

TRYPANOSOMIASIS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Cebidae, Callitrichidae Reservoir hosts: opossums, Raccoons.	Via reduviid bugs	Cardiac diseases, In man also megacolon, megaesophagus (Chagas Disease)	Yes	Ketoconazole, Fexinidazole	<i>In houses</i> Insect control <i>in zoos</i>

Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen/Germany.	Last update 22.11.2008
Susceptible animal groups Many mammalian species including man and nonhuman primates : <i>Saguinus</i> spp., <i>Leontopithecus rosalia</i> , <i>Callithrix</i> spp., <i>Saimiri</i> spp., <i>Cebus</i> spp., <i>Alouatta</i> spp., <i>Cacajao calvus</i> . In captivity spontaneous transmission to <i>Lemur catta</i> , and <i>Macaca silenus</i> . Reservoir hosts : <i>Didelphis albiventris</i> , <i>Procyon lotor</i> .	
Causative organism <i>Trypanosoma cruzi</i> (Zymodemes Z 1 – 12, genotypes I and II. Genotype II in <i>L. rosalia</i> . Genotype II/Z2 in domestic transmission cycles, genotype I/Z 1 and Z3 in sylvatic cycles.	
Zoonotic potential Yes	
Distribution South- and Central America, Southern USA	
Transmission Via reduviid bugs : <i>Triatoma</i> spp., <i>Rhodnius prolixus</i> , <i>Panstrongylus</i> spp., <i>Eratyrus</i> spp. In colonies possibly through trauma, blood – blood exposure, saliva, sexual transmission, contaminated juices.	
Incubation period In experimental infections 1-2 weeks (Prepatent period (trypomastigotes) 60 days).	
Clinical symptoms In nonhuman primates often symptomless, in clinical cases electrocardiographic abnormalities: depressed T – wave amplitude, complete / incomplete atrioventricular block, increase in cardiac creatine kinase isoform. In man often megacolon or megaesophagus due to destruction of myenteric plexi.	
Post mortem findings Dilative cardiomyopathy.	
Diagnosis Blood smears (Giemsa staining) – caution: <i>T. rangeli</i> very similar morphology, differential diagnosis by complement lysis interaction using monoclonal antibodies. Xenodiagnosis using <i>Triatoma</i> spp., Cultivation on liver infusion tryptose medium. Indirect immunofluorescence, ELISA, enzyme electrophoresis, PCR, biochemistry	
Material required for laboratory analysis blood	
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Treatment Ketoconazole Fexinidazole	
Prevention and control in zoos	



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
References <ol style="list-style-type: none">1. Acosta, L., A. J. Romanha, H. Cosenza, and A. U. Krettli. 1991. Trypanosomid isolates from Honduras : differentiation between <i>Trypanosoma cruzi</i> and <i>Trypanosoma rangeli</i>. Am. J. Trop. Med. Hyg. 44 : 676 – 683.2. Beard, C. B., D. G. Young, J. F. Butler, and D. A. Evans. 1988. First isolation of <i>Trypanosoma cruzi</i> from a wild – caught <i>Triatoma sanguisuga</i> (LeConte) (Hemiptera : Triatominae) in Florida , USA. J. Parasitol. 74 : 343 – 344.3. Brack, M. 1987. Agents Transmissible from Simians to Man. Springer – Verlag, Berlin, pp. 302 – 306.4. Kirchhoff, L. V. 1993. American trypanosomiasis (Chagas’ disease) - a tropical disease now in the United States. New Engl. J. Med. 329 : 639 – 644.5. Kunz, E., K. Maetz – Rensing, N. Stolte, P. B. Hamilton, and F. – J. Kaup. 2002. Reactivation oif a <i>Trypanosoma cruzi</i> infection in a rhesus monkey (<i>Macaca mulatta</i>) experimentally infected with SIV. Vet. Pathol. 39 : 721 – 725.6. Lisboa, C. V., J. Dietz, A. J. Baker, N. N. Russel, and A. M. Jansen. 2000. <i>Trypanosoma cruzi</i> infection in <i>Leontopithecus rosalia</i> at the Reserva Biológica de Pocos das Antas, Brazil. Mem. Inst. Oswaldo Cruz 95 : 445 – 452.7. Lisboa, C. V., R. H. Managa, N. R. C. Lima, A. Martins, J. Dietz, A. J. Baker, C. R. Ramon – Miranda, L. F. Ferreira, O. Fernandez, and A. M. Jansen. 2004. Distinct patterns of <i>Trypanosoma cruzi</i> infection in <i>Leontopithecus rosalia</i> in distinct atlantic coastal rainforest fragments in Rio de Janeiro – Brazil. Parasitology 129 : 703 – 711.8. Monteiro, R. V., J. Baldez, J. Dietz, A. Baker, C. Lisboa, and A. M. Jansen. 2006. Clinical, biochemical, and electrocardiographic aspects of <i>Trypanosoma cruzi</i> infections in free – ranging golden lion tamarins (<i>Leontopithecus rosalia</i>). J. Med. Primatol. 35 : 48 – 55.9. Ndao, M., N. Kelly, D. Normandin, J. D. MacLean, A. Whiteman, E. Kokoskin, I. Arevalo, and B. J. Ward. 2000. <i>Trypanosoma cruzi</i> infection of squirrel monkeys : comparison of blood smear examination, commercial enzyme – linked immunosorbent assay, and polymerase chain reaction analysis as screening tests for evaluation of monkey – related injuries. Comp. Med. 50 : 658 – 665.10. Olson, L. C., S. F. Skinner, J. L. Palotay, and G. E. McGhee. 1986. Encephalitis associated with <i>Trypanosoma cruzi</i> in a Celebes black macaque. Lab. Anim. Sci. 36 : 667 – 670.11. Pung, O. J., L. H. Hulsebos, and R. E. Kuhn. 1988. Experimental Chagas’ disease (<i>Trypanosoma cruzi</i>) in the Brazilian squirrel monkey (<i>Saimiri sciureus</i>) : haematology, cardiology, cellular and humoral immune responses. Int. J. Parasitol. 18 : 115 – 220.12. Rosner, I. M., J. Bellasai, A. Schinini, T. Rovira, A. R. deArias, E. A. Ferro, E. Ferreira, G. Velasquez, M. Monzon, M. Maldonado, R. Galeano, and M. A. Fresco. 1989. Cardiomyopathy in <i>Cebus paella</i> monkeys experimentally infected with trypanosome cruzi. Trop. Med. Parasitol. 40 : 24 – 31.13. Sullivan, J. J., H. S. Bishop, L. Klippel – means, F. Rock, and D. Warz . 1994. Congenitally transmitted <i>Trypanosoma cruzi</i> among laboratory – reared offspring of naturally infected squirrel monkeys. Am. J. Trop. Med. Hyg. 51 : 170.14. Ward, B. J., N. Kelly, and M. Ndao. 2001. Dilated cardiomyopathy in monkeys - beware of <i>Trypanosoma cruzi</i> infection. J. Med. Primatol. 30 : 188.15. Wisnivesky – Colli, C., N. J. Schweigmann, A. Alberti, S. M. Pietrokovcky, O. Conti, S. Montoya,



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