

**S1 Table. Geographic provenance of gelada samples (decimal degrees), their mtDNA haplotypes (h-type), haplogroups (h-group) and haplotype GenBank Accession Numbers. \* Sample from northern range but with central haplotype.**

| Sample ID | region     | h-type | h-group | latitude  | longitude | Acc. No. |
|-----------|------------|--------|---------|-----------|-----------|----------|
| TG002     | Arsi       | 1      | south   | 7.703217  | 39.817550 | MH634017 |
| TG019     | Arsi       | 1      | south   | 7.696067  | 39.817353 |          |
| TG020     | Arsi       | 1      | south   | 7.704215  | 39.818511 |          |
| TG028     | Arsi       | 1      | south   | 7.697065  | 39.816058 |          |
| TG062     | Arsi       | 1      | south   | 7.695133  | 39.812400 |          |
| TG063     | Arsi       | 1      | south   | 7.739117  | 39.836167 |          |
| TG064     | Arsi       | 1      | south   | 7.749650  | 39.815467 |          |
| TG065     | Arsi       | 1      | south   | 7.746700  | 39.814083 |          |
| TG079     | Arsi       | 1      | south   | 7.696582  | 39.817762 |          |
| TG080     | Arsi       | 1      | south   | 7.697346  | 39.815814 |          |
| TG081     | Arsi       | 1      | south   | 7.697684  | 39.813783 |          |
| TG083     | Arsi       | 1      | south   | 7.702782  | 39.815724 |          |
| TG084     | Arsi       | 1      | south   | 7.691811  | 39.825015 |          |
| TG085     | Arsi       | 1      | south   | 7.691188  | 39.824134 |          |
| TG086     | Arsi       | 1      | south   | 7.690380  | 39.820923 |          |
| TG087     | Arsi       | 1      | south   | 7.691517  | 39.822394 |          |
| TG088     | Arsi       | 1      | south   | 7.696558  | 39.816138 |          |
| TG091     | Arsi       | 1      | south   | 7.693582  | 39.825562 |          |
| TG092     | Arsi       | 1      | south   | 7.699043  | 39.812643 |          |
| TG093     | Arsi       | 1      | south   | 7.695001  | 39.816661 |          |
| TG094     | Arsi       | 1      | south   | 7.696318  | 39.818595 |          |
| TG095     | Arsi       | 1      | south   | 7.695205  | 39.823553 |          |
| TG096     | Arsi       | 1      | south   | 7.693248  | 39.825525 |          |
| TG105     | Arsi       | 1      | south   | 7.703111  | 39.813603 |          |
| TG106     | Arsi       | 1      | south   | 7.696121  | 39.817534 |          |
| TG107     | Arsi       | 1      | south   | 7.693548  | 39.824483 |          |
| TG108     | Arsi       | 1      | south   | 7.693548  | 39.824483 |          |
| TG109     | Arsi       | 1      | south   | 7.693548  | 39.824483 |          |
| TG007     | Arsi       | 2      | south   | 7.500550  | 39.991950 | MH634018 |
| TG052     | Arsi       | 2      | south   | 7.500917  | 39.991600 |          |
| TG053     | Arsi       | 2      | south   | 7.500433  | 39.992117 |          |
| TG057     | Arsi       | 2      | south   | 7.516167  | 39.967533 |          |
| TG059     | Arsi       | 2      | south   | 7.539133  | 39.944733 |          |
| Ars08     | Arsi       | 2      | south   | 7.502335  | 39.989432 |          |
| TG058     | Arsi       | 3      | south   | 7.539467  | 39.945567 | MH634019 |
| TG055     | Arsi       | 4      | south   | 7.509000  | 39.991167 | MH634020 |
| TG056     | Arsi       | 4      | south   | 7.509833  | 39.990650 |          |
| TG060     | Arsi       | 4      | south   | 7.526800  | 40.021167 |          |
| TG061     | Arsi       | 4      | south   | 7.696102  | 39.818259 |          |
| TG045     | N. Gondar  | 5      | north-1 | 13.131680 | 37.931390 | MH634021 |
| TG047     | N. Gondar  | 5      | north-1 | 13.131900 | 37.932280 |          |
| TG048     | N. Gondar  | 5      | north-1 | 13.128790 | 37.943650 |          |
| TG066     | N. Gondar  | 5      | north-1 | 13.121380 | 37.933230 |          |
| TG068     | N. Gondar  | 6      | north-1 | 13.231450 | 38.039550 | MH634022 |
| TG103     | N. Gondar  | 7      | north-1 | 13.129000 | 37.943410 | MH634023 |
| TG051     | N. Gondar  | 8      | north-1 | 13.153230 | 37.844510 | MH634024 |
| TG137     | N. Gondar  | 8      | north-1 | 13.143190 | 37.844230 |          |
| NGon_104  | Wag Hemira | 9      | north-1 | 12.977109 | 38.357779 | MH634025 |
| NGon_106  | Wag Hemira | 9      | north-1 | 12.977109 | 38.357779 |          |
| Smm01     | N. Gondar  | 10     | north-1 | 13.262234 | 38.192206 | MH634026 |
| Smm04     | N. Gondar  | 11     | north-1 | 13.277246 | 38.080997 | MH634027 |
| TG044     | N. Gondar  | 12     | north-1 | 13.126360 | 37.834810 | MH634028 |
| TG050     | N. Gondar  | 12     | north-1 | 12.769030 | 37.607040 |          |
| NGon_056  | N. Gondar  | 13     | north-1 | 13.250211 | 38.373131 | MH634029 |
| NGon_100  | N. Gondar  | 13     | north-1 | 13.250211 | 38.373131 |          |
| TG046     | N. Gondar  | 14     | north-2 | 13.121230 | 37.933710 | MH634030 |
| TG043     | N. Gondar  | 15     | north-2 | 13.131680 | 37.931390 | MH634031 |

|          |           |    |           |           |           |          |
|----------|-----------|----|-----------|-----------|-----------|----------|
| TG067    | N. Gondar | 15 | north-2   | 13.153230 | 37.844510 |          |
| Smn07    | N. Gondar | 15 | north-2   | 13.283909 | 38.127183 |          |
| TG004    | N. Gondar | 16 | north-2   | 13.121230 | 37.933710 | MH634032 |
| TG030    | N. Wollo  | 17 | central-2 | 11.816670 | 38.657860 | MH634033 |
| TG110    | N. Wollo  | 17 | central-2 | 11.808840 | 38.686060 |          |
| TG120    | N. Wollo  | 17 | central-2 | 11.811000 | 38.695720 |          |
| SGon_048 | S. Gondar | 17 | central-2 | 11.702353 | 38.237365 |          |
| SGon_049 | S. Gondar | 17 | central-2 | 11.702353 | 38.237365 |          |
| SGon_050 | S. Gondar | 17 | central-2 | 11.702381 | 38.237420 |          |
| SGon_051 | S. Gondar | 17 | central-2 | 11.702372 | 38.237438 |          |
| SGon_052 | S. Gondar | 17 | central-2 | 11.702435 | 38.237356 |          |
| SGon_053 | S. Gondar | 17 | central-2 | 11.702363 | 38.237466 |          |
| SGon_054 | S. Gondar | 17 | central-2 | 11.730750 | 38.188872 |          |
| SGon_005 | S. Gondar | 18 | central-2 | 11.730841 | 38.189019 | MH634034 |
| SGon_004 | S. Gondar | 19 | central-2 | 11.730471 | 38.189360 | MH634035 |
| TG077    | N. Shoa   | 20 | central-2 | 10.678740 | 39.719030 | MH634036 |
| TG119    | N. Wollo  | 21 | central-2 | 11.812570 | 38.670560 | MH634037 |
| Abn01    | N. Wollo  | 22 | central-2 | 12.117124 | 39.186450 | MH634038 |
| SWol_023 | S. Wollo  | 23 | central-2 | 11.232203 | 39.215138 | MH634039 |
| TG033    | N. Shoa   | 24 | central-1 | 9.432482  | 38.658693 | MH634040 |
| TG024    | N. Shoa   | 25 | central-1 | 9.432482  | 38.658693 | MH634041 |
| TG025    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG034    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG121    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG122    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG124    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG126    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG129    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| TG131    | N. Shoa   | 25 | central-1 | 9.434728  | 38.653225 |          |
| DeL1609  | N. Shoa   | 25 | central-1 | 9.703301  | 38.880941 |          |
| TG133    | N. Shoa   | 26 | central-1 | 9.924010  | 39.129380 | MH634042 |
| TG078    | N. Shoa   | 27 | central-1 | 10.094470 | 39.495600 | MH634043 |
| TG074    | N. Shoa   | 28 | central-1 | 10.317580 | 39.804930 | MH634044 |
| Zur_068  | N. Wollo  | 29 | central-1 | 12.130486 | 39.204684 | MH634045 |
| SWol_016 | N. Shoa   | 30 | central-1 | 10.634220 | 39.177140 | MH634046 |
| SWol_032 | S. Wollo  | 31 | central-1 | 10.586670 | 39.447272 | MH634047 |
| TG003    | N. Shoa   | 32 | central-1 | 10.365550 | 39.480190 | MH634048 |
| TG006    | N. Shoa   | 33 | central-1 | 10.313260 | 39.799470 | MH634049 |
| TG069    | N. Shoa   | 33 | central-1 | 10.326640 | 39.803830 |          |
| TG070    | N. Shoa   | 33 | central-1 | 10.326660 | 39.803770 |          |
| TG071    | N. Shoa   | 33 | central-1 | 10.327440 | 39.804900 |          |
| TG076    | N. Shoa   | 33 | central-1 | 10.337000 | 39.477100 |          |
| SWol_021 | S. Wollo  | 34 | central-1 | 11.169830 | 39.240765 | MH634050 |
| TG013    | S. Wollo  | 35 | central-1 | 10.729859 | 38.789249 | MH634051 |
| TG014    | S. Wollo  | 35 | central-1 | 10.731104 | 38.783797 |          |
| TG026    | S. Wollo  | 35 | central-1 | 10.730526 | 38.785590 |          |
| TG111    | S. Wollo  | 35 | central-1 | 10.731321 | 38.784492 |          |
| TG112    | S. Wollo  | 35 | central-1 | 10.730996 | 38.785188 |          |
| TG115    | S. Wollo  | 35 | central-1 | 10.734442 | 38.785642 |          |
| TG012    | S. Wollo  | 36 | central-1 | 10.892899 | 38.821098 | MH634052 |
| TG118    | S. Wollo  | 36 | central-1 | 10.891400 | 38.809970 |          |
| TG027    | S. Wollo  | 37 | central-1 | 10.892862 | 38.820695 | MH634053 |
| TG032    | S. Wollo  | 37 | central-1 | 10.408524 | 39.264562 |          |
| TG036    | S. Wollo  | 37 | central-1 | 10.325930 | 39.208310 |          |
| TG113    | S. Wollo  | 37 | central-1 | 10.890296 | 38.809433 |          |
| TG114    | S. Wollo  | 37 | central-1 | 10.894209 | 38.804187 |          |
| TG116    | S. Wollo  | 37 | central-1 | 10.892718 | 38.820613 |          |
| NWol_025 | N. Wollo  | 38 | central-1 | 11.594332 | 38.941212 | MH634054 |
| WOL07    | S. Wollo  | 39 | central-1 | 10.850275 | 38.686786 | MH634055 |
| TG117    | S. Wollo  | 40 | central-1 | 10.893369 | 38.805642 | MH634056 |
| TG140    | N. Shoa   | 41 | central-1 | 10.262383 | 39.086452 | MH634057 |
| TG141    | N. Shoa   | 41 | central-1 | 10.262383 | 39.086452 |          |
| TG142    | N. Shoa   | 41 | central-1 | 10.262383 | 39.086452 |          |
| TG001    | N. Shoa   | 42 | central-1 | 10.063080 | 39.603140 | MH634058 |
| TG011    | N. Shoa   | 42 | central-1 | 9.737423  | 38.812659 |          |

|                            |            |    |           |           |           |          |
|----------------------------|------------|----|-----------|-----------|-----------|----------|
| TG016                      | N. Shoa    | 42 | central-1 | 10.190600 | 39.002054 |          |
| TG147                      | N. Shoa    | 42 | central-1 | 10.211667 | 39.096500 |          |
| TG148                      | N. Shoa    | 42 | central-1 | 10.211667 | 39.096500 |          |
| Gua1610                    | N. Shoa    | 43 | central-1 | 10.313260 | 39.799470 | MH634059 |
| TG072                      | N. Shoa    | 44 | central-1 | 10.317580 | 39.804930 | MH634060 |
| GUS12                      | N. Shoa    | 45 | central-1 | 10.402772 | 39.772878 | MH634061 |
| TG035                      | N. Shoa    | 46 | central-1 | 10.225650 | 39.122140 | MH634062 |
| TG139                      | N. Shoa    | 46 | central-1 | 10.587705 | 39.634344 |          |
| TG097                      | N. Shoa    | 47 | central-1 | 10.223450 | 39.399720 | MH634063 |
| SWol_020                   | S. Wollo   | 48 | central-1 | 11.450912 | 39.244585 | MH634064 |
| TG143                      | N. Shoa    | 49 | central-1 | 10.232560 | 39.171980 | MH634065 |
| TG144                      | N. Shoa    | 49 | central-1 | 10.226560 | 39.153490 |          |
| TG005                      | N. Wollo   | 50 | central-1 | 11.863720 | 39.196170 | MH634066 |
| SWol_018                   | S. Wollo   | 50 | central-1 | 10.451690 | 39.176899 |          |
| SWol_019                   | S. Wollo   | 51 | central-1 | 11.386291 | 39.249103 | MH634067 |
| SWol_017                   | S. Wollo   | 52 | central-1 | 10.634157 | 39.176948 | MH634068 |
| TG009                      | N. Shoa    | 53 | central-1 | 9.811476  | 38.736883 | MH634069 |
| TG021                      | N. Shoa    | 54 | central-1 | 9.703301  | 38.880941 | MH634070 |
| TG029                      | N. Shoa    | 54 | central-1 | 9.703301  | 38.880941 |          |
| TG149                      | N. Shoa    | 55 | central-1 | 10.211667 | 39.096500 | MH634071 |
| SWol_015                   | S. Wollo   | 56 | central-1 | 10.740342 | 39.181793 | MH634072 |
| TG017                      | S. Wollo   | 57 | central-1 | 10.409266 | 39.264435 | MH634073 |
| TG018                      | S. Wollo   | 57 | central-1 | 10.408524 | 39.264562 |          |
| TG022                      | S. Wollo   | 57 | central-1 | 10.409266 | 39.264435 |          |
| TG031                      | S. Wollo   | 57 | central-1 | 10.888970 | 38.813670 |          |
| TG134                      | N. Shoa    | 58 | central-1 | 9.924010  | 39.129380 | MH634074 |
| TG135                      | N. Shoa    | 58 | central-1 | 9.924010  | 39.129380 |          |
| TG136                      | N. Shoa    | 58 | central-1 | 9.924010  | 39.129380 |          |
| TG010                      | N. Shoa    | 59 | central-1 | 9.811675  | 38.736983 | MH634075 |
| TG098                      | N. Shoa    | 59 | central-1 | 9.434530  | 39.538910 |          |
| TG104                      | N. Shoa    | 59 | central-1 | 9.434960  | 39.539400 |          |
| TG132                      | N. Shoa    | 59 | central-1 | 9.924010  | 39.129380 |          |
| TG008                      | N. Shoa    | 60 | central-1 | 10.066174 | 39.020854 | MH634076 |
| TG015                      | N. Shoa    | 60 | central-1 | 10.251062 | 39.074915 |          |
| TG049*                     | Wag Hemira | 60 | central-1 | 13.081910 | 38.508000 |          |
| TG099                      | N. Shoa    | 60 | central-1 | 9.434890  | 39.539340 |          |
| TG101                      | N. Shoa    | 60 | central-1 | 9.934660  | 39.231030 |          |
| TG138                      | N. Shoa    | 60 | central-1 | 10.212790 | 39.090420 |          |
| TG145                      | N. Shoa    | 60 | central-1 | 10.233470 | 39.113140 |          |
| TG100                      | N. Shoa    | 61 | central-1 | 9.924010  | 39.129380 | MH634077 |
|                            |            |    |           |           |           |          |
| <i>Papio ursinus</i> (S)   |            |    |           |           |           | JX946204 |
| <i>P. ursinus</i> (N)      |            |    |           |           |           | JX946205 |
| <i>P. cynocephalus</i> (S) |            |    |           |           |           | JX946200 |
| <i>P. cynocephalus</i> (N) |            |    |           |           |           | JX946199 |
| <i>P. kindae</i>           |            |    |           |           |           | JX946202 |
| <i>P. papio</i>            |            |    |           |           |           | JX946203 |
| <i>P. anubis</i> (W1)      |            |    |           |           |           | JX946197 |
| <i>P. anubis</i> (W2)      |            |    |           |           |           | JX946198 |
| <i>P. anubis</i> (E)       |            |    |           |           |           | JX946196 |
| <i>P. hamadryas</i>        |            |    |           |           |           | JX946201 |