

Table S1. Bacterial isolates of ticks and best nucleotide identities with 16S rRNA gene sequences obtained in this study and sequences available in GenBank identified through Basic Local Alignment Search Tool (BLAST; <https://blast.ncbi.nlm.nih.gov/Blast.cgi>) searches (Last update: 10/10/2024).

Tick species	Bacterial isolate id	Best match in GenBank						
		Scientific name	Query cover	E-value	% identity	Accession number	Country	Isolate source
<i>Ornithodoros maritimus</i>	C51a	<i>Bacillus</i> sp.	100%	0.0	99.72%	OR392979.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C52a	<i>Bacillus</i> sp.	100%	0.0	99.72%	OR392979.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C52b	<i>Bacillus</i> sp.	100%	0.0	100.00%	OR835281.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C52c	<i>Bacillus</i> sp.	100%	0.0	99.72%	OR392979.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C53b	<i>Bacillus</i> sp.	100%	0.0	100.00%	OR835281.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C54a	<i>Bacillus</i> sp.	100%	0.0	100.00%	OR835281.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C54b	<i>Halomonas</i> sp.	100%	0.0	99.71%	CP020562.1	China	Textile industrial wastewaters
<i>Ornithodoros maritimus</i>	C55a	<i>Bacillus</i> sp.	100%	0.0	100.00%	OR835281.1	unknown	Unknown
<i>Ornithodoros maritimus</i>	C55c	<i>Bacillus</i> sp.	100%	0.0	99.72%	OR392979.1	unknown	Unknown
<i>Amblyomma cajennense</i>	C21a	<i>Pantoea dispersa</i>	100%	0.0	100.00%	MN067798.1	Sri Lanka	Mid gut <i>Phlebotomus argentipes</i>
<i>Amblyomma cajennense</i>	C21b	<i>Pantoea dispersa</i>	100%	0.0	100.00%	MN067798.1	Sri Lanka	Mid gut <i>Phlebotomus argentipes</i>
<i>Amblyomma cajennense</i>	C22b	<i>Curtobacterium luteum</i>	100%	0.0	100.00%	MN889291.1	India	Leaf
<i>Amblyomma cajennense</i>	C22d	<i>Curtobacterium luteum</i>	100%	0.0	100.00%	MN889291.1	India	Leaf
<i>Amblyomma cajennense</i>	C23b	<i>Curtobacterium</i> sp.	100%	0.0	100.00%	MK704290.1	unknown	Unknown
<i>Amblyomma cajennense</i>	C23d	<i>Luteibacter yeojensis</i>	98%	0.0	99.86%	QP811701.1	France	<i>Vanilla planifolia</i>
<i>Amblyomma cajennense</i>	C24b	<i>Curtobacterium</i> sp.	100%	0.0	100.00%	MK704290.1	unknown	Unknown
<i>Amblyomma cajennense</i>	C25	<i>Scandinaviu</i> sp.	100%	0.0	99.57%	PP412028.2	South Korea	Lettuce
<i>Amblyomma cajennense</i>	C26a	<i>Pantoea dispersa</i>	100%	0.0	100.00%	MN067798.1	Sri Lanka	Mid gut <i>Phlebotomus argentipes</i>
<i>Amblyomma cajennense</i>	C26b	<i>Pantoea soli</i>	100%	0.0	99.93%	CP032702.1	Singapore	Soil
<i>Amblyomma cajennense</i>	C28a	<i>Microbacterium</i> sp.	100%	0.0	100.00%	CP151633.1	Switzerland	Zea mays
<i>Amblyomma cajennense</i>	C28b	<i>Stenotrophomonas</i> sp.	100%	0.0	100.00%	MK398096.1	Poland	<i>Salicornia europaea</i>
<i>Amblyomma cajennense</i>	C29a	<i>Bacillus</i> sp.	100%	0.0	100.00%	PP892114.1	China	Unknown
<i>Amblyomma cajennense</i>	C29b	<i>Pseudomonas</i> sp.	100%	0.0	99.71%	OP132331.1	USA	Organic rice seeds
<i>Amblyomma cajennense</i>	C29c	<i>Microbacterium testaceum</i>	100%	0.0	100.00%	JO660317.1	Singapore	Plant tissue
<i>Amblyomma cajennense</i>	C29d	<i>Curtobacterium luteum</i>	100%	0.0	99.86%	MT367778.1	India	Leaf
<i>Amblyomma cajennense</i>	C30	<i>Enterobacter</i> sp.	100%	0.0	99.86%	MW375575.1	Malaysia	Forest soils
<i>Amblyomma cajennense</i>	C31b	<i>Staphylococcus cohnii</i>	100%	0.0	100.00%	MT235755.1	China	Nasal swab
<i>Amblyomma cajennense</i>	C31c	<i>Curtobacterium</i> sp.	100%	0.0	100.00%	MT367788.1	India	Leaf (<i>Oryza sativa</i>)
<i>Amblyomma cajennense</i>	C33	<i>Burkholderia gladioli</i>	100%	0.0	100.00%	MT626030.1	unknown	Rice
<i>Amblyomma cajennense</i>	C35b	<i>Microbacterium trichothecenolyticum</i>	100%	0.0	99.93%	MT275627.1	Sri Lanka	Midgut of <i>Aedes albopictus</i> adults
<i>Amblyomma cajennense</i>	C35c	<i>Schumannella luteola</i>	100%	0.0	99.79%	OK562840.1	unknown	Unknown
<i>Amblyomma cajennense</i>	C36a	<i>Pseudomonas</i> sp.	99%	0.0	100.00%	KJ184947.1	unknown	Sugarcane
<i>Amblyomma cajennense</i>	C36c	<i>Agrobacterium cavarae</i>	100%	0.0	100.00%	MK940276.1	Spain	Maize roots
<i>Amblyomma cajennense</i>	C37a	<i>Bacillus</i> sp.	100%	0.0	100.00%	MT065750.1	unknown	Unknown
<i>Amblyomma cajennense</i>	C37c	<i>Burkholderia tropica</i>	100%	0.0	99.79%	KT390912.1	Brazil	Nodule
<i>Amblyomma cajennense</i>	C37d	<i>Curtobacterium luteum</i>	100%	0.0	100.00%	MN889291.1	India	Leaf
<i>Amblyomma cajennense</i>	C37e	<i>Burkholderia tropica</i>	100%	0.0	99.79%	KT390912.1	Brazil	Plant nodule
<i>Amblyomma cajennense</i>	C38b	<i>Chryseobacterium</i> sp.	99%	0.0	99.15%	OR529363.1	unknown	Unknown
<i>Amblyomma cajennense</i>	C38d	<i>Curtobacterium flaccumfaciens</i>	100%	0.0	99.93%	CP041259.1	Turkey	<i>Phaseolus vulgaris</i>
<i>Amblyomma cajennense</i>	C38e	<i>Sphingobium rhizovicinum</i>	99%	0.0	100%	MW052572.1	China	Air
<i>Amblyomma cajennense</i>	C39	<i>Pantoea dispersa</i>	100%	0.0	100.00%	MT275631.1	Sri Lanka	Midgut of <i>Aedes albopictus</i> adults
<i>Dermacentor nitens</i>	C1a	<i>Pantoea eucrina</i>	100%	0.0	99.72%	CP083448.1	China	Cucumber Rhizosphere
<i>Dermacentor nitens</i>	C1b	<i>Staphylococcus</i> sp.	100%	0.0	99.86%	OQ255846.1	Turkey	Lake
<i>Dermacentor nitens</i>	C2a	<i>Pantoea soli</i>	100%	0.0	99.86%	CP032702.1	Singapore	Soil
<i>Dermacentor nitens</i>	C2b	<i>Staphylococcus</i> sp.	100%	0.0	99.93%	OQ255846.1	Turkey	Lake
<i>Dermacentor nitens</i>	C3a	<i>Pantoea stewartii</i>	100%	0.0	99.93%	CP099540.1	China	Rice (<i>Oryza sativa</i>)
<i>Dermacentor nitens</i>	C3b	<i>Staphylococcus</i> sp.	100%	0.0	99.93%	OQ255846.1	Turkey	Lake

<i>Dermacentor nitens</i>	C4a	<i>Bacillus cereus</i>	100%	0.0	100.00%	MT642947.1	Malaysia	sediment
<i>Dermacentor nitens</i>	C4b	<i>Klebsiella grimontii</i>	100%	0.0	100.00%	MT538677.1	unknown	Unknown
<i>Dermacentor nitens</i>	C5a	<i>Bacillus cereus</i>	100%	0.0	100.00%	MT642947.1	Malaysia	Sediment
<i>Dermacentor nitens</i>	C5b	<i>Enterobacter hormaechei</i>	98%	0.0	100.00%	CP045611.1	Lebanon	Unknown
<i>Dermacentor nitens</i>	C6a	<i>Pantoea eucrina</i>	100%	0.0	99.86%	MF135172.1	unknown	Rice
<i>Dermacentor nitens</i>	C6b	<i>Pantoea eucrina</i>	100%	0.0	99.86%	MF135172.1	unknown	Rice
<i>Dermacentor nitens</i>	C6d	<i>Staphylococcus</i> sp.	100%	0.0	100.00%	OQ255846.1	Turkey	Lake
<i>Dermacentor nitens</i>	C6e	<i>Staphylococcus</i> sp.	100%	0.0	99.86%	OQ255846.1	Turkey	Lake
<i>Dermacentor nitens</i>	C6f	<i>Pantoea eucrina</i>	100%	0.0	100.00%	MT367823.1	India	Leaf
<i>Dermacentor nitens</i>	C6g	<i>Staphylococcus</i> sp.	100%	0.0	99.86%	OQ255846.1	Turkey	Lake
<i>Dermacentor nitens</i>	C8a	<i>Acinetobacter nosocomialis</i>	100%	0.0	100.00%	CP010368.1	unknown	Unknown
<i>Dermacentor nitens</i>	C8b	<i>Bacillus cereus</i>	100%	0.0	100.00%	MT642947.1	Malaysia	Sediment
<i>Dermacentor nitens</i>	C8c	<i>Bacillus cereus</i>	100%	0.0	100.00%	MT642947.1	Malaysia	Sediment
<i>Dermacentor nitens</i>	C10c	<i>Enterobacter ludwigii</i>	100%	0.0	100.00%	MT613372.1	China	Plant endophyte
<i>Dermacentor nitens</i>	C10d	<i>Pantoea eucrina</i>	100%	0.0	99.65%	CP083448.1	China	Cucumber rhizosphere
<i>Dermacentor nitens</i>	C11b	<i>Bacillus cereus</i>	100%	0.0	100.00%	MT642947.1	Malaysia	Sediment
<i>Dermacentor nitens</i>	C11c	<i>Pantoea eucrina</i>	100%	0.0	99.86%	MF135172.1	unknown	Rice
<i>Dermacentor nitens</i>	C11d	<i>Acinetobacter septicus</i>	100%	0.0	99.93%	MN725744.1	Colombia	Ovaries <i>Aedes aegypti</i>
<i>Dermacentor nitens</i>	C15a	<i>Staphylococcus</i> sp.	100%	0.0	100.00%	OQ255846.1	Turkey	Lake
<i>Dermacentor nitens</i>	C15b	<i>Pseudomonas monteilii</i>	100%	0.0	100.00%	MT605299.1	unknown	Unknown
<i>Dermacentor nitens</i>	C15c	<i>Staphylococcus schleiferi</i>	100%	0.0	100.00%	MF678906.1	unknown	Jugular catheter
<i>Dermacentor marginatus</i>	C41	<i>Bacillus thuringiensis</i>	100%	0.0	98.46%	CP053972.1	USA	Unknown
<i>Dermacentor marginatus</i>	C42	<i>Bacillus thuringiensis</i>	100%	0.0	98.46%	CP053972.1	USA	Unknown
<i>Dermacentor marginatus</i>	C43a	<i>Pseudomonas alcaligenes</i>	100%	0.0	96.45%	MK719951.1	China	Unknown
<i>Dermacentor marginatus</i>	C43b	<i>Macroccoccus equiperficus</i>	100%	0.0	100.00%	CP073809.1	Switzerland	Ear swab
<i>Dermacentor marginatus</i>	C44	<i>Bacillus thuringiensis</i>	100%	0.0	98.46%	CP053972.1	USA	Unknown
<i>Dermacentor marginatus</i>	C45	<i>Bacillus thuringiensis</i>	99%	0.0	99.04%	CP050183.1	Canada	Unknown
<i>Dermacentor marginatus</i>	C46a	<i>Pseudomonas</i> sp.	100%	0.0	99.36%	LC230077.1	Japan	Soil
<i>Dermacentor marginatus</i>	C46b	<i>Bacillus thuringiensis</i>	100%	0.0	98.46%	CP053972.1	USA	Unknown
<i>Dermacentor marginatus</i>	C46c	<i>Pseudomonas alcaligenes</i>	100%	0.0	96.45%	MK719951.1	China	Unknown
<i>Dermacentor marginatus</i>	C46d	<i>Bacillus thuringiensis</i>	99%	0.0	99.04%	CP050183.1	Canada	Unknown
<i>Ixodes frontalis</i>	C58b	<i>Massilia aurea</i>	100%	0.0	100.00%	MK720412.1	China	Taklamakan desert
<i>Ixodes frontalis</i>	C58c	<i>Curtobacterium citreum</i>	100%	0.0	97.65%	MF319766.1	India	Cauliflower leaf
<i>Ixodes frontalis</i>	C58e	<i>Curtobacterium citreum</i>	100%	0.0	97.65%	MF319766.1	India	Cauliflower leaf
<i>Ixodes frontalis</i>	C59a	<i>Pseudomonas</i> sp.	100%	0.0	99.40%	MK559936.1	Spain	<i>Quercus pyrenaica</i> rhizosphere
<i>Ixodes frontalis</i>	C59b	<i>Pseudomonas</i> sp.	100%	0.0	99.40%	MK559936.1	Spain	<i>Quercus pyrenaica</i> rhizosphere
<i>Ixodes frontalis</i>	C59c	<i>Rhodococcus corynebacterioides</i>	100%	0.0	99.78%	MN826595.1	unknown	Unknown
<i>Ixodes frontalis</i>	C60b	<i>Paenibacillus</i> sp.	100%	0.0	99.86%	CP150238.1	unknown	Milk
<i>Ixodes frontalis</i>	C60c	<i>Curtobacterium citreum</i>	100%	0.0	97.65%	MF319766.1	India	Cauliflower leaf
<i>Ixodes frontalis</i>	C60d	<i>Luteibacter rhizovincinus</i>	100%	0.0	100.00%	MT008462.1	Poland	Soil
<i>Ixodes frontalis</i>	C61b	<i>Rhodococcus</i> sp.	100%	0.0	99.34%	MT012186.1	Tunisia	Unknown
<i>Ixodes frontalis</i>	C61c	<i>Sphingomonas</i> sp.	100%	0.0	99.70%	MN989146.1	unknown	Compound leaves of <i>Fraxinus excelsior</i>
<i>Ixodes frontalis</i>	C61d	<i>Curtobacterium flaccumfaciens</i>	100%	0.0	99.56%	CP041259.1	Turkey	Unknown
<i>Ixodes frontalis</i>	C62a	<i>Curtobacterium citreum</i>	100%	0.0	97.65%	MF319766.1	India	Cauliflower leaf
<i>Ixodes frontalis</i>	C62d	<i>Rhodococcus yunnanensis</i>	99%	0.0	99.95%	KY783360.1	Svalbard	Sediment core from Kongsfzorde
<i>Ixodes frontalis</i>	C62e	<i>Sphingomonadaceae bacterium</i>	99%	0.0	99.41%	CP099621.1	France	Leaf
<i>Ixodes frontalis</i>	C62g	<i>Rhodococcus</i> sp.	100%	0.0	99.49%	CP032762.1	Russia	Podzolic fallow soil
<i>Ixodes frontalis</i>	C62h	<i>Rhodococcus</i> sp.	100%	0.0	99.49%	CP032762.1	Russia	Podzolic fallow soil
<i>Ixodes frontalis</i>	C62i	<i>Sphingomonas</i> sp.	100%	0.0	99.70%	MN989146.1	unknown	Compound leaves of <i>Fraxinus excelsior</i>
<i>Ixodes frontalis</i>	C62j	<i>Brevundimonas intermedia</i>	100%	0.0	100.00%	MW433644.1	unknown	Unknown
<i>Ixodes frontalis</i>	C62l	<i>Curtobacterium citreum</i>	100%	0.0	97.65%	MF319766.1	India	Cauliflower leaf
<i>Ixodes frontalis</i>	C62m	<i>Pararhizobium gamdonense</i>	100%	0.0	99.21%	CP119566.1	China	Soil
<i>Ixodes ricinus</i>	C47a	<i>Bacillus cereus</i>	99%	0.0	100.00%	CP128166.1	Denmark	Grassland soil
<i>Ixodes ricinus</i>	C47b	<i>Exiguobacterium</i> sp.	99%	0.0	99.79%	CP053557.1	Spain	Solar panel array
<i>Ixodes ricinus</i>	C47c	<i>Pseudomonas</i> sp.	100%	0.0	99.36%	LC230077.1	Japan	Soil
<i>Ixodes ricinus</i>	C47d	<i>Sphingobacterium kitahiroshimense</i>	100%	0.0	99.78%	MK402063.1	South Korea	Unknown
<i>Ixodes ricinus</i>	C48a	<i>Exiguobacterium</i> sp.	99%	0.0	99.79%	CP053557.1	Spain	Solar panel array
<i>Ixodes ricinus</i>	C48d	<i>Sphingobacterium kitahiroshimense</i>	100%	0.0	99.93%	MK402063.1	South Korea	Unknown

<i>Ixodes ricinus</i>	C48e	<i>Exiguobacterium</i> sp.	99%	0.0	99.79%	CP053557.1	Spain	Solar panel array
<i>Ixodes ricinus</i>	C49a	<i>Exiguobacterium</i> sp.	99%	0.0	99.79%	CP053557.1	Spain	Solar panel array
<i>Ixodes ricinus</i>	C49b	<i>Pseudomonas</i> sp.	100%	0.0	99.36%	LC230077.1	Japan	Soil
<i>Ixodes ricinus</i>	C50a	<i>Exiguobacterium</i> sp.	99%	0.0	99.79%	CP053557.1	Spain	Solar panel array
<i>Ixodes ricinus</i>	C50b	<i>Sphingobacterium</i> <i>kitahiroshimense</i>	100%	0.0	99.93%	MK402063.1	South Korea	Unknown
<i>Ixodes ricinus</i>	C50c	<i>Enterobacter</i> sp.	100%	0.0	99.71%	CP082269.1	China	Root rhizomes