

STLV - 1 (PTLV - 1)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Old World monkeys and apes	Sexually, contact, biting: blood contact	Non-Hodgkin's lymphomas	Yes		<i>In houses</i> <i>in zoos</i> Serial serological testing and removal of seropositives

Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen / Germany.	Last update November 2003
Fact sheet reviewed by W. Rietschel, Wilhelma Zoologischer-Botanischer Garten, Stuttgart, Germany C. Furley, Howletts Zoo, Bekesbourne, United Kingdom	
Susceptible animal groups Macaques, <i>Cercopithecus</i> spp., <i>Erythrocebus patas</i> , <i>Papio</i> spp., <i>Mandrillus sphinx</i> , <i>Cercocebus torquatus</i> , <i>Symphalangus syndactylus</i> , <i>Pan troglodytes</i> , <i>Gorilla gorilla</i> , <i>Pongo pygmaeus</i> .	
Causative organism STLV-1, STLV-cpz, all closely related to HTLV-1 (Retroviridae: type C oncovirinae).	
Zoonotic potential Possible (Suggested evolution of HTLV-1 from STLV-1).	
Distribution Asia and Africa.	
Transmission Horizontally by sexual or other contact .	
Incubation period	
Clinical symptoms Non-Hodgkins lymphomas.	
Post mortem findings Lymphadenopathy / T-cell lymphomas.	
Diagnosis Isolation, Southern blots, DNA-sequencing.	
Material required for laboratory analysis Blood, lymph nodes.	
Relevant diagnostic laboratories <ol style="list-style-type: none"> Virus Reference Center 7540 Louis Pasteur Road SAN ANTONIO/ Tx. 78229 / USA Phone: (210) 614 – 7350 Fax: (210) 614 – 7355 German Primate Center Kellnerweg 4 D 37077 Göttingen / Germany Phone: 49 (0)551 38510 Fax: 49 (0)551 3851 227 	
Treatment	
Prevention and control in zoos Serial serological testing and removal of all seropositives.	



Suggested disinfectant for housing facilities
Notification
Guarantees required under EU Legislation
Guarantees required by EAZA Zoos
Measures required under the Animal Disease Surveillance Plan
Measures required for introducing animals from non-approved sources
Measures to be taken in case of disease outbreak or positive laboratory findings
Conditions for restoring disease-free status after an outbreak
Experts who may be consulted Prof. Dr. G.Hunsmann, German Primate Center, Göttingen / Germany
References <ol style="list-style-type: none">1. Agrba, V., V. Timanoskaya, V. Kakubava, L. Indzhiia, D. Araviashvili, M. Chikobava, and B. Lapin. 1994. Establishment and characterization of an interleukin 2 – dependent STLV – 1 producing cell line, SPH – 7 (T), obtained from <i>Papio hamadryas</i> with malignant lymphoma. In Vitro Cell. Dev. Biol. Anim. 30: 637 – 639.2. Akari, H., F. Ono, I. Sakakibara, H. Takahashi, Y. Murayama, A. Hiyaoka, K. Terao, I. Otam, R. Mukai, A. Adachi, and Y. Yoshikawa. 1998. Simian T – cell leukaemia virus type 1 – induced malignant adult T – cell leukaemia – like disease in a naturally infected African green monkey: Implication of CD8+ cell leukemia. AIDS Res. Hum. Retrovir. 14: 367 – 371.3. Brack, M. 1989. Affen – Aidsviren: Übersicht. J. Med. Vet. B 36: 721 – 745.4. Fultz, P. N., T. P. Gordon, D. C. Anderson, and H. M. McClure. 1990. Prevalence of natural infections with simian immunodeficiency virus and simian T – cell leukemia virus type – 1 in a breeding colony of sooty mangabey monkeys. AIDS 4: 619 – 625.5. Gessain, A., P. Maucière, A. Froment, M. Biglione, J. Y. le Hesran, F. Tekaia, J. Millan, and G. de The. 1995. Isolation and molecular characterization of a human T – cell lymphotropic virus type II (HTLV-II), subtype B, from a healthy pygmy living in a remote area of Cameroon: An ancient origin for HTLV – II in Africa. Proc. Natl. Acad. Sci. USA 92 4041 – 4045.6. Hubbard, G. B., J. P. Moné, J. S. Allan, K. J. Davis III, M. M. Leland, P. M. Banks, and B. Smir. 1993. Spontaneously generated non – Hodgkin's lymphoma in twenty – seven simian T – cell leukemia virus type 1 antibody – positive baboons (<i>Papio</i> species). Lab. Anim. Sci. 43: 301 – 309.7. Ibuki, K., E. Ido, S. Setiyaningsih, M. Yamashita, L. R. P. Agus, J. Takeshisa, T. Miura, S. Dondin, and M. Hayami. 1997. Isolation of STLV – 1 from orang-utan, a great ape species in Southeast Asia, and its relation to other HTLVs / STLVs. Jpn. J. Cancer Res. 88: 1 – 4.8. Kaplan, J. E., M. U. Holland, D. B. Green, F. Gracia, and W. C. Reeves. 1993. Failure to detect human T – lymphotropic virus antibody in wild – caught New World primates. Am. J. Trop. Med. Hyg. 49: 236 – 238.9. Lairmore, M. D., N. W. Lerche, K. T. Schultz, C. M. Stone, B. G. Brown, L. M. Hermann, J. A. Yee, and M. Jennings. 1990. SIV, STLV – 1, and type D retrovirus antibodies in captive rhesus macaques and immunoblot reactivity to SIV p 27 in human and rhesus monkey sera. AIDS Res. Hum. Retrovir. 6: 1233 – 1238.10. Lazao, A., R. T. Bailer, M. D. Lairmore, J. A. Yee, J. Andrews, V. C. Stevens, and J. R. Blakeslee. 1994. Sexual transmission of simian T – lymphotropic virus type 1: A model of human T – lymphotropic virus type 1 infection. Leukemia 8: S 222 – S 226.11. Lerche, N. W., P. A. Marx, and M. B. Gardner. 1991. Elimination of type D retrovirus infection from group – housed rhesus monkeys using serial testing and removal. Lab. Anim. Sci. 41: 123 – 127.12. Liu, H. – F., P. Goubau, M. van Brussel, J. Desmyter, and A. – M. Vandamme: Phylogenetic analysis of a simian T – lymphotropic virus type 1 from a hamadryas baboon. AIDS Res. Hum. Retrovir. 17: 1545 – 1548.13. Mahieux, R., C. Chappey, M. – C. Georges – Courbot, G. Dubreuil, P. Mauciere, A. G. Georges, and A. Gessain. 1998. Simian T – cell lymphotropic virus type 1 from <i>Mandrillus sphinx</i> as a simian counterpart of human T – cell lymphotropic virus type 1 subtype D. J. Virol. 72: 10316 – 10322.14. Mahieux, R., J. Pecon – Slattery, G. M. Chen, and A. Gessain. 1988. Evolutionary inferences of normal simian T – lymphotropic virus type 1 from wild – caught chacma (<i>Papio ursinus</i>) and olive baboons (<i>Papio anubis</i>). Virology 251: 71 – 84.



15. Mahieux, R., J. Pecon – Slattery, and A. Gessain. 1997. Molecular characterization and phylogenetic analysis of a new, highly divergent simian T – cell lymphotropic virus type 1 (STLV-1 marc 1) in *Macaca arctoides*. *J. Virol.* 71: 6253 – 6258.
16. McCarthy, T. J., J. L. Kennedy, J. R. Blakeslee, and B. T. Bennett. 1990. Spontaneous malignant lymphoma and leukemia in a simian T – lymphotropic virus type 1 (STLV – 1) antibody positive baboon. *Lab. Anim. Sci.* 40: 79 – 81.
17. Monè, J., E. Whitehead, M. Leland, G. Hubbard, and J. S. Allan. 1992. Simian T – cell leukemia virus type 1 infection in captive baboons. *AIDS Res. Hum. Retrovir.* 8: 1653 – 1661.
18. Niphuis, H., E. J. Verschoor, I. Bontjer, M. Peeters, and J. L. Heeney. 2003. Reduced transmission and prevalence of simian T – cell lymphotropic virus in a closed breeding colony of chimpanzees (*Pan troglodytes verus*). *J. Gen. Virol.* 84: 615 – 620.
19. Richards, A. L., A. Giri, D. Iskanriati, J. Pamungkas, A. Sie, L. Rosen, R. L. Anthony, and G. Franchini. 1998. Simian T – lymphotropic type 1 infection among wild – caught Indonesian pigtailed macaques (*Macaca nemestrina*). *J. AIDS Hum. Retrovir.* 19: 542 – 545.
20. Saksena, N. K., V. Hervé, M. P. Sherman, J. P. Durand, C. Mathiot, M. Müller, J. L. Love, B. Leguenno, F. Barré – Sinoussi, D. K. Dube, and B. J. Poesz. 1993. Sequence and phylogenetic analyses of a new STLV- 1 from a naturally infected tanzania monkey from Central Africa. *Virology* 192: 312 – 320.
21. Saksena, N. K., A. Srinivasan, Y. C. Ge, S. – H. Xiang, A. Azad, W. Bolton, V. Herve, S. Reddy, O. Diop, M. Miranda – Saksena, W. D. Rawlinson, A. M. Vandamme, and F. Barre – Sinoussi. 1997. Simian T – cell leukemia virus type 1 from naturally infected feral monkeys from Central and West Africa encodes a 91 – amino acid p 12 (ORF 1) protein as opposed to a 99 – amino acid protein encoded by HTLV type 1 from humans. *AIDS Res. Hum. Retrovir.* 13: 425 – 432.
22. Song, K. – J., V. R. Nururkar, N. Saitov, A. Lazo, J. R. Blakeslee, I. Miyoshi, and R. Yanagihara. 1994. Genetic analysis and molecular phylogeny of simian T – cell lymphotropic virus type 1: Evidence for independent virus evolution in Asia and Africa. *Virology* 199: 56 – 66.
23. Traina – Dorge, V., J. Blanchard, L. Martin, and M. Murphey – Corb. 1992. Immunodeficiency and lymphoproliferative disease in an African green monkey dually infected with SIV and STLV – 1. *AIDS Res. Hum. Retrovir.* 8: 97 – 100.
24. Verschoor, E. J., K. S. Warren, H. Niphuis, Heriyanto, R. A. Swan, and J. L. Heeney. 1998. Characterization of a simian T – lymphotropic virus from a wild caught orang – utan (*Pongo pygmaeus*) from Kalimantan, Indonesia. *J. Gen. Virol.* 79: 51 – 22.
25. Vincent, M. J., F. J. Novembre, V. F. Yamshchikov, H. M. McClure, and R. W. Compans. 1996. Characterization of a novel baboon virus closely resembling human T – cell leukemia virus. *Virology* 226 : 57 – 65.
26. Voevodin, A., E. Samilchuk, J. Allan, J. Rogers, and S. Broussard. 1997. Simian T – lymphotropic virus type 1 (STLV – 1) infection in wild yellow baboons (*Papio hamadryas cynocephalus*) from Mikumi National Park, Tanzania. *Virology* 228: 350 – 359.