**Supplementary Table S1.** *Giardia duodenalis* reference strains used in this study.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ACCESSION**  **NUMBER** | **ISOLATE** | **ASSEMBLAGE/**  **GENOTYPE** | **HOST** | **COUNTRY** | **CONTINENT** | **YEAR** | **REFERENCE** |
| EU769206 | Swecat171 | A | cat | Sweden | Europe | 2011 | [1] |
| EU621373 | JC002 | A | deer | Poland | Europe | 2008 | [2] |
| EU769205 | Swecat078 | A | cat | Sweden | Europe | 2008 | [1] |
| GU396696 | H3-001 | A | human | Poland | Europe | 2016 | [3] |
| HM165227 | Sweh040 | A | human | Sweden | Europe | 2016 | [4] |
| KF922979 | HC11 | A | human | Brazil a | South America | 2014 | [5] |
| KF922983 | HC29 | A | human | Brazil a | South America | 2014 | [5] |
| KF922992 | HC44 | A | human | Brazil a | South America | 2014 | [5] |
| KF923000 | DC01 | A | dog | Brazil a | South America | 2014 | [5] |
| KM190682 | VANC/85/UBC/2 | A | human | Canada | North America | 1985 | [6] |
| KY612245 | AN1.5 | A | human | Brazil b | South America | 2014 | [7] |
| MN629930 | Z1 | A | dog | Iraq | Asia | 2020 | [8] |
| XM001705373 | WB C6 | A | culture | USA | North America | 2007 | [9] |
| GQ329671 | Sweh166 | A | human | Sweden | Europe | 2011 | [4] |
| EU014384 | Be2 | A1 | beaver | Canada | North America | 2011 | [10] |
| HQ179591 | 46c2 | A2 | human | Australia | Oceania | 2011 | [11] |
| AY072724 | ISSGF7 | A3 | human | Italy | Europe | 2002 | [12] |
| DQ090542 | STS-U | A3 | human | Norway | Europe | 2004 | [13] |
| DQ116612 | CBHRG9 | A3 | wastewater | Mexico | North America | 2006 | [14] |
| EU014381 | AB | A3 | human | Peru | South America | 1985 | [15] |
| FJ560577 | Lim2 | A3 | human | France | Europe | 1998 | [16] |
| FJ971408 | GLT1 | A3 | human | Thailand | Asia | 2007 | [17] |
| FN386484 | I231104 | A3 | wastewater | Spain | Europe | 2004 | [18] |
| KU504738 | S42 | A3 | human | Brazil c | South America | 2011 | [19] |
| DQ090523 | BG-Ber2 | B | human | Norway | Europe | 2005 | [13] |
| AB480877 | PalH9 | B | human | Palestine | Asia | 2006 | [20] |
| AB618785 | GH-202 | B | human | Japan | Asia | 2010 | [21] |
| FJ971440 | GLT2 | B | human | Thailand | Asia | 2007 | [17] |
| FJ971461 | GL518 | B | human | Thailand | Asia | 2010 | [17] |
| FJ971482 | GL121 | B | human | Thailand | Asia | 2007 | [17] |
| KF922985 | HC32 | B | human | Brazil a | South America | 2014 | [5] |
| KF922993 | HC45 | B | human | Brazil a | South America | 2014 | [5] |
| KP687755 | VANC/90/UBC/44 | B | wastewater | Canada | North America | 1990 | [6] |
| KP687756 | "VANC/90/UBC/54 | B | beaver | Canada | North America | 1990 | [6] |
| KU504702 | S3C1 | B | human | Brazil c | South America | 2011 | [19] |
| KU504704 | S3C3 | B | human | Brazil c | South America | 2011 | [19] |
| KU504707 | S8 | B | human | Brazil c | South America | 2011 | [19] |
| KU504708 | S9 | B | human | Brazil c | South America | 2011 | [19] |
| KU504709 | S10C3 | B | human | Brazil c | South America | 2011 | [19] |
| KU504712 | S11C1 | B | human | Brazil c | South America | 2011 | [19] |
| KU504713 | S11C2 | B | human | Brazil c | South America | 2011 | [19] |
| KU504714 | S11C3 | B | human | Brazil c | South America | 2011 | [19] |
| KU504715 | S13C2 | B | human | Brazil c | South America | 2011 | [19] |
| KU504720 | S15 | B | human | Brazil c | South America | 2011 | [19] |
| KU504722 | S16C2 | B | human | Brazil c | South America | 2011 | [19] |
| KU504723 | S16C4 | B | human | Brazil c | South America | 2011 | [19] |
| KU504731 | S24C2 | B | human | Brazil c | South America | 2011 | [19] |
| KU504732 | S24C3 | B | human | Brazil c | South America | 2011 | [19] |
| KY612242 | S8C5 | B | human | Brazil c | South America | 2011 | [19] |
| LC508615 | K6 clone1 | B | human | Kenya | Africa | 2013 | [22] |
| MT542771 | 5 | B | human | Brazil c | South America | 2021 | [23] |
| AY072725 | Nij5 | B1 | human | The Netherlands | Europe | 2002 | [24] |
| AY072726 | LD18 | B2 | human | Belgium | Europe | 2002 | [24] |
| AY072727 | BAH8 | B3 | human | Australia | Oceania | 1999 | [12] |
| JF422719 | BRAdogD15 | C | dog | Brazil a | South America | 2009 | [25] |
| KF923019 | VET01 | D | dog | Brazil a | South America | 2014 | [5] |
| AY072729 | P15 | E | pig | Czech Republic | Europe | 1996 | [12] |
| AY647264 | A101 | F | cat | Italy | Europe | 2004 | [26] |

a Atlantic Forest biome; b Cerrado biome; c Amazon biome.

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**Supplementary Table 2.** Molecular diversity indexes of *Giardia duodenalis* based on β-giardin locus (592 bp, n=106).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Assemblage** | **Region (N)** | **Statistics** | | | | | |
| **H ± SD** | **Nº of haplotypes** | **Nº of**  **polymorphic sites** | **Nº of substitutions** | **Nº of transitions** | **Nº of transversions** |
|  | South America (31) | 0.879 ± 0.037 | 14 | 38 | 39 | 21 | 18 |
| **Assemblage A** | North America (4) | 0.666 ±0.204 | 2 | 4 | 4 | 4 | 0 |
| Europe (10) | 0.822 ± 0.096 | 5 | 15 | 15 | 15 | 0 |
| Asia (2) | 1.000 ± 0.500 | 2 | 4 | 4 | 4 | 0 |
| All continents (49) | 0.854 ± 0.029 | 16 | 50 | 50 | 33 | 18 |
| All Amazon biome (5) | 0.800 ± 0.164 | 3 | 8 | 8 | 6 | 2 |
| **Amazon biome\* (4)** | 0.833 ± 0.222 | 3 | 8 | 8 | 6 | 2 |
| All Cerrado biome (8) | 0.964 ± 0.077 | 7 | 30 | 31 | 15 | 16 |
| **Cerrado biome\* (7)** | 1.000 ± 0.076 | 7 | 30 | 31 | 15 | 16 |
| **Caatinga biome\* (5)** | 0.700 ± 0.218 | 3 | 2 | 2 | 2 | 0 |
| All Atlantic Forest biome (13) | 0.859 ± 0.063 | 6 | 6 | 6 | 6 | 0 |
| **Atlantic Forest biome\* (9)** | 0.750 ± 0.112 | 4 | 4 | 4 | 4 | 0 |
| Atlantic Forest biome (4) | 0.833 ± 0.222 | 3 | 2 | 2 | 2 | 0 |
|  | All Brazil (31) | 0.879 ± 0.037 | 14 | 38 | 39 | 21 | 18 |
| **Assemblage B** | South America (41) | 0.918 ± 0.033 | 23 | 36 | 36 | 31 | 6 |
| North America (2) | 1.000 ± 0.500 | 2 | 3 | 3 | 3 | 0 |
| Europe (3) | 1.000 ± 0.272 | 3 | 7 | 7 | 7 | 0 |
| Asia (5) | 1.000 ± 0.126 | 5 | 5 | 5 | 5 | 0 |
| All continents (51) | 0.921 ± 0.028 | 28 | 37 | 37 | 32 | 6 |
| All Amazon biome (37) | 0.899 ± 0.039 | 19 | 24 | 24 | 23 | 1 |
| **Amazon biome\* (21)** | 0.757 ± 0.086 | 7 | 8 | 8 | 7 | 1 |
| Amazon biome (16) | 0.991 ± 0.025 | 15 | 21 | 21 | 21 | 0 |
| All Atlantic Forest biome (3) | 1.000 ± 0.272 | 3 | 10 | 10 | 7 | 3 |
| Atlantic Forest (2) | 1.000 ± 0.500 | 2 | 5 | 5 | 4 | 1 |
| All Brazil (41) | 0.918 ± 0.033 | 23 | 36 | 36 | 31 | 6 |
| **ALL (106) \*\*** |  | 0.951 ± 0.009 | 50 | 125 | 147 | 105 | 42 |

H ± SD: gene diversity ± standard deviation. (bp): base pair. \* Sequences obtained in this study \*\*ALL: included assemblages A, B, C, D, E and F. Further details of reference strains can be found in Supplementary Table S1. Only groups with more than 1 sequence are shown.