**Table S1. Mammalian foamy viruses (FVs).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **FVs†‡** | **Host species** | **Host group** | **Year first isolate [ref]** | **Year first full-genome available [ref]** |
| **Exogenous foamy virus** |
| SFVmac (SFV-1, SFV-2) | Macaque (*Macaca mulatta, M. cyclopis*) | Boreoeutheria | 1955 [1], 1961 [2] | 1991 [3] |
| SFVagm (SFV-3) | African green monkey (*Cercopithecus aethiops*) |  | 1964 [4] | 1992 [5] |
| SFVsqu (SFV-4) | Squirrel monkey (*Saimiri sciureus*) |  | 1971 [6] | 2010 [7] |
| PSFVgal (SFV-5) | Galago (*Otolemur crassicaudatus panganiensis*) |  | 1971 [6] | - |
| SFVcpz (SFV-6, SFV-7) | Chimpanzee (*Pan troglodytes verus*) |  | 1967 [8] | 1994 [9] |
| SFVspm (SFV-8) | Spider monkey (*Ateles sp.*) |  | 1973 [10] | 2007 [11] |
| SFVcap (SFV-9) | Capuchin (*Cebus sp.*) |  | 1975 [12] | - |
| SFVbab (SFV-10) | Baboon (*Papio cynocephalus*) |  | 1975 [13] | - |
| SFVora (SFV-11) | Orangutan (*Pongo pygmaeus*) |  | 1994 [14] | 2003 [15] |
| SFVgor | Gorilla (*Gorilla gorilla sp.*) |  | 1995 [16] | 2011 [17] |
| SFVmar | Marmoset (*Callithrix jacchus*) |  | 1981 [18] | 2010 [7] |
| FFV | Domestic cat (*Felis catus*) |  | 1969 [19] | 1997 [20] |
| BFV | Cow (*Bos taurus*) |  | 1969 [21] | 1994 [22] |
| EFV | Horse (*Equus ferus caballus)* |  | 2000 [23] | 2000 [23] |
| RhiFV | Bat (*Rhinolophus affinis)* |  | 2012 [24] | - |
| PFV\* | Human (*Homo sapiens*) |  | 1971 [25] | 1987 [26], 1988 [27] |
| **Endogenous foamy virus** |
| PSFVaye | Aye-aye (*Daubentonia madagascariensis*) | Boreoeutheria | 2012 [28] | - |
| SloEFV | Two-toed sloth (*Choloepus hoffmanni*) | Xenarthran | 2009 [29] | 2009 [29] |

† Acronyms used in FV names: SFVmac, macaque FV; SFVagm, African green monkey FV; SFVsqu, squirrel FV; PSFVgal, galago prosimian FV; SFVcpz, chimpanzee FV; SFVspm, spider monkey FV; SFVcap, capuchin FV; SFVbab, baboon FV; SFVora, orangutan FV; SFVgor, gorilla FV; SFVmar, common marmoset FV; FFV, feline FV; BFV, bovine FV; EFV, equine FV; RhiFV, *Rhinolophus* FV; PFV, prototype FV; PSFVaye, aye-aye prosimian FV; SloEFV, sloth endogenous FV.

‡ Names within brackets are old nomenclatures based on serotyping which are not used anymore.

\* Although the prototype FV (PFV) was isolated from a human and was originally called a human foamy virus (HFV), it is well established that it is in fact a variant foamy virus of chimpanzee origin, most closely related to and clustering well within the clade of foamy viruses from *Pan troglodytes schweinfurthii* [30–32]. Phylogenetic analyses revealed evidence for coevolution of chimpanzee hosts and their specific FVs at the subspecies level [30, 32]. Therefore, PFV is here treated as a *Pan troglodytes schweinfurthii* FV which diverged from SFVcpz about 0.96 million years ago, inferred under the FV-host co-speciation assumption using the divergence date of *Pan troglodytes schweinfurthii* and *Pan troglodytes verus* [33].

1. Rustigian R, Johnston P, Reihart H: **Infection of monkey kidney tissue cultures with virus-like agents.** *Proc Soc Exp Biol Med* 1955, **88**:8–16.

2. Johnston PB: **A second immunologic type of simian foamy virus: monkey throat infections and unmasking by both types.** *J Infect Dis* 1961, **109**:1–9.

3. Kupiec JJ, Kay A, Hayat M, Ravier R, Périès J, Galibert F: **Sequence analysis of the simian foamy virus type 1 genome.** *Gene* 1991, **101**:185–94.

4. Stiles GE, Bittle JL, Cabasso VJ: **Comparison of Simian Foamy Virus Strains including a New Serological Type**. *Nature* 1964, **201**:1350–1351.

5. Renne R, Friedl E, Schweizer M, Fleps U, Turek R, Neumann-Haefelin D: **Genomic organization and expression of simian foamy virus type 3 (SFV-3).** *Virology* 1992, **186**:597–608.

6. Johnston PB: **Taxonomic features of seven serotypes of simian and ape foamy viruses.** *Infect Immun* 1971, **3**:793–799.

7. Pacheco B, Finzi A, McGee-Estrada K, Sodroski J: **Species-specific inhibition of foamy viruses from South American monkeys by New World Monkey TRIM5{alpha} proteins.** *J Virol* 2010, **84**:4095–4099.

8. Rogers NG, Basnight M, Gibbs CJ, Gajdusek DC: **Latent Viruses in Chimpanzees with Experimental Kuru**. *Nature* 1967, **216**:446–449.

9. Herchenröder O, Renne R, Loncar D, Cobb EK, Murthy KK, Schneider J, Mergia A, Luciw PA: **Isolation, cloning, and sequencing of simian foamy viruses from chimpanzees (SFVcpz): high homology to human foamy virus (HFV).** *Virology* 1994, **201**:187–99.

10. Hooks JJ, Gibbs CJ, Chou S, Howk R, Lewis M, Gajdusek DC: **Isolation of a new simian foamy virus from a spider monkey brain culture.** *Infect Immun* 1973, **8**:804–813.

11. Thümer L, Rethwilm A, Holmes EC, Bodem J: **The complete nucleotide sequence of a New World simian foamy virus.** *Virology* 2007, **369**:191–197.

12. Hooks JJ, Gibbs CJ: **The foamy viruses.** *Bacteriol Rev* 1975, **39**:169–85.

13. Heberling RL, Kalter SS: **Isolation of foamy viruses from baboon (Papio cynocephalus) tissues.** *Am J Epidemiol* 1975, **102**:25–9.

14. McClure MO, Bieniasz PD, Schulz TF, Chrystie IL, Simpson G, Aguzzi A, Hoad JG, Cunningham A, Kirkwood J, Weiss RA: **Isolation of a new foamy retrovirus from orangutans.** *J Virol* 1994, **68**:7124–7130.

15. Verschoor EJ, Langenhuijzen S, van den Engel S, Niphuis H, Warren KS, Heeney JL: **Structural and evolutionary analysis of an orangutan foamy virus.** *J Virol* 2003, **77**:8584–8587.

16. Bieniasz PD, Rethwilm A, Pitman R, Daniel MD, Chrystie I, McClure MO: **A comparative study of higher primate foamy viruses, including a new virus from a gorilla.** *Virology* 1995, **207**:217–228.

17. Schulze A, Lemey P, Schubert J, McClure MO, Rethwilm A, Bodem J: **Complete nucleotide sequence and evolutionary analysis of a gorilla foamy virus.** *J Gen Virol* 2011, **92**:582–586.

18. Marczynska B, Jones CJ, Wolfe LG: **Syncytium-forming virus of common marmosets (Callithrix jacchus jacchus).** *Infect Immun* 1981, **31**:1261–1269.

19. Riggs JL, Oshirls, Taylor DO, Lennette EH: **Syncytium-forming agent isolated from domestic cats.** *Nature* 1969, **222**:1190–1.

20. Winkler I, Bodem J, Haas L, Zemba M, Delius H, Flower R, Flügel RM, Löchelt M: **Characterization of the genome of feline foamy virus and its proteins shows distinct features different from those of primate spumaviruses.** *J Virol* 1997, **71**:6727–6741.

21. Malmquist WA, Van der Maaten MJ, Boothe AD: **Isolation, immunodiffusion, immunofluorescence, and electron microscopy of a syncytial virus of lymphosarcomatous and apparently normal cattle.** *Cancer Res* 1969, **29**:188–200.

22. Renshaw RW, Casey JW: **Transcriptional mapping of the 3’ end of the bovine syncytial virus genome.** *J Virol* 1994, **68**:1021–1028.

23. Tobaly-Tapiero J, Bittoun P, Neves M, Guillemin MC, Lecellier CH, Puvion-Dutilleul F, Gicquel B, Zientara S, Giron ML, de Thé H, Saïb A: **Isolation and characterization of an equine foamy virus.** *J Virol* 2000, **74**:4064–4073.

24. Wu Z, Ren X, Yang L, Hu Y, Yang J, He G, Zhang J, Dong J, Sun L, Du J, Liu L, Xue Y, Wang J, Yang F, Zhang S, Jin Q: **Virome Analysis for Identification of Novel Mammalian Viruses in Bat Species from Chinese Provinces**. *J Virol* 2012, **86**:10999–11012.

25. Achong BG, Mansell PW, Epstein MA, Clifford P: **An unusual virus in cultures from a human nasopharyngeal carcinoma.** *J Natl Cancer Inst* 1971, **46**:299–307.

26. Flügel RM, Rethwilm A, Maurer B, Darai G: **Nucleotide sequence analysis of the env gene and its flanking regions of the human spumaretrovirus reveals two novel genes.** *EMBO J* 1987, **6**:2077–2084.

27. Maurer B, Bannert H, Darai G, Flügel RM: **Analysis of the primary structure of the long terminal repeat and the gag and pol genes of the human spumaretrovirus.** *J Virol* 1988, **62**:1590–1597.

28. Han G-Z, Worobey M: **An endogenous foamy virus in the aye-aye (Daubentonia madagascariensis).** *J Virol* 2012, **86**:7696–8.

29. Katzourakis A, Gifford RJ, Tristem M, Gilbert MTP, Pybus OG: **Macroevolution of complex retroviruses.** *Science* 2009, **325**:1512.

30. Switzer WM, Bhullar V, Shanmugam V, Cong M-E, Parekh B, Lerche NW, Yee JL, Ely JJ, Boneva R, Chapman LE, Folks TM, Heneine W: **Frequent simian foamy virus infection in persons occupationally exposed to nonhuman primates.** *J Virol* 2004, **78**:2780–9.

31. Meiering CD, Linial ML: **Historical perspective of foamy virus epidemiology and infection.** *Clin Microbiol Rev* 2001, **14**:165–76.

32. Liu W, Worobey M, Li Y, Keele BF, Bibollet-Ruche F, Guo Y, Goepfert PA, Santiago ML, Ndjango J-BN, Neel C, Clifford SL, Sanz C, Kamenya S, Wilson ML, Pusey AE, Gross-Camp N, Boesch C, Smith V, Zamma K, Huffman MA, Mitani JC, Watts DP, Peeters M, Shaw GM, Switzer WM, Sharp PM, Hahn BH: **Molecular ecology and natural history of simian foamy virus infection in wild-living chimpanzees.** *PLoS Pathog* 2008, **4**:e1000097.

33. Stone AC, Battistuzzi FU, Kubatko LS, Perry GH, Trudeau E, Lin H, Kumar S: **More reliable estimates of divergence times in Pan using complete mtDNA sequences and accounting for population structure.** *Philos Trans R Soc Lond B Biol Sci* 2010, **365**:3277–88.

**Table S2. Distribution of Simian Foamy Virus (SFV) in Prosimians.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Common Name** | **Scientific Name** | **Origin** | **Serology†No. Pos/Total (%)** | **PSFVgal-specific PCRNo. Pos/Total (%)** | **PSFVaye-specific PCRNo. Pos/Total (%)** | **Generic NWM**‡ **SFV PCRNo. Pos/Total (%)** | **PSFVgal-PSFVaye-generic PCRNo. Pos/Total (%)** |
| Phillipine tarsier1 | *Tarsius syrichta* | wild | ND | ND | ND | 0/2 | 0/2 |
| Garnett’s great bush baby1 | *Otolemur garnetti* | captive | 11/14 (78.6) | ND | ND | ND | ND |
| Silvery greater galago1 | *Otolemur monteiri monteiri* | captive | ND | 0/5 | ND | 0/5 | 2/5 (40) |
| Silvery greater galago1 | *Otolemur monteiri argentatius* | captive | ND | ND | ND | 0/1 | 0/1 |
| Southern lesser bush baby1 | *Galago senegalensis moholi* | captive and wild | 5/7 (71.4) | 0/8 | ND | 0/9 | 4/9 (44) |
| Demidoff’s dwarf galago1 | *Galago demidoff* | captive | ND | ND | ND | 0/1 | 0/1 |
| Bosman’s potto2 | *Perodicticus potto* | wild | ND | ND | ND | 0/27 | 1/27 (3.7) |
| Aye-aye1 | *Daubentonia madagascariensis* | captive | 0/17 | ND | 18/18 (100) | 18/18 (100) | 18/18 (100) |
| Blue-eyed black lemur3 | *Eulemur macaco flavifrons* | captive | 0/4 | ND | ND | ND | ND |
| Mongoose lemur3 | *Eulemur mongoz* | captive | 0/5 | ND | ND | ND | ND |
| Red-collared brown lemur1 | *Eulemur fulvus collaris* | captive | ND | ND | ND | 0/1 | 0/1 |
| Red-bellied lemur1 | *Eulemur rubriventer* | wild | ND | ND | ND | 0/1 | 0/1 |
| Grey bamboo lemur | *Hapalemur griseus griseus* | captive | 0/6 | ND | ND | ND | ND |
| Ring-tailed lemur1,3 | *Lemur catta* | captive | 0/20 | ND | ND | 0/3 | 0/11 |
| Red-ruffed lemur3 | *Varecia variegata rubra* | captive | 0/32 | ND | ND | 0/20 | 0/20 |
| Grey-brown mouse lemur1 | *Microcebus griseorufus* | wild | ND | ND | ND | 0/3 | 0/3 |
| Grey mouse lemur1 | *Microcebus murinus* | captive | ND | ND | ND | 0/5 | 0/5 |
| Coquerel’s sifaka1 | *Propithecus verreauxi coquereli* | captive | ND | ND | ND | 0/1 | 0/1 |
| Diademed sifaka1 | *Propithecus tattersalli (diadema)* | captive | ND | ND | ND | 0/1 | 0/1 |

‘ND’= ‘not done’**;** when present in all three PCR result columns indicates only serum was available for testing.For pottos, only dried blood spots were available.

†Western blot testing using antigens from an PSFVgal-infected cell line.

‡NWM, New World monkey

1Samples from Duke Lemur Center, 2Cameroon, 3various U.S. zoos

**Table S3. GenBank accession numbers of** **protein sequences** **used as probes to search for integrated mammalian foamy viruses (FVs) as well as for phylogenetic analyses.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **FV**† **(Accession number)** | **Gag** | **Pol** | **Env** | **Bel-1** | **Bel-2** |
| PFV (Y07725) | CAA69002 | CAA69003 | CAA69004 | CAA69005 | NA‡ |
| SFVcpz (U04327) | AAA19977 | AAA19978 | AAA19979 | AAA19980 | AAA19981 |
| SFVgor (HM245790) | ADN65590 | ADN65591 | ADN65592 | ADN65594 | ADN65593 |
| SFVora (AJ544579) | CAD67561 | CAD67562 | CAD67563 | CAD67564 | CAD67565 |
| SFVagm (M74895) | AAA47795 | AAA47796 | AAA47798 | AAA47799 | AAA47800 |
| SFVmac (NC\_010819) | YP\_001961121 | YP\_001961122 | YP\_001961123 | YP\_001961124 | NA |
| SFVmar (GU356395) | ADE05999 | ADE06000 | ADE06001 | ADE06002 | ADE06003 |
| SFVsqu (GU356394) | ADE05994 | ADE05995 | ADE05996 | ADE05997 | ADE05998 |
| SFVspm (EU010385) | ABV59398 | ABV59399 | ABV59400 | ABV59401 | ABV59402 |
| BFV (U94514) | AAB68769 | AAB68770 | AAB68771 | AAB68772 | AAB68773 |
| EFV (AF201902) | AAF64413 | AAF64414 | AAF64415 | AAF64416 | AAF64417 |
| FFV (Y08851) | CAA70074 | CAA70075 | CAA70076 | CAA70077 | CAA70078 |

‘NA’ = ’Not available’.

†Acronyms used in FV names: PFV, prototype FV; SFVcpz, chimpanzee FV; SFVgor, gorilla FV; SFVora, orangutan FV; SFVagm, African green monkey FV; SFVmac, macaque FV; SFVmar, common marmoset FV; SFVsqu, squirrel FV; SFVspm, spider monkey FV; BFV, bovine FV; EFV, equine FV; FFV, feline FV.