

DNA for Genealogists - Part 2



- Robert Casey
- July 10, 2009
- www.rcasey.net/present

War stories - DNA provides answers



- Two different Pace lines claimed same ancestor
- Each had different wives, overlapping children and residences
- Both claimed same person who was proven back to Jamestown
- At least 20 books claimed the same man (including my book)
- The Jamestown line was connected to a part of London
- DNA proved both lines could not be connected (not closely related)
- Two random submissions solved the mystery
 - One submission that still lived in London where the Jamestown line resided - traced back for five generations within one mile
 - One submission from Canada traced back to rural England with supporting parish records and matched the second Pace line

War stories - DNA provides answers



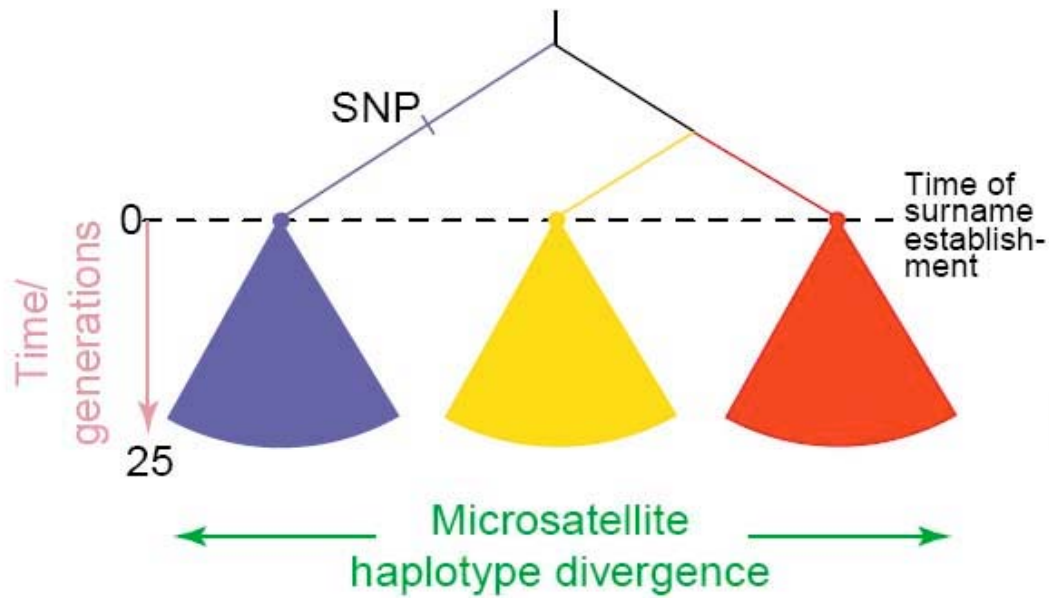
- Two men named Jordan Brooks resided in common counties and neighboring counties - at least five different areas (GA & AL)
- Both lines had very similar given names
- Both lines borrowed from each other due to similar residences
- Many publications actually turned speculation into firm connections on the Internet databases
- Two male descendants were located from each line and both submitted DNA for comparison
- FTDNA MRCA states that there is less than 1 of 10,000 chance of lines being related in the last 600 years
- Genetically proved these lines are not related as once believed
- However, one line was very closely related to yet another line

War stories - DNA provides answers

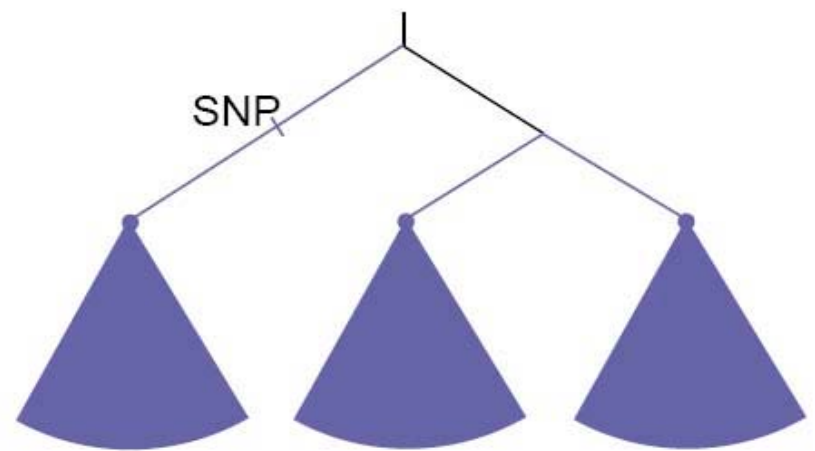


- There are believed to be around 40 different Casey lines residing to four neighboring SC counties from 1760s to 1820s
- Many years of research has been unable to make much progress in tying these Casey lines together
- DNA has proven that about 12 Casey lines are very closely related
- DNA has proven that one Casey line is not closely related
- DNA has allowed the most probable DNA Descendancy Chart (connections of these lines based on DNA information)
- Around one third of submissions are part one one branch and the remaining two thirds are part of second branch
- Author of 600 page Hanvey book found out that his Hanvey line is actually Casey genetically and not Hanvey related genetically

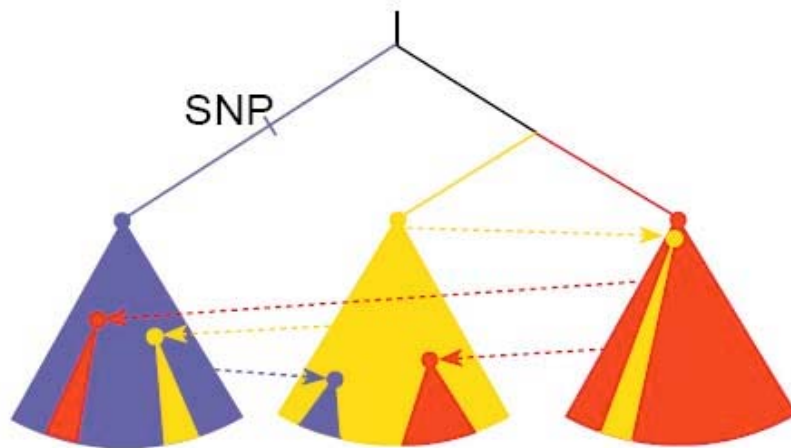
(a) Monophyletic surnames, high-fidelity transmission, non-overlapping haplotypes



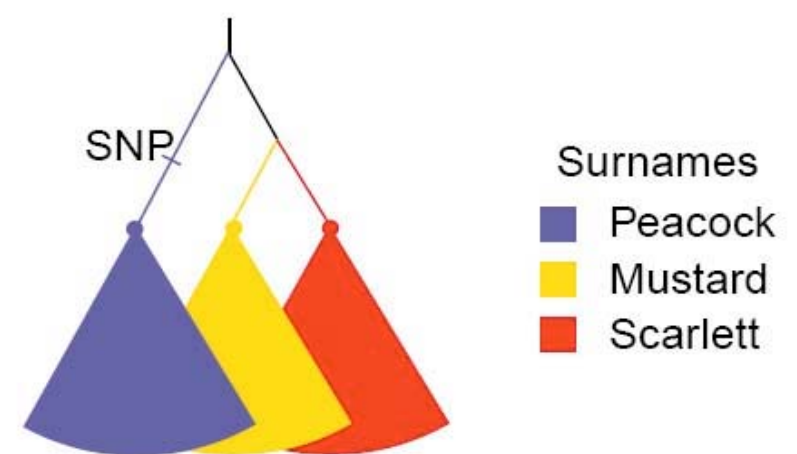
(b) Polyphyletic surname



(c) Low-fidelity transmission



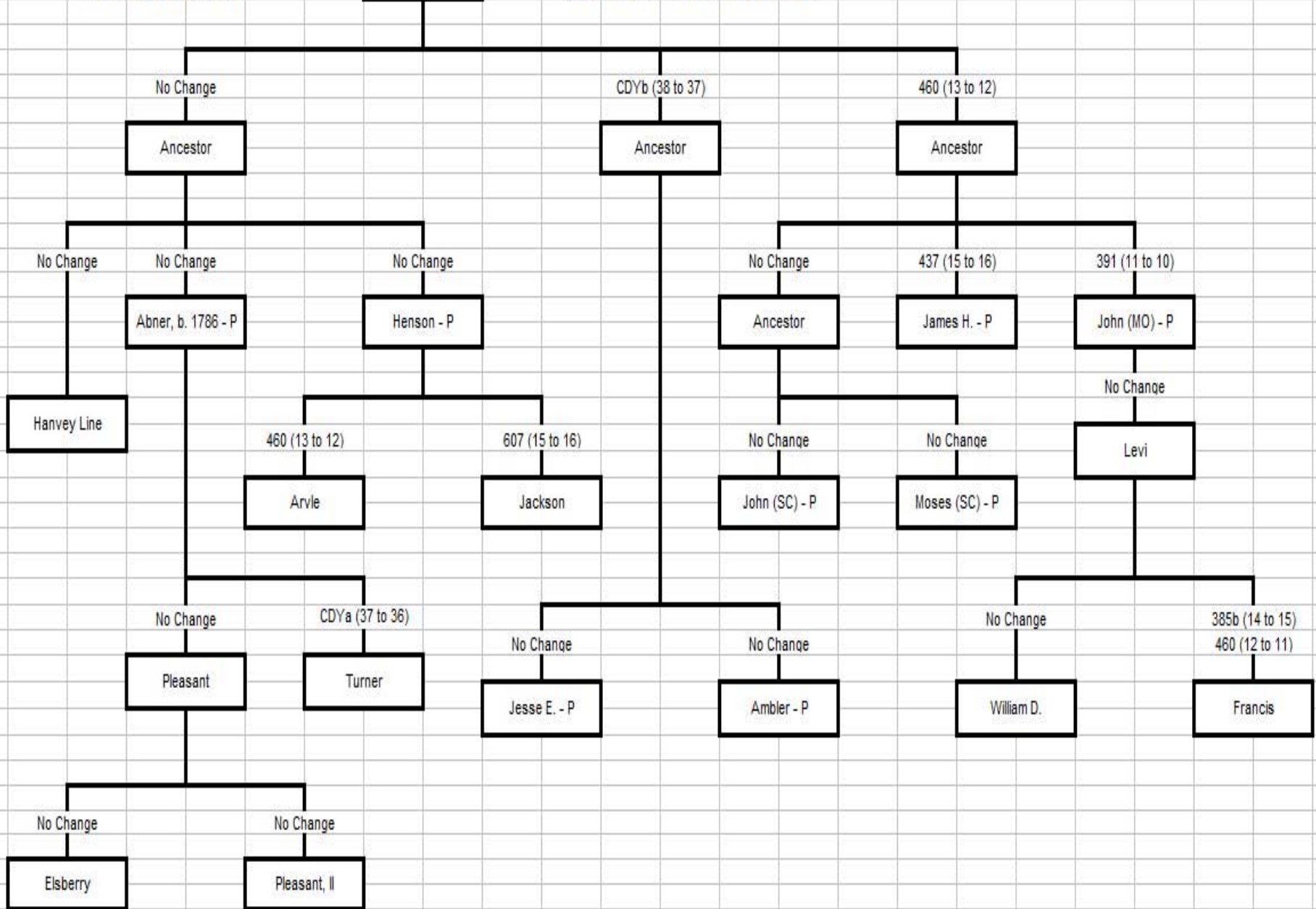
(d) Overlapping haplotypes

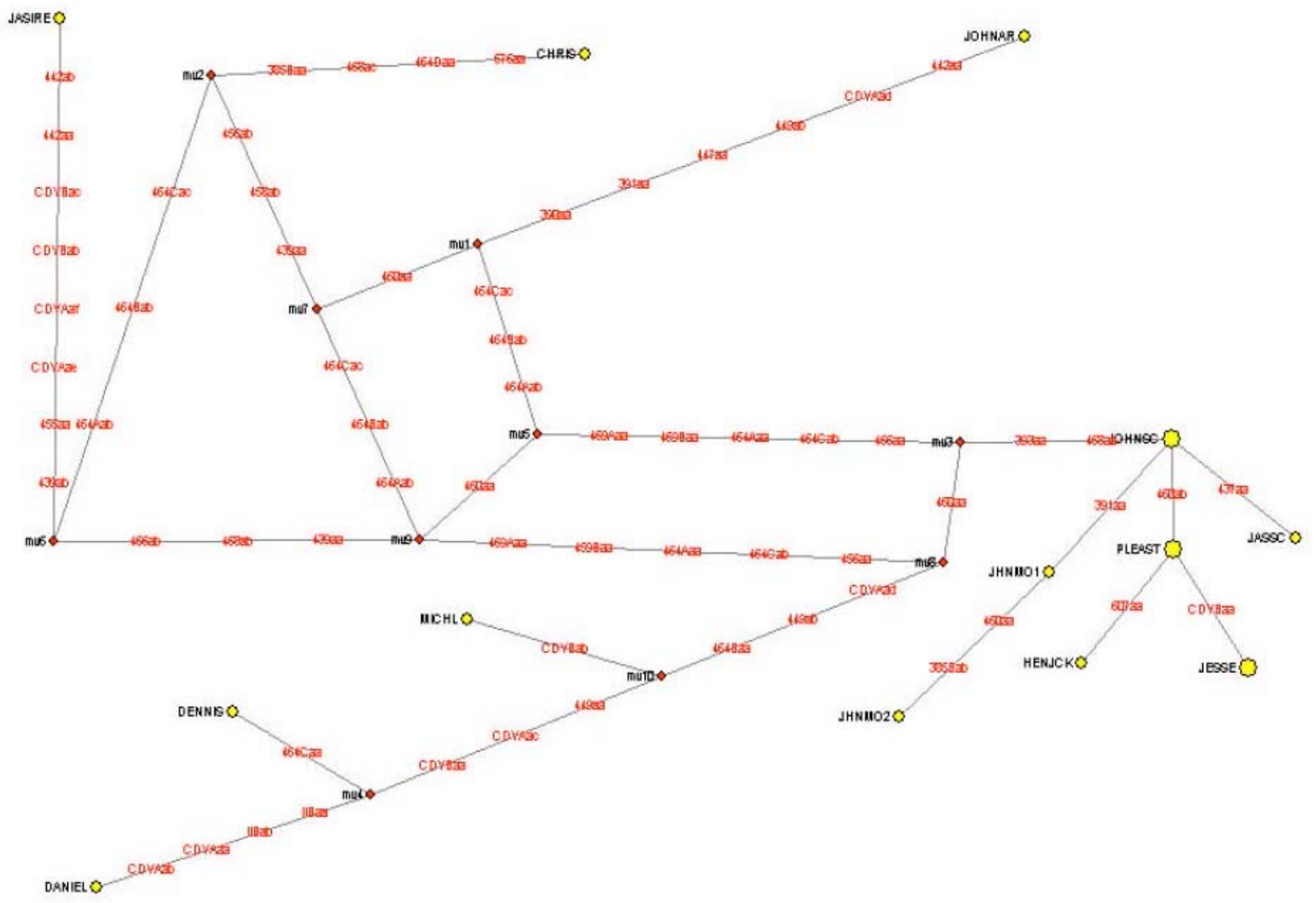


DNA Descendancy Chart
(Casey - SC & TN Cluster)

Progenitor of Cluster

DNA Marker 460 = 13 (Majority Rules)
Also assumes fewest mutations is most likely





Kit	Casey Line	HAPLO	393	390	19	391	385a	385b	426	388	439	389-1	392	389-2	458	459a	459b	455	454	447	437	448	449	464a	464b	464c	484d	460	GATA-H4	YCA-11a	YCA-11b	456	607	576	570	CDYa	CDYb	442	438				
	SC, TN Cluster																																										
56130	John(SC),John(IL)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	12	11	19	23	15	15	18	17	37	38	12	12				
99381	John(MO),Levi(MO),Wm(MO)	R1b1b2	12	24	14	10	11	15	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	11	11	19	23	15	15	18	17	37	38	12	12				
93773	John(MO),Levi(MO),Frank(MO)	R1b1b2	12	24	14	10	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	12	11	19	23	15	15	18	17	37	38	12	12				
45068	JasH(SC),Willis(TX),James(TX)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	16	19	30	13	14	15	17	12	11	19	23	15	15	18	17	37	38	12	12				
58301	Henson(TN),Arvie(MO)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	12	11	19	23	15	15	18	17	37	38	12	12				
40325	Henson(TN),Jackson(MO)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	16	18	17	37	38	12	12				
51924	Abnr(TN),Pleas(TN),Elbry(TX)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	15	18	17	37	38	12	12				
54166	Abnr(TN),Pleas(TN),Pleas(TX)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	15	18	17	37	38	12	12				
56874	Jesse(TN),Anth(AR),Wm(AR)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	15	18	17	37	37	12	12				
77349	Amblr(TN),John(AR),Lews(AR)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	15	18	17	37	37	12	12				
107623	Abnr(TN),Turner(AR)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	15	18	17	36	38	12	12				
29956	Hanvey (Abbeville, SC)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	13	11	19	23	15	15	18	17	37	38	12	12				
119586	Moses(SC),Moses(SC)	R1b1b2	12	24	14	11	11	14	12	12	11	13	13	29	16	8	9	11	11	25	15	19	30	13	14	15	17	12	11	19	23	15	15	18	17	37	38	12	12				
	Irish Cluster																																										
NA	Baseline (mutation point)	NA	13	24	14	11	11	14	12	12	11	13	13	29	17	8	9	11	11	25	15	19	28	13	13	15	17	11	11	19	23	15	15	18	17	35	37	12	12				
53484	Dennis, Ireland	R1b1b2	13	24	14	11	11	14	12	12	11	13	13	29	17	8	9	11	11	25	15	19	28	13	13	14	17	11	11	19	23	15	15	18	17	35	37	12	12				
131349	Elisha(SC),Elisha(GA)	R1b1b2	13	24	14	11	11	14	12	12	11	13	13	29	17	8	9	11	11	26	15	19	28	13	13	14	17	11	11	19	23	15	15	17	17	35	37	12	12				
34073	Michael, Limerick, Ireland	R1b1b2	13	24	14	11	11	14	12	12	11	13	13	29	17	8	9	11	11	25	15	19	29	13	13	15	17	11	11	19	23	15	15	18	17	36	39	12	12				
56031	Daniel, Clare, Ireland	R1b1b2	13	24	14	11	11	14	12	12	11	13	13	29	17	8	9	11	11	25	15	19	28	13	13	15	17	11	11	19	21	15	15	18	17	33	37	12	12				
57562	James Charles Casey	R1b1b2	13	23	14	11	11	14	12	12	12	13	13	29																													
129039	Unknown Casey	R1b1b2	13	24	14	11	11	14	12	12	12	13	13	29																													
N63409	Unknown Casey	R1b1b2	12	24	16	11	11	14	12	12	12	13	13	28																													
	Cluster - 3																																										
NA	Baseline (mutation point)	NA	13	24	14	11	11	14	12	12	12	13	13	29	18	9	10	11	11	25	15	19	30	14	14	16	17	11	11	19	23	17	15	18	17	37	38	12	12				
56479	Christopher, GA	R1b1c6	13	24	14	11	11	13	12	12	12	13	13	29	19	9	10	11	11	25	15	19	30	15	15	17	18	11	11	19	23	17	15	17	17	37	38	12	12				
48828	John, NY, AR	R1b1b2	13	23	14	10	11	14	12	12	11	13	13	29	18	9	10	11	11	24	15	19	29	15	15	17	17	12	11	19	23	16	15	18	17	36	38	13	12				
34247	James, Mayo, Ireland	R1b1b2	13	24	14	11	11	14	12	12	13	13	13	29	18	9	10	12	11	25	15	19	30	14	14	16	17	11	11	19	23	17	15	18	17	39	40	14	12				
104397	Unknown Casey	R1b1b2	13	24	14	11	11	15	12	12	13	13	13	29	17	9	10	11	11	25	15	19	28	15	15	17	17	11	11	19	23	16	15	16	18	37	37	12	12				
34258	Daniel(VA)/John/Wiley	R1b1	13	23	14	11	11	11	12	12	12	14	13	30	17	9	9	11	11	25	16	20	29	16	16	16	16																
70443	Daniel(VA)/John/Barnabas	R1b1b2	13	23	14	11	11	11	12	12	12	14	13	30	17	9	9	11	11	25	16	20	29	16	16	16	16																
N10282	Patrick, Clare, Ireland	R1b1b2	14	25	14	11	11	15	12	12	12	13	14	29																													
	Cluster - 4																																										
NA	Baseline (mutation point)	NA	13	23	14	10	14	17	11	12	11	13	11	30	17	8	9	11	11	24	15	21	28	13	13	15	16	11	11	19	22	15	14	17	17	34	34	11	11				
38646	James, VA & KY	J2	12	23	14	10	14	17	11	15	11	13	11	30	16	9	9	11	11	24	15	21	26	12	13	15	16	11	10	19	22	15	13	17	16	34	34	11	9				
	Cluster - 5																																										
NA	Baseline (mutation point)	NA	13	23	14	10	14	17	11	12	11	13	11	30	17	8	9	11	11	24	15	21	28	13	13	15	16	11	11	19	22	15	14	17	17	34	34	11	11				
57086	Sinclair, VA - 1	E1b1a	13	21	15	10	16	18	11	12	12	13	10	31	17	8	9	10	11	24	14	21	29	13	16	16	16	10	11	19	19	15	14	16	18	32	34	11	11				
56851	Sinclair, VA - 2	E1b1a	13	21																																							

This is the “First Panel” of Family Tree DNA’s Test – Also Called their “12 Marker Test”

	1	2	3	4	5	6	7	8	9	10	11	12	Average
Locus													
DYS#	393	390	19/394	391	385a	385b	426	388	439	389-1	392	389-2	
Rate	0.0012	0.0045	0.0016	0.0036	0.0033	0.0033	0.0005	0.0005	0.0045	0.0021	0.0016	0.0028	0.002458

This is the “Second Panel” of FTDNA’s Test – The 2nd part of their “25” Marker Test

	13	14	15	16	17	18	19	20	21	22	23	24	25	Average
Locus														
DYS#	458	459a	459b	455	454	447	437	448	449	464a	464b	464c	464d	
Rate	0.0066	0.0014	0.0014	0.0005	0.0005	0.0045	0.0020	0.0028	0.0075	0.0035	0.0035	0.0035	0.0035	0.003169

This is the “Third Panel” of FTDNA’s Test – The 3rd part of their “37” Marker Test

	26	27	28	29	30	31	32	33	34	35	36	37	Average
Locus													
DYS#	460	H 4	YCA11a	YCA11b	456	607	576	570	CDY a	CDY b	442	438	
Rate	0.0028	0.0036	0.0014	0.0014	??	??	??	??	??	??	??	0.0012	Unknown

Understanding the Bell Curve

Avg=np=2.775
STD= \sqrt{npq} =1.602

