

Carriers of human mitochondrial DNA macrohaplogroup M colonized India from southeastern Asia

Patricia Marrero, Khaled K. Abu-Amero, Jose M Larruga, Vicente M. Cabrera

Supporting Information Legends

Table S1. Haplogroup M in Saudi Arabia. In red haplotypes from this study.

Table S2. Superhaplogroup ages and geographic links.

Table S3. Haplogroup M geographic ranges and ages in kiloyears (ky).

Table S4. The oldest modern human fossil dating in different regions of Asia and the oldest archaeological dating at the eastern side of the Wallace Line.

Figure S1. Phylogenetic tree of M complete sequences from this study.

Table S1. Haplogroup M in Saudi Arabia. In bold haplotypes from this study.

ID	HVSI (without 16000)	HVSII	HVSII analyzed to	Haplogroup assignment	Sample size	Other differences with CRS
2128	093 129 172 183C 189 249 311			M1	1	
2520	093 129 189 223 249 304 311 519	73 195 263 309i 315i	350	M1	1	
807	093 129 189 223 249 311 357 519	73 195 263	350	M1a7	1	
2450	129 134 140 189 223 249			M1	1	6671; 6680; 10398; 10400
2451	129 145 183C 189 223 249 311			M1	1	
2129	129 154 183C 189 223 249 311			M1	1	
4394	15930T 129 183C 189 223 249 311 519	73 195 263 309ii 315i 489	550	M1	1	
2130	15884 129 182 189 223 249 265C 311			M1	1	
2131	15944d 129 182 189 223 249 265C 311 519	73 195 263 309i 315i 489 750	943	M1	1	
471	129 185 189 190d 223 249 311 519	73 195 200 263 309i 315i 466 489	550	M1b1	1	
2452	129 183C 189 213 223 249 311			M1	1	
1345	129 182C 183C 189 223 240 249 311			M1	1	
2132	129 182C 183C 189 223 249 278 311			M1	1	
2133	129 183C 189 223 249 278 311			M1	1	
2339	129 189 223 249 278 311 519	73 195 263 309i 315i	350	M1	1	
2521	129 183C 189 223 249 290 311 519	73 146 195 263 315i	350	M1	1	
2522	129 189 223 249 290 311 519	73 93 195 263 315i	350	M1	1	
1207	129 182C 183C 189 223 249 294 311 519	73 195 263 309i 315i 489	550	M1	1	
115	129 182c 183c 189 223 249 311 519	73 195 263 315i 489	550	M1	1	
2118	129 182C 183C 189 223 249 294 311 519	73 195 263 309i 315i 489	550	M1	1	
2134	129 182C 183C 189 223 249 311			M1	1	
1346	129 182C 183C 189 223 249 311			M1	1	
1347	129 182C 183C 189 223 249 311			M1	1	
1432	093 129 172 182C 183C 189 223 249 311			M1	1	
225	129 183c 189 223 249 311 519	73 195 263 315i 489	550	M1	1	
854	129 183c 189 223 249 311 519	73 195 263 309i 315i 489	550	M1	1	
3027	129 183c 189 223 249 311 519	73 195 263 309i 315i 489	550	M1	1	
3035	129 183c 189 223 249 311 519	73 195 263 309i 315i 489	550	M1	1	
3036	129 183c 189 223 249 311 519	73 195 263 309i 315i 489	550	M1	1	
2135	129 183C 189 223 249 311			M1	1	
2136	129 183C 189 223 249 311			M1	1	
2137	129 183C 189 223 249 311			M1	1	
2138	129 183C 189 223 249 311			M1	1	
2139	129 183C 189 223 249 311			M1	1	
2140	129 183C 189 223 249 311			M1	1	
2141	129 183C 189 223 249 311			M1	1	
2142	129 183C 189 223 249 311			M1	1	
2143	129 183C 189 223 249 311			M1	1	
2144	129 183C 189 223 249 311			M1	1	

Table S1. Continued.

ID	HVSI (without 16000)	HVSII	HVSII analyzed to	Haplogroup assignment	Sample size	Other differences with CRS
2145	129 183C 189 223 249 311			M1	1	
2146	129 183C 189 223 249 311			M1	1	
2147	129 183C 189 223 249 311			M1	1	
2148	129 183C 189 223 249 311			M1	1	
2149	129 183C 189 223 249 311			M1	1	
1348	129 183C 189 223 249 311			M1	1	
1349	129 183C 189 223 249 311			M1	1	
1350	129 183C 189 223 249 311			M1	1	
2453	129 183C 189 223 249 311			M1	1	
2454	129 183C 189 223 249 311			M1	1	
1433	129 183C 189 223 249 311			M1	1	
639	129 183C 189 223 249 311 519	73 152 189 195 263 309i 315i 489	550	M1	1	
1097	129 183c 189 223 249 311 519	73 152 195 263 309ii 315i 489	550	M1	1	
2185	129 183c 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
1208	129 182C 183C 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
2340	129 183C 189 223 249 311 519	73 152 189 195 263 309i 315i	350	M1	1	
1515	129 183C 189 223 249 311 519	73 152 195 263 315i 489	650	M1	1	
1209	129 183C 189 223 249 311 519	73 152 263 309i 315i 489	550	M1	1	
2150	129 183C 189 223 249 311 519	73 152 263 309i 315i 489	550	M1	1	
1210	129 183C 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
1211	129 183C 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
2151	129 183C 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
2152	129 183C 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
2153	129 183C 189 223 249 311 519	73 152 263 309ii 315i 489	550	M1	1	
2341	129 183C 189 223 249 311 519	73 195 263 309i 315i	350	M1	1	
686	129 183C 189 223 249 311 519	73 195 263 315i	350	M1	1	
757	129 183C 189 223 249 311 519	73 93 195 263 315i	350	M1	1	
1212	129 189 223 249 311			M1	1	
2154	129 189 223 249 311			M1	1	
2155	129 189 223 249 311			M1	1	
2726	129 189 223 249 311			M1	1	
2727	129 189 223 249 311			M1	1	
2728	129 189 223 249 311			M1	1	
2523	129 189 223 249 311 519	73 145 263 309i 315i	350	M1	1	
617	129 189 223 249 311 519	73 195 263 309i 315i	350	M1	1	
2156	15884 129 189 223 249 311 519	73 195 263 315i 489	550	M1	1	
2157	15930T 129 183C 189 223 249 311 519	73 195 263 309ii 315i 489	550	M1	1	
734	129 183C 189 223 249 311 355 519	73 195 263 315i	350	M1	1	
1434	129 182C 183C 189 223 249 311 399			M1b2	1	
509	129 183C 189 223 249 311 399 519	73 93 195 263 309ii 315i 489 522dCA	550	M1b2	1	
663	129 183C 189 223 249 311 399 519	73 93 195 263 309i 315i 489 522dCA	550	M1b2	1	12705; 12950C; 13111

Table S1. Continued.

ID	HVSI (without 16000)	HVSII	HVSII analyzed to	Haplogroup assignment	Sample size	Other differences with CRS
717	129 183C 189 249 278 311 519	73 195 263 309i 315i	350	M1	1	
816	185 189 223 249 311 519	73 195 263 315i	350	M1	1	
268	15884 183C 189 223 249 311 519	73 152 195 263 315i 489 513	550	M1a2a	1	
806	15884 15894 183C 189 223 249 260 311 320 519	73 150 195 263 315i	350	M1a2b	1	10398; 10400
1351	189 223 249 311			M1	1	
522	182C 183C 189 223 249 311 519	73 195 199 263 309i 315i 489 709	743	M1	1	
				Total M1	86	
3200	183C 189 223 249 311 359 519 527	73 195 204 309i 315i 489	550	M1a1i	1	
3228	129 183c 189 223 249 311 359 519	73 195 263 309i 315i 489	550	M1a1	1	
1516	093 129 183C 189 223 249 255 311 359 519	73 150 152 195 263 309i 315i 489	650	M1a1	1	
2158	093 129 189 311 359			M1a1a1	1	
753	126 129 183C 189 223 249 311 359 519	73 195 263 315i	350	M1a1	1	
192	129 181 183C 189 223 249 311 359 519	73 195 263 315i	350	M1a1	1	
2729	129 189 213 223 249 311 359			M1a1	1	
185	129 189 223 249 296 311 359 519	73 195 263 309i 315i	350	M1a1	1	
2730	129 189 223 249 311 359			M1a1	1	
2731	129 189 223 249 311 359			M1a1	1	
2455	129 183C 189 223 249 311 359			M1a1	1	
616	15930T 129 183C 189 223 249 311 359	73 195 263 315i 489	550	M1a1	1	
1352	15930T 129 183C 189 223 249 311 359			M1a1	1	
233	129 189 223 249 311 359 519	73 152 207 263 315i	350	M1a1	1	
626	129 183C 189 223 249 311 359 519	73 152 195 263 309i 315i	350	M1a1	1	
251	129 183C 189 223 249 311 359 519	73 195 263 309i 315i	350	M1a1	1	
215	129 183C 189 223 249 311 359 519	73 195 263 309i 315ii	350	M1a1	1	
436	129 183C 189 223 249 311 359 519	73 195 263 309ii 315i	350	M1a1	1	
48	129 183C 189 223 249 311 359 519	73 195 263 315i	350	M1a1	1	
1517	129 183C 189 223 311 359 519	73 195 263 309i 315i 489	650	M1a1a1	1	
58	129 183C 189 223 249 311 359 519	73 195 263 315i 489	550	M1a1	1	
2333	183c 189 223 249 311 359 519	73 195 263 309i 315i 489	550	M1a1	1	
2423	129 183C 189 223 249 311 359 519	73 195 263 315i 489	550	M1a1	1	
				Total M1a1	23	
1518	086 129 209 223 272 519	73 152 249d 263 309i 315i 316 489	650	M20	1	
				Total M20	1	
2159	223 270 319 352			M2a1	1	
2002	223 270 319 352	73 195 204 263 309i 315i 447G	550	M2a1	1	5252 ;7961; 8396; 8502; 9758
2460	15924 075 223 230 316			M2a1b	1	10398; 10400
				Total M2a1	3	
1367	169iC 183C 189 223 274 295 319 320	73 152 182 195 263 447g 489	550	M2b2	1	
				Total M2b2	1	
1353	126 223			M3	1	
4384	126 223 519	73 204 263 315i 482 489	550	M3a1 with 204	1	4580; 4703

Table S1. Continued.

ID	HVSI (without 16000)	HVSII	HVSII analyzed to	Haplogroup assignment	Sample size	Other differences with CRS
435	126 223 519	73 185 204 263 309i 315i	350	M3a1 with 204	1	
714	126 223 519	73 189 204 263 309i 315i	350	M3a1 with 204	1	10203; 10398; 10400
561	126 223 519	73 204 263 309i 315i	350	M3a1 with 204	1	
1519	126 223 519	73 204 263 309i 315i 482 489	650	M3a1 with 204	1	
1520	126 223 519	73 204 263 309i 315i 482 489	650	M3a1 with 204	1	
1521	126 223 519	73 204 263 309i 315i 482 489	650	M3a1 with 204	1	
1522	126 223 519	73 204 263 309i 315i 482 489	650	M3a1 with 204	1	
1213	126 223 519	73 263 315i 482 489	550	M3	1	
2160	126 223 519	73 263 315i 482 489	550	M3	1	
2342	126 223 519	73 263 315i	350	M3	1	
1776	126 223 278 519	73 263 315i 482 489	550	M3	1	
2732	126 223 278			M3	1	
703	126 223 311 519	73 146 263 309i 315i 482 489	550	M3	1	
1354	126 223 311			M3	1	
2161	15884 126 223 311			M3	1	
4391	126 223 344 519	73 263 315i 482 489	550	M3d	1	
				Total M3	18	
38	124 223 319 390	73 152 263 315i 482 489	550	M3c1b1	1	
49	124 223 319	73 152 263 309i 315i 482 489	550	M3c1b1a	1	
106	179 183C 189 223 294 519	73 146 152 263 315i 482 489	550	M3c1b	1	6366; 7598; 9064; 10365; 10400
3111	15940 124 179 183c 189 223 294 519	73 146 152 189 195 263 315i 482 489	550	M3c1	1	
2343	179 183C 189 223 294 519	73 146 152 263 315i	350	M3c1b	1	
2456	182C 183C 189 223 294			M3c1	1	10365; 10398; 10400
				Total M3c1	6	
2162	145 176 223 261 311			M4	1	
				Total M4	1	
80	223 256 311 356 519	73 207 263 309i 315i 489 511	550	M65b2	1	3398; 8865; 12007
765	223 256 266 311 356 519	73 207 263 315i 489 511	550	M65b2	1	
1358	223 256 266 311 356			M65b2	1	
1435	223 256 311 356			M65b2	1	
2458	223 256 311 356			M65b2	1	
2459	223 256 311 356			M65b2	1	
633	223 256 311 356 519	73 207 239 263 309i 315i 489 511	550	M65b2	1	10398; 10400
634	223 256 311 356 519	73 207 239 263 315i	350	M65b2	1	10398; 10400
3067	223 256 311 356 519	73 207 263 309i 315i	350	M65b2	1	
2345	223 256 311 356 519	73 207 263 309i 315i	350	M65b2	1	
2171	223 256 356 519	73 207 263 309i 315i 489 511	550	M65b2	1	
				Total M65b2	11	
22	104 184 223 256 311	73 150 195 198 207 263 309i 315i 489 522dCA	550	M66b	1	
				Total M66b	1	
2733	223 318C			M18	1	9401; 9540; 10398; 10400; 12498

Table S1. Continued.

ID	HVSI (without 16000)	HVSII	HVSII analyzed to	Haplogroup assignment	Sample size	Other differences with CRS
				Total M18	1	
2163	111 150 223 234 519	73 152 195A 263 309i 315i 489 522dCA	550	M30	1	
258	145 223 519	73 195A 204 207 263 309i 315i	350	M30	1	10873; 10398; 10400
514	145 223 360 519	73 195A 263 309i 315i 489 522dCACA	550	M30	1	10873; 10398; 10400
725	069 223 519	73 146 152 195A 263 315i 489	550	M30c1	1	
2457	223 234 295G 311	73 152 195A 263 315i 489	500	M30	1	
844	223 278 355 519	73 152 195A 263 309i 489 494 522dCA	550	M30b	1	
2164	223 278 355 519	73 152 195A 263 309i 489 494 522dCA 750	943	M30b	1	
				Total M30	7	
3065	051 189 193 223 300 519	73 143 146 152 263 315i	350	M45a	1	
				Total M45a	1	
2165	129 223 264 265C 519	73 263 309i 315i 489 709 750	943	M5a2a1a	1	3921; 12477
2166	129 223 265C			M5a2a1a	1	
				Total M5a2a1a	2	
1214	093 129 223 239 295 519	73 263 315i 489	550	M5a3	1	
				Total M5a3	1	
1523	188 223 231 362 519	73 146 152 263 309i 315i 461 489	650	M6a1b	1	
				Total M6a1b	1	
699	223295 362 519	73 146 152 199 263 309i 315i 489	550	M7c1	1	
				Total M7c1	1	
280	129 192 255 298 311	73 146 197 263 309ii 315i	350	M8	1	
2167	192 298 311			M8	1	
				Total M8	2	
706	223 291 362 390	73 131 263 309i 315i 489	550	E1a1a	1	
1354	223 291 304 362 390 519	73 195 263 309ii 315i 489	550	E1a1a	1	
1355	223 291 304 362 390			E1a1a	1	
1356	223 291 362 390			E1a1a	1	
718	223 291 304 362 390 519	73 195 263 309ii 315i	350	E1a1a	1	
				Total E1a1a	5	
569	086 172 223 227 278 362	73 263 315i	350	G2a	1	
				Total G2a	1	
196	129 144 148 192 223 241 265C 274 311 343 362	73 89 146 238 263 315i	350	Q1	1	
479	129 148 192 223 241 265C 274 311 343 362	73 89 146 238 263 315i	350	Q1	1	
206	129 148 192 223 241 265C 274 311 343 362	73 89 146 238 263 315i	350	Q1	1	
494	129 148 192 223 241 265C 274 311 343 362	73 89 146 238 263 309i 315i	350	Q1	1	
				Total Q1	4	
2168	086 148 223 259 278 319 399 526	73 150 200 263 315i 489	550	M32c	1	
1524	086 148 223 259 278 319 399 526	73 150 200 263 315i 489	650	M32c	1	
1076	15625 086 148 223 259 278 319 399 526	73 150 200 263 315i 489	550	M32C	1	
				Total M32c	3	
691	15908 086 169 172 223 242 519	73 252 263 315i 462 489	550	M33a2	1	10398; 10400

Table S1. Continued.

ID	HVSI (without 16000)	HVSII	HVSII analyzed to	Haplogroup assignment	Sample size	Other differences with CRS
1357	15908 169 172 223			M33a2	1	
2229	169 172 223 519	73 150 263 315i 462 489	550	M33a2	1	
707	15908 169 172 223 362 519	73 150 263 315i 462 489	550	M33a2	1	
				Total M33a2	4	
1215	092 111 169 223 311 519	73 152 263 309i 315i 489	550	M57a	1	
				Total M57a	1	
1525	223 304	55iT 60d 65iT 66 73 153 263 309i 315i 463 485	650	M39b1	1	
				Total M39b1	1	
1216	223 362 519	73 207 263 315i 489	550	D4	1	3010
2344	183C 189 223 319 362 519	73 146 263 315i	350	D4b1/D4d	1	
				Total D4	2	
232	15928 15968 092 189 223 304 519	73 150 199 315i	350	M35b	1	
				Total M35b	1	
287	080 193 223 256 303T	73 152 239 263 309i 315i 489 522dCACA 709	743	M36a	1	10873; 10398; 10400
861	080 193 223 256 303T	73 152 239 263 315i	350	M36a	1	10398; 10400
				Total M36a	2	
2169	086 182C 183C 189 223 311 362 519	73 93 95C 189 234 263 309ii 315i 489	550	M42b1	1	9682; 9540; 10398; 10400
				Total M42b1	1	
2170	104 189 223 234 243 519	73 249d 263 309i 315i 372 489	550	M49d	1	
				Total M49d	1	
1217	192 223 275 519	73 204 207 257 263 315i 489	550	M52	1	
551	15848 192 223 275 519	73 204 207 263 309i 315i 489	550	M52	1	10398; 10400
2734	223 275 390			M52a	1	
				Total M52	3	
567	129 223 263 311 519	73 151 215 263 315i 489	550	M81	1	
				Total M81	1	
201	15884 15896 111A 223 519	73 195 234 263 309i 315i 345	350	M14	1	
572	086 183C 189 223 519 527	73 263 297 309i 315i	350	M64	1	10039; 10398; 10400
1526	111 183C 189 223 287 311 519	73 152 263 310 489	650	M47	1	
2172	223 519	73 263 309i 315i 489 709 750	943	M	1	
2173	223 519	73 263 309i 315i 489 709 750	943	M	1	
2174	223 519	73 263 309i 315i 489 709 750	943	M	1	
2461	223 311	73 249d 263 309i 315i 372 489	550	M31a	1	3975; 3999
2735	223 316 400			M	1	9540; 10084; 10398; 10400
3068	223 519 527	73 263 309i 315i 489	550	M64	1	
				Total M*	9	

Table S2. Super-haplogroup Ages and Geographic links.

Superhaplogroup	Diagnostic position	Hits(1)	Age (Kya)	Geographic links (2)
M1'20'51'84	14110	7	57.4 (41.8; 73.7)	SEA - SEA - NA
M4''67 (3)	12007	14	26.0 (15.3; 37.2)	SA - SA - SEA
M11'82	8108	2	48.7 (37.7; 60.1)	EA - SEA
M12'G	14569	14	48.4 (39.2; 57.9)	EA - EA
M13'46'61	6253 (152) (4)	6	45.9 (36.7 ; 55.3)	EA - SEA
M19'53	11167	5	50.0 (37.7; 62.7)	SA - Philippines
M23'75	12279	3	61.7 (48.9; 74.8)	SEA - Madagascar
M24'41	15601	3	35.3 (23.6; 47.5)	SA - SEA
M29'Q	13500 (16311)	10	67.3 (53.2; 81.9)	SEA - Oceania
M32'56	1438	10	35.0 (27.9; 42.3)	SA - Andaman - Madagascar
M34'57	11101	3	42.1 (36.0; 48.3)	SA - SA
M39'70	8679	2	36.8 (27.9; 46.0)	SA - SEA
M42'74	8251	24	52.9 (35.7; 70.9)	SA - SEA - Australia
M55'77	1393	4	69.9 (54.5; 86.0)	SEA - SEA
M62'68	4561, 7664 (150)	4,4	64.0 (41.9; 87.2)	EA - SEA
M73'79	14034 (16278)	4	50.3 (36.8; 64.4)	SEA - SEA
M80'D	4883	2	42.1 (31.9; 52.7)	EA - SEA - Philippines

(1) Produced by parallel mutations and/or reversions and deduced from PhyloTree build16

(2) NA, North Africa; SEA, Southeast Asia; SA, South Asia; EA, East Asia

(3) Comprising haplogroups M4, M65, M67, M18, M38, M30, M37, M43, M45, M54, M63, M64, and M66

(4) Hypervariable region mutations in parentheses

Table S3. Haplogroup M geographic ranges and ages in kiloyears (kya).

Haplogroup	Global geographic range	Indian range	References	Age	References
M1	North Africa Subsaharan Africa West Eurasia		Kivisild et al. 2004; Olivieri et al. 2005 González et al. 2006; Pennarun et al. 2012	26.73 (8.3;35.4)	This study
M20	Southeast Asia Myanmar Thailand Cambodia Laos Vietnam Malaysia Indonesia Philippines Tibet		Yao et al. 2002; Li et al. 2007; Kong et al. 2011; Peng et al. 2011; Zhang et al. 2011; Li et al. 2013; Chen et al. 2015 Summerer et al. 2014; Li et al. 2015 Metspalu et al. 2004; Lertrit et al. 2008; Zimmermann et al. 2009; Kutanan et al. 2014; Pradutkanchana et al. Hartmann et al. 2009; Zhang et al. 2013 Bodner et al. 2011 Hartmann et al. 2009; Peng et al. 2010 Wong et al. 2007; Haslindawaty et al. 2010; Lim et al. 2010; Maruyama et al. 2010; Jinam et al. 2012 Hill et al. 2006; Hill et al. 2007; Hartmann et al. 2009; Peng et al. 2010; Gunnarsdottir et al. 2011; van Oven et al. 2011; Kusuma et al. 2015 Peng et al. 2010 Qi et al. 2013	9.30 (3.3; 15.4)	This study
M51	Southeast Asia Myanmar Thailand Cambodia Laos Vietnam Malaysia Indonesia Philippines Tibet		Li et al. 2007; Kong et al. 2011; Peng et al. 2011; Li et al. 2013; Chen et al. 2015 Li et al. 2015 Metspalu et al. 2004; Lertrit et al. 2008; Kutanan et al. 2014 Peng et al. 2010; Zhang et al. 2013 Bodner et al. 2011 Irwin et al. 2008; Peng et al. 2010 Hill et al. 2006; Hill et al. 2007; Haslindawaty et al. 2010; Lim et al. 2010; Maruyama et al. 2010 Hill et al. 2006; Hill et al. 2007; Peng et al. 2010; Gunnarsdottir et al. 2011 Tabbada et al. 2009 Wen et al. 2004	34.50 (22.5; 47.0)	This study
M84	Southeast Asia		Li et al. 2015	14.6 (7.5; 21.7)	Li et al. 2015
M2	South Asia Andhra Pradesh Arunachal Pradesh Assam Bihar Chattisgarh Gujarat Jharkhand Karnataka Kerala Madhya Pradesh Maharashtra Meghalaya Orissa Punjab Rajasthan Tamil Nadu Tripura Uttar Pradesh Uttarakhand West Bengal Bangladesh Myanmar Tibet Nepal Pakistan Sri Lanka	Widespread	Kumar et al. 2008; Chandrasekar et al. 2009 Kivisild et al. 2003; Metspalu et al. 2004; Rajkumar et al. 2005; Thanseem et al. 2006; Thangaraj et al. 2006; Sun et al. 2006 Chandrasekar et al. 2009 Cordaux et al. 2003; Chandrasekar et al. 2009 Chandrasekar et al. 2009; Chaubey et al. 2011 Chandrasekar et al. 2009; Chaubey et al. 2011 Metspalu et al. 2004; Barnabas et al. 2006; Chandrasekar et al. 2009; Shah et al. 2011 Banerjee et al. 2005; Chaubey et al. 2011 Mountain et al. 1995; Rajkumar and Kashyap 2003; Metspalu et al. 2004; Rajkumar et al. 2005; Chandrasekar et al. 2009; Shah et al. 2011 Mountain et al. 1995; Metspalu et al. 2004 Roychoudhury et al. 2001; Chandrasekar et al. 2009 Roy et al. 2003; Baig et al. 2004; Metspalu et al. 2004; Gaikwad and Kashyap et al. 2005; Rajkumar et al. 2005 Reddy et al. 2007 Chandrasekar et al. 2009; Chaubey et al. 2011 Metspalu et al. 2004 Chandrasekar et al. 2009 Roychoudhury et al. 2001; Metspalu et al. 2004; Barnabas et al. 2006 Roychoudhury et al. 2001 Metspalu et al. 2004; Thangaraj et al. 2005; Chaubey et al. 2008 Chaubey et al. 2014 Roychoudhury et al. 2001; Metspalu et al. 2004; Barnabas et al. 2006; Chandrasekar et al. 2009 Metspalu et al. 2004; Gazi et al. 2013 Li et al. 2015 Ji et al. 2012 Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011; Hayat et al. 2014 Metspalu et al. 2004; Ranaweera et al. 2014	51.8 (36.1; 68.3)	This study

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
M3	South Asia	Widespread	Maji et al. 2009 Kivisild et al. 2003; Metspalu et al. 2004; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Cordaux et al. 2003 Sharma et al. 2005 Chandrasekar et al. 2009 Metspalu et al. 2004; Chandrasekar et al. 2009; Shah et al. 2011 Metspalu et al. 2004; Barnabas et al. 2006 Banerjee et al. 2005 Mountain et al. 1995; Rajkumar and Kashyap 2003; Metspalu et al. 2004; Rajkumar et al. 2005; Chandrasekar et al. 2009; Shah et al. 2011 Tangaraj et al. 2006 Sharma et al. 2012 Baig et al. 2004; Metspalu et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2010 Reddy et al. 2007 Cordaux et al. 2003 Sahoo et al. 2006 Metspalu et al. 2004; Barnabas et al. 2006; Sharma et al. 2005 Metspalu et al. 2004; Chandrasekar et al. 2009 Roychoudhury et al. 2001; Metspalu et al. 2004; Barnabas et al. 2006; Sharma et al. 2005 Metspalu et al. 2004; Sharma et al. 2005; Thangaraj et al. 2005; Sun et al. 2006; Chaubey et al. 2008 Metspalu et al. 2004 Gazi et al. 2013 Li et al. 2015 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011; Siddiqi et al. 2014; Hayat et al. 2014 Metspalu et al. 2004; Ranaweera et al. 2014	28.1 (16.1; 40.6)	This study
	Andhra Pradesh				
	Arunachal Pradesh				
	Assam				
	Bihar				
	Chattisgarh				
	Gujarat				
	Haryana				
	Jharkhand				
	Karnataka				
	Kerala				
	Madhya Pradesh				
	Maharashtra				
	Meghalaya				
	Nagaland				
	Orissa				
	Punjab				
	Rajasthan				
	Tamil Nadu				
	Uttar Pradesh				
	West Bengal				
	Bangladesh				
	Myanmar				
	Nepal				
	Pakistan				
	Sri Lanka				
M4	South Asia	Widespread	Maji et al. 2009 Metspalu et al. 2004; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Cordaux et al. 2003; Chandrasekar et al. 2009 Chaubey et al. 2011 Chaubey et al. 2011 Metspalu et al. 2004; Barnabas et al. 2006; Thangaraj et al. 2006; Chandrasekar et al. 2009; Shah et al. 2011 Metspalu et al. 2004 Banerjee et al. 2005; Chaubey et al. 2011 Rajkumar and Kashyap 2003; Shah et al. 2011 Chandrasekar et al. 2009; Sharma et al. 2012 Roy et al. 2003; Baig et al. 2004; Metspalu et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2009 Reddy et al. 2007 Sahoo et al. 2006; Chandrasekar et al. 2009; Chaubey et al. 2014 Metspalu et al. 2004; Sharma et al. 2005 Chandrasekar et al. 2009 Metspalu et al. 2004; Barnabas et al. 2006 Metspalu et al. 2004; Sharma et al. 2005; Thangaraj et al. 2005; Sun et al. 2006; Chaubey et al. 2008 Chaubey et al. 2014 Roychoudhury et al. 2001 Li et al. 2015 Zhao et al. 2009 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011; Hayat et al. 2014; Siddiqi et al. 2014 Metspalu et al. 2004	14.8 (5.1; 24.9)	
	Andhra Pradesh				
	Arunachal Pradesh				
	Assam				
	Bihar				
	Chattisgarh				
	Gujarat				
	Kashmir				
	Jharkhand				
	Karnataka				
	Madhya Pradesh				
	Maharashtra				
	Meghalaya				
	Orissa				
	Punjab				
	Rajasthan				
	Tamil Nadu				
	Uttar Pradesh				
	Uttarakhand				
	West Bengal				
	Myanmar				
	Tibet				
	Nepal				
	Pakistan				
	Sri Lanka				
M67	South Asia	Northwest	Chandrasekar et al. 2009 Sharma et al. 2012	1.7 (0.0; 9.9)	This study
	Madhya Pradesh				

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
M18	South Asia	Widespread	Kivisild et al. 2003; Metspalu et al. 2004; Thanseem et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Thangaraj et al. 2006; Chandrasekar et al. 2009 Metspalu et al. 2004; Shah et al. 2011 Banerjee et al. 2005 Rajkumar and Kashyap 2003; Shah et al. 2011 Chandrasekar et al. 2009; Sharma et al. 2012 Roy et al. 2003; Baig et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009 Reddy et al. 2007 Sahoo et al. 2006; Chandrasekar et al. 2009 Sharma et al. 2005 Metspalu et al. 2004; Chandrasekar et al. 2009 Chandrasekar et al. 2009 Metspalu et al. 2004; Barnabas et al. 2006; Sharma et al. 2005 Metspalu et al. 2004; Thangaraj et al. 2005; Sun et al. 2006; Chaubey et al. 2008 Chaubey et al. 2014 Roychoudhury et al. 2001; Barnabas et al. 2006; Chandrasekar et al. 2009 Metspalu et al. 2004; Gazi et al. 2013 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011; Hayat et al. 2014; Siddiqi et al. 2014 Metspalu et al. 2004; Ranaweera et al. 2014	20.4 (10.0; 31.4)	This study
M38	South Asia	Widespread	Kivisild et al. 2003; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009; Shah et al. 2011 Rajkumar and Kashyap 2003 Chandrasekar et al. 2009; Sharma et al. 2012 Chandrasekar et al. 2009; Thangaraj et al. 2010 Chandrasekar et al. 2009 Sun et al. 2006; Chaubey et al. 2014 Chaubey et al. 2014 Li et al. 2015 Fornarino et al. 2009; Wang et al. 2012 Ranaweera et al. 2014	33.5 (30.5; 36.5)	This study
M30	South Asia	Widespread	Rajkumar et al. 2005; Sun et al. 2006; Thanseem et al. 2006 Cordaux et al. 2003 Rajkumar et al. 2005; Sharma et al. 2005 Chandrasekar et al. 2009; Shah et al. 2011 Metspalu et al. 2004 Banerjee et al. 2005 Mountain et al. 1995; Rajkumar and Kashyap 2003; Rajkumar et al. 2005; Chandrasekar et al. 2009; Shah et al. 2011 Chandrasekar et al. 2009; Sharma et al. 2012 Baig et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2010 Rajkumar et al. 2005; Sahoo et al. 2006 Metspalu et al. 2004; Sharma et al. 2005 Chandrasekar et al. 2009 Roychoudhury et al. 2001 Sun et al. 2006; Chaubey et al. 2008 Chaubey et al. 2014 Rajkumar et al. 2005	14.2 (7.2; 21.5)	

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
	Bangladesh Myanmar Nepal Pakistan Sri Lanka		Gazi et al. 2013 Li et al. 2015 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011; Hayat et al. 2014 Ranaweera et al. 2014		
M37	South Asia	Western	Sun et al. 2006 Chandrasekar et al. 2009 Thangaraj et al. 2006 Rajkumar and Kashyap 2003 Chandrasekar et al. 2009; Sharma et al. 2012 Chandrasekar et al. 2009; Thangaraj et al. 2010 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Sun et al. 2006 Roychoudhury et al. 2001 Rakha et al. 2011	15.6 (9.6;21.8)	This study
M43	South Asia	Northern	Chandrasekar et al. 2009 Chandrasekar et al. 2009 Chaubey et al. 2014 Chaubey et al. 2014 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012	24.2 (14.1; 34.8)	This study
M45	South Asia	Widespread	Chandrasekar et al. 2009; Chaubey et al. 2011 Chaubey et al. 2011 Metspalu et al. 2004 Banerjee et al. 2005; Chaubey et al. 2011 Mountain et al. 1995 Chandrasekar et al. 2009; Sharma et al. 2012 Baig et al. 2004; Chandrasekar et al. 2009 Sahoo et al. 2006; Chaubey et al. 2011 Chaubey et al. 2011 Roychoudhury et al. 2001 Gazi et al. 2013 Li et al. 2015 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012 Ranaweera et al. 2014	26.3 (13.9; 39.3)	This study
M54	South Asia	Southwestern	Chandrasekar et al. 2009 Chandrasekar et al. 2009; Thangaraj et al. 2010 Li et al. 2015	23.3 ± 5.7	Li et al. 2015
M63	South Asia	Southern	Thanseem et al. 2006 Chandrasekar et al. 2009 Sahoo et al. 2006 Roychoudhury et al. 2001 Li et al. 2015	25.5 ± 6.1	Li et al. 2015
M64	South Asia	Northwestern	Chandrasekar et al. 2009	17.8 (10.6; 27.6)	This study

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
M66	South Asia Karnataka Madhya Pradesh Maharashtra Sri Lanka	Southern	Rajkumar and Kashyap 2003 Sharma et al. 2012 Gaikwad and Kashyap 2005 Ranaweera et al. 2014	18.2 (9.4; 27.3)	This study
M5	South Asia Andhra Pradesh Arunachal Pradesh Assam Bihar Chattisgarh Gujarat Haryana Jharkhand Karnataka Madhya Pradesh Maharashtra Meghalaya Orissa Punjab Rajasthan Tamil Nadu Uttar Pradesh Uttarakhand West Bengal Bangladesh Myanmar Tibet Nepal Pakistan Sri Lanka	Widespread	Kivisild et al. 2003; Rajkumar et al. 2005; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Cordaux et al. 2003; Chandrasekar et al. 2009 Rajkumar et al. 2005; Sharma et al. 2005; Chandrasekar et al. 2009 Chandrasekar et al. 2009 Barnabas et al. 2006; Chandrasekar et al. 2009; Shah et al. 2011 Metspalu et al. 2004; Barnabas et al. 2006 Banerjee et al. 2005; Chaubey et al. 2011 Mountain et al. 1995; Rajkumar and Kashyap 2003; Rajkumar et al. 2005; Shah et al. 2011 Roychoudhury et al. 2001; Chandrasekar et al. 2009; Sharma et al. 2012 Roy et al. 2003; Baig et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2010 Reddy et al. 2007 Sahoo et al. 2006; Chandrasekar et al. 2009 Metspalu et al. 2004; Barnabas et al. 2006; Sharma et al. 2005 Chandrasekar et al. 2009 Roychoudhury et al. 2001; Barnabas et al. 2006; Sharma et al. 2005 Sharma et al. 2005; Sun et al. 2006; Chaubey et al. 2008 Chaubey et al. 2014 Roychoudhury et al. 2001; Chandrasekar et al. 2009 Gazi et al. 2013 Li et al. 2015 Qi et al. 2013 Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011; Hayat et al. 2014; Siddiqi et al. 2014 Ranaweera et al. 2014	30.5 (20.6; 40.6)	This study
M6	South Asia Andhra Pradesh Arunachal Pradesh Assam Bihar Chattisgarh Gujarat Kashmir Jharkhand Karnataka Kerala Madhya Pradesh Maharashtra Orissa Punjab Tamil Nadu Uttar Pradesh Uttarakhand West Bengal Bangladesh Nepal Pakistan	Widespread	Kivisild et al. 2003; Metspalu et al. 2004; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Cordaux et al. 2003 Chandrasekar et al. 2009; Chaubey et al. 2011 Chaubey et al. 2011 Metspalu et al. 2004; Barnabas et al. 2006; Shah et al. 2011 Metspalu et al. 2004 Banerjee et al. 2005; Chaubey et al. 2011 Mountain et al. 1995; Rajkumar and Kashyap 2003; Rajkumar et al. 2005; Chandrasekar et al. 2009; Shah et al. 2011 Tangaraj et al. 2006 Chandrasekar et al. 2009; Sharma et al. 2012 Baig et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2010 Sahoo et al. 2006; Chandrasekar et al. 2009; Chaubey et al. 2011 Metspalu et al. 2004 Metspalu et al. 2004; Barnabas et al. 2006 Sharma et al. 2005; Chaubey et al. 2008 Chaubey et al. 2014 Metspalu et al. 2004; Chandrasekar et al. 2009 Metspalu et al. 2004 Wang et al. 2012 Siddiqi et al. 2014	26.3 (14.4; 38.7)	

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
	Sri Lanka		Metspalu et al. 2004; Ranaweera et al. 2014		
M7	East Asia		Kivisild et al. 2002; Yao et al. 2002; Tanaka et al. 2004; Kong et al. 2004; Derenko et al. 2007	50.6 (10.8;95.4)	This study
M8	East Asia		Kivisild et al. 2002; Yao et al. 2002; Tanaka et al. 2004; Kong et al. 2004	45.3 (31.9; 59.1)	This study
C	East Asia		Kong et al. 2003; Tanaka et al. 2004; Derenko et al. 2010	28.6 (21.2; 36.4)	This study
Z	East Asia		Tanaka et al. 2004; Starikovskaya et al. 2005	24.5 (17.2; 32.1)	This study
M9	East Asia		Tanaka et al. 2004; Soares et al. 2008; Peng et al. 2011	41.3 (32.3; 50.2)	This study
E	East Asia		Tanaka et al. 2004; Trejaut et al. 2005; Soares et al. 2008	30.5 (22.3; 38.8)	This study
M10	East Asia		Yao et al. 2002; Tanaka et al. 2004	35.3 (21.8; 49.5)	This study
M11	East Asia		Kong et al. 2003; Tanaka et al. 2004	26.6 (18.2; 35.3)	This study
M82	Southeast Asia		Li et al. 2015		
M12	East Asia		Tanaka et al. 2004; Zheng et al. 2011	38.1 (27.1; 49.5)	This study
G	East Asia		Tanaka et al. 2004; Derenko et al. 2007; Volodko et al. 2008	36.2 (25.6; 47.2)	This study
M13	East Asia		Yao et al. 2004; Zhao et al. 2009; Derenko et al. 2012; Ji et al. 2012	49.7 (35.5; 64.5)	This study
M46	Southeast Asia		Dancause et al. 2009; Pradutkanchana et al.2011; Zhang et al. 2013	39.0 (26.5; 52.0)	This study
M90	Southeast Asia		Li et al. 2015	29.2 (17.4; 41.0)	Li et al. 2015
M61	South Asia	Eastern	Chandrasekar et al. 2009 Kivisild et al. 2003 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Rajkumar and Kashyap 2003 Roychoudhury et al. 2001 Reddy et al. 2007 Sahoo et al. 2006 Gazi et al. 2013 Ji et al. 2012; Qi et al. 2013 Chandrasekar et al. 2009	10.3 (1.5; 19.7)	This study
M14	Oceania		Hudjashov et al. 2007; Abu-Amero et al. 2008	46.2 (29.1; 64.1)	This study
M15	Oceania		Hudjashov et al. 2007		
M17	Southeast Asia		Peng et al. 2010; Tabbada et al. 2010	45.2 (33.0; 58.0)	This study
M19	Southeast Asia		Scholes et al. 2011		
M53	South Asia	Eastern	Sun et al. 2006; Chandrasekar et al. 2009 Sun et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009; Sharma et al. 2012 Chandrasekar et al. 2009 Metspalu et al. 2004	23.1 (10.9; 35.9)	This study

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
		West Bengal	Roychoudhury et al. 2001		
M21	Southeast Asia		Macaulay et al. 2005; Peng et al. 2010; Scholes et al. 2011; Jinam et al. 2012	47.7 (32.9; 62.8)	This study
M22	Southeast Asia		Peng et al. 2010; Jinam et al. 2012	40.5 (28.6; 52.7)	This study
M23	Southeast Asia		Dubut et al. 2009; Ricaut et al. 2009	6.8 (1.1; 12.5)	This study
M75	Southeast Asia		Kong et al. 2011	43.0 (26.9; 60.0)	This study
M24	Southeast Asia		Scholes et al. 2011; Zhang et al. 2013; Li et al. 2015	20.4 (12.4; 28.8)	Li et al. 2015
M41	South Asia	Southeastern	Thangaraj et al. 2006; Chandrasekar et al. 2009 Andhra Pradesh Kivisild et al. 2003; Sun et al. 2006; Thangaraj et al. 2006; Thanseem et al. 2006 Chattisgarh Chandrasekar et al. 2009 Madhya Pradesh Sharma et al. 2012 Maharashtra Chandrasekar et al. 2009 Orissa Sahoo et al. 2006 Tamil Nadu Barnabas et al. 2006 Uttar Pradesh Chaubey et al. 2008 West Bengal Chandrasekar et al. 2009 Sri Lanka Ranaweera et al. 2014	14.0 (7.5; 21.6)	This study
M26	Southeast Asia		Gunnarsdottir et al. 2011	1.0 (0.6; 13.2)	This study
M27	Oceania		Merriwether et al. 2005; Friedlaender et al. 2007; Duggan et al. 2014	60.5 (44.6; 76.9)	This study
M28	Oceania		Merriwether et al. 2005; Friedlaender et al. 2007	35.9 (24.7; 47.5)	This study
M29	Oceania		Merriwether et al. 2005	15.5 (6.7; 22.0)	This study
Q	Oceania		Ingman and Gyllensten 2003; Pierson et al. 2006; Friedlaender et al. 2007; Hudjashov et al. 2007	54.2(39.9; 69.0)	This study
M31	South Asia	Widespread	Thangaraj et al. 2005; Reddy et al. 2007 Andhra Pradesh Rajkumar et al. 2005 Bihar Chandrasekar et al. 2009 Karnataka Rajkumar and Kashyap 2003; Rajkumar et al. 2005 Madhya Pradesh Sharma et al. 2012 Maharashtra Roy et al. 2003; Rajkumar et al. 2005 Meghalaya Reddy et al. 2007 Orissa Chandrasekar et al. 2009 Uttarakhand Chaubey et al. 2014 West Bengal Roychoudhury et al. 2001 Myanmar Li et al. 2015 Nepal Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012	38.9(25.9; 52.6)	This study
M32	South Asia	Widespread	Thangaraj et al. 2005 Madhya Pradesh Roychoudhury et al. 2001 Maharashtra Baig et al. 2004; Gaikwad and Kashyap 2005 Tamil Nadu Roychoudhury et al. 2001 Tripura Roychoudhury et al. 2001 West Bengal Roychoudhury et al. 2001 Pakistan Siddiqi et al. 2014	34.1(17.9; 51.2)	This study
M56	South Asia	Northwestern	Chandrasekar et al. 2009	18.2 (12.4; 24.3)	This study

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
			Chandrasekar et al. 2009		
M33	South Asia	Widespread	Thangaraj et al. 2006 Kivisild et al. 2004; Thanseem et al. 2006 Chandrasekar et al. 2009 Cordaux et al. 2003; Chandrasekar et al. 2009 Thangaraj et al. 2006 Mountain et al. 1995; Rajkumar and Kashyap 2003; Shah et al. 2011 Chandrasekar et al. 2009; Sharma et al. 2012 Baig et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2010 Reddy et al. 2007 Sahoo et al. 2006 Barnabas et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Sun et al. 2006 Chandrasekar et al. 2009 Gazi et al. 2013 Li et al. 2015 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2009 Ranaweera et al. 2014	41.5 (31.9; 51.1)	This study
M34	South Asia	Western	Sun et al. 2006; Chandrasekar et al. 2009 Chandrasekar et al. 2009 Banerjee et al. 2005 Thangaraj et al. 2006; Shah et al. 2011 Chandrasekar et al. 2009 Gaikwad and Kashyap 2005 Sahoo et al. 2006; Chandrasekar et al. 2009 Sharma et al. 2005; Sun et al. 2006; Chaubey et al. 2014 Chaubey et al. 2014 Chandrasekar et al. 2009; Wang et al. 2012 Rakha et al. 2011 Ranaweera et al. 2014	27.5 (16.7; 38.7)	This study
M57	South Asia	Western	Chandrasekar et al. 2009 Chandrasekar et al. 2009; Shah et al. 2011 Mountain et al. 1995; Shah et al. 2011 Chandrasekar et al. 2009 Chandrasekar et al. 2009	32.6 (21.5; 44.1)	This study
M35	South Asia	Widespread	Sun et al. 2006; Chandrasekar et al. 2009 Kivisild et al. 2003; Rajkumar et al. 2005; Sun et al. 2006; Thangaraj et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Barnabas et al. 2006; Chandrasekar et al. 2009; Shah et al. 2011 Metspalu et al. 2004 Banerjee et al. 2005 Mountain et al. 1995; Rajkumar and Kashyap 2003; Rajkumar et al. 2005; Chandrasekar et al. 2009; Shah et al. 2011 Metspalu et al. 2004 Chandrasekar et al. 2009; Sharma et al. 2012 Roy et al. 2003; Baig et al. 2004; Gaikwad and Kashyap 2005; Chandrasekar et al. 2009; Thangaraj et al. 2010 Reddy et al. 2007 Sahoo et al. 2006 Metspalu et al. 2004; Barnabas et al. 2006	31.1 (20.1; 42.5)	This study

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
	Rajasthan Tamil Nadu Uttar Pradesh West Bengal Bangladesh Myanmar Tibet Nepal Pakistan Sri Lanka		Sharma et al. 2005 Chandrasekar et al. 2009 Barnabas et al. 2006 Metspalu et al. 2004; Thangaraj et al. 2005; Sun et al.2006; Chaubey et al. 2014 Barnabas et al. 2006 Gazi et al. 2013 Li et al. 2015 Qi et al. 2013 Chandrasekar et al. 2009; Fornarino et al. 2009; Wang et al. 2012 Rakha et al. 2011 Ranaweera et al. 2011		
M36	South Asia	Southeastern	Sun et al. 2006; Chandrasekar et al. 2009 Sun et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009; Shah et al. 2011 Sharma et al. 2012 Sharma et al. 2005 Roychoudhury et al. 2001 Ranaweera et al. 2014	25.1 (13.9; 36.9)	This study
M39	South Asia	Widespread	Sun et al. 2006; Chandrasekar et al. 2009 Kivisild et al. 2003; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Chandrasekar et al. 2009; Shah et al. 2011 Chandrasekar et al. 2009; Shah et al. 2011 Sharma et al. 2012 Chandrasekar et al. 2009; Thangaraj et al. 2010 Chandrasekar et al. 2009 Sun et al. 2006 Chaubey et al. 2014 Chandrasekar et al. 2009	24.2 (16.2; 32.2)	This study
M70	Tibet		Kong et al. 2011; Ji et al. 2012; Qi et al. 2013	1.7 (0.0; 3.4)	This study
M40	South Asia	Widespread	Sun et al. 2006; Chandrasekar et al. 2009 Kivisild et al. 2003; Sun et al. 2006; Thanseem et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009; Chaubey et al. 2011 Chandrasekar et al. 2009; Chaubey et al. 2011 Barnabas et al. 2006 Banerjee et al. 2005; Chaubey et al. 2011 Roychoudhury et al. 2001; Chandrasekar et al. 2009; Sharma et al. 2012 Baig et al. 2004; Thangaraj et al. 2010 Sahoo et al. 2006; Chandrasekar et al. 2009; Chaubey et al. 2011 Sharma et al. 2005 Roychoudhury et al. 2001; Barnabas et al. 2006 Chaubey et al. 2008 Roychoudhury et al. 2001; Chandrasekar et al. 2009	32.0 (17.6; 47.1)	This study
M42a	Oceania		van Holst Pellekaan et al. 2006	43.7 (28.6; 59.4)	This study
M42b	South Asia	Southern	Kumar et al. 2009 Kumar et al. 2009 Rajkumar and Kashyap 2003	46.0 (28.4; 64.3)	This study

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
	Maharashtra Orissa Sri Lanka		Gaikwad and Kashyap 2005; Kumar et al. 2009 Kumar et al. 2009 Ranaweera et al. 2014		
M74	Southeast Asia		Kong et al. 2011; Jinam et al.2012; Zhang et al. 2013 Summerer et al. 2014	35.0 (22.7; 47.9)	This study
M44	South Asia Karnataka Maharashtra Meghalaya Uttar Pradesh Bangladesh	Western	Sun et al. 2006; Chandrasekar et al. 2009 Rajkumar and Kashyap 2003; Shah et al. 2011 Baig et al.2004; Gaikwad and Kashyap 2005; Thangaraj et al. 2010 Reddy et al. 2007 Sun et al. 2006; Chaubey et al. 2008 Gazi et al. 2013	12.5 (7.4; 17.5)	This study
M47	Southeast Asia Bangladesh		Gazi et al. 2013		
M48	South Asia Assam Meghalaya Bangladesh	Northeastern	Sun et al. 2006; Chandrasekar et al. 2009 Cordaux et al. 2003 Reddy et al. 2007 Gazi et al. 2013	25.1 (12.2; 38.7)	This study
M49	South Asia Arunachal Pradesh Gujarat Jharkhand Karnataka Madhya Pradesh Meghalaya Orissa Tripura Bangladesh Myanmar Tibet Nepal	Northeastern	Chandrasekar et al. 2009; Kong et al. 2011; Fornarino et al.2009; Summerer et al. 2014; Li et al. 2015 Chandrasekar et al. 2009 Shah et al. 2011 Banerjee et al. 2005 Mountain et al. 1995; Rajkumar and Kashyap 2003 Sharma et al. 2012 Reddy et al. 2007 Sahoo et al. 2006 Roychoudhury et al. 2001 Gazi et al. 2013 Summerer et al. 2014; Li et al 2015 Qi et al. 2013 Chandrasekar et al. 2009; Wang et al. 2012	23.8 (16.0; 31.6)	Li et al. 2015
M50	Southeast Asia Meghalaya Tripura Bangladesh		Peng et al. 2010 ;Delfin et al. 2014; Summerer et al. 2014 Reddy et al. 2007 Roychoudhury et al. 2001 Gazi et al. 2014	47.6 (28.9; 67.2)	This study
M52	South Asia Andhra Pradesh Bihar Jharkhand Maharashtra Uttarakhand Nepal Sri Lanka	Widespread	Eaaswarkhanth et al. 2009 Sun et al. 2006 Sharma et al. 2005 Banerjee et al. 2005 Roy et al. 2003; Thangaraj et al. 2010 Chaubey et al. 2014 Chandrasekar et al. 2009; Fornarino et al. 2009 Ranaweera et al. 2014	34.2 (23.9; 44.5)	This study
M55	Southeast Asia Maharashtra		Macaulay et al. 2005 Chandrasekar et al. 2009	16.1 (8.3; 23.9)	Li et al. 2015
M77	Southeast Asia		Peng et al. 2010		

Table S3. Continued.

Haplogroup	Global geographic range	Indian range	References	Age	References
M58	South Asia Arunachal Pradesh Bihar Madhya Pradesh Myanmar	Northeastern	Chandrasekar et al. 2009; Summerer et al. 2014; Li et al. 2015 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Li et al. 2015	43.9 (30.3; 57.5)	Li et al. 2015
M59	South Asia Arunachal Pradesh Orissa West Bengal	Northeastern	Chandrasekar et al. 2009; Zhang et al. 2013 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Chandrasekar et al. 2009	19.9 (10.0; 30.2)	This study
M60	South Asia Andhra Pradesh Arunachal Pradesh Assam Madhya Pradesh Maharashtra Uttar Pradesh Myanmar Nepal Pakistan	Northern	Chandrasekar et al. 2009; Wang et al. 2012 Thanseem et al. 2006 Chandrasekar et al. 2009 Chandrasekar et al. 2009 Roychoudhury et al. 2001 Gaikwad and Kashyap 2005 Chaubey et al. 2014 Li et al. 2015 Fornarino et al. 2009; Wang et al. 2012 Hayat et al. 2014	23.9 (14.9; 33.3)	This study
M62	South Asia Arunachal Pradesh Karnataka Orissa Bangladesh Tibet	Northeastern	Chandrasekar et al. 2009 Chandrasekar et al. 2009 Mountain et al. 1995 Sahoo et al. 2006 Gazi et al. 2013 Qin et al. 2010; Ji et al. 2012; Qi et al. 2013	26.7 (16.7; 37.2)	This study
M68	Southeast Asia		Zhang et al. 2013; Summerer et al. 2014; Li et al. 2015	78.8 (57.8; 100.5)	This study
M69	Southeast Asia		Gunnarsdottir et al. 2011; Zhang et al. 2013	64.0 (44.4; 84.5)	This study
M71	Southeast Asia		Tabbada et al. 2009; Peng et al. 2010; Kong et al. 2011; Zhang et al. 2013; Summerer et al. 2014	36.6 (26.0; 47.6)	This study
M72	Southeast Asia		Peng et al. 2010; Kong et al. 2011; Summerer et al. 2014	15.1 (8.5; 21.7)	Li et al. 2015
M73	Southeast Asia		Tabbada et al. 2010; Zhang et al. 2013	35.9 (23.4; 48.8)	This study
M79	Southeast Asia		Kong et al. 2011		
M76	Southeast Asia		Kong et al. 2011	42.1 (26.0; 59.1)	This study
M81	South Asia		Khan et al. 2013; Fregel et al. 2013; This study	19.1 (8.8; 29.8)	This study
M91	Southeast Asia		Kong et al. 2011; Zhang et al. 2013; Summerer et al. 2014	39.6 (27.0; 52.2)	Li et al. 2015
M80	Southeast Asia		Scholes et al. 2011		
D	East Asia		Kong et al. 2003; Tanaka et al. 2004; Derenko et al. 2010	39.0 (28.9; 49.5)	This study
M83	Southeast Asia		Li et al. 2015	34.6 (24.5; 44.8)	Li et al. 2015

Table S3. References.

- Abu-Amero KK, Larruga JM, Cabrera VM, González AM. 2008. Mitochondrial DNA structure in the Arabian Peninsula. *BMC Evol. Biol.* 8, 45.
- Baig MM, Khan AA, Kulkarni KM. 2004. Mitochondrial DNA diversity in tribal and caste groups of Maharashtra (India) and its implication on their genetic origins. *Ann Hum Genet.* 68(5):453-60.
- Banerjee J, Trivedi R, Kashyap VK. 2005. Mitochondrial DNA control region sequence polymorphism in four indigenous tribes of Chotanagpur plateau, India. *Forensic Sci Int.* 149 (2-3):271-4.
- Barnabas S, Shouche Y, Suresh CG. 2006. High-resolution mtDNA studies of the Indian population: implications for palaeolithic settlement of the Indian subcontinent. *Ann Hum Genet.* 70(Pt 1):42-58.
- Bodner M, Zimmermann B, Röck A, Kloss-Brandstätter A, Horst D, et al. 2011. Southeast Asian diversity: first insights into the complex mtDNA structure of Laos. *BMC Evol Biol.* 11:49.
- Chandrasekar A, Kumar S, Sreenath J, Sarkar BN, Urade BP, et al. 2009. Updating phylogeny of mitochondrial DNA macrohaplogroup m in India: dispersal of modern human in South Asian corridor. *PLoS One.* 4(10):e7447.
- Chaubey G, Karmin M, Metspalu E, Metspalu M, Selvi-Rani D, et al. 2008. Phylogeography of mtDNA haplogroup R7 in the Indian peninsula. *BMC Evol Biol.* 8:227.
- Chaubey G, Metspalu M, Choi Y, Mägi R, Romero IG, et al. 2011. Population genetic structure in Indian Austroasiatic speakers: the role of landscape barriers and sex-specific admixture. *Mol Biol Evol.* 28(2):1013-24.
- Chaubey G, Singh M, Crivellaro F, Tamang R, Nandan A, et al. 2014. Unravelling the distinct strains of Tharu ancestry. *Eur J Hum Genet.* 22(12):1404-12.
- Chen F, Yin CY, Qian XQ, Fan HT, Deng YJ, et al. 2015. Single nucleotide polymorphisms of mitochondrial DNA HVS-I and HVS-II in Chinese Bai ethnic group. *Electrophoresis.* 36(6):930-6.
- Cordaux R, Saha N, Bentley GR, Anuger R, Sirajuddin SM, et al. 2003. Mitochondrial DNA analysis reveals diverse histories of tribal populations from India. *Eur J Hum Genet.* 11(3):253-64.
- Dancause KN, Chan CW, Arunotai NH, Lum JK. 2009. Origins of the Moken Sea Gypsies inferred from mitochondrial hypervariable region and whole genome sequences. *J Hum Genet.* 54(2):86-93.
- Delfin F, Min-Shan Ko A, Li M, Gunnarsdóttir ED, Tabada KA, et al. 2014. Complete mtDNA genomes of Filipino ethnolinguistic groups: a melting pot of recent and ancient lineages in the Asia-Pacific region. *Eur J Hum Genet.* 22(2):228-37.
- Derenko M, Malyarchuk B, Grzybowski T, Denisova G, Dambueva I, et al. 2007. Phylogeographic analysis of mitochondrial DNA in northern Asian populations. *Am J Hum Genet.* 81(5):1025-41.
- Derenko M, Malyarchuk B, Grzybowski T, Denisova G, Rogalla U, et al. 2010. Origin and post-glacial dispersal of mitochondrial DNA haplogroups C and D in northern Asia. *PLoS One.* 5(12):e15214.
- Derenko M, Malyarchuk B, Denisova G, Perkova M, Rogalla U, et al. 2012. Complete mitochondrial DNA analysis of eastern Eurasian haplogroups rarely found in populations of northern Asia and eastern Europe. *PLoS One.* 7(2):e32179.
- Dubut V, Cartault F, Payet C, Thionville MD, Murail P. 2009. Complete mitochondrial sequences for haplogroups M23 and M46: insights into the Asian ancestry of the Malagasy population. *Hum Biol.* 81(4):495-500.
- Duggan AT, Evans B, Friedlaender FR, Friedlaender JS, Koki G, et al. 2014. Maternal history of Oceania from complete mtDNA genomes: contrasting ancient diversity with recent homogenization due to the Austronesian expansion. *Am J Hum Genet.* 94(5):721-33.

- Eaaswarkhanth M, Haque I, Ravesh Z, Romero IG, Meganathan PR, et al. 2010. Traces of sub-Saharan and Middle Eastern lineages in Indian Muslim populations. *Eur J Hum Genet.* 18(3):354-63.
- Fornarino S, Pala M, Battaglia V, Maranta R, Achilli A, et al. 2009. Mitochondrial and Y-chromosome diversity of the Tharus (Nepal): a reservoir of genetic variation. *BMC Evol Biol.* 9:154.
- Fregel R, Seetah K, Betancor E, Suárez NM, Čaval D, et al. 2014. Multiple ethnic origins of mitochondrial DNA lineages for the population of Mauritius. *PLoS One.* 9(3):e93294.
- Friedlaender JS, Friedlaender FR, Hodgson JA, Stoltz M, Koki G, et al. 2007. Melanesian mtDNA complexity. *PLoS One.* 2(2):e248.
- Gaikwad S, Kashyap VK. 2005. Molecular insight into the genesis of ranked caste populations of western India based upon polymorphisms across non-recombinant and recombinant regions in genome. *Genome Biology* 6:P10
- Gazi NN, Tamang R, Singh VK, Ferdous A, Pathak AK, et al. 2013. Genetic structure of Tibeto-Burman populations of Bangladesh: evaluating the gene flow along the sides of Bay-of-Bengal. *PLoS One.* 8(10):e75064.
- González AM, Cabrera VM, Larruga JM, Tounkara A, Noumsi G, et al. 2006. Mitochondrial DNA variation in Mauritania and Mali and their genetic relationship to other Western Africa populations. *Ann Hum Genet.* 70(Pt5):631-57.
- Gunnarsdóttir ED, Nandineni MR, Li M, Myles S, Gil D, et al. 2011. Larger mitochondrial DNA than Y-chromosome differences between matrilineal and patrilineal groups from Sumatra. *Nat Commun.* 2:228.
- Hartmann A, Thieme M, Nanduri LK, Stempf T, Moehle C, et al. 2009. Validation of microarray-based resequencing of 93 worldwide mitochondrial genomes. *Hum Mutat.* 30(1):115-22.
- Haslindawaty NAR, Panneerchelvam S, Edinur HA, Norazmi MN, Zafarina Z. 2010. Sequence polymorphisms of mtDNA HV1, HV2, and HV3 regions in the Malay population of Peninsular Malaysia. *Int J Legal Med.* 124(5):415-26.
- Hayat S, Akhtar T, Siddiqi MH, Rakha A, Haider N, et al. 2015. Mitochondrial DNA control region sequences study in Saraiki population from Pakistan. *Leg Med (Tokyo).* 17(2):140-4.
- Hill C, Soares P, Mormina M, Macaulay V, Meehan W, et al. 2006. Phylogeography and ethnogenesis of aboriginal Southeast Asians. *Mol Biol Evol.* 23(12):2480-91.
- Hill C, Soares P, Mormina M, Macaulay V, Clarke D, et al. 2007. A mitochondrial stratigraphy for island southeast Asia. *Am J Hum Genet.* 80(1):29-43.
- Hudjashov G, Kivisild T, Underhill PA, Endicott P, Sanchez JJ, et al. 2007. Revealing the prehistoric settlement of Australia by Y chromosome and mtDNA analysis. *Proc Natl Acad Sci U S A.* 104(21):8726-30.
- Ingman M, Gyllensten U. 2003. Mitochondrial genome variation and evolutionary history of Australian and New Guinean aborigines. *Genome Res.* 13(7):1600-6.
- Irwin JA, Saunier JL, Strouss KM, Diegoli TM, Sturk KA, et al. 2008. Mitochondrial control region sequences from a Vietnamese population sample. *Int J Legal Med.* 122(3):257-9.
- Ji F, Sharpley MS, Derbeneva O, Alves LS, Qian P, et al. 2012. Mitochondrial DNA variant associated with Leber hereditary optic neuropathy and high-altitude Tibetans. *Proc Natl Acad Sci USA.* 109(19):7391-7396.
- Jinam TA, Hong LC, Phipps ME, Stoneking M, Ameen M, et al. 2012. Evolutionary history of continental southeast Asians: "early train" hypothesis based on genetic analysis of mitochondrial and autosomal DNA data. *Mol Biol Evol.* 29(11):3513-27.

- Khan NA, Govindaraj P, Soumitra N, Srilekha S, Ambika S, et al. 2013. Haplogroup heterogeneity of LHON patients carrying the m.14484T>C mutation in India. *Invest Ophthalmol Vis Sci.* 54(6):3999-4005.
- Kivisild T, Tolk HV, Parik J, Wang Y, Papiha SS, et al. 2002. The emerging limbs and twigs of the East Asian mtDNA tree. *Mol Biol Evol.* 19(10):1737-51.
- Kivisild T, Rootsi S, Metspalu M, Mastana S, Kaldma K, et al. 2003. The genetic heritage of the earliest settlers persists both in Indian tribal and caste populations. *Am J Hum Genet.* 72(2):313-32.
- Kivisild T, Reidla M, Metspalu E, Rosa A, Brehm A, et al. 2004. Ethiopian mitochondrial DNA heritage: tracking ene flow across and around the gate of tears. *Am J Hum Genet.* 75(5):752-70.
- Kong QP, Yao YG, Liu M, Shen SP, Chen C, et al. 2003. Mitochondrial DNA sequence polymorphisms of five ethnic populations from northern China. *Hum Genet.* 113(5):391-405.
- Kong QP, Sun C, Wang HW, Zhao M, Wang WZ, et al. 2011. Large-scale mtDNA screening reveals a surprising matrilineal complexity in east Asia and its implications to the peopling of the region. *Mol Biol Evol.* 28(1):513-22.
- Kumar S, Padmanabham PB, Ravuri RR, Uttaravalli K, Koneru P, et al. 2008. The earliest settlers' antiquity and evolutionary history of Indian populations: evidence from M2 mtDNA lineage. *BMC Evol Biol.* 8:230.
- Kumar S, Ravuri RR, Koneru P, Urade BP, Sarkar BN, et al. 2009. Reconstructing Indian-Australian phylogenetic link. *BMC Evol Biol.* 9:173
- Kusuma P, Cox MP, Pierron D, Razafindrazaka H, Brucato N, et al. 2015. Mitochondrial DNA and the Y chromosome suggest the settlement of Madagascar by Indonesian sea nomad populations. *BMC Genomics.* 16:191.
- Kutanan W, Ghirotto S, Bertorelle G, Srithongdaeng K, et al. 2014. Geography has more influence than language on maternal genetic structure of various northeastern Thai ethnicities. *J Hum Genet.* 59(9):512-20.
- Lertrit P, Poolsuwan S, Thosarat R, Sanpachudayan T, Boonyarit H, et al. 2008. Genetic history of Southeast Asian populations as revealed by ancient and modern human mitochondrial DNA analysis. *Am J Phys Anthropol.* 137(4):425-40.
- Li DN, Wang cc, Lu Y, Qin ZD, Yang K, et al. 2013. Three phases for the early peopling of Hainan Island viewed from mitochondrial DNA. *J Syst Evol.* 6:671-680
- Li H, Cai X, Winograd-Cort ER, Wen B, Cheng X, et al. 2007. Mitochondrial DNA diversity and population differentiation in southern East Asia. *Am J Phys Anthropol.* 134(4):481-8.
- Li YC, Wang HW, Tian JY, Liu LN, Yang LQ, et al. 2015. Ancient inland human dispersals from Myanmar into interior East Asia since the Late Pleistocene. *Sci Rep.* 5:9473.
- Lim LS, Ang KC, Mahani MC, Shahrom AW, Md-Zain BM. 2010. Mitochondrial DNA Polymorphism and Phylogenetic Relationships of Proto Malays in Peninsular Malaysia. *J Biol Sci.* 10 (2):71-83.
- Macaulay V, Hill C, Achilli A, Rengo C, Clarke D, et al. 2005. Single, rapid coastal settlement of Asia revealed by analysis of complete mitochondrial genomes. *Science.* 08(5724):1034-6.
- Maji S, Krithika S, Vasulu TS. 2009. Phylogeographic distribution of mitochondrial DNA macrohaplogroup M in India. *J Genet.* 88(1):127-39.
- Maruyama S, Nohira-Koike C, Minaguchi K, Nambiar P. 2010. MtDNA control region sequence polymorphisms and phylogenetic analysis of Malay population living in or around Kuala Lumpur in Malaysia. *Int J Legal Med.* 124(2):165-70.
- Merriwether DA, Hodgson JA, Friedlaender FR, Allaby R, Cerchio S, et al. 2005. Ancient mitochondrial M haplogroups identified in the Southwest Pacific. *Proc Natl Acad Sci U S A.* 102(37):13034-9.

- Metspalu M, Kivisild T, Metspalu E, Parik J, Hudjashov G, et al. 2004. Most of the extant mtDNA boundaries in south and southwest Asia were likely shaped during the initial settlement of Eurasia by anatomically modern humans. *BMC Genet.* 5:26.
- Mountain JL, Hebert JM, Bhattacharyya S, Underhill PA, Ottolenghi C, et al. 1995. Demographic history of India and mtDNA-sequence diversity. *Am J Hum Genet.* 56(4):979-92.
- Olivieri A, Achilli A, Pala M, Battaglia V, Fornarino S, et al. 2006. The mtDNA legacy of the Levantine early Upper Palaeolithic in Africa. *Science.* 314(5806):1767-70.
- Peng MS, Quang HH, Dang KP, Trieu AV, Wang HW, et al. 2010. Tracing the Austronesian footprint in Mainland Southeast Asia: a perspective from mitochondrial DNA. *Mol Biol Evol.* 27(10):2417-30.
- Peng MS, He J-D, Liu H-X, Zhang Y-P. 2011. Tracing the legacy of the early Hainan Islanders a perspective from mitochondrial DNA. *BMC Evol Biol.* 11:46
- Pennarun E, Kivisild T, Metspalu E, Metspalu M, Reisberg T, et al. 2012. Divorcing the Late Upper Palaeolithic demographic histories of mtDNA haplogroups M1 and U6 in Africa. *BMC Evol Biol.* 12:234.
- Pierson MJ, Martinez-Arias R, Holland BR, Gemmell NJ, Hurles ME, et al. 2006. Deciphering past human population movements in Oceania: provably optimal trees of 127 mtDNA genomes. *Mol Biol Evol.* 23(10):1966-75.
- Pradutkanchana S, Ishida T, Kimura R. 2011. Mitochondrial diversity of the sea nomads of Thailand. NCBI.
- Qi X, Cui C, Peng Y, Zhang X, Yang Z, et al. 2013. Genetic evidence of paleolithic colonization and neolithic expansion of modern humans on the tibetan plateau. *Mol Biol Evol.* 30(8):1761-78.
- Qin Z, Yang Y, Kang L, Yan S, Cho K, et al. 2010. A mitochondrial revelation of early human migrations to the Tibetan Plateau before and after the last glacial maximum. *Am J Phys Anthropol.* 143(4):555-69.
- Rajkumar R, Kashyap VK. 2003. Haplotype diversity in mitochondrial DNA hypervariable regions I and II in three communities of Southern India. *Forensic Sci Int.* 9;136(1-3):79-82. PubMed PMID: 12969624.
- Rajkumar R, Banerjee J, Gunturi HB, Trivedi R, Kashyap VK. 2005. Phylogeny and antiquity of M macrohaplogroup inferred from complete mt DNA sequence of Indian specific lineages. *BMC Evol Biol.* 5:26.
- Rakha A, Shin KJ, Yoon JA, Kim NY, Siddique MH, et al. 2011. Forensic and genetic characterization of mtDNA from Pathans of Pakistan. *Int J Legal Med.* 125(6):841-8.
- Ranaweera L, Kaewsutthi S, Win Tun A, Boonyarit H, Poolsuwan S, et al. 2014. Mitochondrial DNA history of Sri Lankan ethnic people: their relations within the island and with the Indian subcontinental populations. *J Hum Genet.* 59(1):28-36.
- Reddy BM, Langstieh BT, Kumar V, Nagaraja T, Reddy AN, et al. 2007. Austro-Asiatic tribes of Northeast India provide hitherto missing genetic link between South and Southeast Asia. *PLoS One.* 2(11):e1141.
- Ricaud FX, Razafindrazaka H, Cox MP, Dugoujon JM, Guitard E, et al. 2009. A new deep branch of eurasian mtDNA macrohaplogroup M reveals additional complexity regarding the settlement of Madagascar. *BMC Genomics.* 10:605.
- Roy S, Thakur Mahadik C, Majumder PP. 2003. Mitochondrial DNA variation in ranked caste groups of Maharashtra (India) and its implication on genetic relationships and origins. *Ann Hum Biol.* 30(4):443-54.
- Roychoudhury S, Roy S, Basu A, Banerjee R, Vishwanathan H, et al. 2001. Genomic structures and population histories of linguistically distinct tribal groups of India. *Hum Genet.* 109(3):339-50.

- Sahoo S, Kashyap VK. 2006. Phylogeography of mitochondrial DNA and Y-chromosome haplogroups reveal asymmetric gene flow in populations of Eastern India. *Am J Phys Anthropol.* 131(1):84-97.
- Scholes C, Siddle K, Ducourneau A, Crivellaro F, Järve M, et al. 2011. Genetic diversity and evidence for population admixture in Batak Negritos from Palawan. *Am J Phys Anthropol.* 146(1):62-72.
- Shah AM, Tamang R, Moorjani P, Rani DS, Govindaraj P, et al. 2011. Indian Siddis: African descendants with Indian admixture. *Am J Hum Genet.* 89(1):154-61.
- Sharma S, Saha A, Rai E, Bhat A, Bamezai R. 2005. Human mtDNA hypervariable regions, HVR I and II, hint at deep common maternal founder and subsequent maternal gene flow in Indian population groups. *J Hum Genet.* 50(10):497-506.
- Sharma G, Tamang R, Chaudhary R, Singh VK, Shah AM, et al. 2012. Genetic Affinities of the Central Indian Tribal Populations. *PLoS One.* 7(2): e32546.
- Siddiqi MH, Akhtar T, Rakha A, Abbas G, Ali A, et al. 2015. Genetic characterization of the Makrani people of Pakistan from mitochondrial DNA control-region data. *Leg Med (Tokyo).* 17(2):134-9.
- Soares P, Trejaut JA, Loo JH, Hill C, Mormina M, et al. 2008. Climate change and postglacial human dispersals in southeast Asia. *Mol Biol Evol.* 25(6):1209-18.
- Starikovskaya EB, Sukernik RI, Derbeneva OA, Volodko NV, Ruiz-Pesini E, et al. 2005. Mitochondrial DNA diversity in indigenous populations of the southern extent of Siberia, and the origins of Native American haplogroups. *Ann Hum Genet.* 69(Pt1):67-89.
- Summerer M, Horst J, Erhart G, Weißensteiner H, Schönherr S, et al. 2014. Large-scale mitochondrial DNA analysis in Southeast Asia reveals effects of cultural isolation in the multi-ethnic population of Myanmar. *BMC Evol Biol.* 14:17.
- Sun C, Kong QP, Palanichamy MG, Agrawal S, Bandelt HJ, et al. 2006. The dazzling array of basal branches in the mtDNA macrohaplogroup M from India as inferred from complete genomes. *Mol Biol Evol.* 23(3):683-90.
- Tabbada KA, Trejaut J, Loo JH, Chen YM, Lin M, et al. 2010. Philippine mitochondrial DNA diversity: a populated viaduct between Taiwan and Indonesia? *Mol Biol Evol.* 27(1):21-31.
- Tanaka M, Cabrera VM, González AM, Larruga JM, Takeyasu T, et al. 2004. Mitochondrial genome variation in eastern Asia and the peopling of Japan. *Genome Res.* 14(10A):1832-50.
- Thangaraj K, Sridhar V, Kivisild T, Reddy AG, Chaubey G, et al. 2005. Different population histories of the Mundari- and Mon-Khmer-speaking Austro-Asiatic tribes inferred from the mtDNA 9-bp deletion/insertion polymorphism in Indian populations. *Hum Genet.* 116(6):507-17.
- Thangaraj K, Chaubey G, Singh VK, Vanniarajan A, Thanseem I, et al. 2006. In situ origin of deep rooting lineages of mitochondrial Macrohaplogroup 'M' in India. *BMC Genomics.* 7:151.
- Thangaraj K, Naidu BP, Crivellaro F, Tamang R, Upadhyay S, et al. 2010. The influence of natural barriers in shaping the genetic structure of Maharashtra populations. *PLoS One.* 5(12):e15283.
- Thanseem I, Thangaraj K, Chaubey G, Singh VK, Bhaskar LV, et al. 2006. Genetic affinities among the lower castes and tribal groups of India: inference from Y chromosome and mitochondrial DNA. *BMC Genet.* 7:42.
- Trejaut JA, Kivisild T, Loo JH, Lee CL, He CL, et al. 2005. Traces of archaic mitochondrial lineages persist in Austronesian-speaking Formosan populations. *PLoS Biol.* 3(8):e247.
- van Holst Pellekaan SM, Ingman M, Roberts-Thomson J, Harding RM. 2006. Mitochondrial genomics identifies major haplogroups in Aboriginal Australians. *Am J Phys Anthropol.* 131(2):282-94.
- van Oven M, Hämmerle JM, van Schoor M, Kushnick G, Pennekamp P, et al. 2011. Unexpected island effects at an extreme: reduced Y chromosome and mitochondrial DNA diversity in Nias. *Mol Biol Evol.* 28(4):1349-61.

- Volodko NV, Starikovskaya EB, Mazunin IO, Eltsov NP, Naidenko PV, et al. 2008. Mitochondrial genome diversity in arctic Siberians, with particular reference to the evolutionary history of Beringia and Pleistocenic peopling of the Americas. *Am J Hum Genet.* 82(5):1084-100.
- Wang HW, Li YC, Sun F, Zhao M, Mitra B, et al. 2012. Revisiting the role of the Himalayas in peopling Nepal: insights from mitochondrial genomes. *J Hum Genet.* 57(4):228-34.
- Wang WZ, Wang CY, Cheng YT, Xu AL, Zhu CL, et al. 2010. Tracing the origins of Hakka and Chaoshanese by mitochondrial DNA analysis. *Am J Phys Anthropol.* 141(1):124-30.
- Wen B, Xie X, Gao S, Wen B, Xie X, et al. 2004. Analyses of genetic structure of Tibeto-Burman populations reveals sex-biased admixture in southern Tibeto-Burmans. *Am J Hum Genet.* 74:856–865.
- Wong HY, Tang JS, Budowle B, Allard MW, Syn CK, et al. 2007. Sequence polymorphism of the mitochondrial DNA hypervariable regions I and II in 205 Singapore Malays. *Leg Med (Tokyo).* 9(1):33-7.
- Yao YG, Nie L, Harpending H, Fu YX, Yuan ZG, et al. 2002. Genetic relationship of Chinese ethnic populations revealed by mtDNA sequence diversity. *Am J Phys Anthropol.* 118(1):63-76.
- Yao YG, Kong QP, Wang CY, Zhu CL, Zhang YP. 2004. Different matrilineal contributions to genetic structure of ethnic groups in the silk road region in china. *Mol Biol Evol.* 21(12):2265-80.
- Zhang AM, Jia X, Bi R, Salas A, Li S, et al. 2011. Mitochondrial DNA haplogroup background affects LHON, but not suspected LHON, in Chinese patients. *PLoS One.* 6(11):e27750.
- Zhang X, Qi X, Yang Z, Serey B, Sovannary T, et al. 2013. Analysis of mitochondrial genome diversity identifies new and ancient maternal lineages in Cambodian aborigines. *Nat commun* 4:2599
- Zhao M, Kong QP, Wang HW, Peng MS, Xie XD, et al. 2009. Mitochondrial genome evidence reveals successful Late Paleolithic settlement on the Tibetan Plateau. *Proc Natl Acad Sci U S A.* 106(50):21230-5.
- Zheng HX, Yan S, Qin ZD, Wang Y, Tan JZ, et al. 2011. Major population expansion of East Asians began before neolithic time: evidence of mtDNA genomes. *PLoS One.* 6(10):e25835.
- Zimmermann B, Bodner M, Amory S, Fendt L, Röck A, et al. 2009. Forensic and phylogeographic characterization of mtDNA lineages from northern Thailand (Chiang Mai). *Int J Legal Med.* 123(6):495-501.

Table S4 . Modern human oldest fossil dating in different regions of Asia and oldest archaeological dating at the eastern side of the Wallace Line.

Site	Region	Dates (Kya)	References	Coordinates
Skhul	Israel	120-115	Stringer et al. 1989	N32°38' / E 34°58'
Qafzeh	Israel	110-90	Vandermeersch, 1981; Tillier, 1999	N32°41' / E35°18'
Tianyuan cave, Zhoukoudian	Northeast China	40	Shang et al. 2007; Shang and Trinkaus, 2010	N27°50' / E113°05'
Huanglong cave, Hubei	Central China	101-81	Liu et al. 2010a; Shen et al. 2013	N30°27' / E114°52'
Lianhua cave, Zhenjiang, Jiangsu	East China	300-100	Fang et al. 2005	N32°12' / E119°25'
Luna cave, Guangxi	Southern China	127-70	Bae et al. 2014	N23°37' / E106°58'
Xianren cave, Xichou, Yunnan	Southern China	105-47	Zhang et al. 2004	N23°26' / E104°41'
Liujiang cave, Guangxi	Southern China	139-111	Shen et al. 2002; Liu et al. 2010b	N23°25' / E110°06'
Zhirendong, Guangxi	Southern China	100	Liu et al. 2010b	N22°17' / E107°31'
Ma U'Oi, Hoa Binh	Northern Vietnam	193-49	Demeter et al. 2005	N20°20' / E105°15'
Tam Pa Ling,	Northern Laos	60	Demeter et al. 2012	N20°12' / E103°25'
Callao Cave, Luzon	Philippines	67	Mijares et al. 2010	N16°47' / E121°40'
Tabon Cave, Palawan	Philippines	47	Detroit et al. 2004	N09°14' / E118°02'
Wajak, Java	Indonesia	37-29	Storm et al. 2013	N08°08' / E112°46'
Lene Hara Cave, eastern Timor	Indonesia	35	O'Connor et al. 2002	N08°24' / E127°17'
Niah Cave, Sarawak, Borneo	Malaysia	46	Barker et al. 2007; Higham et al. 2009	N01°33' / E110°22'
Batadomba lena, western Sri-Lanka	South Asia	31-28	Kennedy et al. 1987	N06°48' / E 80°22'
Fa-Hien lena, western Sri-Lanka	South Asia	33-31	Kennedy and Deraniyagala 1992	N06°35' / E79°59'
Highlands	New Guinea	49-44	Summerhayes et al. 2010	N05°38' / E144°16'
Lake Mungo	Australia	45	O'Connell and Allen 2004; Habgood and Franklin 2008	S33°45' / E143°05'
Deaf Adder Gorge, Northern Territory	Australia	60-50	Roberts et al. 1994	S19°29' / E132°33'

Table S4. References.

- Bae CJ, Wang W, Zhao J, Huang S, Tian F, et al. 2014. Modern human teeth from Late Pleistocene Luna Cave (Guangxi, China). *Quaternary International*. 354 169-183.
- Barker G, Barton H, Bird M, Daly P, Datan I, et al. 2007. The 'human revolution' in lowland tropical Southeast Asia: the antiquity and behavior of anatomically modern humans at Niah Cave (Sarawak, Borneo). *J Hum Evo*. 52 (3):243–261.
- Demeter F, Bacon A-M, Thuy NK, Long VT, Durringer P, et al. 2005. Discovery of a second human molar and cranium fragment in the late Middle to Late Pleistocene cave of Ma U’Oi (Northern Vietnam). *J Hum Evol*. 48: 393–402.
- Demeter F, Shackelford L, Bacon AM, Durringer Ph, Westaway K, et al. 2012. Anatomically modern human in Southeast Asia (Laos) by 46 ka. *Proc Natl Acad Sci U S A*. 109(36): 14375–14380.
- Detroit F, Dizon E, Falguères C, Hameau S, Ronquillo W, et al. 2004. Upper Pleistocene *Homo sapiens* from the Tabon cave (Palawan, The Philippines): description and dating of new discoveries. *C. R. Palevol* 3:705–712.
- Fang Y, He W, Shen G, Zhu L. 2005. New excavation of Lianhua Cave in Zhenjiang City, Jiangsu, East China. *Acta Anthropol Sin*. 44(1) : 87-95
- Habgood PJ, Franklin NR. 2008. The revolution that didn't arrive: A review of Pleistocene Sahul. *J Hum Evol*. 55 (2):187-222.
- Higham TFG, Barton H, Turney CSM, Barker G, Ramsey CB, et al. 2009. Radiocarbon dating of charcoal from tropical sequences: results from the Niah Great Cave, Sarawak, and their broader implications. *J Quaternary Sci*. 24 (2):189–197.
- Kennedy KANR, Deraniyagala SU, Roertgen WJ, Chiment J, Disotell T. 1987. Upper Pleistocene fossil hominids from Sri Lanka. *Am J Phys Anthropol*. 72: 441-461.
- Kennedy KAR, Deraniyagala SU. 1989. Fossil remains of 28,000-Year-Old Hominids from Sri Lanka. *Curr Anthropol*. 30(3): 394–399.
- Liu W, Wu X, Pei S, Wu X, Norton CJ. 2010a. Huanglong Cave: A Late Pleistocene human fossil site in Hubei Province, China. *Quaternary International*. 211:29–41.
- Liu W, Jin CZ, Zhang YQ, Cai YJ, Xing S, et al. 2010b. Human remains from Zhirendong, South China, and modern human emergence in East Asia. *Proc Natl Acad Sci U S A*. 107(45):19201-6.
- Mijares AS, Détroit F, Piper P, Grün R, Bellwood P, et al. 2010. New evidence for a 67,000-year-old human presence at Callao Cave, Luzon, Philippines. *J Hum Evol*. 59(1):123-32.
- O’Connor S, Spriggs M, Veth P. 2002. Excavation at Lene Hara Cave establishes occupation in East Timor at least 30,000-35,000 years ago. *Antiquity* 76(291):45-50.
- O’Connell JF, Allen J. 2004. Dating the colonization of Sahul (Pleistocene Australia–New Guinea): a review of recent research. *J Archaeol Sci*. 31:835–853
- Roberts RG, Jones R, Spooner NA, Head MJ, Murray ASm, et al. 1994. The human colonisation of Australia: optical dates of 53,000 and 60,000 years bracket human arrival at Deaf Adder Gorge, Northern Territory. *Quaternary Science Reviews*. 13 (5–7):575–583.
- Shang H, Tong H, Zhang S, Chen F, Trinkaus E. 2007. An early modern human from Tianyuan Cave, Zhoukoudian, China. *Proc Natl Acad Sci U S A*. 104 (16):6573–6578.
- Shang H, Trinkaus E. 2010. *The Early Modern Human from Tianyuan Cave, China*. College Station TX: Texas A&M University Press.
- Shen G, Wang W, Wang Q, Zhao J, Collerson K, et al. 2002. U-Series dating of Liujiang hominid site in Guangxi, Southern China. *J Hum Evol*. 43(6):817-29.
- Shen G, Wu X, Wang Q, Tua H, Fengd YX, et al. 2013. Mass spectrometric U-series dating of Huanglong Cave in Hubei Province, central China: Evidence for early presence of modern humans in eastern Asia. *J Hum Evol*. 65(2):162–167.

- Storm P, Wood R, Stringer C, Bartsiakas A, de Vos J, et al. 2013. U-series and radiocarbon analyses of human and faunal remains from Wajak, Indonesia. *J Hum Evol.* 64(5):356-65.
- Stringer CB, Grün R, Schwarcz , Goldberg P. 1989. ESR dates for the hominid burial site of es-Skhul in Israel. *Nature* 338:756-758.
- Summerhayes GR, Leavesley M, Fairbairn A, Mandui H, Field J, et al. 2010. Human Adaptation and Plant Use in Highland New Guinea 49,000 to 44,000 Years Ago. *Science* 330(6000):78-81.
- Tillier AM. 1999. Les enfants moustériens de Qafzeh: Interprétation phylogénétique et paléoaurologique. CNRS, Paris.
- Vandermeersch B. 1981. Les hommes fossiles de Qafzeh, Israel. CNRS, Paris
- Zhang XF, Ji XP, Shen GJ. 2004. U-series dating on fossil teeth from Xianren cave in Xichou, Yunnan Province. *Acta Anthropol Sin.* 23, 88–92.

Figure 25. Phylogenetic tree of *Phragmites* clades based on ITS1 data.
 Bootstrap values are shown at the nodes.

- █ Phragmites
- █ *Phragmites*
- █ *Phragmites*
- █ *Phragmites*
- █ *Phragmites*

