

***A Francisella-like endosymbiont in the Gulf Coast tick evolved from a mammalian pathogen***

Jonathan G. Gerhart, Abraham S. Moses, Rahul Raghavan

Department of Biology and Center for Life in Extreme Environments,  
Portland State University, Portland, Oregon, 97201, USA.

**Table S1.** Assembly statistics for FLE-Am contigs.

<b>Identity</b>	<b>Contigs &gt;1kb</b>	<b>Total Length (bp)</b>	<b>Reads</b>	<b>% GC</b>
Trimmed Reads			291,344,244	45
Assembled Contigs	4603	9,312,626	10,274,914	43
Bacteria Assigned	48	1,560,742	1,287,780	33
Francisellaceae	46	1,614,058	1,259,156	32.90
Flavobacteriaceae	1	2,366	908	38.10
Anaeromyxobacter	1	2,121	1,194	59.40
N50 (386,665 bp)				

Table S2. Pathogenic features in FLE-Am and *F. tularensis* SCHU-S4.

Category <sup>a</sup>	Locus tag <sup>b</sup>	Function	<i>F. tularensis</i>	
			SCHU-S4	FLE-Am <sup>c</sup>
<b>LPS, Capsule and Membrane synthesis</b>				
	FTT_0286c	LPS	+	Φ
	FTT_0454	LPS	+	Φ
	FTT_0455c	LPS	+	+
	FTT_0789	Capsule	+	+
	FTT_0790	Capsule	+	Φ
	FTT_0791	Capsule	+	Φ
	FTT_0792	Capsule	+	-
	FTT_0793	Capsule	+	-
	FTT_0794	Capsule	+	-
	FTT_0795	Capsule	+	-
	FTT_0796	Capsule	+	-
	FTT_0797	Capsule	+	-
	FTT_0798	Capsule	+	-
	FTT_0799	Capsule	+	-
	FTT_0800	Capsule	+	Φ
	FTT_0805	Unkown	+	+
	FTT_0807	Unkown	+	+
	FTT_0806	Unkown	+	Φ
	FTT_0891	LPS	+	+
	FTT_1236	Capsule	+	+
	FTT_1237	LPS	+	+
	FTT_1238c	Capsule	+	+
	FTT_1450c	Both	+	Φ
	FTT_1453c	LPS	+	-
	FTT_1455c	Both	+	-
	FTT_1458c	LPS	+	-
	FTT_1460c	LPS	+	-
	FTT_1461c	LPS	+	-
	FTT_1462c	Both	+	+
	FTT_1463c	Both	+	+
	FTT_1464c	Both	+	+
	FTT_1561	LPS	+	+
	FTT_1571c	LPS	+	+
	FTT_1643c	LPS	Φ	+
<b>Type 4 Pili</b>				
	FTT_1134	Pilin	+	Φ
	FTT_0890c	Pilin	+	Φ
	FTT_0889c	Pilin	+	Φ
	FTT_0888c	Pilin	+	Φ

	FTT_0861c	Pilin	+	Φ
	FTT_0230c	Pilin	+	+
	FTT_1341c	Pilin	+	+
	FTT_1133	Assembly ATPase	+	Φ
	FTT_0905	PilE1 glycosylase	+	Φ
	FTT_1156c	OM unit	+	Φ
	FTT_0088	Retraction ATPase	+	Φ
	FTT_0715	Secreted	+	-
	FTT_1786c	Secreted	+	-
	FTT_1577	Secreted	+	Φ
	FTN_1186	Secreted	-	-
	FTT_1069	Secreted	+	-
	FTT_0580	Secreted	+	+
	FTT_1330	Secreted	+	+
<b>Hypothetical porins</b>				
	FTT_0025c	Outer Membrane	+	Φ
	FTT_0119	Outer Membrane	+	+
<b>Outer Membrane Proteins</b>				
	FTT_0369c	Outer Membrane	+	+
	FTT_0583	Outer Membrane	+	+
	FTT_0831c	Outer Membrane	+	+
	FTT_0918	Outer Membrane	+	+
	FTT_1103	Outer Membrane	+	+
	FTT_1346	Outer Membrane	+	Φ
	FTT_1416c	Outer Membrane	+	Φ
	FTT_1724c	Outer Membrane	+	+
<b>Inner Membrane Proteins</b>				
	FTT_0094c	Inner Membrane	+	+
	FTT_0181c	Inner Membrane	+	+
	FTT_0345	Inner Membrane	+	+
	FTT_0398c	Inner Membrane	+	+
	FTT_0399c	Inner Membrane	+	+
	FTT_0404	Inner Membrane	+	+
	FTT_0715	Inner Membrane	+	-
	FTT_0879	Inner Membrane	+	+
	FTT_0891	Periplasm	+	+
	FTT_1736c	Inner Membrane	+	-
<b>Secretion systems</b>				
	FTT_0068	Secreted	+	+
	FTT_0221	Secreted	+	-
	FTT_0484	Secreted	+	+
	FTT_0611c	Secreted	+	Φ
	FTT_0721	Secreted	+	Φ
	FTT_1095	Type 1 System	+	+

FTT_1258	Type 1 System	+	-
FTT_1269c	Secreted DNA K	+	+
FTT_1344	Type 6 System	+	Φ
FTT_1345	Type 6 System	+	Φ
FTT_1346	Type 6 System	+	Φ
FTT_1347	Type 6 System	+	+
FTT_1348	Type 6 System	+	-
FTT_1349	Type 6 System	+	+
FTT_1350	Type 6 System	+	-
FTT_1351	Type 6 System	+	-
FTT_1352	Type 6 System	+	-
FTT_1353	Type 6 System	+	-
FTT_1354	Type 6 System	+	Φ
FTT_1355	Type 6 System	+	+
FTT_1356c	Type 6 System	+	-
FTT_1357c	Type 6 System	+	-
FTT_1358c	Type 6 System	+	-
FTT_1359c	Type 6 System	+	-
FTT_1360c	Type 6 System	+	-
FTT_1361c	Secreted	Φ	+
FTT_1441	Secreted	+	Φ
FTT_1695	Secreted	+	+
FTT_1696	Secreted	+	+
FTT_1724c	Type 1 System	+	+

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<sup>a</sup>Based on Meibom et al. 2010 and Rowe et al. 2015.

<sup>b</sup>From NC\_006570.2

<sup>c</sup>Gene present (+), absent (-), pseudogenized (Φ).

**Table S3.** Summary of read assignments and coverage depth of FLE-Am contigs.

Contig	Length (bp)	Reads Mapped	Coverage Depth
1	454,721	355,833	75.88
2	386,665	341,266	84.3
3	269,887	223,506	77.35
4	250,614	197,334	76.11
5	89,993	77,907	83.26
6	88,538	76,923	84.96
7	15,837	12,909	77.21

**Table S4.** Genes in FLE-Am not present in *F. tularensis* SCHU-S4.

Locus tag	Function <sup>a</sup>
AS144_06750	23S rRNA (pseudouridine(1915)-N(3))-methyltransferase RlmH
AS144_00955	amino acid transporter
AS144_05620	anhydro-N-acetylmuramic acid kinase
AS144_07080	cytochrome BD oxidase subunit I
AS144_02345	D-tyrosyl-tRNA(Tyr) deacylase
AS144_01600	death-on-curing protein
AS144_01245	deoxyribodipyrimidine photolyase
AS144_05170	flippase
AS144_06210	GDP-fucose synthetase
AS144_06215	GDP-mannose 4,6-dehydratase
AS144_01825	glutaredoxin
AS144_05350	glycosyl transferase
AS144_06075	glycosyl transferase
AS144_06085	glycosyl transferase
AS144_06090	glycosyl transferase
AS144_06095	glycosyl transferase
AS144_06080	glycosyl transferase family 1
AS144_00750	hypothetical protein
AS144_01240	hypothetical protein
AS144_01260	hypothetical protein
AS144_01390	hypothetical protein
AS144_01595	hypothetical protein
AS144_01615	hypothetical protein
AS144_01620	hypothetical protein
AS144_01625	hypothetical protein
AS144_01630	hypothetical protein
AS144_01640	hypothetical protein
AS144_01670	hypothetical protein
AS144_01780	hypothetical protein
AS144_01795	hypothetical protein
AS144_01815	hypothetical protein
AS144_01840	hypothetical protein
AS144_01885	hypothetical protein
AS144_01950	hypothetical protein
AS144_01955	hypothetical protein
AS144_01960	hypothetical protein
AS144_01965	hypothetical protein
AS144_01970	hypothetical protein
AS144_01975	hypothetical protein
AS144_02120	hypothetical protein
AS144_02125	hypothetical protein

AS144_02130	hypothetical protein
AS144_02135	hypothetical protein
AS144_02140	hypothetical protein
AS144_02145	hypothetical protein
AS144_02180	hypothetical protein
AS144_02260	hypothetical protein
AS144_02270	hypothetical protein
AS144_02310	hypothetical protein
AS144_02625	hypothetical protein
AS144_02710	hypothetical protein
AS144_02775	hypothetical protein
AS144_02785	hypothetical protein
AS144_02865	hypothetical protein
AS144_02975	hypothetical protein
AS144_02980	hypothetical protein
AS144_02985	hypothetical protein
AS144_02990	hypothetical protein
AS144_02995	hypothetical protein
AS144_03000	hypothetical protein
AS144_03005	hypothetical protein
AS144_03010	hypothetical protein
AS144_03015	hypothetical protein
AS144_03020	hypothetical protein
AS144_03055	hypothetical protein
AS144_03610	hypothetical protein
AS144_03635	hypothetical protein
AS144_03715	hypothetical protein
AS144_03720	hypothetical protein
AS144_03790	hypothetical protein
AS144_03895	hypothetical protein
AS144_04105	hypothetical protein
AS144_04135	hypothetical protein
AS144_03505	hypothetical protein
AS144_04210	hypothetical protein
AS144_04435	hypothetical protein
AS144_04595	hypothetical protein
AS144_04745	hypothetical protein
AS144_04750	hypothetical protein
AS144_04800	hypothetical protein
AS144_04840	hypothetical protein
AS144_04870	hypothetical protein
AS144_04875	hypothetical protein
AS144_04885	hypothetical protein
AS144_04925	hypothetical protein



AS144\_05115 hypothetical protein  
AS144\_05120 hypothetical protein  
AS144\_05125 hypothetical protein  
AS144\_05130 hypothetical protein  
AS144\_05135 hypothetical protein  
AS144\_05145 hypothetical protein  
AS144\_05150 hypothetical protein  
AS144\_05175 hypothetical protein  
AS144\_05180 hypothetical protein  
AS144\_05220 hypothetical protein  
AS144\_05235 hypothetical protein  
AS144\_04265 hypothetical protein  
AS144\_05575 hypothetical protein  
AS144\_05590 hypothetical protein  
AS144\_05595 hypothetical protein  
AS144\_05715 hypothetical protein  
AS144\_05770 hypothetical protein  
AS144\_5815 hypothetical protein  
AS144\_05820 hypothetical protein  
AS144\_05825 hypothetical protein  
AS144\_05830 hypothetical protein  
AS144\_05990 hypothetical protein  
AS144\_06065 hypothetical protein  
AS144\_06100 hypothetical protein  
AS144\_06105 hypothetical protein  
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AS144\_06145 hypothetical protein  
AS144\_06150 hypothetical protein  
AS144\_06155 hypothetical protein  
AS144\_06235 hypothetical protein  
AS144\_06240 hypothetical protein  
AS144\_06245 hypothetical protein  
AS144\_06250 hypothetical protein  
AS144\_06315 hypothetical protein  
AS144\_06435 hypothetical protein  
AS144\_06545 hypothetical protein  
AS144\_06550 hypothetical protein  
AS144\_06970 hypothetical protein  
AS144\_07240 hypothetical protein

AS144_07250	hypothetical protein
AS144_07260	hypothetical protein
AS144_07390	hypothetical protein
AS144_07160	hypothetical protein
AS144_07545	hypothetical protein
AS144_07550	hypothetical protein
AS144_07555	hypothetical protein
AS144_07560	hypothetical protein
AS144_07565	hypothetical protein
AS144_07585	hypothetical protein
AS144_06220	mannose-1-phosphate guanylyltransferase/mannose-6-phosphate isomerase
AS144_03850	mannose-6-phosphate isomerase
AS144_05355	mannosyltransferase
AS144_06935	mechanosensitive ion channel protein MscS
AS144_04605	MFS sugar transporter
AS144_02935	MFS transporter
AS144_04835	Nif3-like dinuclear metal center hexameric protein
AS144_01865	phage infection protein
AS144_05360	polymerase
AS144_02335	prephenate dehydrogenase
AS144_06175	pseudaminic acid cytidyltransferase
AS144_06165	pseudaminic acid synthase
AS144_06045	recombination factor protein RarA
AS144_05165	SAM-dependent methyltransferase
AS144_02895	serine permease
AS144_06115	teichoic acid ABC transporter permease
AS144_05710	transporter
AS144_06180	UDP-4-amino-4,6-dideoxy-N-acetyl-beta-L-altrosamine transaminase
AS144_06185	UDP-N-acetylglucosamine 4,6-dehydratase (inverting)

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<sup>a</sup>Function assigned by NCBI Prokaryotic Genome Annotation Pipeline.