

1 Expansion in the latitudinal distribution of *Rhipicephalus sanguineus* temperate lineage
 2 (Acari: Ixodidae) to Southern Chile

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8 Supplementary files

9 Table S1. Species of *Rhipicephalus* included in the phylogenetic analysis.

Species	Access GenBank number	Locality/Country	Lineage	Reference
<i>R. appendiculatus</i>	L34301	outgroup UK	na	Black and Piesman (1994)
<i>R. africanus</i>	GU553080	South Africa	na	Moraes-Filho et al. (2011)
<i>R. guilhoni</i>	KC243854	Nigeria	na	Dantas-Torres et al. (2013)
<i>R. pusillus</i>	KU513962	Spain	na	Almeida et al. (2017)
<i>R. rossicus</i>	KY111472	Romania	na	Langguth et al. (2017)
<i>R. turanicus</i>	KC243867	Greece	na	Dantas-Torres et al. (2013)
<i>R. turanicus</i>	KF145150	Turkmenistan	na	Dantas-Torres et al. (2013)
<i>R. sanguineus</i>	KU746973	Kenya	na	Estrada-Peña et al. (unpublished)**
<i>R. sanguineus</i>	KY413777	Egypt	tropical	Chitimia-Dobler et al. (2017)
<i>R. sanguineus</i>	KY413778	Egypt	tropical	Chitimia-Dobler et al. (2017)
<i>R. sanguineus</i>	KY413786	Zambia	tropical	Chitimia-Dobler et al. (2017)
<i>R. sanguineus</i>	KR909456	Argentina	temperate	Cicuttin et al. (2015)
<i>R. sanguineus</i>	KX632153	Antofagasta, Chile	temperate	Díaz et al. (2018)
<i>R. sanguineus</i>	KX632154	Arica, Chile	tropical	Díaz et al. (2018)
<i>R. sanguineus</i>	KX632155	Coquimbo, Chile	temperate	Díaz et al. (2018)
<i>R. sanguineus</i>	GU553078	Argentina	temperate	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553074	Brazil	tropical	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553077	Chile	temperate	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553076	Colombia	tropical	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553083	Italy	temperate	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553079	South Africa	tropical	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553081	Spain	temperate	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553082	Spain	temperate	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	GU553084	Uruguay	temperate	Moraes-Filho et al. (2011)
<i>R. sanguineus</i>	JX206980	Argentina	tropical	Nava et al. (2012)
<i>R. sanguineus</i>	JX195172	Chaco, Argentina	temperate	Nava et al. (2012)
<i>R. sanguineus</i>	JX195167	Corrientes, Argentina	temperate	Nava et al. (2012)
<i>R. sanguineus</i>	JX195170	El Dorado, Argentina	temperate	Nava et al. (2012)
<i>R. sanguineus</i>	JX195173	Mozambique	tropical	Nava et al. (2012)
<i>R. sanguineus</i>	JX195168	Santa Fe, Argentina	temperate	Nava et al. (2012)
<i>R. sanguineus</i>	JX195174	South Africa	tropical	Nava et al. (2012)
<i>R. sanguineus</i>	KT382472	Mexico	tropical	Zemtsova et al. (2016)
<i>R. sanguineus</i>	KT382476	USA	tropical	Zemtsova et al. (2016)
<i>R. sanguineus</i>	KT382477	USA	temperate	Zemtsova et al. (2016)

<i>R. sanguineus</i> s.s.	Z97885	Spain	NA	Mangold et al. (1998)
<i>R. sanguineus</i> s.s.*	MH630343	Montpellier, France	temperate	Nava et al. (2018)
<i>R. sanguineus</i> s.s.*	MH630344	Montpellier, France	temperate	Nava et al. (2018)

10 *= neotype; s.s.= sensu stricto; na= not apply; **=<https://www.ncbi.nlm.nih.gov/nucleotide/KU746973>

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Table S2. Matrix of estimates evolutionary divergences of 16S rDNA isolated from *Rhipicephalus sanguineus* temperate and tropical lineages from different locations. The number of base differences per site from averaging over all sequence pairs between groups are shown under the diagonal. Standard error estimates are shown above the diagonal.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Valdivia Chile		0.003	0.004	0.005	0.004	0.006	0.006	0.003	0.006	0.015	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.014	0.015	0.015
2 Osorno Chile	0.006		0.002	0.004	0.004	0.006	0.005	0.000	0.006	0.014	0.015	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
3 Temperate Chile	0.010	0.004		0.003	0.004	0.006	0.004	0.002	0.006	0.014	0.015	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
4 Temperate Argentina	0.011	0.005	0.006		0.004	0.007	0.003	0.004	0.007	0.015	0.015	0.014	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
5 Temperate Spain	0.016	0.010	0.013	0.012		0.005	0.006	0.004	0.005	0.014	0.015	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
6 Temperate Italy	0.015	0.008	0.012	0.013	0.012		0.008	0.006	0.000	0.014	0.015	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
7 Temperate Uruguay	0.015	0.008	0.007	0.003	0.015	0.017		0.005	0.008	0.015	0.016	0.014	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
8 Temperate USA	0.006	0.000	0.004	0.005	0.010	0.008	0.008		0.006	0.014	0.015	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
9 Temperate France s.s.	0.015	0.008	0.012	0.013	0.012	0.000	0.017	0.008		0.014	0.015	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
10 Tropical Brazil	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058		0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000
11 Tropical Colombia	0.066	0.062	0.064	0.067	0.066	0.062	0.071	0.062	0.062	0.004		0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.004	0.004
12 Tropical South Africa	0.058	0.054	0.055	0.059	0.058	0.054	0.062	0.054	0.054	0.007	0.011		0.003	0.003	0.003	0.003	0.003	0.007	0.003	0.003
13 Tropical Mozambique	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007		0.000	0.000	0.000	0.000	0.006	0.000	0.000
14 Tropical Argentina	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007	0.000		0.000	0.000	0.000	0.006	0.000	0.000
15 Tropical Mexico	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007	0.000	0.000		0.000	0.000	0.006	0.000	0.000
16 Tropical USA	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007	0.000	0.000	0.000		0.000	0.006	0.000	0.000
17 Tropical Chile	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007	0.000	0.000	0.000	0.000		0.006	0.000	0.000
18 Tropical Egypt	0.064	0.060	0.062	0.065	0.064	0.060	0.068	0.060	0.060	0.010	0.015	0.016	0.010	0.010	0.010	0.010	0.010		0.006	0.006
19 Tropical Kenya	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.010		0.000
20 Tropical Zambia	0.062	0.058	0.059	0.063	0.062	0.058	0.066	0.058	0.058	0.000	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.010	0.000	

S.S= sensu stricto.