

Triatoma sanguisuga Blood Meals and Potential for Chagas Disease, Louisiana, USA

Technical Appendix

Technical Appendix Table. Blood meal sources of *Triatoma sanguisuga* kissing bugs, determined by 12S rDNA assay (1)*

<i>T.</i> <i>sanguisuga</i> bug no.	Sex	Infection with <i>T. cruzi</i> †	Blood meal presence (vertebrate 12S amplification)†	No. clones selected and sequenced after 12S reamplification	Vertebrate blood meal source detected‡								No. species detected	No. haplotypes detected			
					Taxa and haplotypes detected												
					<i>Hyla</i> <i>cinerea</i> (American green tree frog)	<i>Homo</i> <i>sapiens</i> (Human)	<i>Procyon</i> <i>lotor</i> (Raccoon)	<i>Bos</i> <i>taurus</i> (Cow)	<i>Canis</i> <i>lupus</i> (Dog/Wolf)	<i>Sciurus</i> <i>carolinensis</i> (Squirrel)	<i>Felis</i> <i>domesticus</i> (Cat)	<i>Neotoma</i> <i>floridana</i> (Eastern woodrat)					
1	F	—	—	NA									No blood meal detected				
2	F	+	—	NA									No blood meal detected				
3	F	+	+	8	A									A	2	2	
4	F	—	+	7	B									A	2	2	
5	F	+	+	1	A										1	1	
6	F	—	+	7	A	A		A, B							3	4	
7	F	—	+	1	B										1	1	
8	M	+	+	3	B	A									2	2	
9	F	—	+	7		A									1	1	
10	F	+	+	7	C	A									2	2	
11	M	—	+	3		A									1	1	
12	M	—	+	4			A, C, D								1	3	
13	F	—	+	6	A										1	1	
14	F	+	+	3	D	A									2	2	
15	F	+	+	5	A		A, E								2	3	
16	M	—	+	2		A, C									1	2	
17	F	+	—	NA									No blood meal detected				
18	F	+	+	2	A										1	1	
19	F	+	+	3	A, E	D									2	3	
20	M	+	+	7	A			A							2	2	
21	F	+	+	6	A, F										1	2	
22	M	+	+	6			A, F								1	2	
23	F	+	+	6			A								1	1	
24	F	—	+	8	A			A							2	2	
25	F	+	+	5	B			A							4	4	
26	M	—	+	8	A, G	A			A						2	3	
27	F	—	+	7	A	A, E									2	3	
28	F	+	+	0									No transforms obtained				
29	F	+	+	3	B, H										1	2	
30	F	—	+	4	A		A								2	2	

T. sanguisuga bug no.	Sex	Infection with <i>T. cruzi</i> †	Blood meal presence (vertebrate 12S amplification)†	No. clones selected and sequenced after 12S reamplicaton	Vertebrate blood meal source detected‡								No. species detected	No. haplotypes detected			
					Taxa and haplotypes detected												
					<i>Hyla cinerea</i> (American green tree frog)	<i>Homo sapiens</i> (Human)	<i>Procyon lotor</i> (Raccoon)	<i>Bos taurus</i> (Cow)	<i>Canis lupus</i> (Dog/Wolf)	<i>Sciurus carolinensis</i> (Squirrel)	<i>Felis domesticus</i> (Cat)	<i>Neotoma floridana</i> (Eastern woodrat)					
31	F	+	+	3	A									1	1		
32	F	-	+	6	A, I									1	2		
33	M	+	+	6										1	3		
34	F	+	+	7		A		A						2	2		
35	M	-	+	5										1	2		
36	F	+	-	NA													
37	M	-	+	2		A								1	1		
38	F	+	+	0													
39	M	-	+	1										1	1		
40	F	+	+	5			A, G							1	2		
41	F	-	+	5	A	A	H							3	3		
42	F	-	+	6		A, F								1	2		
43	F	-	+	8		A		A						2	2		
44	M	+	+	5		A								1	1		
45	M	+	+	8		A, G		A						2	3		
46	M	+	+	7		A	A							2	2		
47	M	-	+	8		A, H		A			A			3	4		
48	M	+	+	8	A, B									1	2		
49	F	-	+	8	A		A							2	2		
Total			27/49 (55.1%)	45/49 (92%)	227												
Average					5.04 clones/bug (n = 45)								1.6 species/ bug (n = 43)	2.1 haplotypes/ bug (N = 43)			
Range					0–8 clones/bug (n = 45)								1–4 species/ bug (n = 43)	1–4 haplotypes/ bug (n = 43)			

*NA, not applicable

†To rule out PCR inhibition, the samples for which no vertebrate or parasite DNA was detected were re-amplified after adding 100 ng of positive control DNA to the PCR mixture. For the only sample with these results (bug #1), PCR inhibition was ruled out as the added DNA was amplified.

‡Blood meal sources were inferred by using BLAST with ≥ 97% identity as the criterion for a match.

species	Haplotypes	Nucleotide position													
		1 0	2 0	3 0	4 0	5 0	6 0	7 0	8 0	9 0	1 0	1 0	1 0	1 0	1 0
<i>Felis domesticus</i>	A	GAGATGGTGAGGTATATCGGGTTTATCGATTATAGAACAGGCTCCTCTAGAGGGATGTAAGCACCAGCACTTGTAGTTAAGCTATTGCTAGTAGTTCTGGCGGATAGTTTGTAGGGTAACTATCTAAG													
<i>Hyla cinerea</i>	A	-.....T..G...A.....C..G.....GT...A.GGG.T...T.....G.....C.....C.....													
	B	-.....T..G...A.....C..G.....GT...A.GGG.T...T.....G.....C.....C.....													
	C	-.....T..G...A.....C..G.....GT...A.GGG.T...T.....G.....C.....C.....													
	D	-.....T..G...A.....C..G.....GT...A.GGGAT...T.....GA.....C.....C.....													
	E	-.....T..G..A.....C..G.....GT...A.GGG.T...T.....G.....C.....C.....													
	F	-.....T..G...A.....C..G.....GT...A.GGG.T...T.....G.....C.....C.....													
	G	-.....T..G...A.....C..G.....GT...A.GGG.T...T.....G.....C.....C.....													
	H	-.....T..G...A.....C..G.....GT...A.GGG.T...T.....G.....C.....CT.....													
	I	-.....T..G...A.....C..G.....GT...A.GGG.T...TA.....G.....C.....C.....													
<i>Homo sapiens</i>	A	.....TG.....C.....A.G.....G.....G.G...C.....GT.....AGC													
	B	.....TG..A.....C.....A.G.....G.....G.G...C.....GT.....AGC													
	C	.....TG.....C.....A.G.....G.....G.G...C.....GT.....AGC													
	D	.....A..T.....C..T.....A.....G.....G.....T.....GT.....A.C													
	E	.....TG.....C..C.....A.G.....G.....G.G...C.....GT.....AGC													
	F	.....TG.....C.....A.G.....G.....G.G...C.....GT.....AGC													
	G	.....TG.....C.....A.G.....G.....CG.G...C.....GT.....AGC													
	H	.....TG.....C.....A.G.....G.....G.G...C.....GT.....AAGC													
<i>Procyon lotor</i>	A	.....T.....G.....AA..A.....AC													
	B	.....T.....G.....AA..A.....AC													
	C	.....T.....C.....G.....AA..A.....AC													
	D	.....A..T.....G.....AA..A.....AC													
	E	.....T.....GC.....AA..A.....AC													
	F	.....T.....A.....AA..A.....AC													
	G	.....T.....A.....AA..A.....AC													
	H	.....T.....G.....AA..A.....CAC													
<i>Bos taurus</i>	A	.....T.....A.....G.....A.....A.....A.....A.....A.....A.....A.....													
<i>Canis lupus</i>	A	.....T.....A.....C.....A.TA.....GTAAAATTA													
	B	.....T.....A.....C.....A.TA.....GTAAAATTA													
	C	.....T..G...A.....C..G.....A.....G.....C.....A.TA.....GTAAAATTA													
	D	.....T.....A.....C.....A.TA.....GTAAAATTA													
<i>Sciurus carolinensis</i>	A	-GAG.....T..A.....G.A.....AG.G.....A..T.C.....A.TT.A.TA.....													
<i>Neotoma floridana</i>	A	-GAG...A.....A.....T.....A.....T.....G.G...C.....G..AA..A.....A-TT.A.T-----													

Technical Appendix Figure. Alignment of the vertebrate 12S haplotypes detected in *Triatoma sanguisuga* kissing bug abdomens. Dots indicate identity with nucleotide in first sequence. Haplotypes were defined on alignments of 100 bp (American green tree frog [*Hyla cinerea*]), 103 bp (human [*Homo sapiens*]), 118 bp (raccoon [*Procyon lotor*]), 119 bp (cow [*Bos Taurus*]), 127 bp (dog/wolf [*Canis lupus*]), 133 bp (squirrel [*Sciurus carolinensis*]), 141 bp (cat [*Felis domesticus*]), or 130 bp (woodrat [*Neotoma floridana*]). The number of haplotypes is the minimum number of specimens fed on, in the absence of heteroplasmy, because different individuals may share 12S haplotypes and only a subset of clones were sequenced.

Reference

1. Stevens L, Dorn PL, Hobson J, de la Rua NM, Lucero DE, Klotz JH, et al. Vector blood meals and Chagas disease transmission potential, United States. *Emerg Infect Dis.* 2012;18:646–9. [PubMed](#) <http://dx.doi.org/10.3201/eid1804.111396>