

YSNP Names and Information Table

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YSNP Marker Name. e.g. M2, P25, P15, SRY2627, S28, etc:	Ancestral Allele State. DNA Base Letters, e.g. A,T,G,C:	Derived Allele State. DNA Base Letters, e.g. A,T,G,C:	YCC Haplogroup (HG). e.g. E3a, R1b1, G2, R1b1c6, etc:	Alternate Haplogroup (HG) Designation:	Discoverer. Or Group. Last Name	Year Discovered:	Source of Data:	Database Entry Contributor:	Brief Comments:
12f2.1	Present	Absent	J		TBD		NIST Butler 2003 YCC Phylo Tree 2005	Kerchner	Key YSNP. Defines J haplogroup. A backbone major haplogroup
47z	G	C	None Listed Per NIST Butler 2003		Underhill Stanford Univ Group		NIST Butler 2003	Schenk	
50f2 (P)	G	C	B2b		Underhill Stanford Univ Group		NIST Butler 2003	Schenk	
92R7	G	A	P-R		Underhill Stanford Univ Group		NIST Butler 2003	Schenk	
Apt	G	A	F1		Underhill Stanford Univ Group		NIST Butler 2003	Schenk	
LINE1	LINE-	LINE+	O3c		Underhill Stanford Univ Group		NIST Butler 2003	Schenk	
LLY22	TBD	TBD	N		TBD		YCC 2005 Phylo Tree	Kerchner	Key YSNP. Defines N haplogroup. A backbone major haplogroup.

M10	T	C	E3a6	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M101	C	T	O1a	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner
M102	G	C	J2e1	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner
M103	C	T	O1b	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M105	C	T	C1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M106	A	G	M	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M107	A	G	E3b2a	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M108	T	C	B2a2 B2b3a	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M109	C	T	B2a1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M11	A	G	L	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M110	T	C	O1b	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M111	2-bp (TT)	deletion	O2a1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M112	G	A	B2b	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M113	A	G	O3d1	Underhill Stanford Univ Group	NIST Butler 2003	Estes

M114	T	C	A2a		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M115	C	T	B2b2		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M116.2	A->C	triallelic	D2b E3a2		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M117	4-bp	deletion	O3e1		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M118	A	T	A3b2b		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M119	A	C	Q1		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M12	G	T	J2e		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M120	T	C	Q1		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M121	5 bp	deletion	O3a		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M122	T	C	O3		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M123	G	A	E3b3		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M124	C	T	P1		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M125	T	C	D2b1		Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M126	4-bp	deletion	R1b1c3	R1b5	Underhill Stanford Univ Group	YCC Phylo Tree 2005 NIST Butler 2003	Estes and Kerchner	Key YSNP. Defines R1b1c3 subclade of R1b on the YCC 2005 phylogenetic tree.

M127	C	T	A3b2	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M128		-2bp	N1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M128		-2bp	N1	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner
M129	G	A	B2b3	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M13	G	C	A3b2	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M131	9-bp	deletion	C1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M132	G	T	E1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M133	1-bp(T)	deletion	O3e1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M134		-1bp	O3e	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M135		+1bp	A2	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M136	C	T	E3b3a1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M137	T	C	J2c	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M138	C	T	H1c	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M139	5G	4G	B-R	Underhill Stanford Univ Group	NIST Butler 2003	Schenk

M14	T	C	A2		Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M141	T	A	A2		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M143	G	T	Q2		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M144	T	C	A3b		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M145	G	A	D-E		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M146	A	C	B1		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M147		1-bp IN(T) (insertion)	K3		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M148	A	G	Eb1a		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M149	G	A	E3a3		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M15		9 bp IN (insertion)	D1		Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M150	C	T	B2a		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M151	G	A	D2b2		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M152	C	T	B2a1		Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M153	T	A	R1b1c4	R1b6	Underhill Stanford Univ Group	YCC Phylo Tree 2005 NIST Butler 2003	Schenk and Kerchner Key YSNP. Defines R1b1c4 subclade of R1b on the YCC 2005 phylogenetic tree.

M154	T	C	E3a4		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M155	G	A	None Listed Per NIST Butler 2003		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M156	A	G	E3a6		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M157	A	C	R1a1b		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M158	G	A	J2d		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M159	A	C	O3c		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M16	C	A	M2a		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M160	A	C	R1b1c5	R1b7	Underhill Stanford Univ Group	YCC PhyloTree 2005 NIST Butler 2003	Schenk and Kerchner	Key YSNP. Defines R1b1c5 subclade of R1b on the YCC 2005 phylogenetic tree.
M161	C	A	I1b2a		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M163	A	C	J2f2		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M164	T	C	O3b		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M165	A	G	E3a5 E3b2b		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M166	G	A	J2f2		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M168	C	T	C-R		Underhill Stanford Univ Group	NIST Butler 2003	Schenk	

M169	T	C	B2b2	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M17	4G	3G	R1a1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	Key YSNP. Defines R1a1 subclade of R1a major haplogroup. Thus often used to verify YSTR haplotype predictions of being in R1a major haplogroup.
M170	A	C	I	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	Key YSNP. Defines I haplogroup. A backbone major haplogroup.
M171	G	C	A3b2a	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M172	T	G	J2	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	Key YSNP. Defines J2 major haplogroup.
M173	A	C	R1	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	Key YSNP. Defines the R1 major haplogroup.
M174	T	C	D	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M175		-5bp	O	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	Key YSNP. Defines O haplogroup. A backbone major haplogroup.
M178	T	C	N3a	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M179	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M18		2bp IN (insertion)	R1b1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M180	T	C	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	

M181	T	C	B	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M182	C	T	B2	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M183	A	C	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M184	G	A	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M185	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M186		1-bp DE (deletion)	M	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M188	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M189	G	T	M	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M19	T	A	Q3a	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M190	A	G	A3b	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M191	T	G	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk
M192	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk

M193		4-bp IN	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M194	T	C	Q3b	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M195	A	G	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M196	C	G	A2	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M197	T	C	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M198	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M199		1-bp IN (G)	Q3c	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M2	A	G	E3a	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines E3a major haplogroup.
M200	G	A	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M201	G	T	G	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines G major haplogroup.
M202	T	G	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M203	G	C	D-E	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	

M204	T	G	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M205	T	A	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M206	T	G	A2	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
M207	A	G	R	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	Key YSNP. Defines R haplogroup. A backbone major haplogroup.
M208	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	Nist Butler 2003	Hightower	
M209	A	G	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M21	A	T	I1a2	Underhill Stanford Group	NIST Butler 2003	Hightower	
M210	A	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M211	C	T	B2b4b	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M212	C	A	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M213	T	C	F-R	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M214	T	C	O	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	

M215	A	G	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M216	C	T	C	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines C backbone major haplogroup.
M217	A	C	C3	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines C3 major haplogroup.
M218	C	T	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M219	T	C	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M22	A	G	L	Underhill Stanford Group	NIST Butler 2003	Hightower	
M220	A	G	A3b	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M221	G	A	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M222	TBD	TBD	R1b1c7	Underhill Stanford Univ Group	YCC PhyloTree 2005	Kerchner	Key YSNP. Defines R1b1c7 subclade of R1b on the YCC 2005 phylogenetic tree.
M223	C	T	I2 per YCC Phylo Tree 2005 FTDNA None listed per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003 YCC Phylo Tree 2005	Hightower	Key YSNP. Defines I2 major haplogroup.
M224	T	C	None Listed Per NIST Butler 2003	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	

M23	A	G	A2	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M231	G	A	N	Underhill Stanford Univ Group	Hum Genet (2004)	Kerchner	Key YSNP. Defines N backbone major haplogroup.
M241	G	A		Underhill Stanford Univ Group	Hum Genet (2004)	Schenk	
M242	C	T	Q	Underhill Stanford Univ Group	YCC Phylo Tree 2005. Hum Genet (2004) 114:127- 148	Kerchner	Key YSNP. Defines Q haplogroup. A backbone major haplogroup.
M25	G	C	Q2	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M253	C	T	I1a	Underhill Stanford Univ Group	2005 YCC Phylo Tree. Hum Genet (2004) 114:127- 148	Kerchner	Key YSNP. Defines I1a major haplogroup.
M258	TBD	TBD	I	Underhill Stanford Univ Group	YCC 2005 Phylo Tree	Kerchner	Key YSNP. Defines I haplogroup. A backbone major haplogroup.
M26	G	A	I1b2	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M267	T	G	J1	Underhill Stanford Univ Group	YCC Phylo Tree 2005. Hum Genet (2004) 114:127- 148	Kerchner	Key YSNP. Defines J1 major haplogroup.
M269	T	C	R1b1c	Underhill Stanford Univ Group	YCC Phylo Tree 2005 Google 2006	Kerchner	Key YSNP. Defines R1b1c subclade of R1b. Thus often used to verify YSTR haplotype predictions of being in R1b major haplogroup.
M27	C	G	L1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M28	T	G	A3a	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	

M285	G	C		Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148	
M286	G	A		Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148	
M287	A	T		Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148	
M3	C	T	Q3	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner
M30	G	A	B2b3	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M304	A	C	J	Underhill Stanford Univ Group	Hum Genet (2004) Kerchner 114:127-148	Key YSNP. Defines J backbone major haplogroup. This YSNP is equivalent to YSNP 12f2.1.
M307	TBD	TBD	I1a	Underhill Stanford Univ Group	YCC 2005 Phylo Tree FTDNA	Kerchner Key YSNP. Defines I1a major haplogroup. This YSNP appears to be equivalent to P30.
M31	G	C	A1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M32	T	C	A3	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M33	A	C	E1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M335	T	A		Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148	
M339	T	G		Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148	
M34	G	T	E3b3a	Underhill Stanford Univ Group	NIST Butler 2003	Hightower

M340	G	C			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M342	C	T			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M343	C	A	R1b		Underhill Stanford Univ Group	YCC Phylo Tree 2005. Hum Genet (2004) 114:127- 148	Kerchner	Key YSNP. Defines R1b major haplogroup
M349	G	T			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M35	G	C	E3b		Underhill Stanford Univ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines E3b major haplogroup.
M359	T	C			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M36	T	G	H1a		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M365	A	G			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M367	A	G			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M368	A	C			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M369	G	C			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M37	C	T	R1b1c1	R1b2	Underhill Stanford Univ Group	YCC Phylo Tree 2005 NIST Butler 2003	Hightower and Kerchner	Key YSNP. Defines R1b1c1 subclade of R1b on the YCC 2005 phylogenetic tree.
M370	C	G			Underhill Stanford Univ Group	Hum Genet (2004) Schenk 114:127-148		
M38	T	G	C2		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	

M39		C DE (deletion)	H1c	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M4	A	G	M	Underhill Stanford Univ Group	NIST Butler 2003	Kerchner	
M42	A	T	B-R	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M43	A	G	B2a2a	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M44	G	C	E1a	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M45	G	A	P-R	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	Key YSNP. Defines P haplogroup. A backbone major haplogroup.
M47	G	A	J2a	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M48	A	G	C3c	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M49	T	C	A2	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M50	T	C	O1b	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M51	G	A	A3b1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M52	A	C	H	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M54	G	A	E2b	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M55	T	C	D2	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	

M56	A	T	R1a1a		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M57		+1bp	D2		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M58	G	A	E3a1		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M59	A	C	A3a		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M6	T	C	A2		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M60		+1bp	B		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M61	C	T	L		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M62	T	C	J1		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M63	G	A	A3b2		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M64	A	G RE (recurrent)	D2 R1a1c		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M65	A	T	R1b1c2	R1b3	Underhill Stanford Univ Group	YCC Phylo Tree 2005 NIST Butler 2003	Hightower and Kerchner	Key YSNP. Defines R1b1c2 subclade of R1b on the YCC 2005 phylogenetic tree.
M66	A	C	E3a6		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M67	A	T	J2f		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M68	A	G	J2b		Underhill Stanford Univ Group	NIST Butler 2003	Hightower	

M69	T	C	H	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M7	C	G	O3d	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M70	A	C	K2	Underhill Stanford Univ Group	NIST 2003	Estes	
M71	C	T	A2	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M72	A	G	I1a3	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M73		2-bp DE (Deletion)	R1b4	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M74	G	A	P-R	Underhill Stanford Univ Group	NIST Butler 2003	Estes	Key YSNP. Defines P haplogroup. A backbone major haplogroup.
M75	G	A	E2	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M76	T	G	L1	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M77	C	T	C3c	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M78	C	T	E3b1	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M8	G	T	C1	Underhill Stanford Univ Group	NIST Butler 2003	Hightower	
M81	C	T	E3b2	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M82		-2bp	H1 H1b	Underhill Stanford Univ Group	NIST Butler 2003	Estes	

M85	C	A	E2b	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M86	T	G	C3c	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M87	T	C	R1a1c	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M88	A	G	O2a1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M89	C	T	F-R	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M9	C	G	K-R	Underhill Stanford Univ Group	NIST Butler 2003	Hightower
M90	C	G	E2b	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M91	9T	8T	A	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M92	T	C	J2f1	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M93	C	T	C3a	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M94	C	A	B-R	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M95	C	T	O2a	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M96	G	C	E	Underhill Stanford Univ Group	NIST Butler 2003	Estes
M97	T	G	H1b	Underhill Stanford Univ Group	NIST Butler 2003	Estes

M98	G	C	E2b	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
M99		1-bp DE (deletion)	J2e1a	Underhill Stanford Univ Group	NIST Butler 2003	Estes	
MEH1	C	G	A2	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
MEH2	G	T	Q	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
MSY2	4	3	B2b4b O1	Underhill Stanford Univ Group	NIST Butler 2003	Schenk	
P1	C	T	E3a	Hammer Univ AZ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines E3a major haplogroup.
P107	TBD	TBD	R1b1c9	Hammer Univ AZ Group	YCC PhyloTree 2005	Kerchner	Key YSNP. Defines R1b1c9 subclade of R1b on the YCC 2005 phylogenetic tree.
P14	C	T	F-R	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P15	C	T	G2	Hammer Univ AZ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines G2 major haplogroup.
P16	A	T	G2a	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P18	C	T	G2a1	Underhill Stanford Univ Group	NIST butler 2003	Hightower	
P19	T	G	I	Hammer Univ AZ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines I haplogroup. A backbone major haplogroup.
P2	C	T	E3	Hammer Univ AZ Group	NIST Butler 2003	Kerchner	
P20		C-DE (deletion)	G1	Hammer Univ AZ Group	NIST Butler 2003	Hightower	

P21	C	A	N3a1	Hammer Univ AZ	NIST Butler 2003	Hightower	
P22 (M104)	G/A	A	M2	Hammer Univ AZ Group	Nist Butler 2003	Hightower	
P25	C	A	R1b (2003) R1b1 (2005)	Hammer Univ AZ Group	NIST Butler 2003	Kerchner	Key YSNP. Defines R1b1 subclade of R1b. Thus often used to verify YSTR haplotype predictions of being in R1b major haplogroup.
P27	G	A	P-R	Hammer Univ AZ Group	NIST Butler 2003	Hightower	Key YSNP. Defines P haplogroup. A backbone major haplogroup.
P28	C	T	A2b	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P29	A	C	E	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P3	G	A	A2	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P30	TBD	TBD	I1a	Hammer Univ AZ Group	YCC 2005 Phylo Tree	Kerchner	Key YSNP. Defines I1a major haplogroup.
P31	T	C	O2	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P33	T	C	C2a	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P36	G	A	Q	Hammer Univ AZ Group	NIST Butler 2003	Hightower	Key YSNP. Defines Q major haplogroup.
P37	T	C	D2	Hammer Univ AZ Group	NIST Butler 2003	Hightower	
P37.2	TBD	TBD	I1b	Hammer Univ AZ Group	YCC 2005 Phylo Tree	Kerchner	Key YSNP. Defines I1b major haplogroup.

P38	TBD	TBD	I1	Hammer Univ AZ Group		YCC 2005 Phylo Tree	Kerchner	Key YSNP. Used to define I1 major haplogroup.
P4	C	T	A2	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
P40	TBD	TBD	I1a1	Hammer Univ AZ Group		YCC 2005 Phylo Tree	Kerchner	Key YSNP. Defines I1a1 subclade of I1a major haplogroup.
P44	G	A	C3	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
P5	C	T	A2	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
P6	G	C	B2b1	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
P66	TBD	TBD	R1b1c8	Hammer Univ AZ Group		YCC PhyloTree 2005	Kerchner	Key YSNP. Defines R1b1c8 subclade of R1b on the YCC 2005 phylogenetic tree.
P7	T	C	B2b4	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
P8	G	A	B2b4a	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
P9	C	A	C-R	Hammer Univ AZ Group		NIST Butler 2003	Hightower	
S21	Not Released	Not Released	TBD	Wilson London UK Group	2005	EA	Kerchner	
S28	Not Released	Not Released	TBD	Wilson London UK Group	2005	EA	Kerchner	

SRY10831.1	SRY10831.1	SRY10831.1	B-R	TBD	YCC 2005 Phylo Tree FTDNA NIST Butler 2003	Kerchner	This is one YSNP location that has mutated twice in its history. It went from ancestral (A) to (G) and then back to (A). The first mutation from (A) to (G) defined the establishment of backbone major haplogroup B. The second mutation back to (A) defined the establishment of the R1a major haplogroup.
SRY10831a	ANC (Ancestral) SRY10831 (A)	DER (Derived) SRY10831 (G) Except for down stream major haplogroup R1a when this YSNP nucleotide mutated back reverting back to an (A) which event defined the establishment of major haplogroup R1a.					

SRY10831.2	SRY10831.2	SRY10831.2-	R1a	TBD	YCC 2005 Phylo Tree FTDNA NIST Butler 2003	Kerchner	Key YSNP. Defines the R1a major haplogroup. This is an unusual YSNP that originally/ancestrally was a nucleotide DNA letter (A) then mutated to a (G) which defined the backbone major haplogroup B-R. Sometime later in the ages it then mutated a second time back to an (A) which then defined the establishment of the R1a major haplogroup.
SRY10831b	ANC (Ancestral) SRY10831 (G) Immediate Ancestral State was (G) however the original Ancestral State was (A). This YSNP mutated twice over known genetic history. See YSNP SRY10831.1	DER (Derived) SRY10831(A)					

SRY2627	C	T	R1b1c6	R1b8	TBD		YCC Phylo Tree 2005 NIST Butler 2003	Kerchner	Key YSNP. Defines R1b1c6 subclade of R1b on the YCC 2005 phylogenetic tree.
SRY4064	G	A	E		TBD		NIST Butler 2003	Kerchner	
SRY9138	C	T	K1		TBD	TBD	NIST Butler 2003	Kerchner	
Tat (M46)	T	C	N3		Underhill Stanford Univ Group		NIST Butler 2003	Schenk	
YAP	Alu-	Alu+	D-E		Underhill Stanford Univ Group		NIST Butler 2003	Hightower	