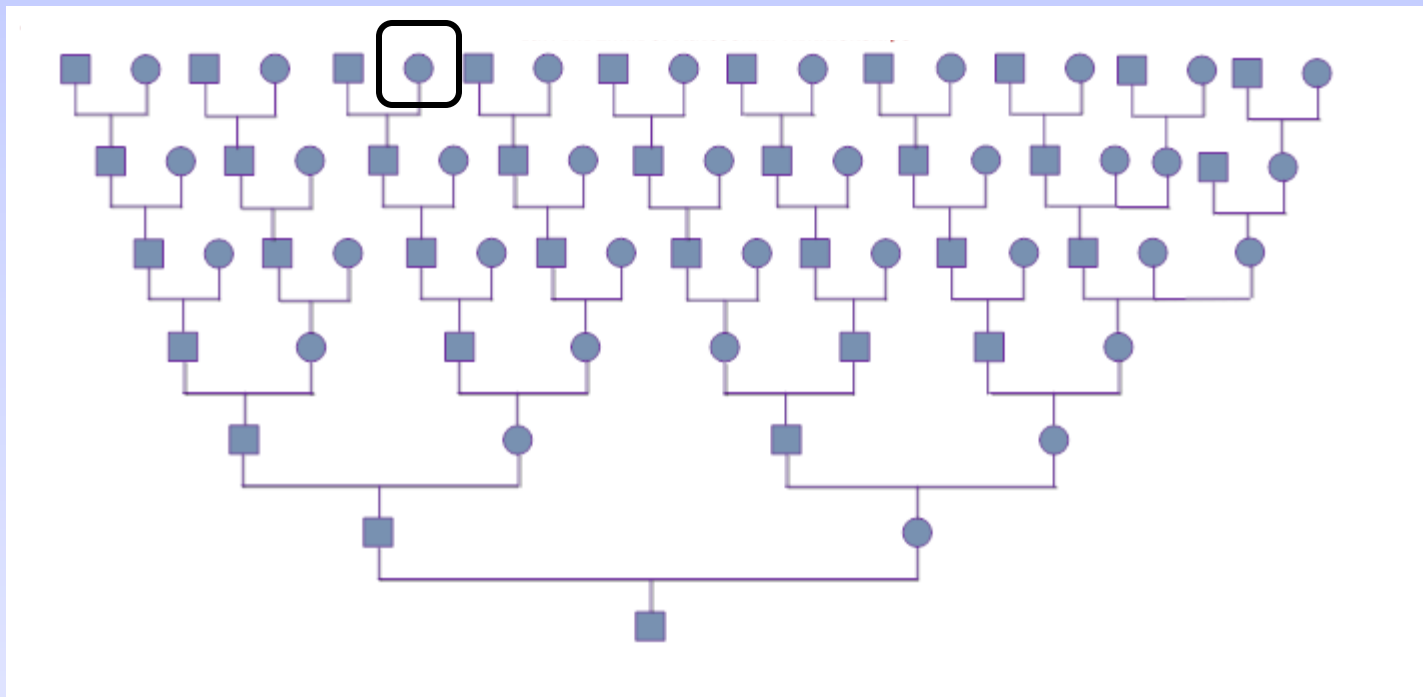


How Do Our DNA Tests & Genealogies Work Together ?



How Your DNA Tests & Genealogies Work Together

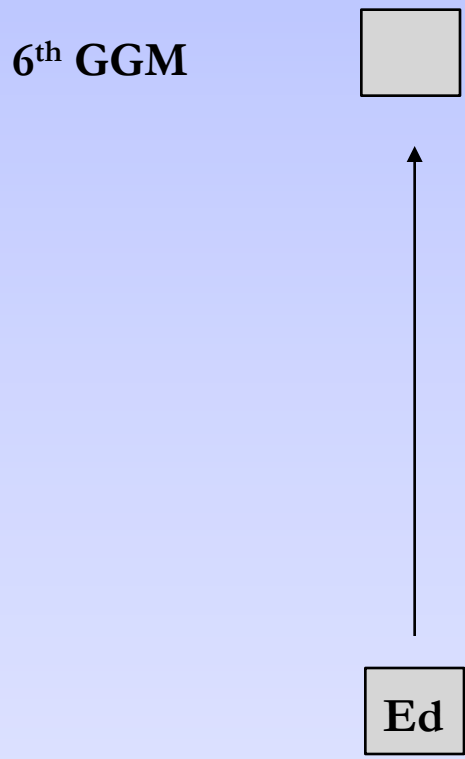
Hundreds of Ancestors with Thousands of Living Descendants



Traditional Genealogy



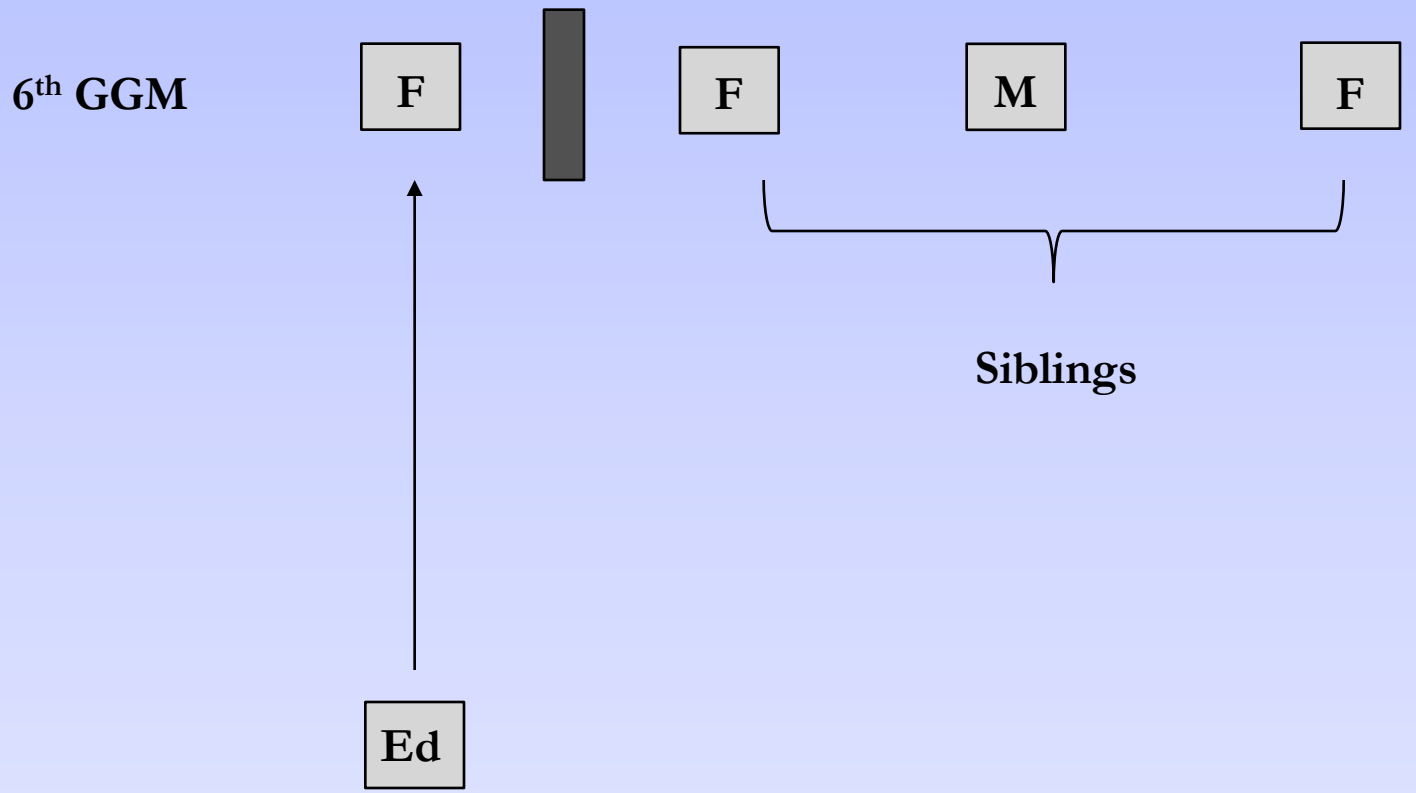
How Your DNA Tests & Genealogies Work Together



Traditional Genealogy

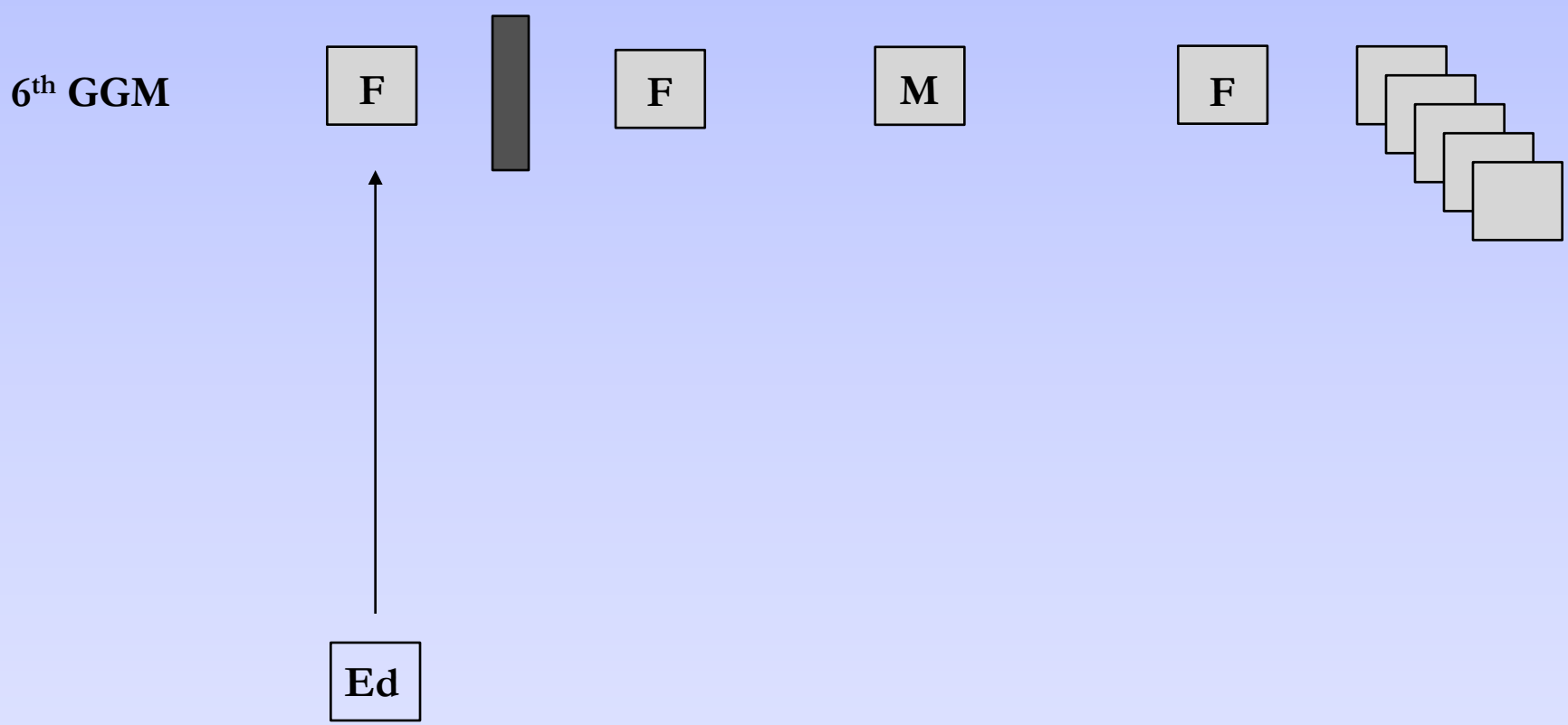


How Your DNA Tests & Genealogies Work Together



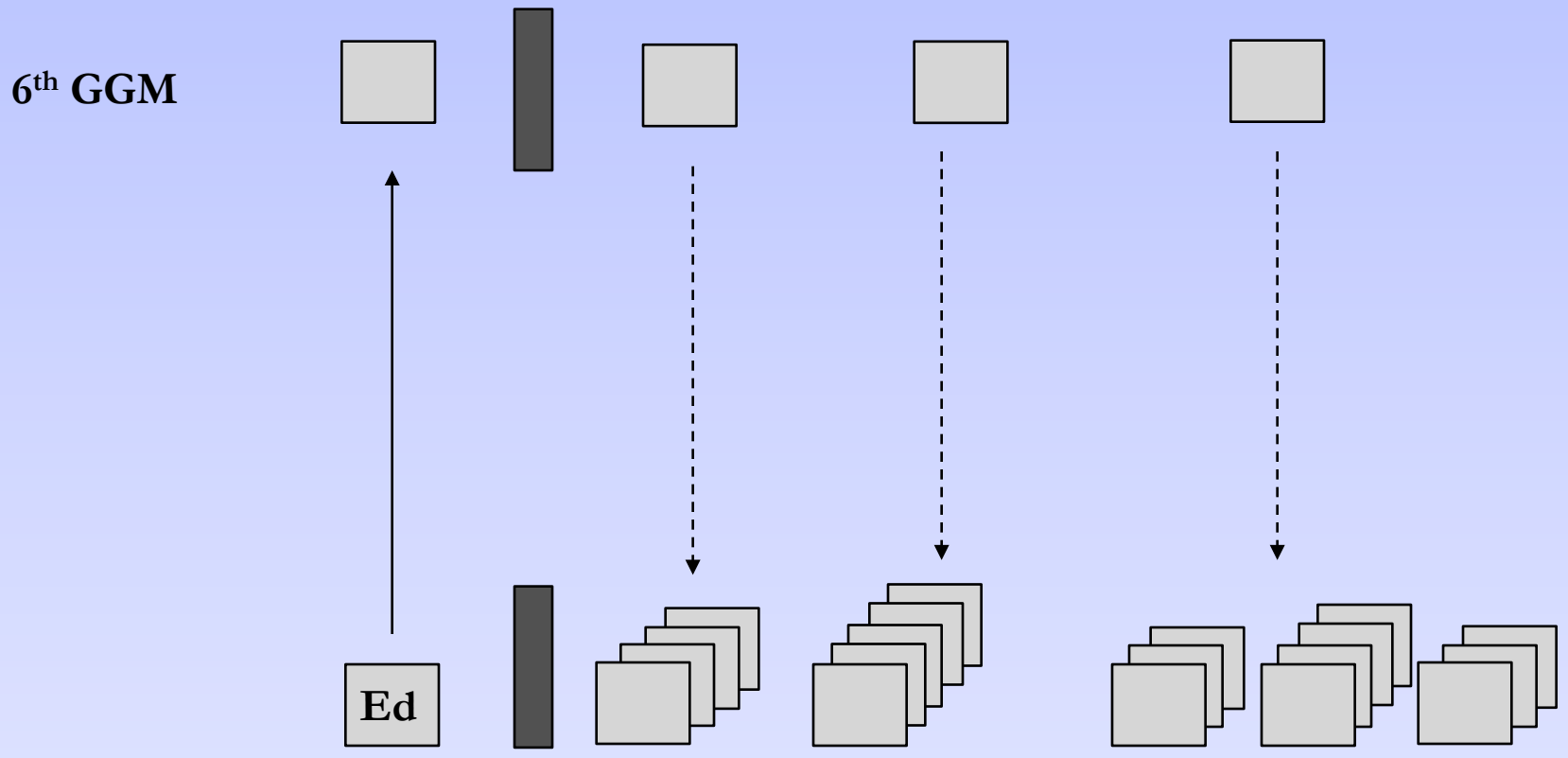


How Your DNA Tests & Genealogies Work Together





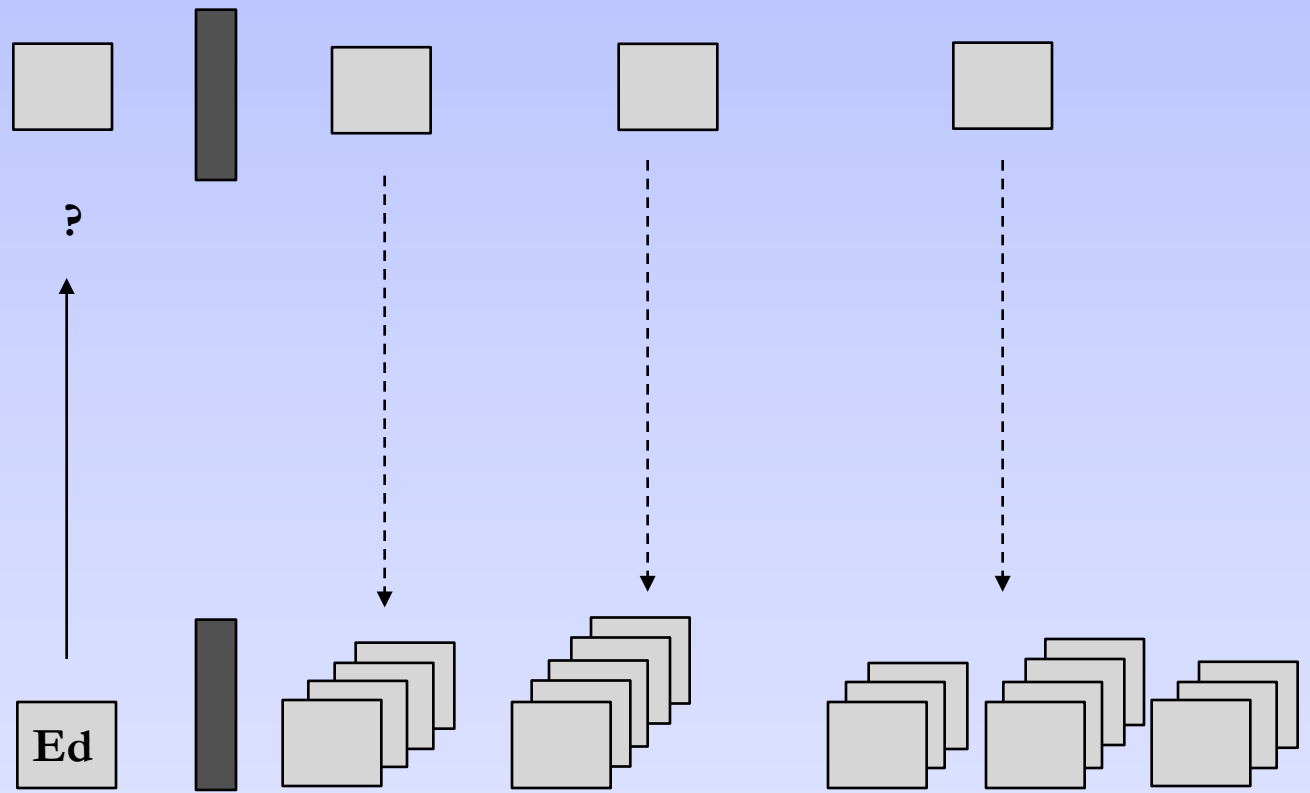
How Your DNA Tests & Genealogies Work Together





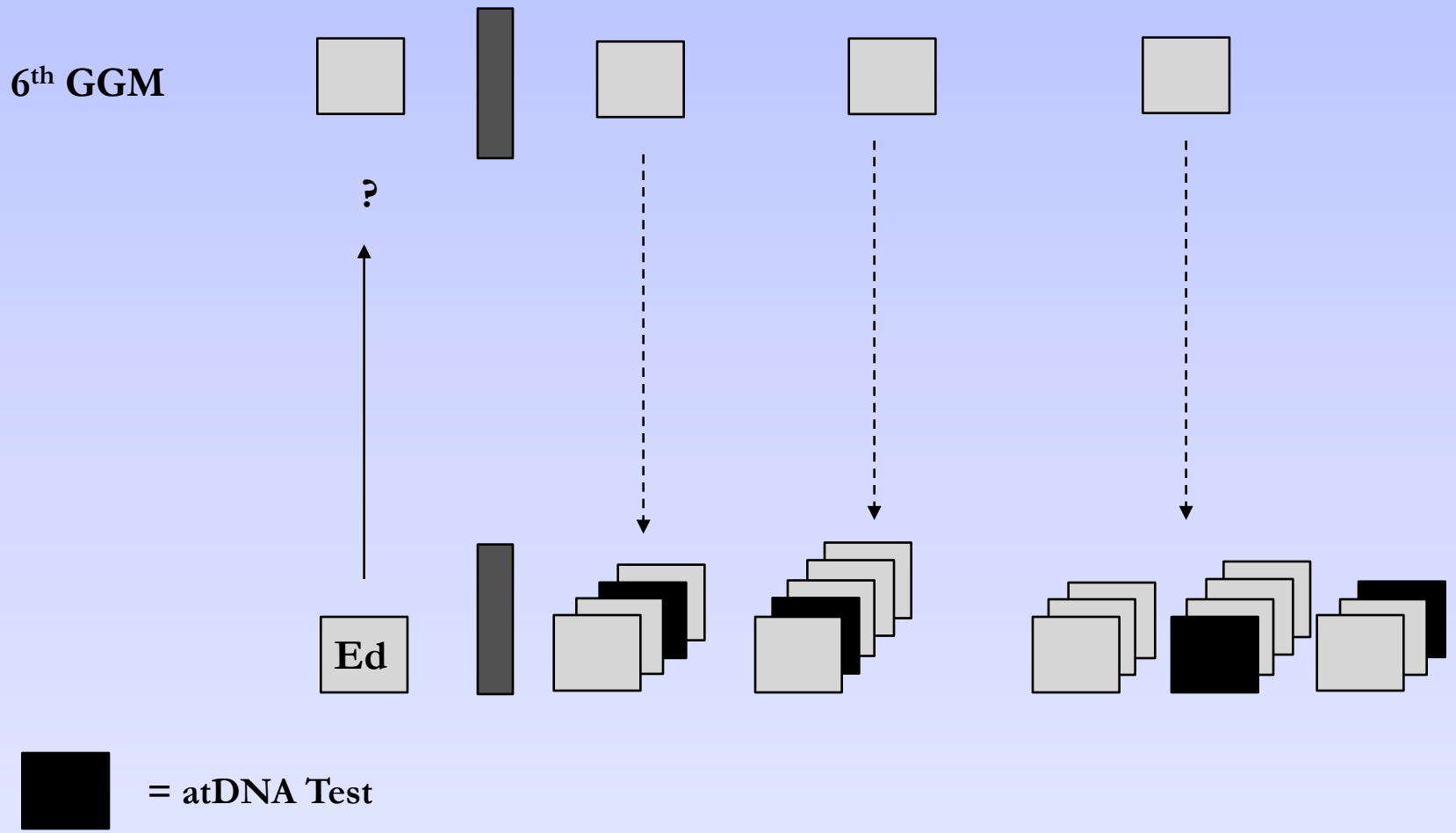
Genealogy – it's all about finding family

6th GGM





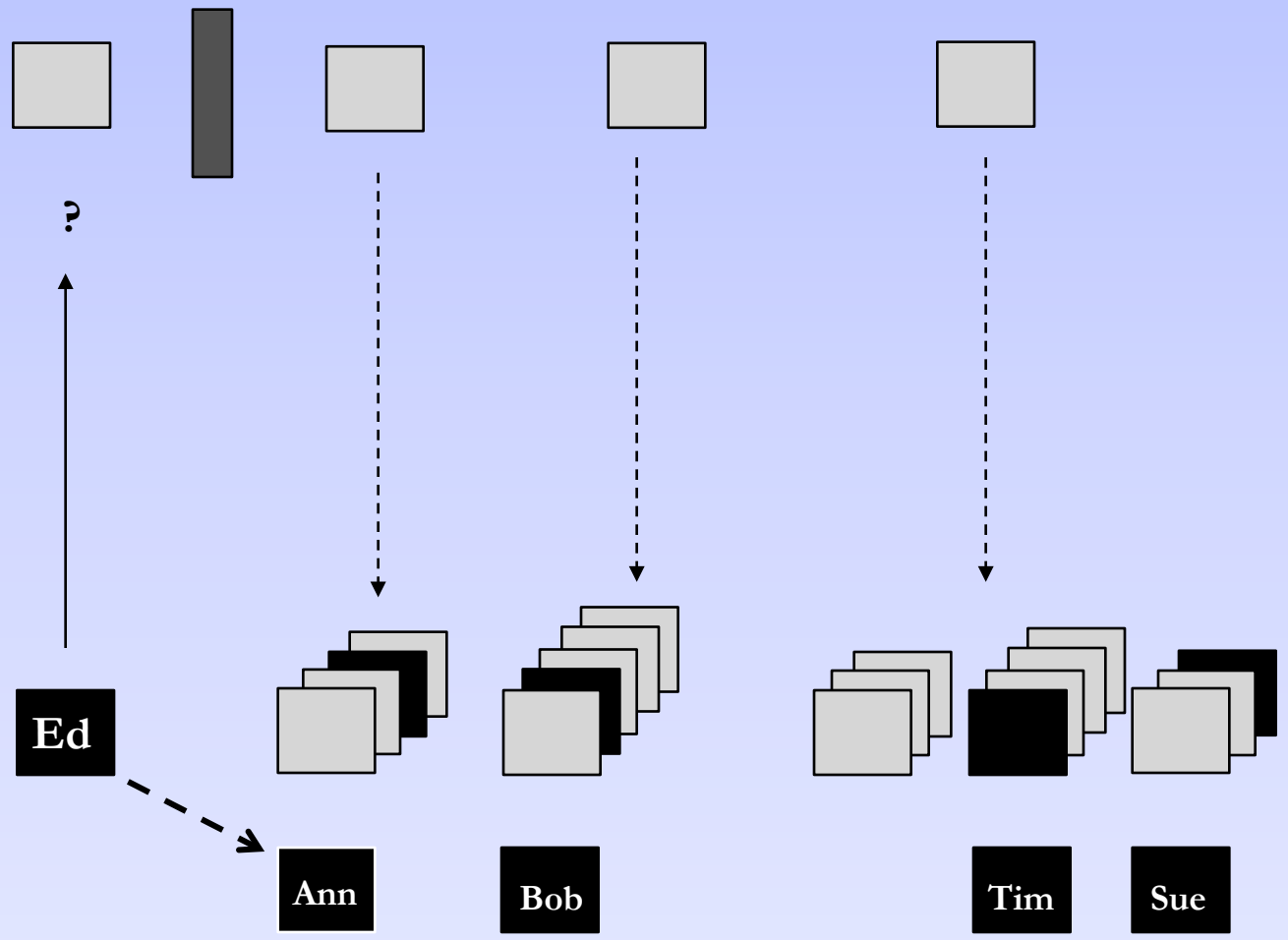
Genealogy – it's all about finding family





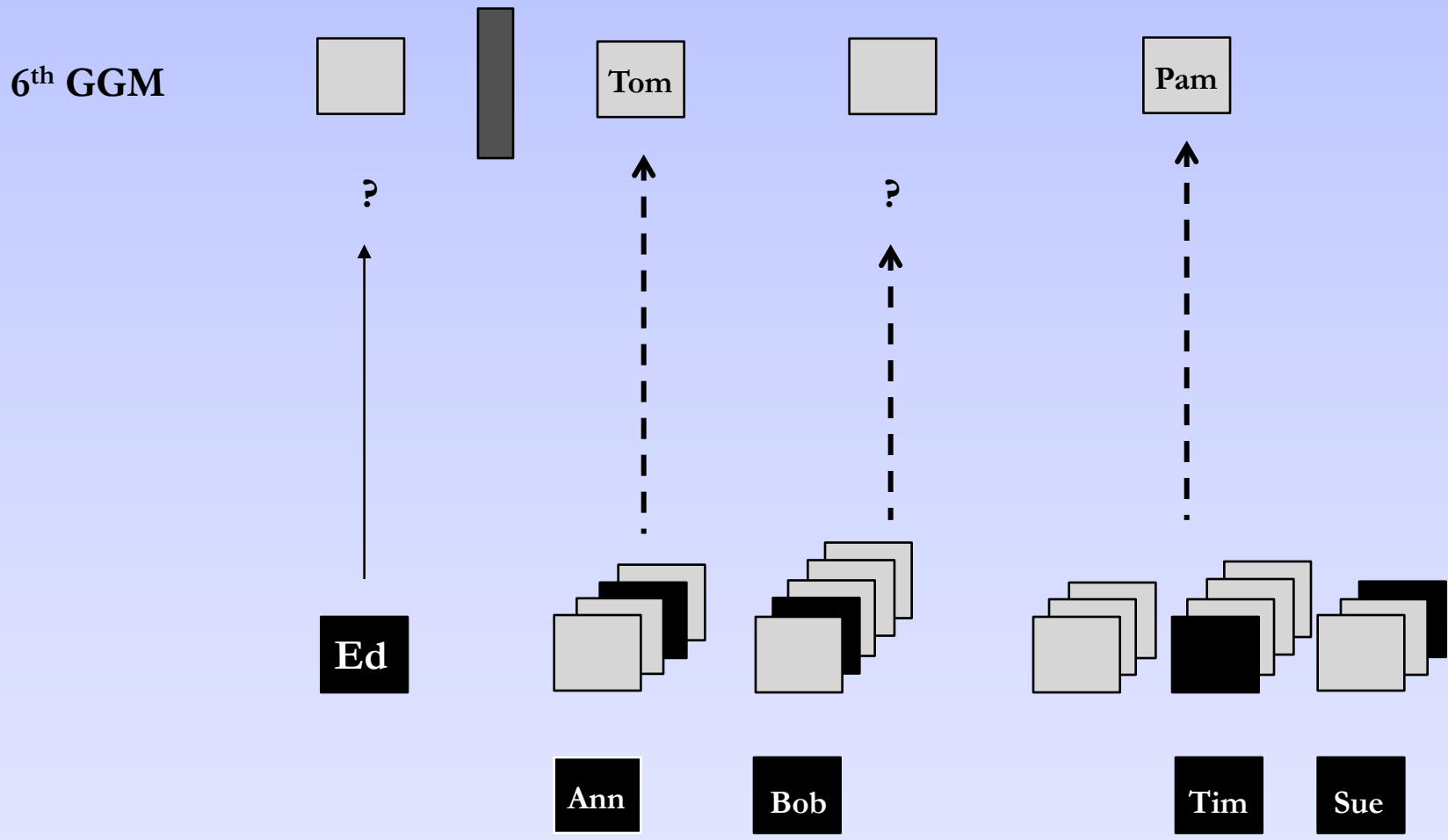
Genealogy – it's all about finding family

6th GGM



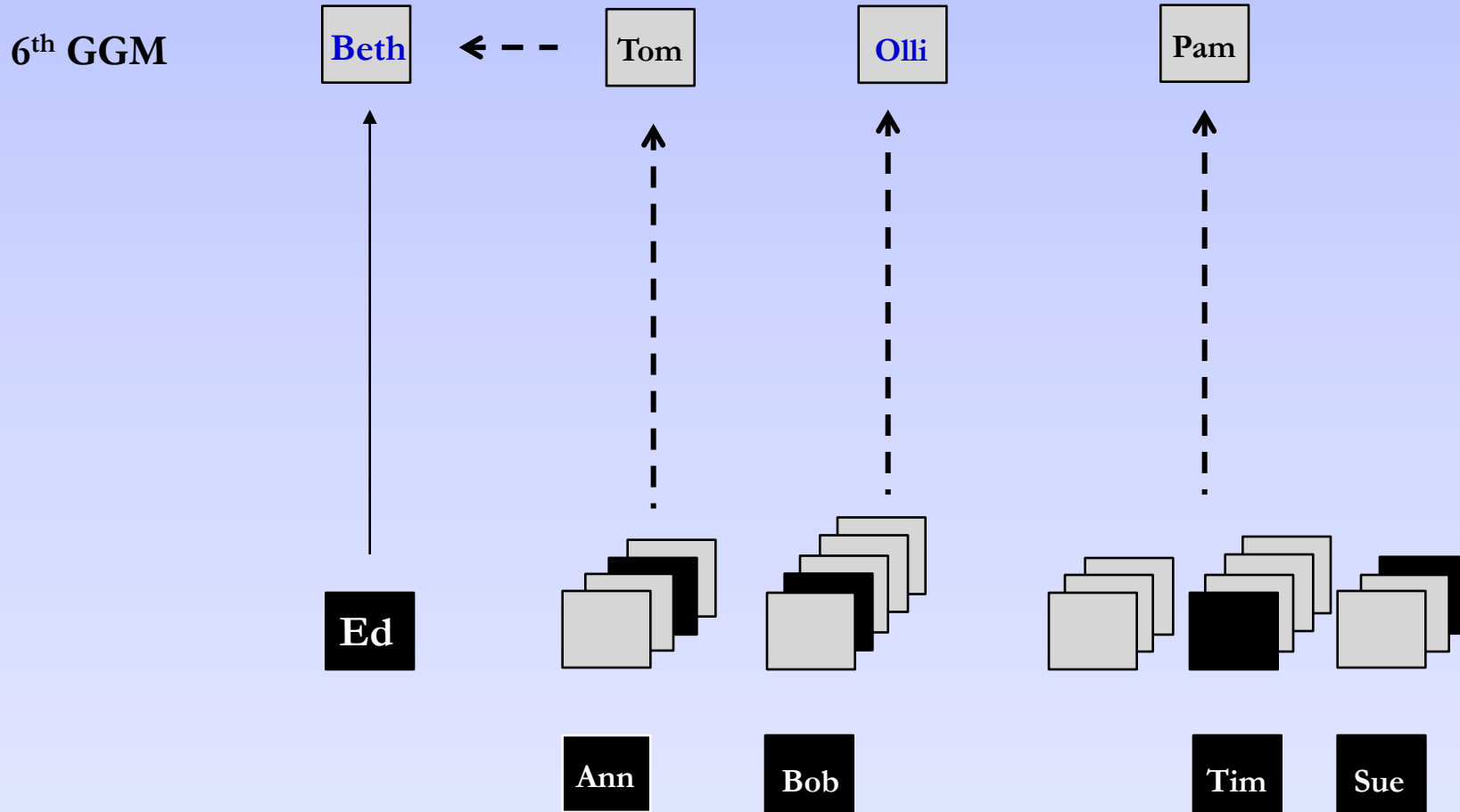


Genealogy – it's all about finding family





Genealogy – it's all about finding family



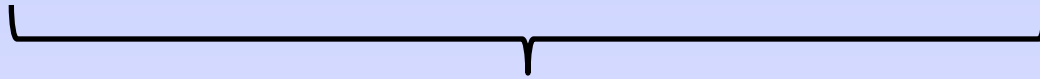


Humans have about 20,000 genes
Genes comprise 1.5% of our DNA

GENE 1

GENE 2

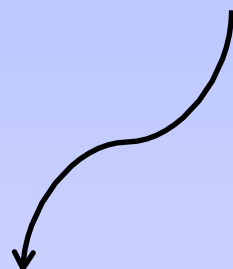
...ACCTAAATCGGCTAGGCCTCATATGACCAGTCA ACCTAAATCGGCTAGGCCTCATATGACCAGTCA...



Non-Coding Region



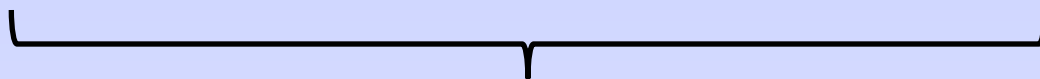
Mutation rates much higher in non-coding region



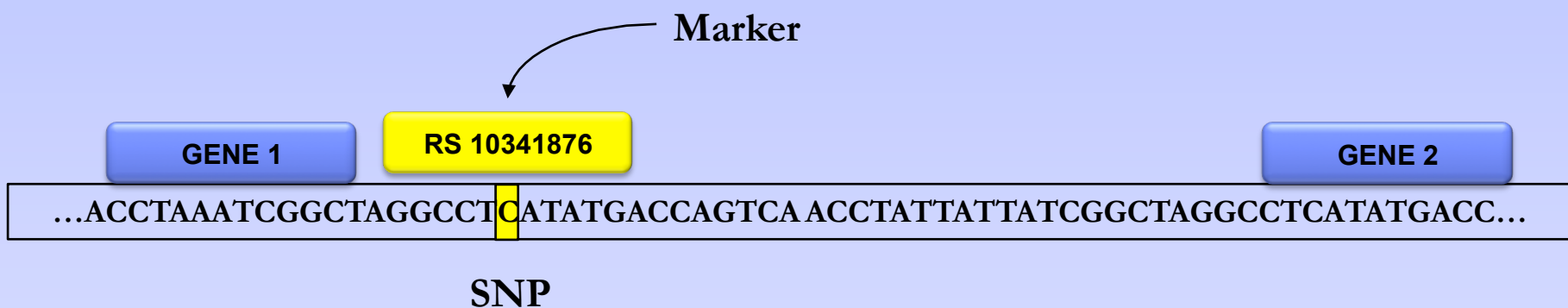
GENE 1

GENE 2

...ACCTAAATCGGCTAGGCCTCATATGACCAGTCA ACCTAAATCGGCTAGGCCTCATATGACCAGTCA...



Non-Coding Region



A 'marker' is a location where we already know mutations have occurred in the past.



FT-DNA Matches Page

Ed McGuire <edmcguire.vt@gmail.com>

Nov 4 (11 days ago) ☆



to ddoyel ▾

Dear David:

I recently obtained results from Family Tree DNA and found that I share about 60 cM of DNA with you, placing us possibly in the range of 2d to 4th cousins. I was hoping to compare surnames and ancestral origins if you were willing to do that.

My surnames are with my data on the Family Tree DNA website. My eight great-grandparents' origins are as follows:

McGuire: County Limerick, Ireland
Roche: County Kilkenny, Ireland
O'Donnell: County Donegal, Ireland
Lehouillier: Batiscan, Champlain County, Quebec
Austin: Hampshire, England
Lynn: Northumberland, England
Hodges: Northumberland, England
Pasbach: Nassau, Germany

Sincerely,