**Table S3.** Characteristics of 81 full length Cer-SERV genomes

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sequence | Nt distance between LTRs | gag ORF, 1977 nt | prot ORF, 921 nt | pol ORF, 2616 nt | env ORF, 1713 nt | remarks | Cer-SERV genotype |
| NC\_037673.1 Theropithecus gelada isolate Dixy chromosome 6, Tgel\_1.0-A | 0.029 |  |  |  | stop at S419 |  | SERV-1 |
| NC\_037679.1 Theropithecus gelada isolate Dixy chromosome 11, Tgel\_1.0-B | 0.013 | 1 nt del |  |  |  |  | SERV-1 |
| NC\_037687.1 Theropithecus gelada isolate Dixy chromosome 19, Tgel\_1.0-A | 0.002 |  |  |  |  | 4 ORFs open | SERV-1 |
| NC\_037687.1 Theropithecus gelada isolate Dixy chromosome 19, Tgel\_1.0-B | 0.006 |  |  |  |  | 4 ORFs open | SERV-1 |
| NC\_037679.1 Theropithecus gelada isolate Dixy chromosome 11, Tgel\_1.0-A | 0.029 | stop at R290 | 1 nt del |  | 7 + 2 nt del |  | SERV-1 |
| NC\_037672.1 Theropithecus gelada isolate Dixy chromosome 5, Tgel\_1.0-A | 0.004 |  |  |  |  | 4 ORFs open | SERV-1 |
| NC\_037685.1 Theropithecus gelada isolate Dixy chromosome 17, Tgel\_1.0-A | 0.015 | stop at W180 |  | 1 nt ins, 4 nt del, 8 nt ins |  |  | SERV-1 |
| NC\_037681.1 Theropithecus gelada isolate Dixy chromosome 13, Tgel\_1.0 | 0.022 | 4 nt del |  | 2 nt del |  |  | SERV-1 |
| NC\_037671.1 Theropithecus gelada isolate Dixy chromosome 4, Tgel\_1.0-A | 0.033 |  |  |  | 1 nt ins |  | SERV-1 |
| NC\_037671.1 Theropithecus gelada isolate Dixy chromosome 4, Tgel\_1.0-B | 0.015 |  |  | stop at L778 | stop at S437 |  | SERV-1 |
| NC\_037675.1 Theropithecus gelada isolate Dixy chromosome 7b, Tgel\_1.0-A | 0.013 | stop at W359 |  | stop at R622 | 2 + 5 nt ins |  | SERV-1 |
| NC\_037672.1 Theropithecus gelada isolate Dixy chromosome 5, Tgel\_1.0-B | 0.011 | stops at S445, R502 | TA-repeat ( + stops) | stop at W653 |  |  | SERV-1 |
| ref|NC\_044982.1| Papio anubis isolate 15944 chromosome 7, Panubis1.0 | 0.020 |  |  |  |  | 4 ORFs open | SERV-1 |
| NC\_037676.1 Theropithecus gelada isolate Dixy chromosome 8, Tgel\_1.0-A | 0.008 | 1 nt ins | 1 nt del | 1 nt del |  |  | SERV-1 |
| NC\_018155.2 Papio anubis isolate 1X1155 chromosome 4, Panu\_3.0-A | 0.020 | 1 nt del |  | 4 x 1 nt del, 2 x 1 nt ins, 2 x 2 nt ins, 2 x 2 nt del, 1 x 7 nt del | 1 nt del |  | SERV-1 |
| NC\_018153.2 Papio anubis isolate 1X1155 chromosome 2, Panu\_3.0-A | 0.008 | no startcodon (ATA) |  | 1 nt del |  |  | SERV-1 |
| NC\_018157.2 Papio anubis isolate 1X1155 chromosome 6, Panu\_3.0-A | 0.015 | 1 nt del |  |  | 2 nt del |  | SERV-1 |
| NC\_018155.2 Papio anubis isolate 1X1155 chromosome 4, Panu\_3.0-B | 0.019 |  | 1 + 2 nt ins |  | 1 + 2 nt del |  | SERV-1 |
| NC\_041760.1:63495810-63503992 Macaca mulatta isolate AG07107 chromosome 7, Mmul\_10 | 0.044 |  |  |  | stop at R379 |  | SERV-1 |
| NC\_027895.1 Macaca mulatta isolate 17573 chromosome 3, Mmul\_8.0.1-A | 0.008 |  |  | 1 nt del, 1 nt ins | 2 x 1 nt del |  | SERV-1 |
| NC\_041761.1:47135738-47143910 Macaca mulatta isolate AG07107 chromosome 8, Mmul\_10 | 0.015 | 1 nt del |  |  | 1 nt ins, 2 nt del |  | SERV-1 |
| NW\_005093490.1 Macaca fascicularis unplaced genomic scaffold, Macaca\_fascicularis\_5.0 Scaffold38 | 0.037 | 1 nt del; 1 nt ins |  | stop at R650 |  |  | SERV-1 |
| NC\_041766.1:21401809-21409977 Macaca mulatta isolate AG07107 chromosome 13, Mmul\_10 | 0.033 | 1 nt del | 1 nt del, 1 nt ins | 1 nt del |  |  | SERV-1 |
| Ensembl\_provirus Macaca\_mulatta\_chromosome\_Y 4120154 to 4128338 minus | 0.026 | stop at R290 | 10 nt del |  | 2 nt del |  | SERV-1 |
| NC\_041754.1:103723616-103731779 Macaca mulatta isolate AG07107 chromosome 1, Mmul\_10 | 0.035 | 1 nt ins |  | 11 nt del, 4 x 1 nt del | 1 + 1 nt del + 2 nt ins |  | SERV-1 |
| BFBW01024194.1:15409-23817 Macaca fuscata fuscata DNA, contig24194, whole genome shotgun sequence | 0.008 | 1 nt del |  |  | 1 nt del |  | SERV-1 |
| BFBW01009514.1:19393-27799 Macaca fuscata fuscata DNA, contig9514, whole genome shotgun sequence | 0.006 |  |  |  | 2 nt del |  | SERV-1 |
| BFBW01080171.1:1419-9817 Macaca fuscata fuscata DNA, contig80171, whole genome shotgun sequence | 0.047 | 2 nt del |  | 4 nt del | stop at Q416 |  | SERV-1 |
| BFBW01036568.1:13513-21917 Macaca fuscata fuscata DNA, contig36568, whole genome shotgun sequence | 0.035 | 1 nt del (+3 nt del) | 2 x 1 nt del | 1 nt del |  |  | SERV-1 |
| NC\_037668.1 Theropithecus gelada isolate Dixy chromosome 1, Tgel\_1.0-A | 0.028 |  |  | 1 nt ins | 1 nt ins |  | SERV-1 |
| ref|NC\_044976.1| Papio anubis isolate 15944 chromosome 1, Panubis1.0-B | 0.050 |  |  |  |  | 4 ORFs open | SERV-1 |
| NC\_037673.1 Theropithecus gelada isolate Dixy chromosome 6, Tgel\_1.0-B | 0.008 | 1 nt ins |  |  |  |  | SERV-1 |
| NC\_037673.1 Theropithecus gelada isolate Dixy chromosome 6, Tgel\_1.0-C | 0.013 | 2 nt del | 1 nt del | 2 nt del |  |  | SERV-1 |
| NC\_037670.1 Theropithecus gelada isolate Dixy chromosome 3, Tgel\_1.0-A | 0.024 | 1 + 2 nt ins |  | 1 nt del | 1 nt del |  | SERV-1 |
| NC\_037678.1 Theropithecus gelada isolate Dixy chromosome 10, Tgel\_1.0-A | 0.013 |  | stop at L271 | 2 x 1 nt del | 10 nt del |  | SERV-1 |
| NC\_037687.1 Theropithecus gelada isolate Dixy chromosome 19, Tgel\_1.0-C | 0.033 | 1 nt del |  | stops at W35, L778 |  |  | SERV-1 |
| ref|NC\_044976.1| Papio anubis isolate 15944 chromosome 1, Panubis1.0-A | 0.050 |  | stop at R249 |  | 2 x 1 nt del |  | SERV-1 |
| NC\_018154.2 Papio anubis isolate 1X1155 chromosome 3, Panu\_3.0-A | 0.033 | 1 nt ins | stop at W197 | 2 x 1 nt ins, 2 nt del | 1 nt del |  | SERV-1 |
| NC\_018154.2 Papio anubis isolate 1X1155 chromosome 3, Panu\_3.0-B | 0.242 | 1 nt ins |  | 4 x 1 nt del |  |  | SERV-1 |
| NC\_023658.1 Chlorocebus sabaeus isolate 1994-021 chromosome 17, Chlorocebus\_sabeus 1.1-A | 0.007 |  |  | 1 nt ins | 1 nt ins, 1 nt del |  | SERV-1 |
| NW\_023666038.1:3456989-3465347 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-6 | 0.000 |  |  |  | stop at R31 |  | SERV-1 |
| NW\_023666075.1:10876024-10884373 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-43 | 0.007 | stop at R22 |  | 4 nt del | 1 nt ins, 1 nt del |  | SERV-1 |
| NW\_023666077.1:33850696-33859017 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-45 | 0.034 |  | stop at Q290 | stops at L605, L778 | 1 nt del |  | SERV-1 |
| ref|NC\_044997.1| Papio anubis isolate 15944 chromosome Y, Panubis1.0 | 0.053 |  |  | 1 nt del | 13 nt del |  | SERV-1 |
| ref|NC\_044989.1| Papio anubis isolate 15944 chromosome 14, Panubis1.0 | 0.029 | stop at W56 |  |  | 1 nt del |  | SERV-1 |
| ref|NC\_044981.1| Papio anubis isolate 15944 chromosome 6, Panubis1.0-A | 0.029 |  | stop at R249 |  | 1 nt del |  | SERV-1 |
| ref|NC\_044981.1| Papio anubis isolate 15944 chromosome 6, Panubis1.0-B | 0.033 |  |  | stop at Q16 | 1 nt del |  | SERV-1 |
| ref|NW\_022164029.1| Papio anubis isolate 15944 unplaced genomic scaffold, Panubis1.0 scaffold387 | 0.036 |  | stop at R249 |  | 1 nt del |  | SERV-1 |
| ref|NC\_044996.1| Papio anubis isolate 15944 chromosome X, Panubis1.0 | 0.015 |  | stop at R249 | stop at Q16 | 1 nt del |  | SERV-1 |
| ref|NC\_044981.1| Papio anubis isolate 15944 chromosome 6, Panubis1.0-C | 0.024 |  | stop at R249 | stop at Q16 | stop at Q547 |  | SERV-1 |
| ref|NW\_022161492.1| Papio anubis isolate 15944 unplaced genomic scaffold, Panubis1.0 scaffold152 | 0.179 |  |  | stop at Q16 | 2 x 1 nt del |  | SERV-1 |
| Papio\_anubis\_chr\_11\_118991926-to-118992402-ensembl | 0.028 |  |  | 2 x 1 nt ins | stop at Y222 |  | SERV-1 |
| Papio\_anubis\_chr\_9\_26805356-to-26810903-ensembl | 0.028 |  |  | 2 x 1 nt ins | stop at Y222 |  | SERV-1 |
| gi|2246459|gb|U85505.1|STU85505 Simian endogenous retrovirus, complete genome | 0.035 |  |  | 2 x 1 nt ins | stop at Y222 |  | SERV-1 |
| AB935214.1 Chlorocebus sabaeus DNA, simian endogenous retrovirus vero JCRB0111, complete sequence, cell\_line: Vero JCRB0111 | 0.314 |  |  |  |  | 4 ORFs open | SERV-1 |
| ref|NC\_044995.1| Papio anubis isolate 15944 chromosome 20, Panubis1.0 | 0.034 | 3 x 1 nt del | stop at S150 | stops at W24, Q83 | 2 x 1 nt del, 19 nt del |  | SERV-2 |
| ref|NC\_044983.1| Papio anubis isolate 15944 chromosome 8, Panubis1.0 | 0.032 | 2 x 1 nt del | stop at G102 | stop at Y718 | 2 x 1 nt del |  | SERV-2 |
| NC\_023658.1 Chlorocebus sabaeus isolate 1994-021 chromosome 17, Chlorocebus\_sabeus 1.1-B | 0.031 | 1 nt del | stops at Q26, R249 |  |  |  | SERV-2 |
| NC\_023649.1 Chlorocebus sabaeus isolate 1994-021 chromosome 8, Chlorocebus\_sabeus 1.1 | 0.017 |  | 4 nt del |  |  |  | SERV-2 |
| GPS\_003667849.1 Chlorocebus sabaeus isolate 1994-021 unplaced genomic scaffold, Chlorocebus\_sabeus 1.0 Scaffold369 | 0.049 | 1 nt ins | stop at R249 | 2 nt ins, 1 nt del | stops at K61, R541 |  | SERV-2 |
| NC\_037685.1 Theropithecus gelada isolate Dixy chromosome 17, Tgel\_1.0-C | 0.072 | 1 + 2 nt ins; 1 nt del | 1 nt ins (overlap gag) | 1 nt ins, 1 nt del | 4 nt del, 8 nt ins | shared provirus | SERV-2 |
| NC\_018168.2:46458393-46466808 Papio anubis isolate 1X1155 chromosome 17, Panu\_3.0, whole genome shotgun sequence | 0.084 | 1 + 2 nt ins; 1 nt del | 1 nt ins (overlap gag) | 1 nt del | 4 nt del, 8 nt ins | shared provirus | SERV-2 |
| NC\_044990.1:45853202-45861607 Papio anubis isolate 15944 chromosome 15, Panubis1.0 | 0.075 | 1 + 2 nt ins; 1 nt del | 1 nt ins (overlap gag) | 1 nt ins, 1 nt del | 4 nt del, 8 nt ins | shared provirus | SERV-2 |
| PVJV010010813.1:8506-16907 Erythrocebus patas isolate BS28 EryPat\_scaffold\_21615, whole genome shotgun sequence | 0.053 | 1 nt del | 1 + 5 nt del | 1 nt del, 11 nt ins | 1 nt ins |  | SERV-2 |
| NW\_005093489.1 Macaca fascicularis unplaced genomic scaffold, Macaca\_fascicularis\_5.0 Scaffold37 | 0.045 | 1 nt del |  | stops at Q484, L778 | 1 nt del |  | SERV-2 |
| NC\_037668.1 Theropithecus gelada isolate Dixy chromosome 1, Tgel\_1.0-D | 0.036 | stops at R22, E148, Q155 |  | stop at L778 |  |  | SERV-2 |
| NW\_018792497.1 Papio anubis isolate 1X1155 unplaced genomic scaffold, Panu\_3.0 Scaffold31435 | 0.045 | stops at L4, W588 |  |  |  |  | SERV-2 |
| NC\_037668.1 Theropithecus gelada isolate Dixy chromosome 1, Tgel\_1.0-C | 0.033 |  |  |  | no startcodon (ATT), stop at W500 |  | SERV-2 |
| NC\_037676.1 Theropithecus gelada isolate Dixy chromosome 8, Tgel\_1.0-B | 0.011 | 1 nt ins | 1 nt ins; 13 nt del | 1 nt del | 7 nt del |  | SERV-2 |
| NC\_037676.1 Theropithecus gelada isolate Dixy chromosome 8, Tgel\_1.0-C | 0.042 | stop at W649 | 1 nt ins | 1 nt del | stop at W237 |  | SERV-2 |
| NC\_027894.1 Macaca mulatta isolate 17573 chromosome 2, Mmul\_8.0.1-B | 0.022 |  | 1 nt ins | 2 x 1 nt del | 1 nt ins |  | SERV-2 |
| primary\_assembly:Mmul\_10:11:29816550:29825525 | 0.022 | 1 nt del |  |  | 5 x 1 nt del |  | SERV-2 |
| primary\_assembly\_Mmul\_10\_chr19\_36701026-36710010 | 0.051 | 1 nt del | 1 nt ins (overlap gag) | 1 nt ins | 1 nt ins |  | SERV-2 |
| BFBW01007234.1:99392-107789 Macaca fuscata fuscata DNA, contig7234, whole genome shotgun sequence | 0.026 |  | 1 nt ins |  | 1 nt ins |  | SERV-2 |
| BFBW01047892.1:22409-30792 Macaca fuscata fuscata DNA, contig47892, whole genome shotgun sequence | 0.040 | 4 nt del |  | stop at Q83 | 1 nt ins |  | SERV-2 |
| BFBW01059201.1:3610-11968 Macaca fuscata fuscata DNA, contig59201, whole genome shotgun sequence | 0.068 | 1 nt del |  | 16 + 8 nt del | 1 nt del |  | SERV-2 |
| NW\_023666034.1:54525199-54533605 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-2 | 0.015 |  |  |  |  | 4 ORFs open | SERV-2 |
| NW\_023666038.1:5204694-5213089 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-6 | 0.015 | 1 nt del | stop at Q26 | stop at L778 |  |  | SERV-2 |
| NW\_023666038.1:1433607-1441999 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-6 | 0.024 |  | 1 nt del | stops at W408, Q750 | 1 nt del |  | SERV-2 |
| NW\_023666038.1:220470-228861 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-6 | 0.041 | 1 + 4 nt del |  | 1 nt ins, 2 nt del | stop at S254 |  | SERV-2 |
| NW\_023666033.1:79578207-79586623 Chlorocebus sabaeus strain WHO RCB 10-87 unplaced genomic scaffold, Vero\_WHO\_p1.0 scaffold-1 | 0.022 | 1 nt ins |  | 11 nt ins |  |  | SERV-2 |
|  | mean nt distance LTRs SERV-1 (minus 3 ‘bad’ seqs (in red)) = 0.023 ± 0.014 | 30/55 SERV-1 open | 9/55 SERV-1 open | 22/55 SERV-1 open | 19/55 SERV-1 open |  |  |
|  | mean nt distance LTRs SERV-2 0.039 ± 0.019 | Gag: 6/26 SERV-2 open | 10/26 SERV-2 open | 7/26 SERV-2 open | 7/26 SERV-2 open |  |  |

All 4 ORFs are open in at least 6 SERV-1, and 1 SERV-2 provirus(es)