

A Comprehensive hg U Mutation List (GenBank sequences)

Compiled by: Ron Scott

577 records - updated 19 Oct 2010

According to **MITOMAP**, the designated mutations are associated with reported Mitochondrial DNA Base Substitution Diseases: **Red** = *rRNA/tRNA mutations*; **Fuchsia** = *Coding and Control Region Point Mutations*. A11467G, A12308G, G12372A, T15693C and T16189C, hg U markers, are excluded because of high frequency. Mutations highlighted in **yellow** are confirmed positions of ambiguity (cf. **IUPAC Codes**); those in **grey** are ambiguous also but with reported pathogenicity.

For the current status ("confirmed," "reported," "unclear," etc.), scientific references and other information related to these mutations, click on the above MITOMAP links.

rRNA/tRNA Mutations

A827G, T961C, T1005C, A1555G, A3243G, G3244A, T4336C, T5567C, A5843G, G7497A, T10454C, G12192A, G12236A, T12297C, C14568T, A14687G, A14696G, A15924G, G15927A, A15951G

Coding and Control Region Point Mutations

C150T, T195C, C309CC, G3316A, T3394C, A3397G, T3398C, G3460A, C4640A, C5452T, G5460A, G6081A, T7080C, A7445G, C7868T, G8950A, T8993C, T8993G, G9055A, T9098C, T9101C, G9139A, G9438A, G9804A, A10398G, A11084G, G11778A, A12634G, A13528G, G13708A, T14484C, C14668T, G14831A, G15043A, G15077A, T15287C, G15497A, G15773A, G15812A, A16300G

**U1=20 U2=52 U3=27 U4=119 U5a=4 U5a1=54 U5a2=38 U5b1=64 U5b2=36
U5b3=52 U6=64 U7=20 U8a=16 U8b=4 U9=7**

U1

1. **EF556194** (India) Behar (IC06) Haplogroup U1a

A73G T152C A263G C285T 309insC 309insC 315insC 455insT A750G A1438G C2218T A2706G A4769G G5147A C7028T G8790A A8860G G11440A A11467G G11719A T12136C A12308G G12372A T12879C A13104G A14070G G14364A C14766T G15148A A15326G A15954C T16093C G16129A T16189C C16222T T16249C

2. **GQ891610** D'Aurelio (AT) Haplogroup U1a1

A73G A263G 309insC 315insC A750G A1438G C2218T A2706G G4991A G6026A **G6081A T8993G** A11467G A11653G G11719A A11928G A13104G A14070G G14364A G15148A A15326G A15954C A16182C A16183C T16189C C16242T T16249C C16294T T16362C

3. **EF692533** ARGUS Haplogroup U1a1

A73G A263G C285T 309insC 309insC 315insC A750G A1438G C2218T A2706G
A4769G G4991A G6026A C7028T T7581C A8566G A8860G T10861C A11467G
A11470G G11719A A12308G G12372A T12879C A13104G A14070G G14364A
C14766T **G15043A** G15148A A15326G A15954C A16182C A16183C T16189C
16193insC C16242T T16249C T16362C

4. **EF556157** (Yemen) Behar (1368) Haplogroup U1a1

A73G T152C A263G C285T C309T T310C A750G A1438G C2218T A2308G A2706G
A4769G G4991A G6026A C7028T T7581C A8730G A8860G A11467G G11719A
A12308G G12372A T12879C A13104G A14070G G14364A C14766T G15148A
A15326G A15954C 16166delA A16182C A16183C T16189C T16249C T16311C

5. **AY289073** (Koraga) Ingman (K4b) Haplogroup U1a1a1

A73G T199C A263G C285T 309insC 315insC A385G 522delC 523delA A750G **T1005C**
A1438G C2218T A2706G 3158insT G3591A A4769G G4991A G6026A C7028T T7581C
A8701G A8860G A9288G A11467G G11719A C12403T T12957C A13104G A13422G
A14070G G14364A C14766T G15148A A15326G A15954C A16183C T16189C
16193insC T16249C C16400T

6. **DQ112932** (Africa) Kivisild (AF42) Haplogroup U1a1a1 (lacks part of non-coding region)

C505T 522delC 523delA A750G A1438G C2218T A2706G 3158insT G3591A A4769G
G4991A G6026A C7028T T7581C T8602C A8860G G9746A T9833C A11467G
G11719A A12308G G12372A T12879C A13104G A13422G A14070G G14364A
C14766T G15148A A15326G A15954C

7. **EF556161** (Iran) Behar (1513) Haplogroup U1a1a1

A73G T246C A263G C285T 309insC 315insC A385G 513delG 514delC 573insC
573insC 573insC 573insC A750G A1438G C2218T A2706G 3158insT G3591A A4769G
G4991A A5268G G6026A C7028T G7340A T7581C 8289insC 8289insC 8289insC
8289insC 8289insC 8289insT 8289insC 8289insT 8289insA T8843C A8860G G9489A
G9575A T10071C A11467G G11719A A12308G G12372A T12879C A13104G A13422G
A14070G G14364A C14766T G15148A A15326G G15553A A15954C A16183C
T16189C T16249C

8. **GU218692** (Greece-Sellasia) FTDNA Haplogroup U1a1a1

A73G **T195C** A263G C285T 315insC A385G 522delC 523delA A750G A1438G C2218T
T2486C A2706G 3158insT G3591A A4769G G4991A G6026A C7028T A7430G T7581C
A8860G A11467G G11719A A12308G G12372A T12879C A13104G A13422G A14070G
G14364A C14766T G15148A A15326G T15804C A15954C T16092C T16189C T16249C
C16294T

9. **AY882396** (Adygei-Russia) Achilli-Rengo (Tor9) Haplogroup U1a1a1

A73G A263G C285T 315insC A385G 522delC 523delA A750G A1438G C2218T
A2706G 3158insT T3338C G3591A A4769G G4991A T5774C A5894G G6026A C7028T
T7581C A8860G T10034C A11467G G11719A A12308G G12372A T12732C T12879C

A13104G A13422G A14070G G14364A C14766T G15148A A15326G A15954C
G16129A A16183C T16189C T16249C

10. **EU597497** (Adygei-Russia) Hartmann (HGDP01402) Haplogroup U1a1a1
A73G A263G C285T 315insC A385G 522delC 523delA A750G A1438G C2218T
A2706G 3158insT T3338C G3591A A4769G G4991A T5774C A5894G G6026A C7028T
T7581C A8860G T10034C A11467G G11719A A12308G G12372A T12732C T12879C
A13104G A13422G A14070G G14364A C14766T G15148A A15326G A15954C
G16129A A16183C T16189C T16249C

11. **EF657399** (Europe) Herrnstadt (mtDNA250) Haplogroup U1a1a1 (lacks part of non-coding region)
A750G A1438G C2218T A2706G 3159insT G3358A G3591A T4561C A4769G G4991A
T5048C C7028T T7581C A8860G A11467G G11719A A12308G G12372A T12879C
A13104G A13422G A14070G G14364A C14766T G15148A A15326G A15954C

12. **DQ523621** (Italy-Sardinia) Fraumene Haplogroup U1a1b
A73G **T195C** A263G C285T A663G A750G A1438G C2218T A2706G A4769G G4991A
G6026A C7028T A7403G T7581C A8860G T11116C A11467G G11719A A12308G
G12372A T12879C A13104G T13656C A14070G G14364A C14766T T15115C G15148A
G15217A A15326G A15954C G16145A T16189C T16249C

13. **DQ523634** (Italy-Sardinia) Fraumene Haplogroup U1a1b
A73G **T195C** A263G C285T A663G A750G A1438G C2218T A2706G A4769G G4991A
G6026A C7028T A7403G T7581C A8860G T11116C A11467G G11719A A12308G
G12372A T12879C A13104G T13656C A14070G G14364A C14766T T15115C G15148A
G15217A C15318A A15326G A15954C G16145A T16189C T16249C

14. **DQ112951** (Asia) Kivisild (AS17) Haplogroup U1a1b (lacks part of non-coding region)
A750G A1438G C2218T A2706G A4769G G4991A G6026A C7028T T7581C G8857A
A8860G A11467G G11719A A12308G G12372A T12879C A13104G A14070G G14364A
T14514C C14766T T15115C G15148A G15217A A15326G A15954C

15. **AY714042** (India) Palanichamy (R196) Haplogroup U1a1b
A73G A263G C285T 309insC 309insC 315insC A750G A1438G C2218T C2380T
A2706G A4769G G4991A G6026A C7028T T7581C A8860G T10253C G10364A
A11467G G11719A A12308G G12372A T12879C A13104G C13680T A14070G
G14364A C14766T T15115C G15148A G15217A A15954C A16182C A16183C T16189C
T16249C A16318C T16519C C16527T

16. **AY714038** (India) Palanichamy (C132) Haplogroup U1a1b
A73G A263G C285T 309insC 309insC 315insC A750G A1438G C2218T A2706G
A4769G G4991A G6026A C7028T T7581C C8766T A8860G T9083C G9182A A11467G
G11719A A12308G G12372A T12793C T12879C A13104G A14070G G14364A C14766T
T15115C G15148A G15217A A15326G A15954C A16182C A16183C T16189C T16249C
C16465T T16519C

17. **GU123007** (Russia) Malyarchuk (Tm36) Haplogroup U1b 19-MAY-2010
A73G T146C A263G C285T 309insC 309insC 315insC T489C A750G A1438G T2387C
A2706G A4769G C7028T C8395T T8567C A8860G T10885C A11467G A11566G
G11719A G11914A A12308G G12372A T12879C A13104G G13759A A14070G
C14766T G15148A G15172A A15326G A15954C C16111T C16214A T16249C C16327T

18. **HQ325737** (Armenian) FTDNA Haplogroup U1b
A73G T146C A263G C285T 315insC 524insA 524insC A750G A1438G T2387C
A2706G A4769G C7028T C8395T A8860G C9087T T10885C A11467G A11566G
G11719A A12308G G12372A T12879C A13104G A14070G C14392T C14766T G15110A
G15148A G15172A A15326G A15954C T16249C C16327T C16354A

19. **AY882397** (Italy) Achilli-Rengo (Tor133) Haplogroup U1b
A73G T146C **T195C** A263G T279C C285T 315insC A1438G T2387C A2706G G3531A
A4769G C7028T C8395T A8860G T10885C A11467G A11566G G11719A A12308G
G12372A T12879C A13104G A14070G C14766T G15148A G15172A A15326G
A15954C C16111T T16249C T16311C C16327T

20. **EF661008** (Italy) Gasparre (... 0094) Haplogroup U1b
A73G T146C T152C **T195C** A263G C285T 315insC A750G A1438G T2387C A2706G
G3244A A4769G C7028T C8395T A8860G T10885C A11467G A11566G G11719A
A12308G G12372A T12879C A13104G A14070G C14766T G15148A G15172A
A15326G A15763G A15954C T16249C T16311C C16327T

U2

1. **AY882379** (Pakistan) Achilli-Rengo (Tor34) Haplogroup U2a
A73G A263G 315insC A750G A1438G A1811G A2706G A4769G G5262A C7028T
G8572A A8860G G11150A A11467G G11719A A12308G G12372A C14766T A15326G
T15629C A16051G T16154C A16206C A16230G T16311C T16519C

2. **AY713990** (India) Palanichamy (C53) Haplogroup U2a
A73G T199C A263G 309insC 309insC 315insC G513A A750G A1438G A1811G
A2706G A4769G G5262A C7028T G8572A A8860G G11150A A11467G G11719A
A12308G G12372A C14766T A15326G T15629C A16051G T16154C A16206C A16230G
T16311C T16519C

3. **AY713992** (India) Palanichamy (C57) Haplogroup U2a1
A73G **T195C** A263G 309insC 309insC 315insC A750G T794C A1438G A1811G
A2706G A4769G C7028T A8860G **A11084G** T11361C T11383C A11467G G11719A
T11794C A12308G G12372A C14766T A15326G C15556T A16051G A16206C A16230G
T16311C

4. **DQ112816** (Europe) Kivisild (EU81) Haplogroup U2a1 (lacks part of non-coding region)

573insC 573insC 573insC 573insC 573insC A750G A1438G A1585G A1811G A2706G
A4769G A4944G C7028T A8860G C9360T C9752T G9932A T11383C A11467G
G11719A A12308G G12372A **G13708A** C14129T C14766T A15326G

5. **AY714020** (India) Palanichamy (S11) Haplogroup U2b1
A73G T146C A263G 315insC A750G A1438G A1811G A2775G T3732C G3915A
A4093G A4769G A5186T T6620C C7028T A8860G T9716C G10688A A11467G
G11719A A11845G C12106T A12308G G12372A G13194A **G13708A** C14766T
C15049T A15326G A16051G C16168T

6. **EU330890** (Thailand) FTDNA Haplogroup U2b1
A73G T146C A263G 315insC A750G A1438G G1598A A1811G G3915A A4093G
A4769G A5186T C7028T A8289G A8860G A11467G G11719A C11743T G11914A
C12106T A12308G G12372A A13105G G13194A C14112A C14766T C15049T
A15326G A16051G C16256T A16318G

7. **AY714025** (India) Palanichamy (C27) Haplogroup U2b2
A73G T146C T152C A234G A263G 315insC A750G A1438G A1811G G1888A A4769G
A5186T C7028T A8860G C9094T A9614G T10124C A11467G G11719A C12106T
A12308G G12372A T12793C G13194A T13656C C14766T C15049T A15326G G15930A
A16051G C16188T T16209C C16239T T16352C C16353T

8. **AY714027** (India) Palanichamy (R36) Haplogroup U2b2
A73G T146C T152C A234G A263G 315insC A750G A1438G A1811G G1888A G4113A
A4769G A5186T C7028T A8860G C9094T A9614G C9830T A11467G G11719A
C12106T A12308G G12372A T12793C G13194A T13656C C14766T C15049T A15326G
G15930A A16051G T16209C C16239T T16352C C16353T

9. **AY882380** (Pakistan) Achilli-Rengo (Tor35) Haplogroup U2b2
A73G T146C T152C A234G A263G 315insC A750G C906T A1438G A1811G G1888A
A4769G A5186T C7028T G7789A A8860G C9094T A9614G A11467G G11719A
C12106T A12308G G12372A T12793C G13194A T13656C C14766T C15049T A15326G
G15930A A16051G T16209C C16239T G16244A T16352C C16353T

10. **HQ153103** (Sri Lanka) Illeperuma Haplogroup U2b2
A73G T146C **C150T** T152C A234G A263G A533G A750G A1438G A1811G G1888A
A4769G A5186T C7028T A8860G C9094T A9614G C11151T A11467G G11719A
C12106T A12308G G12372A C12633T T12793C T13020C G13194A T13656C C14766T
C15049T A15326G G15930A A16051G G16129A T16209C C16239T T16352C C16353T

11. **AY714010** (India) Palanichamy (SW4) Haplogroup U2c
A73G T152C A263G 309insC 309insC 315insC T742C A750G A1438G A1811G
A2706G C3208T A4769G C5790A C7028T A8860G A9109G A11467G G11719A
A12308G G12372A C13934T **A14687G** C14766T T14935C A15061G A15326G C15825T
A16051G C16169T C16234T C16256T C16278T T16519C

12. **AY882381** (Pakistan) Achilli-Rengo (Tor36) Haplogroup U2c1
A73G T146C T152C A263G 315insC A644G G709A A750G A1438G G1598A A1811G
A2706G A4721G A4769G C5790A C7028T T8023C C8676T A8860G C9767T T10810C
A11467G G11719A A11890G A12172G A12308G G12372A C14766T T14935C
A15061G T15214C A15326G A16051G T16189C C16234T

13. **AY714005** (India) Palanichamy (R94) Haplogroup U2c1
A73G T152C A263G 315insC 522delC 523delA A750G A1438G A1811G A2706G
A4769G C5790A A6218G C7028T T8023C C8676T A8860G C9767T G10143A
A11467G G11719A A12308G G12372A C14155T C14766T T14935C **G15043A**
A15061G A15326G A16051G C16179T A16240C T16519C

14. **AF382000** (Jordan) Maca-Meyer Haplogroup U2d
A73G T152C A263G 315insC T471C A750G A1438G T1700C A1811G A2706G
C4025T A4769G G5147A **G5460A** G6962A C7028T A8860G A9545T **A10398G**
A11467G G11719A A11893G A12308G G12372A T13789C C14766T A14926G
A15326G A16051G T16189C C16234T C16294T T16519C

15. **EU440736** Malyarchuk Haplogroup U2d
A73G T152C T199C 315insC T471C A750G A1438G T1700C A1811G A2706G C4025T
A4769G T4859C C7028T A8860G A8938G A8982G A10220G **T10454C** A11467G
G11719A A11893G A12308G G12372A C14766T A14926G A15326G A16051G
G16145A T16172C C16184T T16189C C16192T C16234T C16294T T16342C A16463G
T16519C

16. **EF657633** (Europe) Herrnstadt (mtDNA461) Haplogroup U2e (lacks part of non-coding region)
A750G G988A A1438G A1811G A2706G A3720G A4769G A5390G T5426C C6045T
T6152C C7028T C7109T A8860G A10876G A11467G G11719A A12308G G12372A
T13020C T13734C A15326G T15784C A15907G

17. **EF657248** (Europe) Herrnstadt (mtDNA114) Haplogroup U2e (lacks part of non-coding region)
A750G G988A A1438G A1811G A2706G A3720G A4769G G4820A A5390G T5426C
C6045T T6152C C7028T C7109T A8860G A10876G A11467G G11719A A12308G
G12372A T13020C T13734C C14766T A15326G T15784C A15907G

18. **EF657632** (Europe) Herrnstadt (mtDNA460) Haplogroup U2e (lacks part of non-coding region)
A750G G988A 998delA A1438G A1811G A2706G A3720G A4769G A5390G T5426C
C6045T T6152C C7028T C7109T A8860G T10187C A10876G A11467G G11719A
A12308G G12372A T13020C T13734C C14766T A15326G T15784C A15907G

19. **AY714026** (India) Palanichamy (R177) Haplogroup U2e
A73G T152C A263G 309insC 315insC A508G 524insA 524insC 524insA 524insC
A750G A1438G A1811G C2322T A2706G A3203G A3720G A4769G A5390G T5426C

C6045T T6152C C7028T A8860G **A10398G** A10876G A11467G G11719A A12308G
G12372A T13020C T13734C C14766T A15326G A15907G A16051G T16092C G16129C
A16182C A16183C T16189C T16362A

20. **EF660989** (Italy) Gasparre (... 0076) Haplogroup U2e (INCOMPLETE)
A73G T152C A263G 315insC A750G G988A A1438G A1811G A2706G A3720G
A4769G A5390G C7028T A8860G A10876G A11467G G11719A A12308G **G12372R**
T13020R **T13734R** **G14560R** C14766T G14859T A15326G C15661T A15907G A16051G
G16129C **A16183R** **T16189R** A16258C T16362C

21. **AF382004** (Spain-Leon) Maca-Meyer (U22) Haplogroup U2e1
A73G T152C T217C A263G 315insC C340T A508G G709A A750G A1438G A1811G
A2706G A3720G A4769G A5390G T5426C C6045T T6152C C7028T C7151T T7759C
A8860G A10876G G11176A A11467G G11719A A12308G C12346T G12372A T13020C
C14766T A15326G A15907G A16051G G16129C T16189C G16319A T16362C T16519C

22. **EF660957** (Italy) Gasparre (... 0045) Haplogroup U2e1
A73G T217C A263G T310C C340T A508G A750G A1438G A1811G A2706G A3720G
A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G A11467G
G11719A A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G
G16129C A16183C 16193insC T16209C T16362C T16519C

23. **AY195764** Mishmar (E19U) Haplogroup U2e1
A73G T146C T152C T217C A263G 309insC 309insC C340T T489C A508G A750G
A1438G A1811G A2706G A3720G A4769G A5390G T5426C C6045T T6152C C7028T
G8155A A8860G **T9101C** A10876G A11467G G11719A A12308G A12358G G12372A
T13020C T13734C C14766T A15326G T15519C C15664T A15907G A16051G G16129C
A16182C A16183C T16189C T16311C T16362C T16519C

24. **EF452294** (Ireland) FTDNA Haplogroup U2e1
A73G T152C T217C A263G 309insC 315insC C340T A508G 522delC 523delA A750G
A1438G A1811G C2526T A2706G A3720G A4769G A5390G T5426C C6045T T6152C
C7028T A8860G A10876G A11467G G11719A A12308G G12372A G12618A T13020C
T13734C C14766T A15326G A15907G A16051G C16111T G16129C G16145A A16183C
T16189C A16272G C16287T T16362C T16519C

25. **AY714049** (India) Palanichamy (T108) Haplogroup U2e1
A73G T152C T217C A263G 315insC 315insC C340T A508G 524insA 524insC 573insC
573insC 573insC 573insC 573insC A750G G988A A1438G A1811G A2706G A3720G
G4491A A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G
A11467G G11719A A12308G G12372A A12612T T13020C T13734C C14766T **G14831A**
A15326G T15479C A15562G A15907G A16051G C16082T T16126C G16129C T16189C
C16256T T16298C T16362C T16519C

26. **EF661006** (Italy) Gasparre (... 0092) Haplogroup U2e1

A73G T152C T217C A263G 315insC C340T A508G A750G G988A A1438G A1811G A2706G 3229insA G3392A A3720G A4769G A5390G T5426C A5900C C6045T T6152C T6620C C7028T A8860G G9182A A10876G A11467G G11719A A12308G G12372A T13020C T13572C T13734C C14766T A15326G C15661T A15907G A16051G G16129C A16183C T16189C C16256T T16362C

27. **FJ493504** (Russia) Mazunin (L8) Haplogroup U2e1

A73G T217C A263G 309insC 315insC C340T A508G A750G A1438G A1811G A2706G A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G A11467G G11719A A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G G16129C A16183C 16193insC T16362C T16519C

28. **FJ147311** (Russia) Mazunin (Tubalar Alt20) Haplogroup U2e1

A73G T152C T217C A263G 309insC 315insC C340T A508G 523.1C 523.2A A750G A1438G A1811G T2626C A2706G A3720G A4769G A5390G T5426C T5814C C6045T T6152C C7028T A8860G A10876G A11467G G11719A A12308G G12372A T13020C A13419T T13734C A14587G C14766T A15326G A15907G A16051G G16129C T16189C C16214T A16258G T16362C T16519C

29. **FJ828532** FTDNA Haplogroup U2e1a

A73G T152C T217C A263G 309insC 309insC 315insC C340T A508G 524insA 524insC A750G A1438G A1811G A2706G A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G T16093C G16129C A16183C T16189C A16194C T16195C T16362C T16519C

30. **DQ156211** (Europe) Monteil-Sosa (M196) Haplogroup U2e1a1

A73G T152C T217C A263G A337G A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G G16129C A16183G T16189C T16368C

31. **AY882382** (Spain) Achilli-Rengo (Tor10) Haplogroup U2e1a1

A73G T152C T217C A263G 309insC 315insC C340T A508G A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G G16129C A16183C T16189C T16362C T16519C

32. **GQ891613** D'Aurelio (DM) Haplogroup U2e1a1

A73G A263G T423G A508G 524insA 524insC A750G A2706G C3116T A3720G A3891G T4502C A4769G A5390G T5426C **T8993C** A11467G G11719A T11732C A12308G G12372A T13020C C14766T A15326G A15907G G16129C A16183C T16189C 16193insC T16362C

33. **EF177434** (Portugal) Pereira (TA10) Haplogroup U2e1a1

A73G T152C T217C A263G 309insC 315insC C340T A508G A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C A5581G C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G G16129C A16183C T16189C T16362C T16519C

34. **EF657718** (Europe) Herrnstadt (mtDNA538) Haplogroup U2e1a1 (lacks part of non-coding region)

A750G A1438G A1811G T2158C A2706G C3116T A3720G A4769G A5390G T5426C A5581G C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G

35. **EF657570** (Europe) Herrnstadt (mtDNA404) Haplogroup U2e1a1 (lacks part of non-coding region)

A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T **T7080C** A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C G13958C C14766T A15326G A15907G

36. **DQ112891** (Europe) Kivisild (EU26) Haplogroup U2e1a1 (lacks part of non-coding region)

524insA 524insC A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C6761T C7028T G8790A A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G

37. **DQ112818** (Europe) Kivisild (EU83) Haplogroup U2e1a1 (lacks part of non-coding region)

A508G 524insA 524insC A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G T12354C G12372A T13020C T13734C C14766T A15326G A15848G A15907G

38. **AY714040** (India) Palanichamy (T115) Haplogroup U2e1a1

A73G T152C T217C A263G 309insC 309insC 315insC C340T A508G 524insA 524insC A750G A1438G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8308G A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G G16129C G16153A A16182C A16183C T16189C T16362C T16519C

39. **FJ348188** (Hutterite-Austria?) Irene (ST018) Haplogroup U2e1a1

A73G T152C T217C A263G 309insC 315insC C340T A492G A508G A750G A1438G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10127G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T12624C T13020C T13734C C14766T A15326G A15907G A16051G G16129C A16182C A16183C T16189C T16362C T16519C

40. **FJ348194** (Hutterite-Austria?) Irene (ST024) Haplogroup U2e1a1

A73G T152C T217C A263G 309insC 309insC 315insC C340T A492G A508G 524insA 524insC A750G A1438G A1629G A1811G A2706G C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10127G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C G13135A T13734C C14766T A15326G A15907G A16051G G16129C A16182C A16183C T16189C T16362C T16519C

41. **HQ218053** FTDNA Haplogroup U2e1a1

A73G T152C T217C A263G 309insC 315insC C340T A508G 524insA 524insC A750G A1438G A1811G A2706G C2789T C3116T A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907R A16051G G16129C A16183- T16189C 16193insC T16362C T16519C

42. **AM260596** (Finland) Annunen-Rasila (CADASIL patient 39) Haplogroup U2e1a1a (lacks part of non-coding region)

A750G A1438G A2706G C3116T T3197C G4113A A4769G A5390G T5426C C6045T T6152C C7028T G8857A A8860G A10876G C11197T A11467G G11719A T11732C A12308G G12372A T13020C T13734C C14766T A15326G A15907G

43. **AY339545** (Finland) Moilanen (F144) Haplogroup U2e1a1a

A73G T152C T217C A263G 315insC C340T A508G 524insA 524insC A750G A1438G A1811G A2706G C3116T T3197C T3644G A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C C12238T A12308G G12372A T13020C T13734C G13928A C14766T A15326G A15907G A16051G G16129C A16183C T16189C T16362C T16519C

44. **AY339546** (Finland) Moilanen (F145) Haplogroup U2e1a1a

A73G T152C A263G 309insC 315insC A508G 524insA 524insC A750G A1438G A1811G A2706G C3116T T3197C A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12172G A12308G G12372A T13020C T13734C G13928A C14766T A15326G A15907G A16051G G16129C A16183C T16189C T16362C T16519C

45. **FJ490554** FTDNA Haplogroup U2e1a1a

A73G T152C A263G 309insC 315insC C340T A508G 524insA 524insC A750G A1438G A1811G A2706G C3116T T3197C A3720G A4769G A5390G T5426C C6045T T6152C C7028T A8860G A10876G C11197T A11467G G11719A T11732C A12172G A12308G G12372A T13020C T13734C G13928A C14766T A15326G A15907G A16051G G16129C A16183C T16189C T16362C T16519C

46. **AF381995** (Jordan) Maca-Meyer Haplogroup U2e2

A73G **C150T** T152C A263G 315insC A508G A750G A1438G A1811G A2706G A3720G G3849A A4769G A5390G T5426C C6045T T6152C G6917A C7028T A8860G A10876G A11467G G11719A A12308G G12372A T13020C T13734C C14766T A15326G A15907G A16051G T16092C G16129C T16189C T16362C T16368C T16519C

47. **HM000084** (Italy) FTDNA Haplogroup U2e2a
A73G T152C T217C A263G 315insC A508G A750G A1438G A1811G A2706G A3720G
G3849A T4553C A4769G A5390G T5426C C6045T T6152C C7028T C7235A C7418T
C7427T T7624C T8473C A8860G A10876G A11467G G11719A A12308G G12372A
C12557T T13020C T13734C C14766T T14788C A15326G A15907G A16051G T16092C
G16129C A16183C T16189C T16362C T16519C A16525G

48. **EF657645** (Europe) Herrnstadt (mtDNA472) Haplogroup U2e2a (lacks part of non-coding region)

A750G A1438G A1811G A2706G A3720G G3849A T4553C T4736C A4769G A5390G
T5426C C6045T T6152C C7028T T8473C A8860G A10876G A11467G G11719A
A12308G G12372A C12557T T13020C T13734C C14766T A15326G A15907G

49. **DQ489501** (Netherlands-Nijmegen) Hinttala (patient B) Haplogroup U2e2a (lacks part of non-coding region)

A750G A1438G A1811G A2706G A3720G G3849A T4553C T4736C A4769G A5390G
T5426C C6045T T6152C C7028T T8473C A8860G A10876G A11467G G11719A
A12308G G12372A C12557T T13020C T13734C C14766T A15326G A15907G A16051G

50. **EF657690** (Europe) Herrnstadt (mtDNA512) Haplogroup U2e2a (lacks part of non-coding region)

A750G A1438G A1811G A2706G A3720G G3849A T4553C A4769G A5390G T5426C
G5746A C6045T T6152C C7028T T8473C A8860G A10876G A11467G G11719A
A12308G G12372A C12557T T13020C T13734C C14766T A15326G A15907G

51. **EF528162** ARGUS Haplogroup U2e2a

A73G T152C T217C A263G 315insC A508G A750G A1438G A1811G A2706G A3720G
G3849A T4553C A4769G A5390G T5426C C6045T T6152C C7028T T7624C T8473C
T8733C A8860G A10876G A11467G G11719A A12308G G12372A C12557T T13020C
T13734C C14766T A15326G A15907G A16051G G16129C A16183C T16189C T16362C
T16519C A16525G

52. **FJ984932** FTDNA Haplogroup U2e2a

A73G T152C T217C A263G 315insC A508G A750G A1438G A1811G A2706G A3720G
G3849A T4553C A4769G A5390G T5426C C6045T T6152C C7028T C7235A C7427T
T7624C T8473C A8860G G9452A A10876G A11467G G11719A A12308G G12372A
C12557T T13020C T13734C C14766T T14788C A15326G A15907G A16051G T16092C
G16129C A16183C T16189C T16362C T16519C A16525G

U3

1. **AF381983** (Morocco) Maca-Meyer (U32) Haplogroup U3a

A73G **C150T** A263G 315insC 522delC 523delA A750G C867T A1438G A1811G
A2706G T4703C A4769G C6518T C7028T C7256T A8860G G9266A A10352G
A10506G A11467G G11719A A12308G G12372A C13934T A14139G C14766T
A15326G T15454C A16343G G16390A T16519C

2. **DQ112836** (Europe) Kivisild (EU36) Haplogroup U3a1 (lacks part of non-coding region)
G499A 522delC 523delA A750G A1438G A1811G A2706G G3010A T4703C A4769G
C6518T C7028T A8860G G9266A A10506G A11467G G11719A A12308G G12372A
C13934T A14139G C14766T C15190T A15326G T15454C

3. **AF381982** (Canary Islands) Maca-Meyer (U31) Haplogroup U3a1
A73G **C150T** A263G 315insC A750G A1438G A1811G A2706G G3010A T4703C
A4769G C6518T C7028T C7256T A8860G G9266A A10506G T10724C A11467G
G11719A A12308G G12372A C13934T A14139G C14766T A15326G T15454C G15734A
A16343G T16356C G16390A T16519C

4. **EF657422** (Europe) Herrnsstadt (mtDNA271) Haplogroup U3a1 (lacks part of non-coding region)
A750G A1438G A1811G A2294G A2706G G3010A T4703C A4769G C6518T C7028T
A8860G G9266A A10506G T10724C A11467G G11719A A12308G G12372A C13934T
A14139G C14766T A15326G T15454C G15734A

5. **EU057183** FTDNA Haplogroup U3a1
A73G **C150T** A263G 309insC 315insC A750G A1438G A1811G A2294G A2706G
G3010A T4703C A4769G C6518T C7028T A8860G G9266A A10506G A11467G
G11719A A12308G G12372A C13934T A14139G C14766T A15326G T15454C T16189C
A16343G G16390A T16519C

6. **HQ286323** FTDNA Haplogroup U3a1
A73G **C150T** A263G 315insC A750G A1438G A1811G A2294G A2706G G3010A
T4703C A4769G C6518T C7028T A8860G G9266A A10506G A11467G G11719A
A12308G G12372A C13934T A14139G C14766T A15326G T15454C C16150T C16301T
A16343G T16356C G16390A T16519C

7. **GU122986** (Russia) Malyarchuk (Tm13) Haplogroup U3a1
A73G **C150T** A263G 309insC 315insC A750G A1438G A1811G A2294G A2706G
G3010A T4703C A4769G C6518T C7028T G7521A A8860G G9266A A10506G
A11467G G11719A A12308G G12372A C13934T A14139G C14766T A15326G T15454C
A16343G G16390A T16519C

8. **FJ968795** FTDNA Haplogroup U3a1
A73G **C150T** A263G 309insC 315insC A750G A1438G A1811G A2294G A2706G
G3010A T4703C A4769G C6518T C7028T G7521A A8860G **T9098C** G9266A G9380A
A10506G A11467G G11719A A12308G G12372A C13934T A14139G C14766T
A15326G T15454C T16189C A16343G G16390A T16519C

9. **DQ156213** (Europe) Monteil-Sosa (M227) Haplogroup U3a1
A73G **C150T** A263G T710C A750G A1438G A1811G A2294G A2706G G3010A
T4703C A4769G A4985G C6518T C7028T A8860G G9266A A10506G T10604C

A11467G G11719A A12308G G12372A C13934T A14139G C14766T A15326G T15454C
A16343G

10. **EF657698** (Europe) Herrnstadt (mtDNA52) Haplogroup U3a1 (lacks part of non-coding region)

A723C A750G A1438G A1811G A2294G A2706G G3010A T4703C A4769G C7028T
A8860G G9266A A10506G A11467G G11719A A12308G G12372A C13934T A14139G
C14766T A15326G T15454C

11. **EF657252** (Europe) Herrnstadt (mtDNA118) Haplogroup U3a1 (lacks part of non-coding region)

A723C A750G A1438G A1811G A2294G A2706G G3010A T4703C A4769G C6496A
C6518T A6716G C7028T A8860G G9266A A10506G A11467G G11719A A12308G
G12372A C13934T A14139G C14766T A15326G T15454C

12. **AY882383** (Yemen) Achilli-Rengo (Tor86) Haplogroup U3a2

A73G **C150T** T152C A189G A200G G207A A263G 309insC 315insC A750G A1438G
G1719A A1811G A2294G A2706G T4703C A4769G T6050C C6518T C7028T A8860G
G9266A A10506G T11050C A11467G G11719A A12308G G12372A T13215C C13934T
A14139G C14766T A15326G T15454C G16274A A16343C G16390A T16519C

13. **FJ348224** (Hutterite-Austria?) Irene (ST054) Haplogroup U3a2

A73G **C150T** A200G A263G 315insC A512G 524insA 524insC A750G A1438G
A1811G A2294G A2706G T4703C A4769G C6428T C6518T C7028T A8860G G9266A
A10506G T11050C A11467G G11719A A12308G G12372A T13191C C13934T A14139G
C14766T A15326G T15454C A16343G G16390A T16519C

14. **AY882384** (Adygei-Russia) Achilli-Rengo (Tor11) Haplogroup U3b

A73G **C150T** A263G 309insC 315insC A750G A1438G A1811G A2706G A4188G
C4640A A4769G T5999C C6545T C7028T C7906T A8860G T9656C A11467G
G11719A A12308G G12372A T13743C A14139G T14180C A15326G T15454C C16168T
C16192T A16343G T16519C

15. **AY714023** (India) Palanichamy (C11) Haplogroup U3b

A73G **C150T** A263G 315insC 522delC 523delA A750G A1438G A1811G A2706G
A3397G A4188G **C4640A** A4769G C7028T A8860G T9656C T10187C A11467G
G11719A A12308G G12372A T13743C A14139G A14527G C14766T A15326G T15454C
G15812A T16093C C16266G A16343G G16346A T16368C

16. **EF177433** (Portugal) Pereira (TA09) Haplogroup U3b1

T55C A56G A73G **C150T** A263G 309insC 315insC A750G A1438G A1811G A2706G
T3335A C3546A A4188G **C4640A** A4769G C7028T A7055G G8572A A8860G T9656C
A11467G G11719A A12308G G12372A T13743C A14139G C14766T A15326G T15454C
G15773A C16256T A16343G

17. **AY882385** (Yemen) Achilli-Rengo (Tor59) Haplogroup U3b1a

A73G **C150T** T152C A263G 309insC 315insC A750G A1438G A1811G A2706G
C3546T A4188G A4562G **C4640A** C4654T A4769G T5465C C7028T C8778T A8812G
A8860G C9054T T9656C A11467G G11719A A12308G G12372A T13743C A14139G
C14766T A15326G T15454C T16086C A16119G

18. **EF556158** (Iraq) Behar (1418) Haplogroup U3b1a

A73G **C150T** A263G 309insC 315insC 524insA 524insC A750G A1438G A1585G
A1811G A2706G C3546A A4188G **C4640A** A4769G T5492C C7028T C7145T A8812G
A8860G T9098G G9163A T9656C A11467G G11719A A12308G G12372A T13743C
G14016A A14139G C14766T G15172A A15326G T15454C A15829G T16086C A16343G

19. **AM260597** (Finland) Annunen-Rasila (CADASIL patient 40) Haplogroup U3b1b (lacks part
of non-coding region)

A750G A1438G A1811G A2706G C3546A A4769G A6359G C7028T A8860G T9656C
A11467G G11719A A12308G G12372A T13743C A14139G C14766T A15326G T15454C

20. **FJ711758** (Slovakia) FTDNA Haplogroup U3b1b1

A73G **C150T** A263G 309insC 309insC 315insC A750G A1438G A1811G A2706G
C3546A A4188G **C4640A** A4769G A6359G C7028T A8860G T9656C A11467G
G11719A A12308G G12372A A12720G T13743C A14139G C14766T A15326G
T15454C A16343G

21. **EU807742** (Siberia) Brown (LHON patient) Haplogroup U3b1b1

A73G **C150T** A263G 309insC 309insC A750G A1438G A1811G A2706G C3546A
A4188G **C4640A** A4769G A6359G C7028T A8860G T9656C A11467G G11719A
A12308G G12372A A12720G T13743C A14139G C14766T A15326G T15454C A16343G
T16362C

22. **EF660959** (Italy) Gasparre (... 0047) Haplogroup U3b1b1

A73G **C150T** A263G T310C 315insC A750G A1438G A1811G A2706G C3546A
A4188G **C4640A** A4769G A6359G C7028T A8860G T8867C T9656C A11467G
G11719A A12308G G12372A A12720G T13743C A14139G C14766T A15326G T15454C
A16343G

23. **EU935438** (Egypt-el Hayez) Kujanova (EH6) Haplogroup U3b2

A73G **C150T** A263G 315insC A750G T1187C A1438G A1811G A2706G A2707G
A4188G **C4640A** A4769G T6941C C7028T A8860G **G8950A** T9656C T9770C
A11467G G11719A A12172G A12308G G12372A T13743C A14139G C14766T
C15247T A15326G T15454C 15944delT C16320T A16343G

24. **HQ257369** (Armenian) FTDNA Haplogroup U3b2a

A73G **C150T** A263G 315insC T334C 522delC 523delA A750G A1438G A1811G
A2706G A2707G A4188G **C4640A** A4769G C7028T A8860G **G8950A** T9656C T9770C
T10003C A11467G G11719A A12308G G12372A T13743C A14139G C14766T A15326G
T15454C 15944delT A16343G

25. **FJ348193** (Hutterite-Austria?) Irene (ST023) Haplogroup U3b2a
A73G **C150T** A263G 309insC 315insC 522delC 523delA A750G A1438G A1811G
A2706G A2707G A4188G **C4640A** A4769G C7028T C7849T A8860G **G8950A** T9656C
T9770C A11467G G11719A A12308G G12372A T13743C A14139G C14766T A15326G
T15454C 15944delT A16233G C16256T T16311C A16343G

26. **FJ348201** (Hutterite-Austria?) Irene (ST031) Haplogroup U3b2a
A73G **C150T** A263G 309insC 315insC 522delC 523delA A750G A1438G A1811G
A2706G A2707G A4188G **C4640A** A4769G C7028T C7849T A8860G **G8950A** T9656C
T9770C A11467G G11719A A12308G G12372A T13743C A14139G C14766T A15326G
T15454C 15944delT A16233G C16256T T16311C A16343G

27. **FJ348182** (Hutterite-Austria?) Irene (ST012) Haplogroup U3b2a
A73G **C150T** T152C A263G 309insC 315insC 522delC 523delA A750G A1438G
A1811G A2706G A2707G A4188G **C4640A** A4769G C7028T C7849T A8860G **G8950A**
T9656C T9770C A11467G G11719A A12308G G12372A T13743C A14139G C14766T
A15326G T15454C 15944delT A16233G C16256T T16311C A16343G

U4

1. **FJ493507** (Russia) Mazunin (Mansi72) Haplogroup U4a
A73G **T195C** A263G G499A A750G A1438G A1811G A2706G T4646C T4688C
A4769G A5705G T5999C A6047G C7028T C8818T A8860G C11332T A11467G
G11719A A12308G G12372A C14620T C14766T A15326G T15693C A16113C T16356C
T16362C T16519C

2. **FJ493505** (Russia) Mazunin (L4) Haplogroup U4a
A73G **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G C5945T T5999C A6047G C7028T C8818T A8860G C11332T A11467G
G11719A A12308G G12372A C14620T C14766T A15326G T15693C C16294T T16356C
T16519C

3. **EU597564** (Pakistan) Hartmann (HGDP00277) Haplogroup U4a1
A73G T152C **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G A1438G
A1811G A2706G T4646C A4769G T5999C A6047G A7025T C7028T **C7868T** C8818T
A8860G T11087C C11332T A11467G G11719A A12308G G12372A A12937G A13773G
C14620T C14766T A15326G T15693C C16134T T16356C T16519C

4. **EU597575** (Pakistan) Hartmann (HGDP00279) Haplogroup U4a1
A73G T152C **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
T4646C A4769G T5999C A6047G C7028T G8392A C8818T A8860G C9518T C11332T
A11467G G11719A A12308G G12372A A12937G C14620T C14766T A15326G
G15346A T15693C C16134T T16356C T16362C T16519C

5. **EU545433** (Poland) Malyarchuk (P520) Haplogroup U4a1a1

A73G T152C **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G **T961C**
965insC 965insC 965insC A1438G A1811G A2706G T4646C A4769G T5999C A6047G
C7028T C8818T A8860G C11332T A11467G G11719A A12308G G12372A A12937G
C14620T C14766T A15326G T15693C C16134T T16189C T16356C T16519C

6. **EF660965** (Italy) Gasparre (... 0053) Haplogroup U4a1a1

A73G T152C A153G **T195C** A263G 315insC G499A 524insA 524insC 524insA 524insC
A750G **T961C** 965insC 965insC A1438G A1811G A2706G T4646C A4769G T5999C
A6047G C7028T T7084C C8818T A8860G C11332T A11467G G11719A A12308G
G12372A A12937G C14620T C14766T A15326G T15693C C16134T T16144C T16356C
T16519C

7. **EU545416** (Poland) Malyarchuk (B3) Haplogroup U4a1a1

A73G T152C **T195C** T204C A263G 315insC G499A A750G **T961C** 965insC 965insC
965insC A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T C8818T
A8860G C11332T A11467G G11719A A12308G G12372A A12937G C14620T C14766T
A15326G T15693C C16134T A16207G T16356C T16519C

8. **EU545417** (Poland) Malyarchuk (B22) Haplogroup U4a1a1

A73G T152C **T195C** A263G 309insC 315insC G499A 524insA 524insC 524insA
524insC A750G **T961C** 965insC 965insC 965insC A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T A7271G C8818T A8860G C11332T A11467G
G11719A A12308G G12372A A12937G C14620T C14766T C14884T A15326G T15693C
C16134T T16356C T16519C

9. **AY882386** (Spain) Achilli-Rengo (Tor60) Haplogroup U4a1a1

A73G T152C **T195C** A263G 315insC G499A A750G **T961C** 965insC 965insC 965insC
A1438G **A1555G** A1811G A2706G A4562G T4646C A4769G T5999C A6047G C7028T
C8818T A8860G C11332T A11467G G11719A A12308G G12372A A12937G C14620T
C14766T A15326G T15693C C16134T T16356C T16519C

10. **EU545431** (Belarus) Malyarchuk (IV70) Haplogroup U4a1a1

A73G T152C **T195C** A263G 315insC G499A 524insA 524insC A750G **T961C** 965insC
965insC 965insC A1438G A1811G A2706G 4181insA T4646C A4769G 5899insC
T5999C A6047G C7028T T8167C C8818T A8860G C11332T A11467G G11719A
A12308G G12372A G12618A A12937G 14220insA C14620T C14766T A15326G
T15693C C16134T T16356C T16519C

11. **EU545451** (Russia) Malyarchuk (R3129) Haplogroup U4a1a1

A73G T152C **T195C** A263G 315insC G499A 524insA 524insC A750G **T961C** 965insC
965insC 965insC A1438G A1811G A2706G T4646C A4769G 5899insC T5999C A6047G
C7028T T8167C C8818T A8860G T10790C C11332T A11467G G11719A A12308G
G12372A G12618A A12937G C14620T C14766T A15326G T15693C C16134T T16356C
T16519C

12. **EU545459** (Slovakia) Malyarchuk (S1146) Haplogroup U4a1b1

A73G T152C **T195C** A263G C296T 315insC G499A 524insA 524insC 524insA 524insC
A745G A750G A1438G A1811G A2706G C3204T T4646C A4769G T5999C A6047G
C7028T C8818T A8860G C11332T A11467G G11719A A12308G G12372A A12937G
C14620T C14766T A15326G T15693C C16134T T16356C T16519C

13. **EU545418** (Poland) Malyarchuk (B67) Haplogroup U4a1b1
A73G T152C **T195C** A263G C296T 315insC G499A 524insA 524insC 524insA 524insC
A745G A750G A1438G A1811G A2706G C3204T T4646C A4769G T5999C A6047G
C7028T G7853A C8818T A8860G C11332T A11467G G11719A A12308G G12372A
A12937G C14368T C14620T C14766T A15326G T15693C C16134T T16519C

14. **GU562438** FTDNA Haplogroup U4a1b1
A73G T152C **T195C** A263G C296T 315insC G499A A745G A750G A1438G A1811G
A2706G C3204T T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G A12352G G12372A A12937G C14620T C14766T
A15326G T15693C C16134T T16356C T16519C

15. **EU428753** FTDNA Haplogroup U4a1b1a
A73G T152C **T195C** A263G C296T 315insC G499A 524insA 524insC A745G A750G
A1438G A1811G A2706G C3204T T4646C A4769G T5999C A6047G C7028T G7119A
T8705C C8818T A8860G C11332T A11467G G11719A A12308G G12372A A12937G
C14620T **C14668T** C14766T A15326G T15693C G16129A C16134T T16356C T16519C

16. **GU252762** (Switzerland) FTDNA Haplogroup U4a1b1a
A73G T152C **T195C** A263G C296T 315insC G499A 524insA 524insC A745G A750G
A1438G A1811G A2706G C3204T T4646C A4769G T5999C A6047G C7028T T8705C
C8818T A8860G C11332T A11380G A11467G G11719A A12308G G12372A A12937G
C14620T C14766T A15326G T15693C T16086C G16129A C16134T T16356C T16519C

17. **EU545429** (Poland) Malyarchuk (G161) Haplogroup U4a1b2
A73G T152C **T195C** A263G 309insC 309insC 315insC G499A 524insA 524insC A745G
A750G A1438G A1811G A2706G C3204T T4646C A4769G T5999C A6047G C7028T
C7816T C8818T A8860G C11332T A11467G G11719A T11809C A12308G G12372A
A12937G C14620T C14766T A15326G T15693C C16134T C16301T T16356C T16519C

18. **EU545432** (Poland) Malyarchuk (Ko66) Haplogroup U4a1b2
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC A745G A750G A1438G
A1811G A2706G C3204T T4646C A4769G T5999C A6047G C7028T C8818T A8860G
C11332T A11467G G11719A A12308G G12372A A12937G **C14568T** C14620T C14766T
A15326G T15693C C16134T C16301T T16356C T16519C

19. **EU545427** (Czech Republic) Malyarchuk (CzV160) Haplogroup U4a1c
A73G T152C **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T G8155A C8818T A8860G C11332T A11467G
G11719A A12308G G12372A A12937G A13158G T14110C C14620T C14766T A15326G
T15693C C16134T C16221T C16234T T16356C T16519C

20. **EU545428** (Poland) Malyarchuk (G72) Haplogroup U4a1c
A73G T152C **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
T4646C A4769G T5999C A6047G C7028T G8155A C8818T A8860G C11332T
A11467G G11719A A12308G G12372A A12937G A13158G T14110C C14620T C14766T
A15326G T15693C C16134T C16234T T16356C T16519C

21. **FJ493506** (Russia) Mazunin Haplogroup U4a1d
A73G T152C **T195C** C198T A263G 315insC G499A A750G A1438G A1811G A2706G
T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T A11467G
G11719A A12308G G12372A A12937G C14620T C14766T A15326G T15693C C16134T
T16356C T16519C

22. **FJ147312** (Russia) Mazunin (Tubalar L21) Haplogroup U4a1d
A73G T152C **T195C** C198T A263G G499A A750G A1438G A1811G A2706G A4206G
T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T A11467G
G11719A A12308G G12372A A12937G C14620T C14766T A15326G T15693C G16129A
C16134T T16356C T16519C

23. **GU123031** (Russia) Malyarchuk (Tm74) Haplogroup U4a1d
A73G T152C **T195C** C198T A263G 315insC G499A A750G A1438G A1811G A2706G
A4206G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C9335A C11332T
A11467G G11719A A12308G G12372A A12937G C14620T C14766T A15326G T15693C
C16134T T16356C T16519C

24. **GU123034** (Russia) Malyarchuk (Tm89) Haplogroup U4a1d
A73G T152C **T195C** C198T A263G 309insC 315insC G499A A750G A1438G A1811G
A2706G A4206G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C9335A
C11332T A11467G G11719A A12308G G12372A A12937G C14620T C14766T A15326G
T15693C C16134T T16356C T16519C

25. **DQ156209** (Europe) Monteil-Sosa (M179) Haplogroup U4a2
A73G **T195C** A263G T310C G499A A750G A1438G A1811G A2706G T4646C A4769G
T5999C A6047G C7028T C8818T A8860G C11332T A11467G G11719A A12308G
G12372A C14620T C14766T A15326G T15693C T16356C

26. **EU545421** (Czech Republic) Malyarchuk (CzIII14) Haplogroup U4a2
A73G **T195C** A263G T310C G499A 524insA 524insC 524insA 524insC A750G A1438G
A1811G A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C C16295T
T16356C T16519C

27. **EU545430** (Belarus) Malyarchuk (IV24) Haplogroup U4a2
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T

A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16356C
T16519C

28. **EF222235** (Slavic) Grzybowski (KA8) Haplogroup U4a2

A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G G5261A T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16356C
T16519C

29. **EU545453** (Slovakia) Malyarchuk (S173) Haplogroup U4a2

A73G T146C **T195C** A263G T310C G499A A750G A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T G8027A C8818T A8860G C11332T A11467G
G11719A A12021C A12308G G12372A C14620T C14766T A15326G T15693C T16356C
T16519C

30. **EU545458** (Slovakia) Malyarchuk (S1144) Haplogroup U4a2a

A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16519C

31. **EF222249** (Slavic) Grzybowski (B74) Haplogroup U4a2a

A73G **T195C** A263G T310C G499A A750G A1438G A1811G A2706G T4646C A4769G
T5999C A6047G C7028T C8818T A8860G C11332T A11467G G11719A A12308G
G12372A C14620T C14766T A15326G T15693C T16519C

32. **AY882387** (Italy) Achilli-Rengo (Tor78) Haplogroup U4a2a

A73G **T195C** A263G T310C 315insC G499A 524insA 524insC 524insA 524insC A750G
A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G
C11332T A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C
T16359C T16519C

33. **EU545450** (Russia) Malyarchuk (R2114) Haplogroup U4a2a

A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A **G12192A** A12308G G12372A C14620T C14766T A15326G
T15693C C16169T G16319A T16519C

34. **EU545440** (Russia) Malyarchuk (R161) Haplogroup U4a2a

A73G T152C **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T A7424G C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C C16150T
T16189C C16360T T16519C

35. **EU545425** (Russia) Malyarchuk (CzIII60) Haplogroup U4a2a

A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T

A11467G G11719A C11881T A12308G G12372A C14620T C14766T A15326G T15693C
T16519C

36. **EF222250** (Slavic) Grzybowski (B70) Haplogroup U4a2a1
A73G **T195C** A263G T310C G499A A750G A1438G A1811G A2706G T4646C A4769G
T5999C A6047G C7028T T8496C C8818T A8860G C11332T A11467G G11719A
A12308G G12372A C14620T C14766T A15326G T15693C T16189C T16519C

37. **EF222236** (Slavic) Grzybowski (B109) Haplogroup U4a2a1
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T T8496C C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16519C

38. **EF222237** (Slavic) Grzybowski (KA134) Haplogroup U4a2a1
A73G T146C **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G A6800G C7028T T8496C C8818T A8860G
C11332T A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C
T16519C

39. **EU545446** (Russia) Malyarchuk (R488) Haplogroup U4a2a2
A73G **T195C** A263G T310C G499A 524insA 524insC G709A A750G A1438G A1811G
A2706G T4646C A4769G C5945T T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A T14319C C14620T C14766T A15326G T15693C
C16294T T16519C

40. **EF222239** (Slavic) Grzybowski (B100) Haplogroup U4a2a2
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T G8557A C8818T A8860G T9311C
C11332T A11467G G11719A A12308G G12372A T14319C C14620T C14766T A15326G
T15693C C16294T T16519C

41. **EF222238** (Slavic) Grzybowski (G70) Haplogroup U4a2a3
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A G13759A C14620T C14766T A15326G T15693C
T16362C T16519C

42. **EU545461** (Slovakia) Malyarchuk (SI172) Haplogroup U4a2a3
A73G **T195C** A263G T310C G499A A750G A1438G A1811G A2706G T4646C A4769G
T5999C A6047G C7028T C8818T A8860G C11332T A11467G G11719A A12308G
G12372A G13759A C14620T C14766T A15326G T15693C T16519C

43. **GU123033** (Russia) Malyarchuk (Tm87) Haplogroup U4a2b
A73G **T195C** A263G T310C G499A 524insA 524insC 524insA 524insC A750G A1438G
A1811G A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T

A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C C16223T
T16356C T16519C

44. **EF222240** (Slavic) Grzybowski (P7) Haplogroup U4a2b
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G G9948A C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16172C
C16223T T16356C T16519C

45. **EF222241** (Slavic) Grzybowski (B108) Haplogroup U4a2b
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T2887C T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C C16223T
T16356C T16519C

46. **AY339550** (Finland) Moilanen (F149) Haplogroup U4a2b
A73G **T195C** A263G T310C 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T C8818T A8860G C11332T A11467G G11719A
A12308G G12372A C14620T C14766T A15326G **G15497A** T15693C C16223T T16356C
T16519C

47. **EU545464** (Belarus) Malyarchuk (Sv8) Haplogroup U4a2c
A73G **T195C** A263G T310C G499A A750G A1438G A1811G A2706G T4646C A4769G
T5999C A6047G C7028T T8567C C8818T A8860G G9548A C11332T A11467G
G11719A A12308G G12372A C14620T A15326G T15693C T16356C T16519C

48. **EF222252** (Slavic) Grzybowski (T34) Haplogroup U4a2c1
A73G **T195C** A263G T310C G499A 524insA 524insC 524insA 524insC A750G A1438G
A1811G A2706G T4646C A4769G T5999C C7028T T8567C C8818T A8860G C10654T
C11332T A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C
C16242A T16288C T16356C T16362C T16519C

49. **GU122975** (Russia) Malyarchuk (Tm1) Haplogroup U4a2c1
A73G **T195C** A263G T310C G499A 524insA 524insC 524insA 524insC 573insC A750G
G951A A1438G A1811G A2706G T4646C A4769G T5999C C7028T T8567C C8818T
A8860G C10654T C11332T A11467G G11719A A12308G G12372A C14620T C14766T
A15326G T15693C C16242A T16288C T16356C T16362C T16519C

50. **EF222242** (Slavic) Grzybowski (UKR7) Haplogroup U4a2c1
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C C7028T T7051C T8567C C8818T A8860G C10654T
C11332T A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C
C16242A G16274A T16288C T16356C T16362C T16519C

51. **DQ112859** (Asia) Kivisild (AS29) Haplogroup U4a2d (lacks part of non-coding region)

G499A A750G A1438G A1811G A2706G T4646C A4769G **G5460A** T5999C A6047G
C6164T C7028T C8818T A8860G T11204C C11332T A11467G G11719A A12308G
G12372A C12888T T13899C C14620T C14766T A15326G T15693C

52. **EU545434** (Russia) Malyarchuk (R6II3) Haplogroup U4a2d
A73G G143A **T195C** A214G A263G T310C G499A 524insA 524insC 524insA 524insC
A750G A1438G A1811G A2706G T4646C A4769G T5999C A6047G C6164T C7028T
C8818T A8860G C11332T A11467G G11719A A12308G G12372A T12624C C14620T
C14766T A15326G T15693C T16356C T16519C

53. **EU545442** (Russia) Malyarchuk (R170) Haplogroup U4a2e
A73G **T195C** A263G T310C G499A 524insA 524insC 524insA 524insC A750G A1438G
A1811G A2246G A2706G T4646C A4769G T5999C A6047G G6383A C7028T C8818T
A8860G C11332T A11467G G11719A A12308G G12372A C14620T **A14696G** C14766T
A15326G T15693C T16356C T16519C

54. **EU545456** (Slovakia) Malyarchuk (S1116) Haplogroup U4a2e
A73G **T195C** A263G T310C G499A 524insA 524insC 524insA 524insC A750G A1438G
A1811G A2246G A2706G T4646C A4769G T5999C A6047G G6383A C7028T C8818T
A8860G C11332T A11467G G11719A A12308G G12372A C14620T **A14696G** C14766T
A15326G T15693C T16356C T16519C

55. **EU545455** (Slovakia) Malyarchuk (S1110) Haplogroup U4a2f
A73G **T195C** A263G T310C G499A 524insA 524insC A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T C8818T A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C A16183C
T16189C T16356C T16519C

56. **EF060364** (Italy) La Morgia (Tor295) Haplogroup U4a3
A73G **T195C** G247A A263G 309insC 315insC G499A 524insA 524insC 524insA
524insC 524insA 524insC 524insA 524insC A750G A801G A1438G A1811G A2706G
A2792G **G3460A** T4646C A4769G T5999C A6047G C6665T A6929G C7028T G8065A
C8818T A8860G C11332T A11467G G11719A A12308G G12372A C14620T C14766T
A15326G T15693C **G15773A** T16356C T16362C T16519C

57. **DQ489514** (Netherlands-Nijmegen) Hinttala (patient m3) Haplogroup U4a3 (lacks part of
non-coding region)
A750G A1438G A1811G A2706G A2792G A4769G T5999C A6047G C6665T A6929G
C7028T **G7497A** G8065A T8227C C8818T A8860G C11332T A11467G G11719A
A12308G G12372A A12924G C14620T C14766T A15326G T15693C

58. **EU545423** (Czech Republic) Malyarchuk (CzIII26) Haplogroup U4a3a
A73G **T195C** G247A A263G 315insC G499A 524insA 524insC 524insA 524insC A750G
A1438G A1811G A2706G A2792G T4646C A4769G T5999C A6047G C6665T A6929G
C7028T G8065A C8818T A8860G C11332T A11467G G11719A A12308G G12372A
C14620T C14766T A15326G T15693C A16265G T16356C T16362C T16519C

59. **GQ200592** FTDNA Haplogroup U4a3a

A73G **T195C** G247A A263G 315insC G499A 524insA 524insC 524insA 524insC
524insA 524insC A750G A1438G A1811G A2706G A2792G T4646C A4769G T5999C
A6047G C6665T A6929G C7028T G8065A C8818T A8860G C11332T A11467G
G11719A A12308G G12372A C14620T C14766T A15326G T15693C A16265G
T16356C T16362C T16519C

60. **EU545444** (Russia) Malyarchuk (R313) Haplogroup U4b

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T T7705C A8860G A10523G C11332T A11467G
G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16356C T16519C

61. **HM044301** (Canada) FTDNA Haplogroup U4b1a1

A73G **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G T2083C
A2706G A3672G T4646C A4769G T5999C A6047G C7028T T7705C T8119C A8860G
C11332T T11339C A11467G G11719A **T12297C** A12308G G12372A C14620T C14766T
A15326G T15693C T16356C T16519C

62. **AY882388** (Adygei-Russia) Achilli-Rengo (Tor12) Haplogroup U4b1a1a1

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G T2083C A2706G
A3672G T4646C A4769G T5999C A6047G C7028T T7705C A8642G A8860G C11332T
T11339C A11467G G11719A **T12297C** A12308G G12372A C14620T C14766T A15326G
T15693C C15789T T16356C T16362C T16519C

63. **FJ460530** (Tunisia) Costa (TC11) Haplogroup U4b1a1a1

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G T2083C A2706G
A3672G T4646C A4769G T5999C A6047G C7028T T7705C A8642G G8697A A8860G
C11332T T11339C A11467G G11719A **T12297C** A12308G G12372A C14620T C14766T
A15326G T15693C C15789T T16356C T16362C T16519C

64. **EF660983** (Italy) Gasparre (... 0070) Haplogroup U4b1a1a1

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G T2083C A2706G
A3672G T4646C A4769G T5999C A6047G C7028T T7705C A8642G A8860G C11332T
T11339C A11467G G11719A **T12297C** A12308G G12372A C13272T C14620T C14766T
G15140A A15326G T15693C C15789T T16356C T16362C T16519C

65. **EF657679** (Europe) Herrnstadt (mtDNA502) Haplogroup U4b1a2 (lacks part of non-coding region)

A750G A1438G A1811G A2706G A3672G T4646C A4769G T5999C A6047G C7028T
T7705C A8860G C11143T G11176A C11332T T11339C A11467G G11719A A12308G
G12372A T12609C **G13708A** C14620T C14766T A15326G T15693C

66. **HM041972** (Canada) FTDNA Haplogroup U4b1a2

A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G A1438G
A1811G A2706G A3672G T4646C A4769G T5999C A6047G C7028T T7705C A8860G

C11143T G11176A C11332T T11339C A11467G G11719A A12308G G12372A T12609C
G13708A C14620T C14766T A15326G T15693C T16356C T16519C

67. **EF660921** (Italy) Gasparre (... 0010) Haplogroup U4b1a2
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G A1438G
A1811G A2706G A3672G T4646C A4769G T5999C A6047G C7028T T7705C A8860G
C11143T G11176A C11332T T11339C A11467G G11719A A12308G G12372A T12609C
G13708A C14620T C14766T A15326G C15632T T15693C T16311C T16356C T16519C

68. **EU545415** (Belarus) Malyarchuk (Sv92) Haplogroup U4b1a2
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G A1438G
A1811G A2706G A3672G T4646C A4769G T5999C A6047G C7028T T7705C A8860G
C11143T G11176A C11332T T11339C A11467G G11719A A12308G G12372A T12609C
G13708A C14620T C14766T A15326G C15632T T15693C T16356C T16519C

69. **EU545419** (Poland) Malyarchuk (B465) Haplogroup U4b1a3
A73G T146C A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
A3672G T4646C A4769G 5752delA T5999C A6047G C7028T T7705C A8860G T9989C
C11332T T11339C A11467G C11674T G11719A A12308G G12372A C14620T C14766T
A15326G T15693C T16356C T16519C

70. **EU571946** (Hungary) Maasz Haplogroup U4b1a3a
A73G T146C **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
A3672G T4646C A4769G 5752delA T5999C A6047G C7028T A7265G **A7445G** T7705C
A8860G T9989C C11332T T11339C A11467G C11674T G11719A A12308G G12372A
C14620T C14766T A15326G C15481T T15693C T16356C T16519C

71. **FJ858802** FTDNA Haplogroup U4b1a3a
A73G T146C **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
A3672G T4646C A4769G 5752delA T5999C A6047G C7028T A7265G T7705C A8860G
T9989C C11332T T11339C A11467G C11674T G11719A A12308G G12372A C13173T
C14620T C14766T A15326G T15693C C16355T T16356C T16519C

72. **FJ147313** (Russia) Mazunin (Tubalar Alt1) Haplogroup U4b1a4
A73G **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
A3672G T4646C A4769G T5999C A6047G C7028T T7705C G7853A A8860G C11332T
T11339C A11467G G11719A C11965T A12308G G12372A T12957C C14620T C14766T
A15326G T15693C T16356C T16519C

73. **FJ147314** (Russia) Mazunin (Tubalar Tub30) Haplogroup U4b1a4
A73G **T195C** A263G G499A A750G A1438G A1811G A2706G A3672G T4646C
A4769G T5999C A6047G C7028T T7705C G7853A A8860G C11332T T11339C
A11467G G11719A C11965T A12308G G12372A T12957C C14620T C14766T A15326G
T15693C T16189C T16356C T16519C

74. **FJ147316** (Russia) Mazunin (Tubalar Alt24) Haplogroup U4b1a4

A73G **T195C** A263G G499A A750G A1438G A1811G A2706G A3672G T4646C
A4769G T5999C A6047G C7028T T7705C G7853A A8860G C11332T T11339C
A11467G G11719A C11965T A12308G G12372A T12957C C14620T C14766T A15326G
T15693C C16287T T16356C T16519C

75. **EF657695** (Europe) Herrnstadt (mtDNA517) Haplogroup U4b1b1 (lacks part of non-coding region)

A750G A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C
A8860G C11332T T11339C A11467G G11719A A12308G G12372A **A13528G** C13565T
C14620T C14766T A15326G T15693C

76. **EU545463** (Slovakia) Malyarchuk (SI212) Haplogroup U4b1b1

A73G T146C T152C **T195C** A263G 309insC G499A A750G T1193C A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8860G C11332T T11339C
A11467G G11719A A12308G G12372A **A13528G** C13565T C14620T C14766T
A15326G T15693C T16356C T16519C

77. **GQ859272** (France) Chevrollier (06BP021) Haplogroup U4b1b1

A73G T146C T152C **T195C** A263G 309insC 309insC 315insC G499A 524insA 524insC
A750G T1243C A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T
G7664A T7705C A8860G C11332T T11339C A11467G G11719A A12308G C12346T
G12372A C12717T **A13528G** C13565T C14620T C14766T A15326G T15693C T16189C
C16248T T16356C T16519C

78. **EF657242** (Europe) Herrnstadt (mtDNA109) Haplogroup U4b1b1a (lacks part of non-coding region)

A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8860G
C11332T T11339C A11467G G11719A C11932T A12308G G12372A **A13528G** C13565T
C14620T C14766T A15326G T15693C

79. **HM535647** (England) FTDNA Haplogroup U4b1b1b

A73G T146C T152C **T195C** A263G 309insC 309insC 315insC G499A A750G A1438G
A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8860G C11332T
T11339C A11467G G11719A A12308G G12372A **A13528G** C13565T C14620T C14766T
A15326G T15693C C16111T T16140C T16356C T16519C

80. **GU797476** (Canada) FTDNA Haplogroup U4b1b1b

A73G T146C T152C **T195C** A263G 309insC 309insC 315insC G499A A750G A1438G
A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8033R A8860G
C11332T T11339C A11467G G11719A A12308G G12372A **A13528G** C13565T C14620T
C14766T A15326G T15693C C16111T T16140C T16189C T16356C T16519C

81. **GU123039** (Russia) Malyarchuk (Tm105) Haplogroup U4b1b1c

A73G T146C T152C **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G
T2483C A2706G T4646C A4769G T5999C A6047G C6749T C7028T T7705C A8860G

C11332T T11339C A11467G G11719A A12308G G12372A A13434G **A13528G**
C13565T C14620T C14766T A15326G T15693C T16311C T16356C T16519C

82. **GU123041** (Russia) Malyarchuk (Tm115) Haplogroup U4b1b1c
A73G T146C T152C **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G
T2483C A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8860G C11332T
T11339C A11467G G11719A A12308G G12372A **A13528G** C13565T C14620T C14766T
A15326G T15693C T16311C T16356C T16519C

83. **FJ858877** (Russia) Mazunin (Mansi89) Haplogroup U4b1b1c
A73G T146C T152C **T195C** A263G G499A A750G T1368C A1438G A1811G A2706G
T4083C T4646C A4769G T5999C A6047G C7028T T7705C A8860G C11332T T11339C
A11467G G11719A A12308G G12372A **A13528G** C13565T C14620T C14766T
A15326G T15693C T16311C T16356C T16519C

84. **FJ147315** (Russia) Mazunin (Alt17) Haplogroup U4b1b1c
A73G T146C T152C **T195C** A263G G499A A750G A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T T7705C A8860G C11332T T11339C A11467G
G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16311C T16356C
T16519C

85. **EF452295** FTDNA Haplogroup U4b2a1a
A73G **T195C** A263G 309insC 309insC 315insC G499A 524insA 524insC 524insA
524insC A750G C1185T A1438G A1811G A2706G T4646C A4769G T5999C A6047G
C7028T T7705C T8433C A8860G C11332T A11467G G11719A A12308G G12372A
T14178C C14620T C14766T A15326G T15693C G15883A T16136C C16278T T16356C
T16519C

86. **HM856584** FTDNA Haplogroup U4b2a1a
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC 524insA 524insC
A750G C1185T A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T
T7705C T8433C A8860G C11332T A11467G G11719A A12308G G12372A T14178C
C14620T C14766T A15326G T15693C G15883A T16136C C16278T T16356C T16519C

87. **GU365881** FTDNA Haplogroup U4b2a1a1
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G C1185T
A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C T8433C
A8860G C11332T A11467G G11719A A12308G G12372A T14178C C14620T C14766T
A15236G A15326G T15693C G15883A T16136C C16278T T16356C T16519C

88. **HQ190906** FTDNA Haplogroup U4b2a1b
A73G **T195C** A263G 309insC 309insC 315insC G499A A750G A1438G A1811G
A2706G T4646C A4769G T5999C A6047G C7028T T7705C T8433C A8860G C11332T
A11467G G11719A **G12236A** A12308G G12372A T14178C C14620T C14766T
A15326G T15693C A15746G G15883A T16136C C16278T T16356C T16519C

89. **GQ891957** FTDNA Haplogroup U4b2a2
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC A750G A1438G
A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8860G C11332T
A11467G G11719A A12290G A12308G G12372A C14620T C14766T A15326G T15693C
G15883A T16136C C16278T T16356C T16519C

90. **EU140898** FTDNA Haplogroup U4b2b
A73G **T195C** A263G 309insC 309insC 315insC G499A 524insA 524insC A750G
A1438G A1811G A2706G T4646C A4769G T5999C A6047G C7028T T7705C A8860G
C11332T A11467G G11719A A12308G G12372A C14620T C14766T A15326G
T15693C T16136C A16233G T16356C T16519C

91. **GU727823** FTDNA Haplogroup U4b3
A73G **T195C** A215G A263G 309insC 315insC G499A 524insA 524insC A750G A1438G
A1811G A2706G T4646C A4769G T5628C T5999C A6047G C7028T T7705C A8860G
G9921A C11332T A11467G G11719A **G12236A** A12308G G12372A C14620T C14766T
A15326G T15693C T16356C C16360T T16519C

92. **FJ147322** (Russia) Mazunin (Mansi2) Haplogroup U4b3
A73G **T195C** A215G A263G G499A A750G A1438G A1811G A2706G C3204T
A3434G T4646C A4769G T5999C A6047G C7028T T7705C A8860G C11332T
A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C T16356C
T16519C

93. **EU007874** (Kchanti/Khanty-Siberia) Ingman (193) Haplogroup U4b3
A73G **T195C** A215G A263G 309insC 309insC 315insC G499A 524insA 524insC A750G
A2706G C3204T A3434G T4646C A4769G T5999C A6047G C7028T T7705C A8860G
C11332T A11467G G11719A A12308G G12372A C14620T C14766T A15326G T15693C
T16356C T16519C

94. **EF657519** (Europe) Herrnstadt (mtDNA359) Haplogroup U4c1 (lacks part of non-coding region)
A750G A1438G A1811G A2706G A2905G C3654T T4646C A4769G A4811G T5999C
A6047G A6146G C7028T A8860G T9070G T10907C C11332T A11467G G11719A
A12308G G12372A C14620T C14766T C14866T A15326G T15693C

95. **EF657423** (Europe) Herrnstadt (mtDNA272) Haplogroup U4c1 (lacks part of non-coding region)
A750G A1438G A1811G T2351C A2706G T4646C A4769G A4811G T5999C A6047G
A6146G C7028T A8860G T9070G T10907C C11332T A11467G G11719A A12308G
G12372A A13973T C14620T C14766T C14866T A15326G T15693C

96. **EU545465** (Belarus) Malyarchuk (Sv13) Haplogroup U4c1a
A73G **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
T4646C A4769G A4811G T5999C A6047G A6146G C7028T A8860G T9070G T10907C

T11009C C11332T A11467G G11719A A12308G G12372A C14620T C14766T C14866T
A15326G T15693C C16179T T16356C T16519C

97. **EU545462** (Slovakia) Malyarchuk (SI182) Haplogroup U4c1a

A73G **T195C** A263G 315insC G499A 524insA 524insC A750G A1438G C1788T
A1811G A2706G T4646C A4769G A4811G T5999C A6047G A6146G C7028T A8860G
T9070G T10907C T11009C C11332T A11467G G11719A A12182G A12308G G12372A
C14620T C14766T C14866T A15326G T15693C C16179T T16356C T16519C

98. **HM003577** FTDNA Haplogroup U4c1a

A73G **T195C** A263G 309insC 315insC G499A A750G A1438G A1811G A2706G
T4646C A4769G A4811G T5999C A6047G A6146G C7028T A8860G T9070G T10907C
T11009C C11332T A11467G G11719A A12308G G12372A G13928C C14620T C14766T
C14866T A15326G T15693C C16179T T16356C T16519C

99. **GU471242** FTDNA Haplogroup U4c1a

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G A4811G T5999C A6047G A6146G C7028T A8860G T9070G T10907C
T11009C C11332T A11467G G11719A A12308G G12372A C14620T C14766T C14866Y
A15326G T15693C C16179T T16356C T16519C

100. **FJ348178** (Hutterite-Austria?) Irene Haplogroup U4c1a

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G A4811G T5999C G6032A A6047G A6146G C7028T A8860G T9070G T10907C
T11009C C11332T A11467G G11719A A12308G G12372A C14620T C14766T C14866T
A15326G T15693C C16179T T16356C T16519C

101. **EF222248** (Slavic) Grzybowski (KA123) Haplogroup U4c1a

A73G **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G A4811G T5999C A6047G A6146G C7028T A8860G T9070G G9133A T10907C
T11009C C11332T A11467G G11719A A12308G G12372A C14620T C14766T C14866T
A15326G T15693C C16179T T16356C T16519C

102. **DQ112762** (N. Europe) Kivisild (EU29) Haplogroup U4c1a (lacks part of non-coding
region)

G499A 524insA 524insC A750G A1438G A1811G A2706G T4646C A4769G A4811G
T5999C A6047G A6146G C7028T 8276insC 8276insC 8276insC 8276insC A8860G
T9070G T10907C T11009C C11332T A11467G G11719A A12308G G12372A C14620T
C14766T C14866T A15326G T15693C

103. **EU135973** FTDNA Haplogroup U4c1a

A73G **C150T T195C** A263G 315insC G499A 524insA 524insC 524insA 524insC
524insA 524insC A750G A1438G A1811G A2706G T4646C A4769G A4811G T5999C
A6047G A6146G C7028T A8860G T9070G T10907C T11009C C11332T A11467G
G11719A A12308G G12372A C14620T C14766T C14866T A15326G T15693C C16179T
T16356C T16519C

104. **HQ286589** FTDNA Haplogroup U4c1a1c
A73G **C150T T195C** A263G 309insC 315insC G499A A750G A1438G A1811G
A2706G T3753C A4385G T4646C A4769G A4811G T5999C A6047G A6146G C7028T
A8860G T9070G T10907C T11009C C11332T A11467G G11719A A12308G G12372A
C14620T C14766T C14866T A15326G T15693C C15989T C16179T T16356C T16519C

105. **EU545460** (Slovakia) Malyarchuk (S1150) Haplogroup U4c2
A73G **T195C** A263G 315insC G499A A750G A1438G A1811G A2706G T4646C
A4769G T5999C A6047G C7028T G7762A T8705C A8860G T10118C C10676T
T10907C C11332T A11467G C11497T G11719A A12308G G12372A C14620T C14766T
A15326G T15693C C16261T T16356C

106. **GU123021** (Russia) Malyarchuk (Tm58) Haplogroup U4d1a1
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC T629C A750G A1438G
A1811G 2405insC A2706G C2772T T4646C A4769G A5984G T5999C A6047G C6938T
C7028T A8860G C11332T A11467G G11719A A12308G G12372A C14620T C14766T
A15326G T15693C T16356C T16519C

107. **AM260586** (Finland) Annunen-Rasila (CADASIL patient 29) Haplogroup U4d1a1a1
(lacks part of non-coding region)
T629C A750G A1438G A1811G 2405insC A2706G C2772T T4646C A4769G A5319T
A5984G T5999C A6047G C6938T C7028T T8260C A8860G C11332T A11467G
G11719A A12308G G12372A C14620T C14766T A15326G

108. **AM260587** (Finland) Annunen-Rasila (CADASIL patient 30) Haplogroup U4d1a1a1
(lacks part of non-coding region)
T629C A750G A1438G A1811G 2405insC A2706G C2772T T4646C A4769G A5319T
A5984G T5999C A6047G C6938T C7028T T8260C A8860G C11332T A11467G
G11719A A12308G G12372A C14620T C14766T A15326G

109. **AY339549** (Finland) Moilanen (F148) Haplogroup U4d1a1a2
A73G **T195C** A263G 309insC 309insC 315insC G499A 524insA 524insC A750G
A1438G A1811G 2405insC A2706G C2772T T4646C A4769G A5984G T5999C A6047G
C6653A C6938T C7028T T8260C A8860G A11467G G11719A A12308G G12372A
C14620T C14766T A15326G T15693C T16356C T16519C

110. **EU545438** (Russia) Malyarchuk (R103) Haplogroup U4d1b
A73G **T195C** A263G 309insC 315insC G499A 524insA 524insC T629C A750G A1438G
A1811G 2405insC A2706G C2772T T4646C A4769G T5999C A6047G C7028T A8860G
C11332T A11467G G11719A A12308G G12372A A13398G C14620T C14766T A15326G
T15693C T16356C T16519C

111. **EU545448** (Russia) Malyarchuk (R866) Haplogroup U4d1b
A73G **T195C** A263G 315insC G499A 524insA 524insC T629C A750G A1438G A1811G
2405insC A2706G C2772T T4646C A4769G T5999C A6047G C7028T A8860G

C11332T A11467G G11719A A12308G G12372A A13398G C14620T C14766T A15326G
T15693C T16356C T16519C

112. **GU122982** (Russia) Malyarchuk (Tm9) Haplogroup U4d1b
A73G **T195C** A263G 309insC 309insC G499A T629C A750G A1438G A1811G
2405insC A2706G C2772T T4646C A4769G T5999C A6047G C7028T A8860G
C11332T A11467G G11719A A12308G G12372A A13398G C14620T C14766T A15326G
T15693C A15948G T16356C T16519C

113. **GU122985** (Russia) Malyarchuk (Tm12) Haplogroup U4d2
A73G **T195C** A263G 315insC G499A T629C A750G A1438G A1811G 2405insC
A2706G T4646C A4769G **T5567C** T5999C A6047G C7028T A8860G C10692T
C11326T C11332T A11467G G11518A G11719A G12236A A12308G G12372A
A13105G C14620T C14766T A15326G T15693C T16356C T16519C

114. **GU122988** (Russia) Malyarchuk (Tm15) Haplogroup U4d2
A73G **T195C** A263G 315insC G499A T629C A750G A1438G A1811G 2405insC
A2706G T4646C A4769G **T5567C** T5999C A6047G C7028T A8860G C10692T
C11326T C11332T A11467G G11518A G11719A G12236A A12308G G12372A
A13105G C14620T C14766T A15326G T15693C T16356C T16519C

115. **FJ230891** (Russia) Volodko (NgnA66) Haplogroup U4d2
A73G **T195C** A263G 309insC 309insC 315insC G499A T629C A750G A1438G A1811G
2405insC A2706G C3637A T4646C A4769G **T5567C** T5999C A6047G C7028T A8860G
C10692T C11326T C11332T A11467G G11518A G11719A A12308G G12372A A13105G
C14620T C14766T A15326G T15693C T16189C T16356C T16519C

116. **EU007891** (Mongolia) Ingman (220) Haplogroup U4d2
A73G T152C **T195C** A263G 309insC 315insC G499A T629C A750G A1438G 2405insC
A2706G T4646C A4769G **T5567C** T5999C A6047G C7028T A8860G C10692T
C11326T C11332T A11467G G11518A G11719A A12308G G12372A A13105G C14620T
C14766T A15326G T15693C T16356C T16519C

117. **EU545426** (Czech Republic) Malyarchuk (CzIV10) Haplogroup U4d2
A73G T152C G185A A189G **T195C** A215G A263G 315insC G499A T629C A750G
T1193C A1438G 2405insC A1811G A2706G T4646C A4769G **T5567C** T5999C A6047G
C7028T A8860G C10692T C11326T C11332T A11467G G11518A G11719A A12308G
G12372A A13105G G13145A C14620T C14766T A15326G T15693C A16183C T16189C
T16356C T16519C

118. **GU727822** FTDNA Haplogroup U4d3a
A73G **T195C** A263G 315insC G499A 573insC T629C A750G A1438G A1811G
2405insC A2706G G3918A T4646C A4769G T5999C A6047G C7028T T8288C A8860G
C11332T A11467G G11719A A12308G G12372A T14577C C14620T C14766T A15326G
T15693C T16311C T16356C T16519C

119. **GU244374** FTDNA Haplogroup U4d3a
A73G **T195C** A263G 315insC G499A 524insA 524insC 573insC T629C A750G A1438G
A1811G 2405insC A2706G T4646C A4769G T5999C A6047G C7028T T8288C T8610C
A8860G C11332T A11467G G11719A A12308G G12372A T14577C C14620T C14766T
A15326G T15693C T16356C T16519C

U5a

1. **AM260574** (Finland) Annunen-Rasila (CADASIL patient 17) Haplogroup U5a (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A T13617C C14766T A14793G A15326G
2. **AM260575** (Finland) Annunen-Rasila (CADASIL patient 18) Haplogroup U5a (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A T13617C C14766T A14793G A15326G
3. **EF657722** (Europe) Herrnstadt (mtDNA541) Haplogroup U5a (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C7028T G7853A A8860G G9477A A11467G
G11719A A12308G G12372A G12406A G13145A T13617C C14313T A14518G C14766T
A14793G A15326G
4. **DQ156212** (Europe) Monteil-Sosa (M210) Haplogroup U5a
A73G A263G A750G A1438G A2706G T3197C A4769G A5474G A5498G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A C14766T A14793G A15316G
A15326G C16192T C16256T C16270T

U5a1

1. **EF657616** (Europe) Herrnstadt (mtDNA446) Haplogroup U5a1 (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A T13015C T13617C A13827G G13928C C14766T A14793G
A15218G A15326G
2. **DQ112764** (N. Europe) Kivisild (EU28) Haplogroup U5a1 (lacks part of non-coding region)
524insA 524insC A750G 960delC A1438G A2706G T3197C A4769G C5387T G5585A
G6023A G6366A C7028T A7569G A8860G G9477A A11467G G11719A G11914A
A12308G G12372A T13617C C14766T A14793G A15218G A15326G T15412C
3. **AY882398** (Adygei-Russia) Achilli-Rengo (Tor13) Haplogroup U5a1
A73G T199C A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
G5585A G6023A T6674C C7028T A7569G G8251A A8860G G9477A A11467G

G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G C16192T
C16256T C16270T T16311C A16399G

4. **AY882399** (Italy) Achilli-Rengo (Tor101) Haplogroup U5a1

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C5339T
C7028T A8860G G9477A A11467G G11719A A12308G G12372A C12801T T13617C
G13889A C14766T A14793G A15218G A15326G G15466A C16192T C16256T C16270T
A16399G

5. **DQ112808** (Europe) Kivisild (EU96) Haplogroup U5a1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C5339T C7028T A8860G G9477A A11467G
G11719A A12308G G12372A C12801T T13617C G13889A C14766T A14793G A15326G
G15466A

6. **FJ348174** (Hutterite-Austria?) Irene (ST004) Haplogroup U5a1

A73G A263G 315insC A750G A1438G A2706G T3197C C4111T A4769G C7028T
A8860G T9088C **G9438A** G9477A A11467G G11719A A12308G G12372A A12810G
T13617C A14145G T14221C C14766T A14793G A15218G A15326G C15790T C16192T
T16249C C16256T C16270T A16399G T16519C

7. **FJ348215** (Hutterite-Austria?) Irene (ST045) Haplogroup U5a1

A73G A263G 315insC A750G A1438G A2706G T3197C C4111T A4769G C7028T
A8860G T9088C **G9438A** G9477A A11467G G11719A A12308G G12372A A12810G
T13617C A14145G T14221C C14766T A14793G A15218G A15326G C15790T C16192T
T16249C C16256T C16270T A16399G T16519C

8. **HM765468** Zaragoza (Case 15) Haplogroup U5a1a

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T C7792T
A8860G G9477A A11467G G11719A A12308G G12372A T13617C C14766T A14793G
A15218G A15326G A15924G T16075C C16256T C16270T A16399G

9. **EF657259** (Europe) Herrnstadt (mtDNA124) Haplogroup U5a1a1 (lacks part of non-coding region)

A750G A1438G T1700C A2706G T3197C A4769G C4908T A5319G A6629G T6719C
C7028T A8860G G9477A A11467G G11719A C12064T A12308G C12346T G12372A
T13617C C14766T A14793G A15218G A15326G

10. **EF657274** (Europe) Herrnstadt (mtDNA138) Haplogroup U5a1a1 (lacks part of non-coding region)

A750G A1438G T1700C A2706G T3197C A4769G A5319G T6293C A6629G T6719C
C7028T A8860G G9477A G10685A A11467G G11719A A12308G C12346T G12372A
T13617C C14766T A14793G A15218G A15326G

11. **GU123037** (Russia) Malyarchuk (Tm101) Haplogroup U5a1a1

A73G A263G 309insC 309insC 315insC A750G A1438G T1700C A2706G T3197C
A4769G A5319G A6629G T6719C C7028T A8860G G9477A C9650T A11467G

G11719A A12308G C12346T G12372A T13617C C14766T A14793G A15218G A15326G
C16256T C16270T A16399G

12. **EU597527** (Israel) Hartmann (HGDP00676) Haplogroup U5a1a1a
A73G A263G 315insC A750G A1438G T1700C A2706G T3197C T4749C A4769G
T5495C C7028T A8860G G9477A A11467G G11719A A12308G G12372A T13404C
T13617C C14766T A14793G A15218G A15326G **A15924G** C16256T C16270T A16399G

13. **EU698951** FTDNA Haplogroup U5a1a1a
A73G A263G 309insC 315insC A750G A1438G T1700C A2706G T3197C A4769G
T5495C C7028T A8860G G9477A A11467G G11719A A12308G G12372A T13617C
C14766T A14793G A15218G A15326G C15436A **A15924G** C16256T C16270T
A16399G T16519C

14. **EU523128** FTDNA Haplogroup U5a1a1a
A73G A263G 315insC A750G A1438G T1700C A2706G T3197C A4769G T5495C
C7028T A8860G G9477A A11467G G11719A A12308G G12372A T13617C C14766T
A14793G A15218G A15326G **A15924G** C16256T C16270T A16399G

15. **GQ368895** (Poland) FTDNA Haplogroup U5a1a1a
A73G T152C A263G 315insC A750G A1438G T1700C A2706G T3197C A4769G
T5495C C7028T A8860G G9477A A11467G G11719A A12308G G12372A T13617C
C14766T A14793G A15218G A15326G **A15924G** C16223T C16256T C16270T C16294T
A16399G

16. **GQ160809** (Scotland) FTDNA Haplogroup U5a1a1a
A73G G185A T204C A263G 315insC A750G A1438G T1700C A2706G T3197C
A4769G T5495C T6425C C7028T A8860G G9477A A11467G G11719A A12308G
G12372A C12774A T13617C C14766T A14793G A15218G A15326G **A15924G**
C16256T C16270T T16362C A16399G

17. **DQ785296** FTDNA Haplogroup U5a1a1a
A73G G207A A263G 309insC 315insC A750G A1438G T1700C A2706G T3197C
A4769G T5495C C7028T A8860G G9477A A11467G G11719A A12308G G12372A
T13617C A14001G C14766T A14793G A15218G A15326G **A15924G** C16256T C16270T
A16399G T16519C

18. **EF657412** (Europe) Herrnstadt (mtDNA262) Haplogroup U5a1a1a (lacks part of non-coding
region)
A750G A1438G T1700C A2706G T3197C A4769G T5495C C7028T A8860G G9477A
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G
A15326G **A15924G**

19. **AM260634** (Finland) Annunen-Rasila (CADASIL patient 77) Haplogroup U5a1a1a (lacks
part of non-coding region)

A750G A1438G T1700C A2706G T3197C A4769G T5495C C7028T A8860G G9477A
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15326G
A15924G

20. **EF657657** (Europe) Herrnstadt (mtDNA483) Haplogroup U5a1a1a (lacks part of non-coding region)

A750G A1438G T1700C A2706G T3197C A4769G T5495C C7028T A8860G G9477A
A11467G G11719A A12308G G12372A A13353G T13617C C14766T A14793G
A15218G A15326G **A15924G**

21. **X93334** (Sweden) Arnason Haplogroup U5a1a1a

A73G **T195C** A263G 315insC G709A A750G A1438G T1700C T1780C A2706G
T3197C **G3316A** A4769G T5495C C7028T A8860G G9477A A11467G G11719A
A12308G G12372A T13617C C14272G C14766T A14793G G14861A A15218G
A15326G **A15924G** T16093C G16153A C16256T C16270T T16311C A16399G

22. **DQ489510** (Netherlands-Nijmegen) Hinttala (patient I) Haplogroup U5a1a1a (lacks part of non-coding region)

A750G A1438G T1700C A2706G T3197C A4769G T5495C C7028T A8860G G9477A
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G
A15326G **A15924G**

23. **GU206811** (Finland) FTDNA Haplogroup U5a1a1a

A73G T152C A263G 309insC 315insC A750G A1438G T1700C A2706G T3197C
A4769G T5495C G6755A C7028T A8860G G9477A A11467G G11719A A12308G
G12372A T13617C C14766T A14793G G15110A A15218G A15326G **A15924G**
G16145A C16256T C16270T A16399G

24. **GU459066** FTDNA Haplogroup U5a1a1a

A73G G185A T204C A263G 315insC A750G A1438G T1700C A2706G T3197C
A4769G T5495C C7028T A8860G G9477A A11467G G11719A A12308G G12372A
T13617C C14766T A14793G A15218G A15326G **A15924G** C16256T C16270T T16362C
A16399G

25. **DQ904330** (Russia-Belgorod) Malyarchuk Haplogroup U5a1a1a1

A73G T152C A263G 309insC 315insC A750G A1438G T1700C A2706G T3197C
A3816G A4769G T5495C C7028T A8860G G9477A A11467G G11719A A12308G
G12372A T13617C C14766T A14793G A15218G A15326G **A15924G** C16256T C16270T
A16399G

26. **EU597499** (France) Hartmann (NA12615) Haplogroup U5a1b

A73G A263G 315insC A750G A1438G G1709A A2706G T3197C **T3394C** A4769G
C7028T A8860G G9477A A9667G A11467G G11719A A12308G G12372A T13617C
C14766T A14793G A15218G A15326G T15565C C16192T C16256T C16270T T16311C
C16320T A16399G

27. **HM804487** FTDNA Haplogroup U5a1b
A73G T152C A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T
A14793G A15218G A15326G C16192T C16256T C16270T T16362C A16399G G16428A
28. **EF657650** (Europe) Herrnstadt (mtDNA477) Haplogroup U5a1b (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A9667G A11467G
G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G
29. **DQ112823** (Europe) Kivisild (EU88) Haplogroup U5a1b (lacks part of non-coding region)
A750G C981T A1438G A2706G T3197C A4769G C7028T A8860G G9477A A9531G
A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G
A15326G
30. **DQ112837** (Europe) Kivisild (EU37) Haplogroup U5a1b (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A9667G A11467G
G11719A A12308G G12372A A12582G T13617C C14766T A14793G A15218G
A15326G
31. **EF657467** (Europe) Herrnstadt (mtDNA311) Haplogroup U5a1b (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G G6260A C7028T A8860G G9477A A9667G
A11467G G11719A A12308G G12372A A12582G A13473C T13617C C14766T
A14793G A15218G A15326G T15511C
32. **EF657601** (Europe) Herrnstadt (mtDNA432) Haplogroup U5a1b (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G A5153G C7028T A8860G G9477A A9667G
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G
A15326G
33. **AY339528** (Finland) Moilanen (F127) Haplogroup U5a1b
A73G A249G A263G 315insC A750G A1438G A2706G T3197C A4769G A5153G
C7028T A8860G G9477A A9667G A11467G G11719A A12308G G12372A T13617C
C14766T A14793G A15218G A15326G C16192T C16256T C16270T T16362C A16399G
34. **EF657428** (Europe) Herrnstadt (mtDNA277) Haplogroup U5a1b (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G C6498G C7028T C7985G A8860G G8865A
G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14769G
A14793G A15218G A15326G
35. **EF657364** (Europe) Herrnstadt (mtDNA219) Haplogroup U5a1b (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A9667G A11467G
G11719A A12308G A12331G G12372A T13617C C14766T A14793G A15218G
A15326G

36. **GU936107** FTDNA Haplogroup U5a1b1

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G
G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G
A15218G A15326G T16093C C16192T C16256T C16270T C16291T A16399G

37. **AY714003** (India) Palanichamy (C3) Haplogroup U5a1b1

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T C8441T
A8860G G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T
A14793G A15218G A15326G G15596A G16129A C16192T C16256T C16270T C16291T
A16399G

38. **EU140744** FTDNA Haplogroup U5a1b1

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G
G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G
A15218G A15326G C16192T C16239T C16256T C16270T C16291T A16399G T16519C

39. **EF660980** (Italy) Gasparre (... 0067) Haplogroup U5a1b1 (INCOMPLETE)

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G
G9477A A9667G A11467G G11719A A12308G G12372A T13617C A13966G C14766T
A14793G G15172A A15218G A15326G C16192T C16256T C16270T C16291T A16399G

40. **EF657598** (Europe) Herrnstadt (mtDNA43) Haplogroup U5a1b1a (lacks part of non-coding region)

A750G A1438G A2706G T3197C T4553C A4769G C7028T A8860G G9477A A9667G
T9682C A11467G G11719A A12308G G12372A T13617C C14574T C14766T A14793G
A15218G A15326G

41. **EF657653** (Europe) Herrnstadt (mtDNA48) Haplogroup U5a1b1a (lacks part of non-coding region)

A750G A1438G A2706G T3197C T4553C A4769G C7028T A8860G G9477A A9667G
A11467G G11719A T12285C A12308G G12372A T13617C C14766T A14793G A15218G
A15326G

42. **EU915477** (Italy) Pello (Tor350) Haplogroup U5a1b1a

A73G A263G 315insC 356insC A750G A1438G A2706G C2906T T3197C T4553C
G4655A A4769G C4914T C7028T A8860G G9477A A9667G A11467G G11719A
G11778A A12308G G12372A T13617C C14766T A14793G A15326G C16192T C16256T
C16270T C16291T A16399G

43. **HQ336051** (Russia) FTDNA Haplogroup U5a1b1b

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T T8119C
A8860G G9477A A9667G T9833C A11467G G11719A A12308G G12372A T13617C

C14766T A14793G A15218G A15326G T16093C C16192T C16256T C16270T C16291T A16399G

44. **EU140330** FTDNA Haplogroup U5a1b1c

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G **G9055A** G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G C16192T C16256T C16270T C16291T A16399G

45. **FJ493508** (Russia) Mazunin (L9) Haplogroup U5a1b1c

A73G A263G 309insC 315insC A750G T1187C A1438G A2706G T3197C A4769G C7028T A8860G **G9055A** G9477A A9667G A11467G G11719A A12308G G12372A T13617C T14278C C14766T A14793G A15218G A15326G C16192T C16256T C16270T C16291T A16399G

46. **HM775995** (Denmark) FTDNA Haplogroup U5a1b1c

A73G A263G 315insC A750G T1187C A1438G A2706G T3197C A4769G C7028T G8251A A8860G **G9055A** G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G C16192T C16256T C16270T C16291T A16399G

47. **EF657514** (Europe) Herrnstadt (mtDNA354) Haplogroup U5a1b2 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A9632G A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G

48. **HM171295** FTDNA Haplogroup U5a1b3

A73G A263G 315insC 524insA 524insC A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A9667G A11467G G11719A A12308G A12331G G12372A T13617C C14766T A14793G A15218G A15326G T15940C T16093C C16192T C16256T C16270T T16362C A16399G

49. **AY339529** (Finland) Moilanen (F128) Haplogroup U5a1b3a

A73G A249G A263G 315insC A750G A1438G A2706G T3197C A4769G A5153G C7028T A8860G G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G C16192T C16256T C16270T T16362C A16399G G16428A

50. **DQ862536** (Germany) Zsurka Haplogroup U5a1b3a

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C **A3243G** A4769G C7028T A8860G G9477A A9667G A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G C16192T C16256T C16270T T16362C A16399G G16428A

51. **HM173090** FTDNA Haplogroup U5a1d

A73G T195C A263G 315insC 573insC 573insC A750G A1438G A2706G T3027C
T3197C T3552C A4769G T4823C C5583T C7028T A8860G G9477A A11467G
G11719A A12308G G12372A T13617C C14766T A14793G A15218G A15326G
G16145A T16189C C16192T C16256T C16270T A16399G

52. **GU123032** (Russia) (Tm84) Malyarchuk Haplogroup U5a1d

A73G A263G 309insC 315insC A533G 574delA A750G A1438G A2706G T3027C
T3197C T3552C A4769G G4924C C7028T A8860G G9477A T10858C A11467G
G11719A A12308G G12372A T13617C T14110C C14766T A14793G G15217A A15218G
A15326G C16192T C16256T C16270T T16304C A16399G

53. **EU140332** FTDNA Haplogroup U5a1d1

A73G A263G 315insC A750G A1438G A2706G T3027C T3197C A4769G C5263T
C7028T A8860G G9477A A11467G G11719A A12308G G12372A C13002A T13617C
C14766T A14793G A15218G A15326G A16051G C16192T C16256T C16270T A16316G
A16399G T16519C

54. **FJ147317** (Russia) Mazunin (Tubalar Alt5) Haplogroup U5a1d2

A73G A263G 309insC 315insC 574delA A750G A1438G A2706G T3027C T3197C
T3552C A4769G G4924C C7028T A8860G G9477A T10858C A11467G G11719A
A12308G G12372A T13617C T14110C C14766T A14793G G15217A A15218G A15326G
C16192T A16241G C16256T C16270T C16287T T16304C T16325C A16399G

U5a2

1. **AY339523** (Finland) Moilanen (F122) Haplogroup U5a2

A73G A263G 309insC 315insC 522delC 523delA A750G A1438G A2706G T3197C
A4769G C7028T A7843G C7978T T8104C A8860G T9148C G9477A C11107T
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15326G C16256T
C16270T G16526A

2. **DQ112838** (Europe) Kivisild (EU38) Haplogroup U5a2 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A7843G C7978T T8104C A8860G
T9148C G9477A C11107T A11467G G11719A A12308G G12372A T13617C C14766T
A14793G A15326G

3. **AY339527** (Finland) Moilanen (F126) Haplogroup U5a2a

A73G T152C A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13827G G13928C
G14198A C14766T A14793G A15326G C16114A C16192T C16256T C16270T C16294T
G16526A

4. **EU007851** (Koryak-Russia) Ingman (145) Haplogroup U5a2a

A73G A263G 309insC 315insC A750G A1438G A1943G A2706G T3197C G3277A
C4224T A4769G C7028T A8860G G9477A A11467G G11719A A12308G G12372A

T13617C A13827G G13928C C14766T A14793G A15326G C16114A C16192T C16256T
C16270T C16294T G16526A

5. **EF177408** (Portugal) Pereira (AT04) Haplogroup U5a2a

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13827G G13928C
C14766T A14793G A15326G C16114A C16192T C16270T C16294T G16526A

6. **EF363686** FTDNA Haplogroup U5a2a

A73G A263G 309insC 315insC 524insA 524insC A750G A1438G A2706G T3197C
T4232C G4655A A4769G C7028T A8860G G9477A G11176A A11467G G11719A
A11893G A12308G G12372A T13617C A13827G G13928C C14766T A14793G
A15326G C16114A C16256T C16270T C16294T G16526A

7. **EU124886** FTDNA Haplogroup U5a2a

A73G T152C A263G 315insC A750G A1438G A2706G T3197C T4232C G4655A
A4769G C7028T A8860G G9477A A11467G G11719A A11893G A12308G G12372A
T13617C A13827G G13928C C14766T A14793G A15326G C16114A C16192T C16256T
C16270T C16294T G16526A

8. **EU215455** FTDNA Haplogroup U5a2a

A73G T152C A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
C7028T A8860G A9180G G9477A A11467G G11719A A12308G G12372A T13617C
A13827G G13928C T14106C C14766T A14793G A15326G C16114A C16192T C16256T
C16270T C16294T G16526A

9. **HM142902** (Germany) FTDNA Haplogroup U5a2a

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13827G G13928C
C14766T A14793G A15326G C16114A C16192T C16256T C16270T C16294T G16526A

10. **HM144108** (Germany) FTDNA Haplogroup U5a2a

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13827G G13928C
C14766T A14793G A15326G C15749T C16114A C16192T C16256T C16270T C16294T
G16526A

11. **GU122993** (Russia) Malyarchuk (Tm21) Haplogroup U5a2a

A73G T152C A263G 315insC T372C A750G A1438G A2706G T3197C A4769G
C7028T C7858T A8860G T9083C G9477A T10101C A11467G G11719A A12308G
G12372A C13128T T13617C A13827G G13928C C14766T A14793G A15326G C16114A
C16192T C16256T C16270T A16284G C16294T G16526A

12. **GQ214520** (New Zealand) Corser Haplogroup U5a2a

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G C9107T G9477A A11467G G11719A A12308G G12372A T13617C A13827G

G13928C C14766T T14783C G15221A A15326G C16114A C16192T C16256T C16270T
C16294T G16526A

13. **AM260572** (Finland) Annunen-Rasila (CADASIL patient 15) Haplogroup U5a2a1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A G12630A T13617C A13827G G13928C C14766T
A14793G A15326G

14. **AM260573** (Finland) Annunen-Rasila (CADASIL patient 16) Haplogroup U5a2a1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A G12630A T13617C A13827G G13928C C14766T
A14793G A15326G

15. **AM260576** (Finland) Annunen-Rasila (CADASIL patient 19) Haplogroup U5a2a1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A G12630A T13617C A13827G G13928C C14766T
A14793G A15326G

16. **AM260577** (Finland) Annunen-Rasila (CADASIL patient 20) Haplogroup U5a2a1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A G12630A T13617C A13827G G13928C C14766T
A14793G A15326G

17. **AM260578** (Finland) Annunen-Rasila (CADASIL patient 21) Haplogroup U5a2a1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A A11467G
G11719A A12308G G12372A G12630A T13617C A13827G G13928C C14766T
A14793G A15326G

18. **AY339524** (Finland) Moilanen (F123) Haplogroup U5a2a1

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A G12630A T13617C A13827G
G13928C C14766T A14793G A15326G C16114A C16192T C16256T C16270T T16271C
C16294T G16526A

19. **AY339525** (Finland) Moilanen (F124) Haplogroup U5a2a1

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G G9477A A11467G G11719A A12308G G12372A G12630A T13617C A13827G
G13928C C14766T A14793G A15326G C16114A C16192T C16256T C16270T T16271C
C16294T G16526A

20. **AY339526** (Finland) Moilanen (F125) Haplogroup U5a2a1

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G
G9477A A11467G G11719A A12308G G12372A G12630A T13617C A13827G G13928C
C14766T A14793G A15326G C16114A C16192T C16256T C16270T T16271C C16294T
G16526A

21. **GU391321** (Finland) FTDNA Haplogroup U5a2a1

A73G A263G 309insC 315insC A750G A2706G T3197C A4769G C7028T A8860G
G9477A A11467G G11719A A12308G G12372A G12630A T13617C A13827G G13928C
C14766T A14793G A15326G C16114A C16192T C16256T C16270T T16271C C16294T
G16526A

22. **HM765474** Zaragoza (NonCM1) Haplogroup U5a2a2

A73G T252C A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
C7028T A8860G G9477A A11467G G11719A A12308G G12372A T13015C T13617C
A13827G G13928C C14766T A14793G A15222G A15326G C16114A C16192T C16256T
C16270T C16294T G16526A

23. **EF660930** (Italy) Gasparre (... 0019) Haplogroup U5a2b (INCOMPLETE)

A73G A263G 315insC A750G 960insC A1438G A2706G T3197C A4769G C7028T
G7337A A8860G G9477A G9548A 10115delT 10116delA C11177A A11467G G11719A
A12308G G12372A T13617C T13753C C14766T A14793G A15326G C16192T C16256T
C16270T T16311C G16526A

24. **FJ460552** (Tunisia) Costa (TV11) Haplogroup U5a2b

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G
G9477A G9548A A11467G G11719A A12308G G12372A T13617C C14766T A14793G
A15326G T15394C C16256T C16270T G16526A

25. **EU597544** (Italy) Hartmann (HGDP01147) Haplogroup U5a2b

A73G T152C T204C G207A A263G 315insC A750G A1438G A2706G T3197C T3504C
A4769G C7028T C7471T A8860G G9477A G9548A A11467G G11719A A12308G
G12372A T13617C C14766T A14793G A15326G C16192T C16256T C16270T G16526A

26. **DQ112799** (Europe) Kivisild (EU56) Haplogroup U5a2b (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C7028T A8860G G9477A G9548A A11467G
G11719A A12308G G12372A C13351T T13617C C14766T A14793G A15326G

27. **EF657245** (Europe) Herrnstadt (mtDNA111) Haplogroup U5a2b (lacks part of non-coding region)

A750G 960insC A1438G A2706G T3197C G3918A A4769G C7028T A8860G G9477A
G9548A A11467G G11719A A12308G G12372A T12441C T13617C C14766T A14793G
A15326G

28. **EF657373** (Europe) Herrnstadt (mtDNA227) Haplogroup U5a2b (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G C6836T C7028T A8860G A8965G G9477A
G9548A A11467G G11719A A12308G G12372A T13617C C14766T A14793G G15301A
A15326G

29. **GU371930** (Ukraine) FTDNA Haplogroup U5a2b

A73G A263G 315insC A750G A1438G A2706G T3197C **T3398C** A4769G C7028T
G7664A A8860G G9477A G9548A A11467G G11719A A12308G G12372A T13617C
C14766T A14793G A15326G A16066G C16192T C16256T C16270T G16526A

30. **EU049814** FTDNA Haplogroup U5a2c

A73G A263G 315insC T650C A750G A1438G A2706G T3197C A4769G C7028T
A7960C A8566G A8860G G9477A C10619T A10709C T11465C A11467G G11719A
A12308G G12372A T13602C T13617C C14766T A14793G A15326G C16256T C16270T
G16526A

31. **GU012633** (Roussay-France) FTDNA Haplogroup U5a2c

A73G T152C A263G 315insC A750G A1438G A2706G T3197C A4769G G6962A
C7028T T8699C A8860G T9315C G9477A C10619T A11467G G11719A A12308G
G12372A T13617C C14766T A14793G A15316G A15326G C16192T C16256T C16270T
C16278T G16526A

32. **EU151864** FTDNA Haplogroup U5a2c

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
T7711C A8860G C9469T G9477A C10619T A11467G G11719A A12308G G12372A
C12717T T13617C C14766T A14793G A15326G C16192T C16256T C16270T G16526A

33. **FJ460558** (Tunisia) Costa (TV17) Haplogroup U5a2c

A73G A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T A8860G
C9469T G9477A C10619T A11467G G11719A A12308G G12372A T13617C C14766T
A14793G A15326G C16192T C16256T C16270T G16526A

34. **HM536179** (Sweden) FTDNA Haplogroup U5a2c

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G C7028T
A8860G C9469T G9477A C10619T A11467G G11719A A12308G G12372A A12634G
T13617C C14766T A14793G A15326G C16192T C16256T C16270T G16526A

35. **EF660950** (Italy) Gasparre (... 0038) Haplogroup U5a2c1

A73G A263G 315insC A750G A1438G A2706G T3197C A3714G A4769G C7028T
A8860G **G9387S** G9477A C10619T A10768G A11467G G11719A A12308G G12372A
T13617C T14034C C14766T A14793G A15326G A15791G T16172C C16192T C16256T
C16270T

36. **DQ112890** (Europe) Kivisild (EU22) Haplogroup U5a2c1 (lacks part of non-coding region)

A750G A1438G A2706G T3197C A3714G A4769G C7028T A8860G G9477A C10619T
A10768G A11467G G11719A A12308G G12372A T13617C T14034C C14766T A14793G
A15326G A15791G

37. **EF397754** FTDNA Haplogroup U5a2d

A73G A263G 309insC 315insC 522delC 523delA A750G A1438G A2706G T3197C
C3750T A4769G C7028T A7843G C7978T T8104C **G8155R** A8860G G9477A C11107T
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15326G C16256T
C16270T T16304C G16526A

38. **HM490393** (England) FTDNA Haplogroup U5a2d

A73G A263G 309insC 309insC 315insC 522delC 523delA A750G A1438G A2706G
T3197C C3750T A4769G C7028T A7843G C7978T T8104C A8860G G9477A C11107T
A11467G G11719A A12308G G12372A T13617C C14766T A14793G A15326G C16256T
C16270T T16304C G16526A

U5b1

1. **DQ523645** (Sardinia) Fraumene Haplogroup U5b1

A73G **C150T** A263G A750G A1438G A2706G A3105G T3197C C3498T A4769G
A5656G T5964C T6674C C7028T A7768G A8860G G9163A G9477A A11467G
G11719A A12308G G12372A T13617C T14182C C14766T A15326G G15777A C16167T
T16189C C16270T T16311C T16356C

2. **DQ156208** (Europe) Monteil-Sosa (EDu) Haplogroup U5b1

A73G **C150T** A263G 315insC A533G A574G A750G A2706G T3197C C3507A
A4769G A5656G C7028T A8860G G9477A A11467G G11719A G12372A T14182C
C14766T A15326G C16192T C16270T G16319A

3. **DQ156214** (Europe) Monteil-Sosa (M151) Haplogroup U5b1

A73G **C150T** T152C A263G 315insC A750G A1438G A2706G T3197C A4769G
A5351G C5387T A5474G A5656G C7028T A7768G C8203T A8860G G9477A A11467G
G11719A A12308G G12372A T13617C T14182C C14766T C14803T A15326G T16189C
C16192T C16270T T16519C

4. **EF420876** FTDNA Haplogroup U5b1

A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G **G5460A**
A5656G C7028T A7768G T8551C C8622T A8860G G9477A A11467G G11719A
A12308G G12372A T13617C **G13708A** T14182C C14766T A15326G T16189C C16192T
C16270T

5. **FJ194437** FTDNA Haplogroup U5b1

A73G **C150T** A263G 315insC 524insA 524insC A750G A1438G A2706G T3197C
A4769G A5656G A7768G A8860G A9389G G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T T15097C A15326G T16189C C16192T C16270T

6. **AM260560** (Finland) Annunen-Rasila (CADASIL patient 3) Haplogroup U5b1a (lacks part of non-coding region)

A750G A1438G A2706G A2757G T3197C A4769G C7028T A7768G A8860G G9477A
A10283G A11467G G11719A A12308G G12372A T12616C T13617C T14182C C14766T
A15326G

7. **FJ499497** (Russia-Smolensk) FTDNA Haplogroup U5b1a
A73G **C150T** T152C A263G 315insC 522delC 523delA A750G A1438G A2706G
A2757G T3197C T4209C A4769G A5656G C7028T A7768G A8860G G9477A A10283G
A11467G G11719A A12308G G12372A T12616C T13617C T14182C C14766T A15326G
T16189C C16270T C16465T

8. **GU295665** FTDNA Haplogroup U5b1a
A73G **C150T** T152C A263G 315insC 522delC 523delA A750G A1438G A2706G
A2757G T3197C A4769G A5656G C7028T A7768G A8860G G9477A A10283G
A11467G G11719A A12308G G12372A T12616C T13608C T13617C T14182C C14766T
A15326G G16129A T16189C C16270T C16465T T16519C

9. **DQ112942** (Europe) Kivisild (EU45) Haplogroup U5b1a (lacks part of non-coding region)
A750G A1438G A2706G A2757G T3197C A4769G A5656G C7028T A7768G A8860G
G9477A A10283G A11467G G11719A A12308G G12372A T12616C G13359A T13617C
T14182C C14766T A15326G

10. **GU122991** (Russia) Malyarchuk (Tm18) Haplogroup U5b1a
A73G **C150T** T152C A263G 315insC 315insC 522delC 523delA A750G A1438G
A2706G A2757G T3197C A4769G A5656G C7028T A7768G T8337C A8860G G9477A
A10283G A11467G G11719A A12308G G12372A T12616C T13617C T14182C C14766T
A15326G A16183C T16189C C16270T C16465T

11. **AY339536** (Finland) Moilanen (F135) Haplogroup U5b1b
A73G **C150T** T217C A263G 309insC 315insC 573insC A750G A1438G A2706G
T3197C A4769G A5656G C7028T A7768G A8860G G9477A A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C C16192T
C16270T

12. **AY339537** (Finland) Moilanen (F136) Haplogroup U5b1b
A73G **C150T** T217C A263G 315insC 573insC A750G A1438G A2706G T3197C
A4769G A5656G C7028T A7768G A8860G G9477A A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T A15326G T16189C C16192T C16270T

13. **AY339538** (Finland) Moilanen (F137) Haplogroup U5b1b
A73G T146C **C150T** T217C A263G 309insC 309insC 315insC 573insC 573insC A750G
A1438G A2706G T3197C A4769G A5656G C7028T A7768G A8860G G9477A
A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G
T16189C C16192T C16270T

14. **AY339539** (Finland) Moilanen (F138) Haplogroup U5b1b

A73G **C150T** T217C A263G 309insC 315insC 573insC A750G A1438G A2706G
T3197C A4769G A5656G C7028T A7768G A8860G G9477A A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C C16192T
C16270T

15. **AY339540** (Finland) Moilanen (F139) Haplogroup U5b1b

A73G **C150T** T217C A263G 309insC 315insC 573insC A750G A1438G A2706G
T3197C A4769G A5656G C7028T A7768G A8860G G9477A A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C C16192T
C16270T

16. **AY339541** (Finland) Moilanen (F140) Haplogroup U5b1b

A73G **C150T** T217C A263G 309insC 315insC 573insC A750G A1438G A2706G
T3197C A4769G A5656G C7028T A7768G A8860G G9477A A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C C16192T
C16270T

17. **EU367993** FTDNA Haplogroup U5b1b

A73G **C150T** T217C A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G A5656G C7028T A7768G A8860G G9477A A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T G15317A A15326G T16189C C16192T
C16270T

18. **AY339542** (Finland) Moilanen (F141) Haplogroup U5b1b

A73G **C150T** T217C A263G 309insC 315insC 573insC A750G A1438G A2706G
T3197C A4769G A5656G C7028T A7740G A7768G A8860G G9477A A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T

19. **AY339543** (Finland) Moilanen (F142) Haplogroup U5b1b

A73G **C150T** T217C A263G 309insC 315insC 573insC A750G A1438G A2706G
T3197C A4769G A5656G C7028T A7768G A8860G C8934T G9477A A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T

20. **HM046248** (Spain) Gil-Borlado Haplogroup U5b1b1

A73G **C150T** T199C C242T A263G 315insC A750G A1438G T1822C A2706G T3197C
A4769G A5656G T5788C C7028T A7385G A7768G A8860G G9477A A10301G
A11467G G11719A A12308G G12372A G12618A T13617C T14182C T14470C C14766T
A15326G A15533G A16074G T16172C T16189C C16192T C16270T

21. **GU815340** (Norway) FTDNA Haplogroup U5b1b1

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4718G
A4769G A5656G C7028T C7133A A7385G A7768G A8860G G9477A T10927C
A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T T15071C
A15326G T16093C T16189C C16270T

22. **AY339532** (Finland) Moilanen (F131) Haplogroup U5b1b1
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G A5656G
C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T A15326G T16144C T16189C C16270T
23. **DQ902697** (Sweden-Sami-Norrbotten) Ingman (Sa4) Haplogroup U5b1b1
A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C C16148T
T16189C C16270T A16335G
24. **DQ902700** (Sweden-Sami-Norrbotten) Ingman (Sa8) Haplogroup U5b1b1
A73G **C150T** A263G 309insC 315insC A750G A1438G T1850C A2706G T3197C
A4769G A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C
C16148T T16189C C16270T A16335G
25. **EF657471** (Europe) Herrnstadt (mtDNA315) Haplogroup U5b1b1 (lacks part of non-coding region)
G709A A750G A1438G A2706G T3197C G3705A A4769G A5656G C7028T A7385G
A7768G A8860G G9477A T10927C A11467G G11719A C12063T A12308G G12372A
G12618A T13617C T14182C C14766T A15326G
26. **EF657258** (Europe) Herrnstadt (mtDNA123) Haplogroup U5b1b1 (lacks part of non-coding region)
A750G A1438G A2706G T3197C A4769G A5656G C7028T A7385G A7768G A8860G
G9477A T10927C A11467G G11719A A12308G G12372A G12618A T13617C T14182C
C14766T A15326G T15900C
27. **AF381989** (Morocco-Berber) Maca-Meyer Haplogroup U5b1b1
A73G **C150T** T152C A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T
28. **FJ842500** FTDNA Haplogroup U5b1b1
A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8413G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T C16320T
29. **DQ282508** (Hispanic) Parsons Haplogroup U5b1b1
A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8413G A8860G **G8989R** G9477A T10927C

A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G
T16189C C16192T C16270T C16320T

30. **DQ282509** (Hispanic) Parsons Haplogroup U5b1b1

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C **A3912R**
A4769G A5656G C7028T A7385G A7768G A8413G A8860G G9477A T10927C
A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G
T16189C C16192T C16270T C16320T

31. **DQ282510** (Hispanic) Parsons Haplogroup U5b1b1

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8413G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T C16320T

32. **DQ282511** (Hispanic) Parsons Haplogroup U5b1b1

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8413G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T C16320T

33. **AY882400** (Italy) Achilli-Rengo (Tor123) Haplogroup U5b1b1

A73G **C150T** A263G 270insT 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A
T11732C A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16093C
T16189C C16270T

34. **AY882401** (Spain) Achilli-Rengo (Tor128) Haplogroup U5b1b1

A73G **C150T** A263G 315insC A723G A750G A1438G A2706G T3197C A4769G
A5656G T5964C C7028T A7385G A7768G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G G15884A
A16183C T16189C C16270T

35. **AY882402** (Italy) Achilli-Rengo (Tor85) Haplogroup U5b1b1

A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G A5441G
A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A
G11778A A12308G G12372A G12618A A13308G T13617C T14182C C14766T
A15326G G15884A T16189C C16270T

36. **AY882407** (Fulbe-W. Africa) Achilli-Rengo (Tor76) Haplogroup U5b1b1

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8413G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16189C
C16192T C16270T C16320T

37. **AY882408** (Berber-N. Africa) Achilli-Rengo (Tor118) Haplogroup U5b1b1

A73G **C150T** T152C A263G 309insC 315insC A750G A1438G T2387C A2706G
T3197C C4345T A4769G A5656G C7028T A7385G A7768G G8839A A8860G G9477A
T10927C A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T
A15326G T16189C C16192T C16270T

38. **DQ781338** FTDNA Haplogroup U5b1b1

A73G **C150T** T152C A200G A263G 309insC 315insC A750G A1438G T2387C A2706G
T3197C A4769G A5656G C7028T A7385G A7768G A8860G G9477A T10927C
A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G
T16189C C16270T

39. **AY339533** (Finland) Moilanen (F132) Haplogroup U5b1b1a

A73G A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G A5656G
C7028T A7768G A8860G G9477A T10927C A11467G G11719A A12308G G12372A
G12618A T13617C T14182C C14766T A15326G T16144C T16189C C16270T

40. **AY339534** (Finland) Moilanen (F133) Haplogroup U5b1b1a

A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G A5656G
C7028T A7768G A8860G G9477A T10927C A11467G G11719A A12308G G12372A
G12618A T13617C T14182C C14766T A15326G T16144C T16189C C16270T

41. **EF420877** FTDNA Haplogroup U5b1b1a

A73G **C150T** G207A A263G 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8860G G9477A T10907C T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C
T16189C C16270T

42. **AY882403** (Saami) Achilli-Rengo (Tor131) Haplogroup U5b1b1a

A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G A5656G
C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T A15326G T16144C T16189C C16270T

43. **AY882405** (Yakut-Russia) Achilli-Rengo (Tor91) Haplogroup U5b1b1a

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A14927G A15326G T16144C
T16189C C16270T

44. **AY882406** (Saami) Achilli-Rengo (Tor129) Haplogroup U5b1b1a

A73G **C150T** A263G 309insC 315insC A750G A1438G T1850C A2706G T3197C
A4769G A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C
C16148T T16189C C16270T A16335G

45. **AY339535** (Finland) Moilanen (F134) Haplogroup U5b1b1a

A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
A5656G C7028T A7768G A8860G G9477A T10927C A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T A15326G T16144C T16189C C16270T

46. **DQ902696** (Sweden-Sami-Norrbotten) Ingman (Sa3) Haplogroup U5b1b1a1
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C C4059T A4769G
A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C T16189C
C16270T

47. **DQ902705** (Sweden-Sami-Vasterbotten) Ingman (Vi46) Haplogroup U5b1b1a1
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C C4059T A4769G
A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G G11719A
A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C T16189C
C16270T

48. **AY339531** (Finland) Moilanen (F130) Haplogroup U5b1b1a1
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C C4059T A4769G
A5656G C7028T A7768G A8860G G9477A T10927C A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T A15326G G16129A T16144C T16189C
C16270T

49. **AY339530** (Finland) Moilanen (F129) Haplogroup U5b1b1a1
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C C4059T A4769G
A5656G C7028T A7768G A8860G G9477A T10927C A11467G G11719A A12308G
G12372A G12618A T13617C T14182C C14766T A15326G T16144C T16189C C16270T

50. **AY882404** (Saami) Achilli-Rengo (Tor130) Haplogroup U5b1b1a1
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A3395G C4059T
A4769G A5656G C7028T A7385G A7768G A8860G G9477A T10927C A11467G
G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G T16144C
T16189C C16270T

51. **AM260558** (Finland) Annunen-Rasila (CADASIL patient 1) Haplogroup U5b1b1a1a (lacks
part of non-coding region)
A750G C1341T A1438G A2706G T3197C C4059T A4769G A5656G C7028T A7385G
A7768G A8860G G9477A T10927C T11204C A11467G G11719A A12308G G12372A
G12618A T13617C T14182C C14766T A15326G

52. **AM260559** (Finland) Annunen-Rasila (CADASIL patient 2) Haplogroup U5b1b1a1a (lacks
part of non-coding region)
A750G C1341T A1438G A2706G T3197C C4059T A4769G A5656G C7028T A7385G
A7768G A8860G G9477A T10927C T11204C A11467G G11719A A12308G G12372A
G12618A T13617C T14182C C14766T A15326G

53. **HM116534** (Finland) FTDNA Haplogroup U5b1b1a1a

A73G T146C **C150T** A263G 315insC A750G C1341T A1438G A2706G T3197C
C4059T A4769G A5656G C7028T A7385G A7768G A8860G G9477A T10927C
A11467G G11719A A12308G G12372A G12618A T13617C T14182C C14766T A15326G
T16144C T16189C C16270T

54. **DQ661681** FTDNA Haplogroup U5b1c

A73G T146C **C150T** A263G 309insC 315insC C516T A750G A1438G A2706G T3197C
A4769G A5656G C7028T A7768G A8860G T9110C G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T T15191C A15326G C16174T T16189C
C16270T T16311C

55. **EU597535** Hartmann (NA17249) Haplogroup U5b1c

A73G **C150T** A263G 309insC 315insC C516T A750G A1438G A2706G T3197C
A4769G A5656G 5899insC C7028T A7768G A8860G G9477A T9707C A11467G
G11719A A12308G G12372A T13617C T14182C C14766T T15191C A15326G T16140C
C16174T T16189C C16270T T16288C T16311C

56. **EF657328** (Europe) Herrnstadt (mtDNA187) Haplogroup U5b1c (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G A5656G C6341T C7028T A7768G A8860G
G9477A A11467G G11719A A12308G G12372A G13194A T13617C T14182C C14766T
T15191C A15326G

57. **EF657696** (Europe) Herrnstadt (mtDNA518) Haplogroup U5b1c (lacks part of non-coding region)

A750G A1438G A2706G T3197C A4769G A5656G C7028T A7768G A8860G G9477A
A11467G G11719A A12308G G12372A T13617C T14182C C14420T T14470C C14766T
T15191A A15326G

58. **AY882409** (Italy) Achilli-Rengo (Tor122) Haplogroup U5b1c

A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G A5656G
C7028T A7768G A8860G G9064A G9477A A11467G G11719A A12308G G12372A
T13617C T14182C C14766T T15191C A15326G G16129A T16189C C16192T C16270T
G16274A T16311C

59. **AY882410** (Italy) Achilli-Rengo (Tor121) Haplogroup U5b1c

T55A A73G **C150T** A263G 315insC A750G A1438G **A1555G** A2706G T3197C A4769G
A5656G C7028T A7768G A8860G G9477A A11467G G11719A A12308G G12372A
T13617C T14182C C14420T T14470C C14766T T15191C A15326G T16189C C16192T
C16270T T16311C G16336A T16519C

60. **HM043711** FTDNA Haplogroup U5b1d

A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G C5437T
A5656G C7028T T7085C A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G C16239T C16270T

61. **GU977214** (N. Ireland) FTDNA Haplogroup U5b1d
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G C5437T
A5656G C7028T A7768G G7912A A8860G G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G A15631G T15721C C16192T C16218T
C16270T C16320T

62. **AY882411** (Italy) Achilli-Rengo (Tor120) Haplogroup U5b1d
A73G **C150T** T199C A263G 315insC A750G A1438G C2225A A2706G T3197C
C3507T A4769G C5437T A5656G C7028T A7768G A8053G T8277C G8743A A8860G
G9477A T10084C A11467G G11719A T12136C A12308G G12372A T13617C T14182C
C14766T A15326G T15721C C16270T

63. **AY882412** (Berber-N. Africa) Achilli-Rengo (Tor119) Haplogroup U5b1d
A73G **C150T** A263G 315insC 524insA 524insC T742C A750G A1438G A2706G
A2892G T3197C A4769G C5437T A5656G G6917A C7028T A7768G A8860G G8865A
G9477A A11467G G11719A A12308G G12372A T13617C T14182C C14766T A15326G
G15355A T15721C C16270T

64. **FJ493517** (Russia) Mazunin (Mf11) Haplogroup U5b1e
A73G C150T T152C A263G 309insC 315insC G329A 522delC 523delA C548T A750G
A1438G A2706G A2757G T3197C A4769G A5656G C7028T A7768G A8860G G9477A
A10283G A11467G G11719A A12308G G12372A T12616C T13617C T14182C C14766T
A15326G T16189C C16270T C16465T C16488T

U5b2

1. **DQ156210** (Europe) Monteil-Sosa (M183) Haplogroup U5b2a
A73G **C150T** A263G A750G A1438G C1721T A2706G T3197C A4732G A4769G
C7028T A7768G A8860G G9477A A11467G G11719A C12196T A12308G G12372A
A13637G T14182C C14766T A15326G C16192T C16270T

2. **DQ112813** (Europe) Kivisild (EU78) Haplogroup U5b2a (lacks part of non-coding region)
A750G A1438G C1721T A2706G T3197C A4129G A4732G A4769G C7028T A7768G
A8860G G9477A T9845C A11467G G11719A A12308G G12372A T13617C A13637G
T14182C C14766T A15326G

3. **EU233797** FTDNA Haplogroup U5b2a
A73G **C150T** A263G 309insC 315insC A750G A1438G C1721T A2581G A2706G
T3197C A4732G A4769G C7028T A7768G C8657T A8706G A8860G **G9055A** G9477A
C10654T A11467G G11719A A11725G A12308G G12372A T13617C A13637G
T14182C C14766T A15326G T15940C T16189C C16270T T16311C

4. **FJ664616** FTDNA Haplogroup U5b2a
A73G **C150T** A263G 309insC 315insC A750G A1438G C1721T A2581G A2706G
T3197C A4732G A4769G C7028T A7768G C8657T A8706G A8860G **G9055A** G9477A

C10654T A11467G G11719A A11725G A12308G G12372A T13617C A13637G T14182C
C14766T A15326G T15940C T16189C C16270T T16311C

5. **AY882414** (Spain) Achilli-Rengo (Tor132) Haplogroup U5b2a1a
A73G **C150T** A263G 315insC A750G A1438G C1721T T1834C A2706G T3197C
A4732G A4769G **C5452T** C7028T A7768G T8705C A8860G G9477A A11467G
G11719A A12308G G12372A T13617C A13637G T14182C C14766T A15326G T15511C
A15924G T16519C

6. **AY882413** (Italy) Achilli-Rengo (Tor77) Haplogroup U5b2a1a
A73G **C150T** A263G 315insC A750G A1438G C1721T T1834C A2706G T3197C
G4655A A4732G A4769G **C5452T** C7028T A7768G T8705C A8860G G9477A **G9804A**
A11467G G11719A A12308G G12372A T13617C A13637G T14182C C14766T A15326G
T15511C **A15924G** T16519C

7. **AY339544** (Finland) Moilanen (F143) Haplogroup U5b2a1a
A73G **C150T** 249delA A263G 315insC A750G A1438G C1721T T2445C A2706G
T3197C A4732G A4769G C7028T A7768G A8860G G9477A A11467G G11719A
A12308G G12372A T13617C A13637G T14182C C14766T A15326G C15337T T15511C
C16192T T16311C

8. **AM260627** (Finland) Annunen-Rasila (CADASIL patient 70) Haplogroup U5b2a1a (lacks
part of non-coding region)
A750G C958T A1438G C1721T T2445C A2706G T3197C A4732G A4769G C7028T
A7768G A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13637G
T14182C C14766T A15326G T15511C

9. **GQ853200** (Scotland-Aberdeenshire) FTDNA Haplogroup U5b2a1a
A73G **C150T** A263G 315insC A750G A896G A1438G C1721T A2706G T3197C
A4732G A4769G C7028T A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T13617C A13637G T14182C C14766T A15326G T15511C C16185T C16192T
T16311C

10. **EU784076** (Finland) FTDNA Haplogroup U5b2a1a
A73G **C150T** 249delA A263G 309insC 315insC A750G A896G C958T A1438G
C1721T T2445C A2706G T3197C A4732G A4769G C7028T A7768G A8860G G9477A
A11467G G11719A A12308G G12372A T13617C A13637G T14182C C14766T
A15326G T15511C C16192T T16311C

11. **EU244000** (Ireland-Co. Tipperary) FTDNA Haplogroup U5b2a1a
A73G **C150T** A263G 315insC A750G A896G A1438G C1721T A2706G T3197C
A4732G A4769G C7028T A7768G A8860G G9477A A11329G A11467G G11719A
A12308G G12372A T13617C A13637G T14182C C14766T A15326G T15511C C16192T
T16311C

12. **EF657788** (Europe) Herrnstadt (mtDNA97) Haplogroup U5b2a1a (lacks part of non-coding region)

A750G A1438G C1721T A2706G T3197C A3828G A4732G A4769G C7028T A7768G A8860G G9477A A11467G G11719A A12308G G12372A G12406A T13617C A13637G T14182C C14766T A15326G T15511C

13. **EU182656** FTDNA Haplogroup U5b2a1b

A73G **C150T** T152C A263G 315insC A750G A1438G C1721T A2706G T3197C A4732G A4769G T5918C C7028T A7768G A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13637G T14182C G14323A C14766T A15326G T16189C T16325C

14. **FJ887848** FTDNA Haplogroup U5b2a1b

A73G **C150T** T152C A263G 315insC A750G A1438G C1721T A2706G T3197C A4732G A4769G T5918C C7028T A7768G A8860G G9477A A11467G G11719A G11963A A12308G G12372A T13617C A13637G T14182C G14323A C14766T A15326G T16189C **A16300G** T16325C

15. **DQ112824** (Europe) Kivisild (EU89) Haplogroup U5b2a2 (lacks part of non-coding region)

A750G A1438G C1721T A2706G T3197C C3212T A4732G A4769G C7028T A7768G A8860G G9477A A11467G G11719A A12308G G12372A T12678C T13617C A13637G T14182C C14766T A15326G

16. **DQ112820** (Europe) Kivisild (EU85) Haplogroup U5b2a2a (lacks part of non-coding region)

A750G A1438G C1721T A2706G T3197C C3212T A4732G A4769G T5508C C7028T A7257G A7768G A8860G G9477A G10589A A11467G G11719A T12136C A12308G G12372A T13617C A13637G T14182C C14766T A15326G

17. **DQ112802** (Europe) Kivisild (EU59) Haplogroup U5b2a2a (lacks part of non-coding region)

A750G A1438G C1721T A2706G T3197C C3212T A4732G A4769G C7028T A7768G A8860G G9477A T9682C A11467G G11719A T12136C A12308G G12372A T13617C A13637G T14182C C14766T A15326G

18. **AY882415** (Italy) Achilli-Rengo (Tor124) Haplogroup U5b2a2a

A73G **C150T** A263G 315insC A750G A1438G C1721T A2706G T3197C C3212T A4732G A4769G C7028T A7768G A8860G G9477A T9682C A11467G G11719A T12136C A12308G G12372A T13617C A13637G T14182C C14766T A15326G T16189C C16192T C16270T G16398A

19. **EF657546** (Europe) Herrnstadt (mtDNA383) Haplogroup U5b2a2b (lacks part of non-coding region)

A750G A1438G C1721T A2706G A2757G T3197C C3212T A4732G A4769G C4843T C7028T A7768G A8860G G9477A A11467G G11719A A12308G G12372A T13617C A13637G T14182C C14766T T14956C A15326G

20. **EF459670** FTDNA Haplogroup U5b2a2b

A73G **C150T** A263G 309insC 315insC G709A A750G A1438G C1721T A2706G
A2757G T3197C C3212T C3510T A4732G A4769G C7028T A7768G A8860G G9477A
A11467G G11719A A12308G G12372A T13617C A13637G T14182C C14766T T14956C
A15326G T16189C C16192T C16270T G16398A

21. **HM130562** (Germany) FTDNA Haplogroup U5b2a2b

A73G **C150T** A263G 315insC A750G A1438G C1721T A2706G A2757G T3197C
C3212T A4769G C7028T A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T13617C A13637G A13722G T14182C C14766T T14956C A15326G T16189C
C16192T C16270T G16398A

22. **EF420249** FTDNA Haplogroup U5b2a3

A73G **C150T** A263G 309insC 315insC A750G C1721T A2706G T3197C T3338C
A4732G A4769G C7028T A7768G A8860G G9477A T10031C A11467G G11719A
A12308G G12372A T13617C A13637G T14182C C14766T A15326G T16189C C16192T
A16240G C16270T

23. **EU682506** FTDNA Haplogroup U5b2a3

A73G **C150T** A263G 309insC 315insC 524insA 524insC A750G A1438G C1721T
A2706G T3197C A3744G A4732G A4769G C7028T A7768G A8860G G9477A
T10031C A11467G G11719A A12308G G12372A T13617C A13637G T14182C
C14766T A15326G T16093C T16189C C16192T C16270T G16319A

24. **DQ489511** (Netherlands-Nijmegen) Hinttala (patient J) Haplogroup U5b2b (lacks part of
non-coding region)

A750G A1438G C1721T A2706G T3197C A4769G T5004C C7028T A7768G A8860G
G9477A G9755A A11467G A11653G G11719A T12188C A12308G G12372A **A12634G**
T13617C A13630G A13637G A13671G T14182C C14766T A15326G T15905C

25. **FJ916904** (Denmark) FTDNA Haplogroup U5b2b

A73G **C150T** A263G T279C 315insC A517T A750G A1438G C1721T A2706G A2755G
T3197C T3338C A4769G G5261A **A5843G** C7028T A7768G A8860G G9477A A9494G
A11467G A11653G G11719A A12308G G12372A **A12634G** T13617C A13630G
A13637G T14182C C14766T A15326G C15790T T15905C C16114T T16224C C16270T

26. **EF419891** FTDNA Haplogroup U5b2b

A73G **C150T** G228A A263G 309insC 315insC A750G A1438G C1721T A2706G
T3197C C4616T A4769G C7028T A7768G G8027A A8860G G9477A A11467G
A11653G G11719A A12308G G12372A **A12634G** G12775A C13146T T13617C
A13630G A13637G T14182C C14766T A15326G C15418T C16270T T16519C

27. **GQ132188** FTDNA Haplogroup U5b2b

A73G **C150T** A263G 309insC 315insC A750G A1438G C1721T A2706G T3197C
G4092A C4616T A4769G C7028T G7521A A7768G G8027A A8860G G9477A
A11467G A11653G G11719A A12308G G12372A **A12634G** T13617C A13630G
A13637G T14182C C14766T A15326G A16051G T16189C C16270T

28. **EU594543** FTDNA Haplogroup U5b2b

A73G **C150T** A263G 315insC A750G A1438G C1721T A2706G T3197C A3861G
A4769G C7028T A7768G A8860G G9477A A11467G A11653G G11719A A12308G
G12372A **A12634G** T13617C A13630G A13637G T14182C T14374C C14766T
A15326G **G15497A** C16270T C16292T T16311C T16362C

29. **GQ891609** D'Aurelio (JC) Haplogroup U5b2b

A73G **C150T** A263G 309insC 315insC A750G A1438G G1462A C1721T A2706G
T3197C A3861G A4769G G6300A C7028T A7768G **T8993G** A11467G A11653G
G11719A C12092T A12308G G12372A T13617C A13630G A13637G T14182C A15326G
T15372C **G15497A** G15803A T16093C A16258G C16270T T16362C

30. **EF657729** (Europe) Herrnstadt (mtDNA548) Haplogroup U5b2b (lacks part of non-coding region)

A750G A1438G C1721T A2706G T3197C A4769G C7028T A7768G A8860G G9477A
A9670G A11467G A11653G G11719A A12308G G12372A **A12634G** T13617C A13630G
A13637G T14182C A14743G C14766T A15326G G15930A

31. **DQ523650** (Sardinia) Fraumene Haplogroup U5b2b

A73G **C150T** A263G A750G A1438G C1721T A2706G T3197C A4769G C7028T
A7768G A8860G G9477A A11467G A11653G G11719A A12308G G12372A **A12634G**
T13161C T13617C A13630G A13637G T14182C C14766T A15326G C16270T C16296T
T16325C

32. **DQ523656** (Sardinia) Fraumene Haplogroup U5b2b

A73G **C150T** A263G A750G A1438G C1721T A2706G T3197C A4769G C7028T
A7768G A8860G G9477A A11467G A11653G G11719A A12308G G12372A **A12634G**
T13161C T13617C A13630G A13637G T14182C C14766T A15326G C16270T C16296T
T16325C

33. **GU997135** FTDNA Haplogroup U5b2c

A73G **C150T** G185A A263G 315insC A723G A750G 960insC 960insC 960insC A1438G
C1721T A2706G T3197C A4769G C6920A C7028T A7768G A8860G G9477A A11467G
G11719A A12308G G12372A A13017G A13434G T13617C A13637G T14182C C14766T
A15326G C16192T

34. **EF657625** (Europe) Herrnstadt (mtDNA454) Haplogroup U5b2c (lacks part of non-coding region)

A723G A750G 960insC A1438G C1721T A2706G T3197C A4769G A5351G G6023A
C6920A C7028T A7768G A8860G C9333T G9477A C9869T A11467G G11719A
A12308G G12372A A13017G A13434G T13617C A13637G T14182C C14766T G15314A
A15326G

35. **EU490797** (N. Ireland) FTDNA Haplogroup U5b2c

A73G **C150T** A263G 309insC 315insC A723G A750G 960insC A1438G C1721T
A2706G T3197C A3861G A4769G A5836G C7028T A7768G A8860G G9477A
A10262G A11467G G11719A A12308G G12372A A13017G T13617C A13637G
T14182C C14766T A15326G C16192T T16249C C16270T A16309G

36. **EU694385** (Ireland) FTDNA Haplogroup U5b2c

A73G **C150T** A263G 309insC 315insC A723G A750G 960insC 960insC A1438G
C1721T A2706G T3197C A3861G A4769G A5836G C7028T A7768G C8216T A8860G
G9477A A10262G A11467G G11719A A12308G G12372A A13017G T13617C
A13637G T14182C C14766T A15326G T16189C C16192T T16249C C16270T

U5b3

1. **GQ129143** (Italy) Pala (Tor280) Haplogroup U5b3

A73G **C150T** G228A A263G 315insC A750G A1438G A2706G T3197C A4769G
G5147A C7028T G7226A A7768G A8860G G9477A T9540C A11467G G11719A
A12308G G12372A T13617C T14182C C14766T **G15043A** A15326G T16086C C16192T
C16270T T16304C

2. **GQ129144** (France) Pala (Tor281) Haplogroup U5b3

A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2672G A2706G
T3197C A4769G C7028T G7226A G7337A A7768G G7789A A8860G G9477A
A11467G G11719A A12308G G12372A T13617C T14182C C14766T A15326G C16192T
C16270T T16304C

3. **GQ129145** (Bosnia) Pala (Tor288) Haplogroup U5b3

A73G **C150T** G228A A263G 315insC A750G A1438G A2706G T3197C A3943G
A4065G A4769G C7028T G7226A A7768G A8860G G9477A G9948A A11467G
G11719A A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T
T16304C

4. **GQ129146** (Croatia) Pala (Vis158) Haplogroup U5b3

A73G **C150T** T195C G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A3828G A4769G C7028T G7226A A7768G A8860G G9477A A11467G G11719A
A12308G G12372A T13617C T14182C A14233G G14569A C14766T A15326G C15400T
C16184T C16192T C16270T T16304G

5. **GQ129147** (Spain) Pala (Tor293) Haplogroup U5b3

A73G **C150T** A263G 309insC 315insC A750G A1438G C2218T A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A10700G A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C15391A A16037G C16270T
T16304C

6. **GQ129148** (Italy) Pala (Tor359) Haplogroup U5b3

A73G **C150T** A263G T294C 315insC A750G A1438G A2245G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T12477C T13617C T14182C C14766T A15326G C16192T C16270T T16304C

7. **AF346988** (Italy) Ingman Haplogroup U5b3a1a

A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G G16145A C16169A C16192T A16235G
C16270T T16519C

8. **DQ523655** (Sardinia) Fraumene (00187U) Haplogroup U5b3a1a

A73G **C150T** A263G A373G A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G G12372A
T13617C T14182C C14766T A15326G C16169A C16192T A16235G C16270T T16519C

9. **DQ523658** (Sardinia) Fraumene (00213U) Haplogroup U5b3a1a

A73G **C150T** A263G A373G A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G G12372A
T13617C T14182C C14766T A15326G C16169A C16192T A16235G C16270T T16519C

10. **DQ523664** (Sardinia) Fraumene (00368U) Haplogroup U5b3a1a

A73G **C150T** A263G A373G A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G G12372A
T13617C T14182C C14766T A15326G C16169A C16192T A16235G C16270T T16519C

11. **DQ523624** (Sardinia) Fraumene (0044P) Haplogroup U5b3a1a

A73G **C150T** A263G A373G A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G A11620G G11719A A12308G
G12372A T13617C C14766T A15326G G16145A C16169A C16192T A16235G C16270T
T16519C

12. **EU597508** (Italy) Hartmann (HGDP01075) Haplogroup U5b3a1a

A73G **C150T** A263G 315insC A373G A750G A1438G G2702R A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16169A C16192T A16235G
C16270T T16519C

13. **DQ523628** (Sardinia) Fraumene (0176P) Haplogroup U5b3a1a

A73G **C150T** A263G A373G G709A A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G G11719A A11950G A12308G
G12372A T13617C T14182C C14766T A15326G C16169A C16192T A16235G C16270T
T16519C

14. **DQ523644** (Sardinia) Fraumene (00032U) Haplogroup U5b3a1a

A73G **C150T** A263G A284G A373G A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G G11719A G11914A A12308G

G12372A T13617C T14182C C14766T A15244G A15326G C16169A C16192T A16235G
C16270T T16519C

15. **DQ523669** (Sardinia) Fraumene (2096T) Haplogroup U5b3a1a
A73G **C150T** A263G A284G A373G A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A C11177T A11467G G11719A G11914A A12308G
G12372A T13617C T14182C C14766T A15244G A15326G C16169A C16192T A16235G
C16270T T16519C

16. **GQ129149** (Sardinia) Pala (Tor152) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A C9839T C11177T A11467G C11647T
G11719A A12308G A12358G G12372A T13617C T14182C C14766T A15326G C16169A
C16192T A16235G A16302G T16519C

17. **GQ129150** (Sardinia) Pala (Tor151) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G C16169A C16192T A16235G C16270T
T16519C

18. **GQ129151** (Sardinia) Pala (Tor227) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G C16169A C16192T A16235G C16270T
T16519C

19. **GQ129152** (Sardinia) Pala (Tor233) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7403G A7768G A8860G G9477A C11177T A11467G G11719A
G12127A A12308G G12372A T13617C T14182C C14766T A15326G C16169A C16192T
A16235G C16270T T16519C

20. **GQ129153** (Sardinia) Pala (Tor149) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7403G A7768G A8860G G9477A C11177T A11467G G11719A
G12127A A12308G G12372A T13617C T14182C C14766T A15326G C16169A C16192T
A16235G C16270T T16519C

21. **GQ129154** (Sardinia) Pala (Tor153) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G C16169A C16192T C16270T T16519C

22. **GQ129155** (Sardinia) Pala (Tor228) Haplogroup U5b3a1a

A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
A6770R C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16169A C16192T A16235G
C16270T T16519C

23. **GQ129156** (Sardinia) Pala (Tor148) Haplogroup U5b3a1a
A73G **C150T** A263G 315insC A373G A750G A1438G A2706G T3197C A4769G
A5843G C7028T G7226A A7768G A8860G G9477A C11177T A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G A15607G G16145A C16169A
C16192T A16235G C16270T T16519C

24. **GQ129157** (France) Pala (Tor282) Haplogroup U5b3a1b
A73G **C150T** A200G G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G C15781T C16169A C16192T A16235G
C16270T T16304C

25. **GQ129158** (USA) Pala (Tor464) Haplogroup U5b3a1b
A73G **C150T** G228A A263G 315insC A750G A1438G A2706G T3197C C3513T
A4769G C7028T G7226A A7768G A8860G G9477A A11467G G11719A A12308G
G12372A G12501A T13617C T14182C C14766T A15326G C15781T C16169A C16192T
A16235G C16270T T16304C

26. **EU926618** (England) FTDNA Haplogroup U5b3a2
A73G **C150T** A263G 309insC 315insC 524insA 524insC A750G A1438G A2706G
T3197C A4769G C7028T G7226A A7768G A8860G G9477A A10978G A11467G
G11719A A12308G G12372A T13617C T14182C C14766T C14803T A15326G C16192T
A16235G C16270T T16304C C16465T

27. **GQ129159** (Italy) Pala (Tor273) Haplogroup U5b3a2
A73G **C150T** A263G 315insC 524insA 524insC 524insA 524insC A750G A1438G
A2706G T3197C A4769G C7028T G7226A A7768G A8860G G9477A A10978G
A11467G G11719A A12308G G12372A T13617C T14182C C14766T A15326G T16093C
C16192T C16270T T16304C

28. **GQ129160** (Morocco) Pala (Eo29) Haplogroup U5b3a2
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G C6458T
C7028T G7226A A7768G A8860G G9477A A10978G A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G T16093C C16192T C16270T T16304C

29. **GQ129161** (Italy) Pala (Tor271) Haplogroup U5b3a2
A73G **C150T** A263G 315insC 524insA 524insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A10978G A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G T16093C C16192T A16235G
C16270T T16304C

30. **GQ129162** (Italy) Pala (Tor274) Haplogroup U5b3a2
A73G **C150T** A263G 315insC 524insA 524insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A10978G A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G T16093C C16192T A16235G
C16270T C16291T T16304C

31. **GQ129163** (USA) Pala (DF00071) Haplogroup U5b3a2
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G C7028T
G7226A A7768G A8860G G9477A A10978G A11467G G11719A A12308G G12372A
T13617C T14182C C14766T A15326G C16192T A16235G C16270T T16304C C16465T

32. **GQ129164** (Estonia) Pala (Est18) Haplogroup U5b3a2
A73G **C150T** G228A A263G 315insC A750G A1438G A2706G T3197C A4769G
A4824G C7028T G7226A G7521A A7768G A8860G G9477A C9761T A10978G
A11467G G11719A A12308G G12372A T13617C T14182C C14766T A15326G C16192T
A16235G C16270T T16304C

33. **EU130681** FTDNA Haplogroup U5b3b
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9196A G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T T16304C
G16526A

34. **GQ129165** (Greece) Pala (Tor278) Haplogroup U5b3b
A73G **C150T** A189G A263G 315insC A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9196A G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A14769G A15326G C16192T C16270T C16278T
T16304C

35. **GQ129166** (Spain) Pala (Tor292) Haplogroup U5b3b
A73G **C150T** A189G A263G 309insC 315insC A750G A1438G A2245G A2706G
T3197C A4769G C7028T G7226A A7768G A8860G G9196A G9477A A11467G
G11719A A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T
T16304C

36. **GQ129167** (Czech Republic) Pala (DF00605) Haplogroup U5b3b
A73G **C150T** A189G G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9196A G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T T16304C

37. **GQ129168** (Italy) Pala (Tor275) Haplogroup U5b3b
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
C3507T A4769G C7028T G7226A T7329C A7768G G8790A A8860G G9196A G9477A
A11467G G11719A A12308G G12372A A12810G T13617C T14182C C14766T A15326G
C16270T T16304C T16311C

38. **GQ129169** (Germany) Pala (DF01391) Haplogroup U5b3b
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9196A G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T T16304C
G16526A

39. **GQ129170** (Sardinia) Pala (Tor272) Haplogroup U5b3c
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C A4769G A4775G
T5557C A6461G C7028T G7226A A7768G A8860G G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T T16304C

40. **GQ129171** (Spain) Pala (Tor610) Haplogroup U5b3c
A73G **C150T** A263G 315insC A750G A1438G A2706G T3197C T3290Y A4769G
A4775G T5557C A6461G C7028T G7226A A7768G A8860G G9477A A11467G
G11719A A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T
C16295T T16304C

41. **GQ129172** (Italy) Pala (Tor279) Haplogroup U5b3c
A73G **C150T** G228A A263G 315insC A750G A1438G A2395G A2706G T3197C
A4769G A4775G T5557C A6461G C7028T G7226A A7768G A8860G G9477A G9986A
A11467G G11719A A12308G G12372A T13617C T14182C C14766T A15326G C16192T
C16270T T16304C

42. **GQ129173** (Spain) Pala (Tor289) Haplogroup U5b3d
A73G **C150T** T152C G228A A263G 315insC A750G A1438G A2706G T3197C C3212T
A4769G C7028T G7226A A7768G A8860G T9038C G9477A A11467G G11719A
A12308G G12372A T13617C T13830C T14182C C14766T A15326G C16067T C16192T
C16270T T16304C T16311C

43. **GQ129174** (Iraq) Pala (Tor299) Haplogroup U5b3d
A73G **C150T** G228A A263G 315insC A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A T9707C A11467G G11719A A12308G
G12372A T13617C T13830C T14182C C14766T A15326G C16067T C16192T C16270T
T16304C T16311C A16312G

44. **GQ129175** (United Kingdom) Pala (DF01475) Haplogroup U5b3e
A73G **C150T** G185A G228A A263G 315insC A750G A1438G A2706G T3197C T3535A
A4769G C7028T G7226A A7768G A8701G A8860G G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G C16192T C16270T T16304C

45. **GQ129176** (Germany) Pala (UL1G5) Haplogroup U5b3e
A73G **C150T** G228A A263G 315insC A750G A1438G C2380T A2706G T3197C
T3535A A4769G T6425G C7028T G7226A A7768G A8701G A8860G G9477A
A11467G G11719A A12308G G12372A T13617C **G13708A** T14182C C14766T
A15326G C16192T C16270T T16304C

46. **GQ129177** (Poland) Pala (Tor542) Haplogroup U5b3e
A73G **C150T** G228A A263G 315insC A750G A1438G A2706G T3197C T3535A
A4769G T6425G C7028T G7226A A7768G A8044G A8701G A8860G G9477A
A11467G G11719A A12308G G12372A T13617C **G13708A** T14182C C14766T
A15326G C16192T C16270T T16304C
47. **GQ129178** (Bulgaria) Pala (Tor541) Haplogroup U5b3e
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A3511G T3535A A4769G C7028T G7226A A7768G A8701G A8860G G9477A
A11467G G11719A A12308G G12372A T13617C **G13708A** T14182C C14766T
A15326G C16192T C16270T T16304C
48. **GQ129179** (USA) Pala (DF01307) Haplogroup U5b3f
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G G16129A C16192T C16270T T16304C
49. **GQ129180** (Italy) Pala (Tor290) Haplogroup U5b3f
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G T8469G A8860G G9477A A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G G16129A C16192T C16270T
T16304C
50. **GQ129181** (Italy) Pala (Tor291) Haplogroup U5b3f
A73G **C150T** A263G 309insC 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A T10493C A11467G G11719A
A12308G G12372A T13617C T14182C C14766T A15326G G16129A C16192T C16270T
T16304C
51. **GQ129182** (Spain) Pala (Tor611) Haplogroup U5b3f
A73G **C150T** A263G 309insC 315insC A750G A1438G A2706G T3197C A4769G
C7028T G7226A A7768G A8860G G9477A A11467G G11719A A12308G G12372A
T13617C T14182C C14766T A15326G G16129A C16192T C16270T T16304C
52. **GQ129183** (Italy) Pala (Tor609) Haplogroup U5b3f
A73G **C150T** G228A A263G 309insC 315insC A750G A1438G A2706G T3197C
A4769G C7028T G7226A A7768G A8860G G9477A A11467G G11719A A12308G
G12372A T13617C T14182C C14766T A15326G G16129A C16192T C16270T T16304C

U6

1. **AY275535** (Mauritania) Cabrera Haplogroup U6a
A73G A263G 315insC 524insA 524insC A750G A1438G A2706G A3348G A4769G
C5972T C7028T G7805A C8062T A8860G A11467G C11539T G11719A A12308G
G12372A A14179G C14766T A15326G T16172C T16189C A16219G C16278T A16399G

2. **EF064317** (Morocco-Berber Asni) Olivieri (Tor239) Haplogroup U6a
A73G A263G 315insC A750G A1438G A2706G A3348G T3633C A4769G C7028T
G7805A A8860G G9380A T9725C G9801A G9966A C10853T G10993A A11467G
A11590G G11719A A12308G G12372A A12850G A14179G C14766T A15326G
T16172C C16278T
3. **HM641132** (France) FTDNA Haplogroup U6a
A73G T195C C198T A263G 309insC 315insC 455insT G709A A750G 960insC A1438G
A1842G A2706G A3348G A4769G C7028T A7735G G7805A A8860G A11467G
G11719A A11818C A12308G G12372A G12940A A12950C T13879C A14179G
C14766T G15043A A15326G T16172C C16278T
4. **EF064320** (S. Italy) Olivieri (Tor260) Haplogroup U6a1
A73G T152C A263G 315insC A750G A1438G A2706G A3348G A4769G C7028T
G7805A A8860G G8865A A9377G A9896G A10784G A11467G G11719A C12022T
A12308G G12372A A13834G A14179G C14766T A14927G T15067C A15326G T16086C
T16172C A16219G A16235G C16278T
5. **EF064321** (Algeria) Olivieri (Tor270) Haplogroup U6a1
A73G T146C A263G 315insC A750G A1438G A2706G A3348G A4769G C7028T
G7805A G8251A A8860G G11176A A11467G G11719A A12308G G12372A T12376G
T12727C A14179G C14766T A14927G A15244G G15314A A15326G T16172C A16219G
A16235G C16278T C16355T T16519C
6. **HM775953** (Portugal) FTDNA Haplogroup U6a1
A73G T146C A263G 309insC 315insC A750G A1438G A2706G A3348G A4769G
C7028T G7805A A8860G G11176A A11467G G11719A A12308G G12372A T12376G
T12727C A14179G C14766T A14927G A15244G A15326G T16172C A16219G A16235G
C16278T C16355T T16519C
7. **HM776585** (Germany) FTDNA Haplogroup U6a1
A73G A263G 309insC 315insC A750G A1438G A2706G A3348G C3969T T4172A
A4769G C7028T G7805A A8860G A11467G G11719A C11938T A12308G G12372A
A13105G A14179G C14766T A14927G A15326G T16172C A16183C T16189C A16219G
C16239T C16278T
8. **FJ460539** (Tunisia) Costa (TC20) Haplogroup U6a1a
A73G A263G 309insC 315insC A750G A1438G A2706G A3348G C3969T T4172A
A4769G C7028T G7805A A8860G G9300A A11467G G11719A A12308G G12372A
A12810G T13635C A14179G C14766T A14927G A15326G T16172C A16183C T16189C
A16219G C16239T C16278T T16362C
9. **EU597562** (Algeria) Hartmann (HGDP01257) Haplogroup U6a1a
A73G A263G 315insC A750G A942G A1438G A2706G A3348G C3969T T4172A
A4769G C7028T G7805A A8860G A11467G G11719A C11938T A12308G G12372A

A14179G C14766T A14927G A15326G T16172C A16183C T16189C A16219G C16239T C16278T

10. **EF064318** (Italy) Olivieri (Tor191) Haplogroup U6a1a

A73G A263G 309insC 315insC 524insA 524insC A750G A1438G A2706G A3348G C3969T T4172A A4769G C7028T G7805A A8860G A11467G G11719A T11722C C11938T A12308G G12372A A14179G C14568Y C14766T A14927G G15221A A15326G T16172C A16183C T16189C A16219G C16239T C16278T

11. **EF064319** (S. Italy) Olivieri (Tor255) Haplogroup U6a1a

A73G A263G 309insC 315insC A750G A1438G A2706G A3348G C3969T T4172A A4769G C7028T G7805A A8860G A11467G G11719A C11938T A12308G G12372A A14179G C14766T A14927G A15326G T16172C A16183C T16189C A16219G C16239T C16278T T16362C

12. **AY275534** (Morocco) Cabrera Haplogroup U6a1a

A73G A263G 309insC 315insC A750G A1438G A2706G A3348G C3969T T4172A A4769G C7028T G7805A A8860G A11467G G11719A C11938T A12308G G12372A A14179G C14766T A14927G A15326G T16172C T16189C A16219G C16239T C16278T

13. **EF657375** (Europe) Herrnstadt (mtDNA229) Haplogroup U6a1a (lacks part of non-coding region)

A750G A1438G A2706G A3348G C3969T T4172A A4769G C7028T G7805A A8860G A11467G G11719A C11938T A12308G G12372A C13071T A14179G C14766T A14927G A15326G

14. **HQ286322** (Sweden) FTDNA Haplogroup U6a2

A73G T195C A263G 309insC 315insC A750G A813G A1438G A2706G A3348G A4769G C7028T G7805A A8026G A8860G T9833C A11467G G11719A A12308G G12372A A14179G C14766T T14819C A15326G C15626T T16172C A16183C T16189C A16219G C16278T

15. **EF064322** (Central Italy) Olivieri (Tor253) Haplogroup U6a2a

A73G G103A A200G A263G 315insC G513A A750G A1438G A2706G A3348G A4769G 5899insC C7028T G7805A A8860G T10101C A11467G G11719A A12308G G12372A A13986G A14179G C14766T A15326G C15436T C15626T T16172C A16182C A16183C T16189C A16219G C16257T C16278T

16. **AY882416** (Ethiopia) Achilli-Rengo (Tor41) Haplogroup U6a2a

A73G G103A T146C A263G 315insC A337G A750G 960delC A1438G A2706G A3348G A4769G A6359G C7028T G7805A A8860G T11204C A11467G G11719A A12308G G12372A G13359A A14179G C14766T A15326G C15626T T16172C A16183C T16189C A16219G A16235G C16278T

17. **DQ489505** (Netherlands-Nijmegen) Hinttala (patient E) Haplogroup U6a2a (lacks part of non-coding region)

A686G A750G 960delC A1438G A2706G A3348G A4769G A6359G C7028T G7805A A8860G T9128C T9891C T11204C A11467G G11719A A12308G G12372A A14179G C14766T **T15287C** A15326G C15626T

18. **EF064323** (Ethiopia) Olivieri (Tor251) Haplogroup U6a2a
A73G G103A **T195C** A263G 309insC 315insC A686G A750G 960delC A1438G A2706G T2746C A3348G A4769G A6359G C7028T G7805A A8860G T9128C T9656C T9891C A9972G T11204C A11467G G11719A A12308G G12372A A14179G C14766T A15326G C15626T T16172C A16183C T16189C A16219G G16274A C16278T

19. **EF657774** (Europe) Herrnstadt (mtDNA84) Haplogroup U6a3 (lacks part of non-coding region)
A750G 960delC A1438G T1809C A2706G A3348G A4769G C5554A G6182A C7028T G7805A A8860G A11272G A11467G G11719A A12308G G12372A T12609C A14179G C14766T A15326G A15380G C15790T

20. **EF064324** (Nigeria-Songhai) Olivieri (Tor262) Haplogroup U6a3
A73G **C150T** A263G 315insC A750G A1438G A2706G A2833G A3348G T3826C A4769G C7028T G7805A A8860G A11467G G11719A A12308G G12372A A14179G C14766T A15326G C15790T T16172C A16183C T16189C A16219G C16278T

21. **EF064325** (Morocco-Berber Asni) Olivieri (Tor238) Haplogroup U6a3
A73G T146C T152C G185A A188G A263G 309insC 315insC A750G G1211A A1438G A2706G A3348G A4769G C7028T G7805A A8860G C11268T A11467G G11719A A12308G G12372A C13431T A14179G C14766T A15326G A15634G C15790T T16172C A16183C T16189C 16193insC A16219G C16278T T16311C

22. **EF064326** (Morocco-Berber Asni) Olivieri (Tor247) Haplogroup U6a3
A73G G185A A263G 309insC 309insC 315insC 522delC 523delA A750G A1438G A2706G G3337A A3348G A4021G A4769G C6077T C7028T G7805A A8466G T8705C A8860G A11467G G11719A C12097T A12308G G12372A T13569C G13928A A14179G C14766T A15326G C15790T T16172C A16182C A16183C T16189C A16219G C16278T T16362C A16399G

23. **EF064327** (Iraq) Olivieri (Tor257) Haplogroup U6a4
A73G **C150T** T199C A263G 309insC 315insC A373G A750G A1438G A2706G A3348G A4769G C7028T G7805A A8860G C9866T A11467G G11719A C12246T A12308G G12372A T13674C A14179G T14215C C14766T A15326G T15862C C16134T T16172C A16219G C16278T T16519C

24. **EF064328** (Central Italy) Olivieri (Tor237) Haplogroup U6a4
A73G **C150T** A189G **T195C** A263G 309insC 315insC A750G A1438G A2706G A3348G A4769G C4955T **G5460A** A6929T C7028T G7805A A8860G A11467G G11719A C12246T A12308G G12372A T13674C A14179G T14215C C14766T A15326G T15862C C16134T T16172C A16219G C16278T T16519C

25. **EF064329** (Central Italy) Olivieri (Tor246) Haplogroup U6a5
A73G A263G 315insC A750G A1438G A2706G A3348G G3591A A4769G C7028T
G7642A G7805A A8713G A8860G C10192T A11467G G11719A A12308G G12372A
G13590A A14179G C14766T A15326G **G15927A** T16126C C16169T T16172C A16219G
C16278T T16519C

26. **EF064330** (Nigeria) Olivieri (Tor252) Haplogroup U6a5
A73G A263G 309insC 315insC A750G G1007A A1438G G1442A A2706G A3348G
G3591A A4769G C7028T G7642A G7805A A8860G A11467G A11590G G11719A
A12308G G12372A G13590A A14179G C14766T A15326G **G15927A** T16172C
T16189C A16219G C16278T T16519C

27. **EF064331** (Tunisia) Olivieri (Tor266) Haplogroup U6a5
A73G A263G 315insC A750G A1438G A2706G A3348G G3591A A4769G A6593G
C7028T G7642A G7805A **G8251R** A8860G **G9139A** C11191T A11467G A11590G
G11719A A11893G A12308G G12372A G13590A A14179G C14766T A15326G
G15927A T16172C A16219G C16278T C16301T T16519C

28. **EF064332** (Italy-Sicily) Olivieri Haplogroup U6a5
A73G T146C A263G 309insC 315insC A750G A1438G A2706G A3348G G3591A
A4769G T6407C C7028T G7642A G7805A A8860G C10268T **A10398G** A11467G
G11719A A12308G G12372A A12397G G13590A A14179G C14766T A15326G
G15927A T16172C T16189C A16219G C16278T T16519C

29. **EF064333** (Tunisia) Olivieri (Tor265) Haplogroup U6a6
A73G A263G 315insC G709A A750G A1438G A2706G C2967T A3348G A4769G
C7028T G7805A C8407A G8557C A8860G T9090C C9779T A10700G A11467G
G11719A A11734G A12308G G12372A C13440T A14179G A14181G C14766T
A15326G C15661T T16172C A16219G C16278T

30. **EF064334** (Morocco-Berber Asni) Olivieri (Tor254) Haplogroup U6a6
A73G A263G 309insC 315insC A750G A1438G A2706G A3348G A4769G C7028T
G7805A C8407A G8557C A8860G C9779T G10685A A10700G A11467G G11719A
A11734G A12308G G12372A C13440T A14179G C14766T A15326G G15355A T16172C
A16219G T16271C C16278T

31. **FJ939330** FTDNA Haplogroup U6a7
A73G **T195C** C198T A263G 309insC 315insC 455insT G709A A750G 960insC A1438G
A1842G A2706G A3348G A4769G C7028T A7735G G7805A A8860G A11467G
G11719A A11818C A12308G G12372A G12940A A12950C T13879C A14179G
C14766T **G15043A** A15326G T16172C C16278T

32. **AF382008** (Morocco) Maca-Meyer Haplogroup U6a7a
A73G T152C A263G 315insC A750G A1438G A1692T A3348G A4769G G5471A
C7028T G7805A T8473C A8860G A11467G G11719A A12308G G12372A T14034C
A14179G C14766T **G15043A** A15326G T15530C C15632T T16172C A16219G

33. **AY275531** (Mauritania) Cabrera Haplogroup U6a7a1
A73G T152C A263G 315insC A750G A1438G A1692T A2706G A3348G A4769G
A5120G G5471A C7028T G7805A T8473C A8860G A11467G G11719A A12308G
G12372A A14179G C14766T **G15043A** A15326G T15530C C15632T T16172C A16219G
C16278T

34. **AY275532** (Spain-Maragato-Leon) Cabrera Haplogroup U6a7a1
A73G T152C A263G 315insC A750G A1438G A1692T A2706G A3348G A4769G
A5120G G5471A C7028T G7805A T8473C A8860G A11467G G11719A A12308G
G12372A G12501A A14179G C14766T **G15043A** A15326G T15530C C15632T T16172C
C16174T A16219G C16278T

35. **EF064335** (Italy-Sardinia) Olivieri (Tor242) Haplogroup U6a7a1a
A73G A263G 315insC A750G T794A T1193C A1438G A1692T A2706G A3348G
A4769G A5120G G5471A C7028T G7805A T8473C A8860G A11467G G11719A
A12308G G12372A A14179G C14766T **G15043A** A15326G T15530C C15632T T16172C
A16219G

36. **EF064336** (S. Italy) Olivieri (Tor245) Haplogroup U6a7a1a
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2706G
A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G A11467G
G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G T15530C
C15632T T16172C A16219G C16278T T16311C

37. **EF064337** (S. Italy) Olivieri (Tor 243) Haplogroup U6a7a1a
A73G **C150T** T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2706G
A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G A11467G
G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G T15530C
C15632T T16172C A16219G C16278T

38. **EF064338** (S. Italy) Olivieri (Tor261) Haplogroup U6a7a1a
A73G A263G 315insC A750G T794A T1193C A1438G A1692T A2706G A3348G
A4769G A5120G C5213T G5471A C7028T G7805A T8473C A8860G A11038G
A11467G G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G
T15530C C15632T T16172C A16219G C16278T **A16399R**

39. **DQ856317** FTDNA Haplogroup U6a7a1a
A73G **C150T** T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2706G
A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G A11467G
G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G T15530C
C15632T T16172C A16219G C16278T

40. **FJ979865** (France) FTDNA Haplogroup U6a7a1a
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2706G
A3348G T4370C A4769G A5120G G5471A C7028T A7265G G7805A T8473C A8860G

A11467G G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G
T15530C C15632T T16093C T16172C A16219G C16278T C16360T

41. **HM804485** (England) FTDNA Haplogroup U6a7a1a
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2706G
A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G A11467G
G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G T15530C
C15632T T16172C A16219G C16278T

42. **HQ025914** FTDNA Haplogroup U6a7a1a
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2706G
A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G A11467G
G11719A A12308G G12372A A14179G C14766T **G15043A** A15326G T15530C
C15632T T16172C A16219G C16278T

43. **GU967378** (Canada) FTDNA Haplogroup U6a7a1a1
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2672G
A2706G A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G
A11467G G11719A T11929C A12308G G12372A A14179G C14766T **G15043A**
A15326G T15530C C15632T T16172C A16219G C16278T

44. **GU433197** (Canada) FTDNA Haplogroup U6a7a1a1
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2672G
A2706G T3202Y A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G
A11467G G11719A T11929C A12308G G12372A A14179G C14766T **G15043A**
A15326G T15530C C15632T T16172C A16219G C16278T

45. **HM804488** FTDNA Haplogroup U6a7a1a1
A73G T152C A263G 315insC A750G T794A T1193C A1438G A1692T A2672G
A2706G A3348G A4769G A5120G G5471A C7028T G7805A T8473C A8860G
A11467G G11719A T11929C A12308G G12372A A14179G C14766T **G15043A**
A15326G T15530C C15632T T16172C A16219G C16278T

46. **AY275533** (Canary Islands) Cabrera Haplogroup U6a7b
A73G **T195C** C198T A263G 315insC G709A A750G A1438G A1842G A2706G
A3348G A4769G A6575G C7028T A7735G G7805A A8860G **G9804A** A11467G
G11719A A12308G G12372A A13105G G13194A C13754T A14179G C14766T
G15043A A15326G T16092C T16172C C16278T C16294T

47. **EF064339** (France) Olivieri Haplogroup U6a7b
A73G **T195C** C198T A263G 309insC 315insC 455insT G709A A750G 960insC A1438G
A1842G A2706G A3348G A4769G C7028T A7735G G7805A A8860G A11467G
G11719A A11818C A12308G G12372A G12940A A12950C T13879C A14179G
C14766T **G15043A** A15326G T16172C C16278T

48. **AY275527** (Morocco-Berber) Cabrera Haplogroup U6b

A73G **T195C** A263G 315insC 522delC 523delA A750G A1438G A2706G A3348G
A4769G C7028T A8860G **G9438A** A11467G G11719A A12308G G12372A G12561A
T14470C C14766T A15326G G15355A T16172C A16219G T16311C

49. **AY275529** (Senegal-Wolof) Cabrera Haplogroup U6b
A73G A263G 315insC A750G A1438G A2706G A3348G A4769G C7028T A8566G
A8860G **G9438A** A11467G G11719A A12308G G12372A C14766T A15326G T16172C
C16193T A16219G T16311C

50. **AY275530** (Spain-Galicia) Cabrera Haplogroup U6b
A73G A263G 315insC A750G A1438G A2706G A3348G A4769G T5442C C7028T
A8860G **G9438A** A11467G G11719A A12308G G12372A C14766T A15326G A16051G
T16172C A16219G T16311C

51. **FJ460538** (Tunisia) Costa (TC19) Haplogroup U6b
A73G A235G A263G 309insC 315insC A750G A1438G A2706G A3348G A4769G
C7028T A8860G A9338G **G9438A** A11467G G11719A A12308G G12372A C14766T
A15326G T16172C A16219G C16278T T16311C

52. **EF064340** (Spain) Olivieri (Tor248) Haplogroup U6b1
A73G **T195C** A263G 309insC 315insC A750G A1438G **A1555G** T2352C A2706G
A3348G A4769G C7028T C7700T A8860G **G9438A** G9738A A11467G G11719A
A12308G G12372A **G14279R** C14766T A15326G G15431A A16163G T16172C
A16219G T16311C T16519C

53. **AY882417** (Spain) Achilli-Rengo (Tor14) Haplogroup U6b1
A73G A263G 309insC 315insC A750G A1438G T2352C A2706G A3348G A4769G
G6734A C7028T A8860G **G9438A** G9738A A11467G G11719A A12308G G12372A
C14766T A15326G G15431A A16164T T16172C A16219G T16311C T16519C

54. **AY275528** (Canary Islands) Cabrera Haplogroup U6b1
A73G A263G 315insC A750G A1438G T2352C A2706G A3348G A4769G C7028T
C7700T A8860G **G9438A** G9738A A11467G G11719A A12308G G12372A C14766T
A15326G G15431A A16163G T16172C A16219G T16311C

55. **AY275536** (Morocco-Berber) Cabrera Haplogroup U6c
A73G **C150T** C194T A263G 315insC C437T 522delC 523delA A750G C793T A1438G
A2109G A2706G A3348G T3866C A4769G A4965G T5081C C7028T A8860G C11013T
A11467G G11719A A12308G G12372A C14766T A15244G A15326G C16169T T16172C
T16189C

56. **HM775494** (France) FTDNA Haplogroup U6c
A73G **C150T** C194T A263G 315insC C437T 522delC 523delA A750G C793T A1438G
A2706G A3348G G3688C A4769G A4965G T5081C C6340T C7028T A8860G C11013T
A11467G G11719A A12076G A12308G G12372A T13879C C14766T A15244G
A15326G C16169T T16172C A16183C T16189C

57. **HQ161773** (Canary Islands) FTDNA Haplogroup U6c1
A73G **C150T** A263G 309insC 315insC C437T 522delC 523delA A750G C793T A1438G
A2706G A3348G G3688C A4769G A4965G T5081C C7028T A8860G C11013T
A11467G G11719A A12308G G12372A T13879C C14766T A15244G A15326G
G15553A T16086C G16129A C16169T T16172C T16189C

58. **EF064344** (S. Italy) Olivieri (Tor241) Haplogroup U6c1
A73G **C150T** A263G 309insC 315insC C437T 522delC 523delA A750G C793T A1438G
A2706G A3348G G3688C A4769G A4965G T5081C C7028T A8860G C11013T
A11467G G11719A A12308G G12372A G12406A T13879C C14766T A15244G
A15326G G15553A C16111T G16129A C16169T T16172C A16183C T16189C
16193insC T16519C

59. **AY275537** (Canary Islands) Cabrera Haplogroup U6c1
A73G **C150T** A263G 309insC 315insC C437T 522delC 523delA A750G C793T A1438G
A2706G A3348G A4769G A4965G T5081C C7028T A8860G C11013T A11467G
G11719A A12308G G12372A C14766T A15244G A15326G G15553A T16086C
G16129A C16169T T16172C T16189C C16294T

60. **EF064343** (Ethiopia) Olivieri (Tor267) Haplogroup U6d
A73G A263G 315insC A750G A1438G A2706G A3348G **T4336C** A4769G **G5460A**
C7028T A8860G A11467G G11719A A12308G G12372A G12501A T12842C G13145A
C14003T A14518G C14766T A15326G T15892C T16172C A16219G T16311C

61. **GU366066** FTDNA Haplogroup U6d1
A73G A263G 309insC 315insC A750G A1438G A2706G A3348G **T4336C** T4454C
A4769G G5147A C7028T A8860G A11467G G11719A A12308G G12372A G12501A
T14470C A14518G C14766T A15326G T16172C A16219G C16261T T16311C

62. **DQ523663** (Italy-Sardinia) Fraumene Haplogroup U6d1
A73G A263G A750G A1438G A2706G A3348G **T4336C** T4454C A4769G G5147A
A6575G C7028T A8860G A11467G G11719A A12308G G12372A G12501A T14470C
A14518G C14766T A15326G T16172C A16219G C16261T T16311C

63. **EF064341** (Italy) Olivieri (Tor240) Haplogroup U6d1
A73G **T195C** A263G 309insC 315insC A533G A750G A1438G A2706G A3348G
T4336C T4454C A4769G C7028T A8860G A11467G G11719A A12308G G12372A
G12501A C12603T T14470C A14518G C14766T A15326G T16172C A16219G C16261T
T16311C

64. **EF064342** (Morocco-Berber Asni) Olivieri (Tor244) Haplogroup U6d1
A73G A263G 309insC 315insC A750G A1438G A2706G A3348G T3760G **T4336C**
T4454C A4769G C7028T A8860G A11467G G11719A A12308G G12372A G12501A
C12603T T14470C A14518G C14766T A15326G T16172C A16219G C16261T T16311C

U7

1. **AF382011** (Spain-Andalusia) Maca-Meyer Haplogroup U7a1
A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G
A1811G A2706G C3741T A4769G C5360T C7028T C8137T A8860G T10084C C10142T
A10382G A11467G G11719A A12308G G12372A T13500C C14766T T14798C A15326G
T15601C C16248T A16318T T16519C
2. **AY882391** (Pakistan) Achilli-Rengo (Tor37) Haplogroup U7a2
A73G T152C A263G 309insC 315insC 522delC 523delA A750G **T961C** 965insC
965insC 965insC T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T
C8137T C8684T A8860G T10084C C10142T A11065G A11467G G11719A A12308G
G12372A T13500C G14569A C14766T A15326G A15671G C16173T A16309G A16318T
T16362C T16519C
3. **GQ176284** (Finland) FTDNA Haplogroup U7a2
A73G T152C A263G 291insA 315insC 522delC 523delA A750G T980C A1438G
A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8212T C8684T A8860G
T9480C T10084C C10142T A11467G G11719A A12308G G12372A T13500C G14569A
C14766T A15326G 16166delA A16309C A16318T T16519C
4. **EF556179** (Iran) Behar (4688) Haplogroup U7a2a
A73G C151T T152C A263G 315insC 522delC 523delA A750G T980C A1438G A1811G
A2706G C3741T A4769G C5360T C5790A C7028T C8137T C8684T A8860G C10142T
A11467G G11719A A12234G A12308G G12372A A12507G T13500C G14569A
C14766T A15326G A16318T T16519C
5. **AY714004** (India) Palanichamy (C22) Haplogroup U7a2a
A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G
A1811G A2706G C3741T A4769G C5360T C7028T A7673G C8137T C8684T A8860G
C10142T A11467G G11719A A12308G G12372A T13500C C14131T G14569A C14766T
A15244G A15326G T16093C A16318T T16519C
6. **AY714013** (India) Palanichamy (B19) Haplogroup U7a2a
A73G C151T T152C A263G A270G 315insC 522delC 523delA A750G T980C A1438G
A1811G A2706G C3741T A4769G C5360T C5486T C7028T C8137T C8684T A8860G
C10142T A11467G G11719A A12308G G12372A T13281C T13500C G14569A C14766T
A15326G C16167T C16187T A16309G A16318T T16519C
7. **AY714014** (India) Palanichamy (B81) Haplogroup U7a2a
A73G C151T T152C A263G A270G 309insC 315insC 522delC 523delA A750G T980C
A1438G A1811G A2706G C3741T A4769G C5360T C5486T C7028T C8137T C8684T
A8860G A9476G C10142T A11467G G11719A A12308G G12372A T13281C T13500C
G14569A C14766T A15326G C16167T A16309G A16318T T16519C
8. **EU597503** (Israel) Hartmann (HGDP00610) Haplogroup U7a2a

A73G C151T T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T T4502C A4769G G4788R A5265G C5360T C7028T C8137T C8684T A8860G C10142T A11467G G11719A C12094T A12308G G12372A T13500C C14533T G14569A C14766T G14921R A14927G A15326G G16129A A16318T T16519C

9. **FJ858878** (Russia) Mazunin (Mansi57) Haplogroup U7a2a

A73G C151T T152C A263G 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T T4452C T4502C A4769G G4820A C5360T A5480G C7028T C8137T C8684T A8860G T10124C C10142T A11467G G11719A A12308G G12372A C12398T T13500C C14097T G14569A A14669G C14766T A15326G T15804C A16309G A16318T T16519C

10. **EU445683** (Italy) Brisighelli (G5) Haplogroup U7a2b

A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T A15326G T16271C A16318T T16519C

11. **EU445684** (Italy) Brisighelli (G17) Haplogroup U7a2b

A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T A15326G T16271C A16318T T16362C T16519C

12. **EU445686** (Italy) Brisighelli (G30) Haplogroup U7a2b

A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T A15326G T16271C A16318T T16519C

13. **EU445687** (Italy) Brisighelli (G39) Haplogroup U7a2b

A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T A15326G T16271C A16318T T16519C

14. **EU445689** (Italy) Brisighelli (G43) Haplogroup U7a2b

A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T A15326G T16271C A16318T T16519C

15. **EU445690** (Italy) Brisighelli (G49) Haplogroup U7a2b

A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T A15326G T16271C A16318T T16519C

16. **EU445691** (Italy) Brisighelli (G52) Haplogroup U7a2b
A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G
A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G T10084C
C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A C14766T
A15326G T16271C A16318T T16519C

17. **EU445688** (Italy) Brisighelli (G40) Haplogroup U7a2b
A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C T1081C
A1438G A1811G A2706G C3741T A4769G C5360T C7028T C8137T C8684T A8860G
T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A
C14766T A15326G T16271C A16318T T16362C T16519C

18. **EU445685** (Italy) Brisighelli (G19) Haplogroup U7a2b
A73G T152C A263G 309insC 315insC 522delC 523delA A750G T980C A1438G
A1811G A2706G C3741T A4769G C5360T C7028T A7394T C8137T C8684T A8860G
T10084C C10142T A11467G G11719A A12308G G12372A A13395G T13500C G14569A
C14766T A15326G T16271C A16318T T16519C

19. **AY339547** (Finland) Moilanen (F146) Haplogroup U7b
A73G T152C A263G 315insC A750G T980C A1438G A1811G A2706G A4769G
C5360T C7028T A8860G T9480C T10084C C10142T A11467G G11719A A12308G
G12372A C14766T A15326G 16166delA C16295T A16309G A16318T T16519C

20. **AY339548** (Finland) Moilanen (F147) Haplogroup U7b
A73G T152C A263G 291insA 315insC A750G T980C A1438G A1811G A2706G
A4769G C5360T C7028T A8860G T9480C T10084C C10142T A11467G G11719A
A12308G G12372A C14766T A15326G 16166delA A16309G A16318T T16519C

U8a

1. **DQ200801** (Spain-Basque) Gonzalez Haplogroup U8a
A73G **T195C** A263G T282C 309insC 315insC A750G **A827G** A1438G T1700C A1811G
A2706G G3918A A4769G T6392C C6455T C7028T A7055G A8860G C9365T T9698C
A11467G G11719A A12308G G12372A A12961G G13145A T13543C C14766T
A15326G T16519C

2. **DQ200802** (Spain-Basque) Gonzalez Haplogroup U8a1
A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C6713T C7028T A7055G A8860G C9365T T9698C
C10733T A11467G G11719A A12308G G12372A A12768G A13105G G13145A
C14766T A15326G A16146G T16189C T16342C

3. **HM113490** FTDNA Haplogroup U8a1
A73G **C150T** A263G T282C 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C C10733T

T11465C A11467G G11719A A12308G G12372A G13145A C14766T A15326G
A16146G C16260T T16342C

4. **AY339551** (Finland) Moilanen (F150) Haplogroup U8a1a
A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C C10733T
A11467G G11719A C12135A A12308G G12372A G13145A C14766T A15326G
T16093C A16146G T16342C

5. **AY339552** (Finland) Moilanen (F151) Haplogroup U8a1a
A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C C10733T
A11467G G11719A C12135A A12308G G12372A G13145A C14766T A15326G
T16093C A16146G T16342C

6. **AY339553** (Finland) Moilanen (F152) Haplogroup U8a1a
A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C C10733T
A11467G G11719A C12135A A12308G G12372A G13145A C14766T A15326G
T16093C A16146G T16342C

7. **GU123022** (Russia) Malyarchuk (Tm60) Haplogroup U8a1a
A73G **T195C** A263G T282C 309insC 315insC A750G A1438G A1811G A2706G
C3738T A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C
C10733T A11467G G11719A C12135A A12308G G12372A G13145A C14766T
A15326G A16146G T16342C

8. **AY882392** (Spain) Achilli-Rengo (Tor47) Haplogroup U8a1a
A73G A263G T282C 309insC 315insC A750G A1438G **A1555G** A1811G A2706G
C3738T A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C
C10733T A11467G G11719A C12135A A12308G G12372A G13145A C14766T
A15326G A16146G C16242T T16342C

9. **HM765458** Zaragoza (Case 5) Haplogroup U8a1a1
A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4053G A4129G A4769G A5240G T6392C C6455T C7028T A7055G T7501C A8860G
C9365T T9698C C10733T A11467G G11719A C12135A A12308G G12372A G13145A
C14766T A15326G A16146G T16342C

10. **DQ200803** (Spain-Basque) Gonzalez Haplogroup U8a1a1a
A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G A3213G
C3738T A4129G A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T
T9698C C10733T A11467G G11719A C12135A A12308G G12372A G13145A C14766T
G15323A A15326G T16342C

11. **GU299344** FTDNA Haplogroup U8a1a1a

A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4129G A4769G A5240G T6392C C6455T C7028T A7055G A8860G C9365T T9698C
C10733T A11467G G11719A G11969A C12135A A12308G G12372A G13145A
C14766T A15326G T16209C T16342C

12. **HQ022823** (Finland) FTDNA Haplogroup U8a1a2

A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C7028T A7055G A8860G A9338G C9365T T9698C
G9777A C10733T A11467G G11719A C12135A A12308G G12372A G13145A C14766T
A15326G A16146G T16342C

13. **AM260569** (Finland) Annunen-Rasila (CADASIL patient 12) Haplogroup U8a1a2 (lacks part of non-coding region)

A750G A1438G A1811G A2706G C3738T A4769G T6392C C6455T C7028T A7055G
A7299G A8860G A9338G C9365T T9698C G9777A C10733T A11467G G11719A
A12308G G12372A G13145A C14766T A15326G

14. **HM008694** FTDNA Haplogroup U8a1a2

A73G A263G T282C 309insC 315insC A750G A1438G A1811G A2706G C3738T
A4769G A5240G T6392C C6455T C7028T A7055G A8860G G8865A A9338G C9365T
T9698C G9777A C10733T A11467G G11719A C12135A A12308G G12372A A12662G
G13145A C14766T A15326G A16146G T16342C

15. **DQ112821** (Europe) Kivisild (EU86) Haplogroup U8a1b (lacks part of non-coding region)

A750G A1438G G1503A A1811G A2706G T3732C C3738T A4769G A5240G T6392C
C6455T C7028T A7055G G7340A A8860G C9365T T9698C C10733T A11467G
G11719A A12308G G12372A G13145A C14766T A15326G

16. **HQ336423** FTDNA Haplogroup U8a1b

A73G A263G T282C 309insC 315insC A750G A1438G G1503A A1811G A2706G
C3738T A4769G A5240G T6392C C6455T C7028T A7055G G7340A A8860G C9365T
T9698C C10733T A11467G G11719A A12308G G12372A G13145A C14766T A15326G
G15928A A16146G A16162G T16342C

U8b

1. **GQ360037** FTDNA Haplogroup U8b

A73G **T195C** A263G 315insC A750G A1438G A2706G A3480G A4769G C5165T
C7028T A8860G **G9055A** T9698C A11467G G11719A A12308G G12372A A14053G
C14167T C14766T A15326G T16094C A16183C T16189C C16234T T16324C T16519C

2. **DQ200805** (Jordan) Gonzalez Haplogroup U8b1

A73G T152C A263G 315insC A750G A1438G A2706G **G3244A** A4769G A5582G
T6378C C6546T A6599G C7028T A8860G **G9055A** G9300A T9698C A11467G
G11719A A12308G G12372A G12771A A13113G C14167T G14364A C14766T
G14831A A15326G T16189C C16234T C16257T C16259T T16304C T16519C

3. **AY882393** (Italy) Achilli-Rengo (Tor48) Haplogroup U8b1a
A73G T146C **T195C** A263G 315insC 522delC 523delA A750G A1438G A1811G
A2706G G3531A A4769G C6546T A6599G C7028T A8860G T9012C **G9055A** T9111C
A9324G T9698C G9948A T10084C A11467G G11719A G11914A A12308G A12358G
G12372A G12771A C14167T **T14484C** C14766T A15326G A16066G G16129A
A16183C T16189C C16234T T16311C T16519C

4. **HM590366** FTDNA Haplogroup U8b1a
A73G **T195C** A263G 309insC 309insC 315insC 522delC 523delA A750G A1438G
A1811G A2706G **G3316A** A3480G A3808G A4769G T6425A C6546T A6599G C7028T
A7844G G8251A A8860G **G9055A** T9698C G9948A A11467G G11719A G11914A
A12308G G12372A G12771A C14167T C14766T A15326G G16129A A16182C
A16183C T16189C C16214T **A16300G** C16465T T16519C

U9

1. **AY882389** (Ethiopia) Achilli-Rengo (Tor40) Haplogroup U9a
A73G A263G 315insC G499A A750G A1438G A1811G A2706G G3531A G3834A
A4769G **G5460A** T5999C C6386T C7028T A8860G C8974T A11467G G11719A
A12308G G12372A C12852T T14094C C14766T A15326G A16051G C16261T C16278T
T16311C

2. **FJ770944** (India-Andhra Pradesh) Fornarino (Tor459) Haplogroup U9a1
A73G A263G 309insC 315insC G499A A750G A1438G C1734T A1811G A2706G
T3290C G3531A G3834A A4769G C5306T T5999C C6386T C7028T T7870C A8860G
G9554A A11467G G11719A A12308G G12372A T14094C C14766T **G15077A** A15326G
A16051G C16147T C16193T C16278T T16357C

3. **GU170820** (India) Rani (NS06) Haplogroup U9a1
A73G A263G 309insC 315insC G499A A750G A1438G A1811G A2706G T3290C
G3531A G3834A A4769G T5999C C6386T C7028T G8027A A8860G A11467G
G11719A T12048C A12308G G12372A T14094C C14766T **G15077A** A15326G
A16051G C16193T C16278T T16357C

4. **GU990521** FTDNA Haplogroup U9b
A73G **T195C** A263G 315insC G499A 522delC 523delA A750G A1438G A1811G
A2706G G3483A G3531A G3745A G3834A A4769G T5999C A6212G C6386T C6506T
C7028T A8860G A11020G A11467G G11719A C11779T A12308G G12372A A12615G
T14094C C14766T A15326G T16189C T16519C

5. **AY882390** (Pakistan) Achilli-Rengo (Tor58) Haplogroup U9b1
A73G **T195C** A263G 309insC 315insC G499A 573insC 573insC 573insC 573insC
A750G **T1005C** A1438G A1811G A2706G G3531A G3834A A4769G T5999C C6386T
C7028T A8860G A9299G A11350G A11467G G11719A A12308G G12372A A12615G
T13111C T14094C C14766T A15326G G15930A C16242T

6. **DQ112765** (Pakistan) Kivisild (AS14) Haplogroup U9b1 (lacks part of non-coding region)
G499A 573insC 573insC 573insC 573insC 573insC A750G A1438G A1811G A2706G
G3531A G3834A A4769G T5999C C6386T C7028T A8860G A9299G A11350G
A11467G G11719A A12308G G12372A A12615G T13111C T14094C C14766T A15326G
A15951G

7. **EU597540** (Pakistan) Hartmann (HGDP00214) Haplogroup U9b1
A73G **T195C** A263G 309insC 315insC G499A 573insC 573insC 573insC A750G
A1438G A1811G A2706G G3531A G3834A A4769G T5999C C6386T C7028T A8860G
A9299G A11350G A11467G G11719A A12308G G12372A A12615G T13111C T14094C
C14766T A15326G **A15951G** T16263C C16355T

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