

Table S1. The complete list of differentially expressed genes of the Δ rfbE mutant by microarray analysis

Gene locus tag of <i>B. abortus</i> 9-941	Fold Change	Regulation	Gene	Product
BruAb1_2112	2.12	up		hypothetical protein
BruAb1_1176	2.71	up	<i>clpS</i>	ATP-dependent Clp protease adaptor protein ClpS
BruAb2_0850	3.61	up		hypothetical protein
BruAb1_0233	2.03	up		sugar ABC transporter, ATP-binding protein
BruAb2_0838	2.57	up		hypothetical protein
BruAb1_1735	8.15	up		hypothetical protein
BruAb1_1650	3.23	up		hypothetical protein
BruAb2_0969	2.10	up		
BruAb1_0815	2.52	up		hypothetical protein
BruAb1_1772	2.29	up		branched-chain amino acid ABC transporter, permease protein
BruAb2_0501	3.67	up		transcriptional regulator
BruAb1_1471	4.52	up		hypothetical protein
BruAb1_trna_0003	2.89	up		tRNA-Phe
BruAb1_1375	3.57	up		hypothetical protein
BruAb1_0622	2.56	up		hypothetical protein
BruAb1_1975	2.09	up		hypothetical protein
BruAb2_1013	2.02	up		
BruAb2_1055	9.07	up		IS3 family transposase orfB
BruAb1_1643	2.40	up		hypothetical protein
BruAb1_0445	2.65	up		cold-shock family protein
BruAb2_0799	3.38	up		oxidoreductase
BruAb1_trna_0008	2.00	up		tRNA-Pro
BruAb2_0954	2.02	up		aldehyde dehydrogenase family protein

BruAb1_1321	2.57	up		hypothetical protein
BruAb1_trna_0002	7.06	up		tRNA-Pro
BruAb1_trna_0009	4.34	up		tRNA-Arg
BruAb1_1651	2.45	up		hypothetical protein
BruAb2_0304	2.62	up	<i>hutI</i>	imidazolonepropionase
BruAb2_0393	3.36	up		hypothetical protein
BruAb1_1506	2.13	up		cold-shock family protein
BruAb2_0311	2.46	up		alanine catabolic operon transcriptional regulator
BruAb2_0280	2.66	up		branched-chain amino acid ABC transporter periplasmic substrate-binding protein
BruAb2_0291	2.24	up		hypothetical protein
BruAb2_1087	2.09	up	<i>xylF</i>	XylF, D-xylose ABC transporter, periplasmic D-xylose-binding protein
BruAb1_1281	2.28	up		hypothetical protein
BruAb1_0556	2.67	up		transposase orfA
BruAb2_0394	3.01	up		hypothetical protein
BruAb2_0191	2.58	up	<i>groES</i>	co-chaperonin GroES
BruAb1_0940	2.42	up		cysteine desulfurase activator complex subunit SufB
BruAb1_1726	6.20	up		hypothetical protein
BruAb1_0035	6.94	up		hypothetical protein
BruAb2_trna_0010	2.31	up		tRNA-Leu
BruAb1_1516	2.22	up		hypothetical protein
BruAb2_0587	4.32	up		transcriptional regulator PcaR
BruAb1_2005	2.16	up		hypothetical protein
BruAb1_0011	2.09	up		hypothetical protein
BruAb1_0590	2.38	up	<i>ptrB</i>	PtrB, protease
BruAb1_trna_0023	2.51	up		tRNA-Tyr
BruAb1_0158	2.12	up		hypothetical protein

BruAb1_1808	2.17	up		
BruAb1_trna_0033	2.77	up		tRNA-Ile
BruAb2_0880	2.14	up	<i>ptrB</i>	transcriptional activator FtrB
BruAb1_0507	2.36	up		hypothetical protein
BruAb1_0455	3.42	up		transglycosylase-associated protein
BruAb1_0148	2.62	up		hypothetical protein
BruAb2_0592	2.03	up		
BruAb1_1334	5.58	up		acid-shock protein
BruAb1_0748	2.91	up		hypothetical protein
BruAb1_1280	3.94	up		hypothetical protein
BruAb2_0682	2.52	up		hypothetical protein
BruAb1_2016	2.76	up		hypothetical protein
BruAb1_0230	4.06	up		sugar ABC transporter, periplasmic sugar-binding protein
BruAb1_1185	2.10	up		transcriptional regulator
BruAb1_1767	2.06	up		branched-chain amino acid ABC transporter periplasmic substrate-binding protein
BruAb1_0004	4.24	up	<i>moeB</i>	molybdopterin biosynthesis protein MoeB
BruAb2_0788	3.48	up		hypothetical protein
BruAb1_1793	2.70	up	<i>htpX</i>	heat shock protein HtpX
BruAb1_1662	3.87	up		hypothetical protein
BruAb1_0693	3.99	up		hypothetical protein
BruAb2_0486	3.41	up		short chain dehydrogenase/reductase family oxidoreductase
BruAb2_0665	2.44	up		transposase orfA ISBm1, interruption-N
BruAb1_1507	3.59	up		hypothetical protein
BruAb1_1468	2.45	up		hypothetical protein
BruAb2_0671	3.26	up		
BruAb2_1049	2.85	up		L-fucose phosphate aldolase

BruAb2_0503	2.52	up		hypothetical protein
BruAb1_1556	5.13	up		hypothetical protein
BruAb2_0236	2.31	up		hypothetical protein
BruAb1_1560	2.41	up		
BruAb1_1390	2.01	up		hypothetical protein
BruAb1_trna_0017	3.22	up		tRNA-Gly
BruAb1_0546	2.51	up		ISBm1, transposase orfA
BruAb1_1632	2.42	up		hypothetical protein
BruAb2_0445	2.26	up		hypothetical protein
BruAb2_0608	2.22	up		hypothetical protein
BruAb1_1384	2.34	up	<i>ilvH</i>	acetolactate synthase 3 regulatory subunit
BruAb2_1081	2.11	up	<i>motB</i>	flagellar motor protein MotB
BruAb1_trna_0012	2.91	up		tRNA-Asp
BruAb1_1268	2.17	up		cold-shock family protein
BruAb1_0895	2.07	up		sec-independent translocase
BruAb2_0259	2.08	up		hypothetical protein
BruAb1_trna_0022	4.01	up		tRNA-Gly
BruAb1_0886	2.92	up		hypothetical protein
BruAb1_1329	2.84	up		permease
BruAb1_1943	2.53	up		
BruAb1_1170	2.67	up		hypothetical protein
BruAb2_0035	2.46	up		
BruAb1_trna_0014	3.03	up		tRNA-Thr
BruAb1_0562	2.11	up	<i>manA</i>	ManA, mannose-6-phosphate isomerase
BruAb1_0449	2.61	up		hypothetical protein
BruAb2_1070	2.02	up	<i>fliQ</i>	flagellar biosynthesis protein FliQ

BruAb1_0232	2.65	up		sugar ABC transporter, permease protein
BruAb2_0400	5.42	up		hypothetical protein
BruAb1_1313	2.78	up		hypothetical protein
BruAb2_0811	5.19	up		hypothetical protein
BruAb1_2068	3.22	up		hypothetical protein
BruAb1_0989	2.23	up		hypothetical protein
BruAb1_0510	2.90	up		hypothetical protein
BruAb1_0182	2.14	up		hypothetical protein
BruAb1_0962	3.03	up	<i>mobB</i>	
BruAb1_1817	3.17	up		hypothetical protein
BruAb1_0462	3.43	up		hypothetical protein
BruAb1_1331	2.04	up		hypothetical protein
BruAb2_0459	2.08	up		AsnC family transcriptional regulator
BruAb2_0781	2.11	down		hypothetical protein
BruAb1_1781	2.06	down	<i>atpA</i>	F0F1 ATP synthase subunit alpha
BruAb1_0512	2.37	down		voltage gated chloride channel family protein
BruAb1_0937	2.03	down	<i>qacH</i>	QacH, quaternary ammonium compound-resistance protein
BruAb2_0278	2.55	down		branched-chain amino acid ABC transporter ATP-binding protein
BruAb1_0116	2.01	down		hypothetical protein
BruAb1_0217	2.17	down		ABC transporter, permease protein
BruAb2_0267	3.64	down	<i>rpsU</i>	30S ribosomal protein S21
BruAb1_0542	15.70	down	<i>rfbE</i>	RfbE, O-antigen export system ATP-binding protein RfbE
BruAb1_0415	2.61	down		hypothetical protein
BruAb1_1551	2.97	down		hypothetical protein
BruAb1_1239	5.24	down	<i>rpsJ</i>	30S ribosomal protein S10
BruAb1_0820	3.06	down	<i>nuoE</i>	NADH dehydrogenase subunit E

BruAb1_1803	2.03	down	<i>rpsP</i>	30S ribosomal protein S16
BruAb2_0794	2.30	down		peptide ABC transporter, permease protein
BruAb1_1350	3.94	down		hypothetical protein
BruAb1_1865	2.86	down	<i>gcp</i>	putative DNA-binding/iron metalloprotein/AP endonuclease
BruAb1_0002	2.13	down	<i>dnaN</i>	DNA polymerase III subunit beta
BruAb1_1238	5.08	down	<i>rplC</i>	50S ribosomal protein L3
BruAb2_0167	2.01	down		hypothetical protein
BruAb2_0688	2.29	down		ABC transporter, ATP-binding protein
BruAb1_0274	2.37	down		hypothetical protein
BruAb1_0740	2.26	down		exonuclease
BruAb1_1901	3.75	down	<i>sucD</i>	succinyl-CoA synthetase subunit alpha
BruAb1_1883	2.10	down	<i>rplS</i>	50S ribosomal protein L19
BruAb2_0505	4.66	down	<i>gcvH</i>	glycine cleavage system protein H
BruAb1_1606	2.15	down		
BruAb1_1899	2.83	down	<i>sucA</i>	2-oxoglutarate dehydrogenase E1 component
BruAb1_0650	2.57	down		hypothetical protein
BruAb1_0934	2.64	down		hypothetical protein
BruAb1_2158	2.03	down	<i>rpsT</i>	30S ribosomal protein S20
BruAb1_1236	3.58	down	<i>rplW</i>	50S ribosomal protein L23
BruAb1_0822	3.33	down	<i>nuoG</i>	NADH dehydrogenase subunit G
BruAb1_0511	2.22	down		HAD superfamily hydrolase
BruAb1_0572	2.32	down		
BruAb1_0474	2.11	down	<i>rplI</i>	50S ribosomal protein L9
BruAb2_0019	2.14	down		HupC/HyaC/HydC family protein
BruAb2_0699	2.31	down		2-oxoisovalerate dehydrogenase E1 component, beta subunit
BruAb1_0483	3.53	down	<i>fabF</i>	3-oxoacyl-(acyl carrier protein) synthase II

BruAb1_1237	4.13	down	<i>rplD</i>	50S ribosomal protein L4
BruAb1_1780	2.31	down	<i>atpG</i>	FOF1 ATP synthase subunit gamma
BruAb1_0413	2.40	down		hypothetical protein
BruAb1_0209	2.53	down	<i>thiE</i>	thiamine-phosphate pyrophosphorylase
BruAb1_2023	2.18	down		Gfo/Idh/MocA family oxidoreductase
BruAb1_0352	3.18	down		hypothetical protein
BruAb1_2072	2.19	down	<i>ahcY</i>	S-adenosyl-L-homocysteine hydrolase
BruAb1_0927	2.47	down		peptide chain release factor 2
BruAb1_1919	2.07	down		peptidyl-prolyl cis-trans isomerase
BruAb1_0077	3.67	down		hypothetical protein
BruAb2_0576	2.08	down		
BruAb1_0898	2.03	down	<i>surE</i>	stationary phase survival protein SurE
BruAb1_0409	2.68	down		FOF1 ATP synthase subunit B'
BruAb1_0977	2.75	down		
BruAb1_1241	8.22	down	<i>fusA</i>	elongation factor G
BruAb1_1445	2.99	down	<i>metF</i>	MetF, 5,10-methylenetetrahydrofolate reductase
BruAb1_1924	2.02	down		
BruAb1_2095	2.64	down	<i>rplT</i>	50S ribosomal protein L20
BruAb2_0846	2.95	down		HlyD family secretion protein
BruAb1_1903	2.31	down	<i>mdh</i>	malate dehydrogenase
BruAb2_0549	2.36	down		hypothetical protein
BruAb1_0476	4.11	down	<i>rpsR</i>	30S ribosomal protein S18
BruAb2_0816	2.55	down	<i>xfp</i>	putative phosphoketolase
BruAb1_1251	2.59	down	<i>rplA</i>	50S ribosomal protein L1
BruAb1_1235	2.57	down	<i>rplB</i>	50S ribosomal protein L2
BruAb2_rrna_0002	18.35	down		23S ribosomal RNA

BruAb1_1701	2.39	down	<i>rpmE</i>	50S ribosomal protein L31
BruAb1_0364	2.52	down		hypothetical protein
BruAb2_0698	3.14	down		branched-chain alpha-keto acid dehydrogenase subunit E2
BruAb1_0968	2.55	down		
BruAb1_1227	2.22	down	<i>rplX</i>	50S ribosomal protein L24
BruAb1_0320	2.10	down		hypothetical protein
BruAb1_1167	2.12	down	<i>tsf</i>	elongation factor Ts
BruAb2_0700	2.39	down		2-oxoisovalerate dehydrogenase E1 component, alpha subunit
BruAb2_0263	2.04	down		oxidoreductase
BruAb1_0843	2.51	down	<i>rpsD</i>	30S ribosomal protein S4
BruAb2_0960	2.21	down		hypothetical protein
BruAb1_1730	2.11	down	<i>purK</i>	phosphoribosylaminoimidazole carboxylase ATPase subunit
BruAb1_0805	3.55	down	<i>rplM</i>	50S ribosomal protein L13
BruAb1_0668	2.17	down	<i>rpoZ</i>	DNA-directed RNA polymerase subunit omega
BruAb1_1744	2.48	down		thiamine ABC transporter ATP-binding protein
BruAb1_0389	2.52	down	<i>ccoN</i>	cbb3-type cytochrome c oxidase subunit I
BruAb1_1132	2.17	down	<i>lpdA-1</i>	dihydrolipoamide dehydrogenase
BruAb1_0049	2.15	down		hypothetical protein
BruAb1_1527	2.15	down		maoC-related protein
BruAb1_2094	2.03	down	<i>rpmI</i>	50S ribosomal protein L35
BruAb1_trna_0005	2.40	down		tRNA-Arg
BruAb1_0624	2.04	down		sensor histidine kinase
BruAb1_0155	2.67	down		hypothetical protein
BruAb2_0962	3.24	down	<i>rnpA</i>	ribonuclease P
BruAb1_0351	3.10	down		hypothetical protein
BruAb1_1508	2.79	down		metallo-beta-lactamase family protein

BruAb1_0388	4.29	down	<i>ccoO</i>	cbb3-type cytochrome c oxidase subunit II
BruAb1_0062	2.14	down	<i>frcK</i>	putative fructose transport system kinase
BruAb1_0571	2.10	down		transcriptional regulator
BruAb1_1234	2.29	down	<i>rpsS</i>	30S ribosomal protein S19
BruAb1_0208	2.19	down		ABC transporter, periplasmic substrate-binding protein
BruAb2_1069	2.05	down		
BruAb1_1242	6.66	down	<i>rpsG</i>	30S ribosomal protein S7
BruAb1_0702	2.18	down	<i>pdxA</i>	4-hydroxythreonine-4-phosphate dehydrogenase
BruAb1_1096	2.27	down		TetR family transcriptional regulator
BruAb1_1829	2.98	down	<i>rplU</i>	50S ribosomal protein L21
BruAb1_0833	2.07	down		hypothetical protein
BruAb1_1522	2.28	down	<i>prsA</i>	ribose-phosphate pyrophosphokinase
BruAb1_0586	2.85	down		hypothetical protein
BruAb1_1360	2.09	down		urea transporter
BruAb2_0506	2.44	down	<i>gcvP</i>	glycine dehydrogenase
BruAb1_0935	2.12	down	<i>tyrS</i>	tyrosyl-tRNA synthetase
BruAb2_0971	2.02	down	<i>dapE</i>	succinyl-diaminopimelate desuccinylase
BruAb1_1285	2.09	down		hypothetical protein
BruAb1_rrna_0002	19.31	down		23S ribosomal RNA
BruAb1_1219	2.02	down	<i>rplO</i>	50S ribosomal protein L15
BruAb1_1990	2.07	down	<i>rpmB</i>	50S ribosomal protein L28
BruAb1_0656	2.10	down		hypothetical protein
BruAb1_trna_0010	2.36	down		tRNA-Pro
BruAb2_0938	2.01	down		hypothetical protein
BruAb1_1233	2.60	down	<i>rplV</i>	50S ribosomal protein L22
BruAb2_0379	2.18	down		epimerase/dehydratase family protein

BruAb1_1921	2.30	down	<i>secA</i>	preprotein translocase subunit SecA
BruAb1_rrna_0003	22.37	down		16S ribosomal RNA
BruAb2_0712	2.01	down	<i>cydA</i>	CydA, cytochrome d ubiquinol oxidase, subunit I
BruAb1_0560	2.41	down		phosphomannomutase
BruAb1_1677	2.26	down		hypothetical protein
BruAb1_1624	2.01	down		GMC family oxidoreductase
BruAb1_0408	2.17	down	<i>atpE</i>	F0F1 ATP synthase subunit C
BruAb1_0160	2.28	down		hypothetical protein
BruAb1_1142	3.18	down		hypothetical protein
BruAb1_1535	2.47	down		RNA methyltransferase
BruAb1_1524	2.43	down		50S ribosomal protein L25/general stress protein Ctc
BruAb2_0617	2.38	down		MutT/nudix family protein
BruAb1_2136	2.37	down	<i>nusA</i>	transcription elongation factor NusA
BruAb1_1214	2.34	down	<i>rpoA</i>	DNA-directed RNA polymerase subunit alpha
BruAb1_1158	2.38	down	<i>fabZ</i>	(3R)-hydroxymyristoyl-ACP dehydratase
BruAb1_1779	3.10	down	<i>atpD</i>	F0F1 ATP synthase subunit beta
BruAb1_1842	2.52	down		hypothetical protein
BruAb1_0854	2.10	down		phosphoribosylformylglycinamide synthase subunit PurS
BruAb2_0473	2.29	down		hypothetical protein
BruAb1_trna_0006	2.64	down		tRNA-Gln
BruAb1_0315	2.19	down	<i>fadD</i>	Long-chain-fatty-acid--CoA ligase
BruAb1_1878	3.27	down	<i>sdhA</i>	succinate dehydrogenase flavoprotein subunit
BruAb2_0961	2.05	down	<i>rpmH</i>	50S ribosomal protein L34
BruAb2_0571	2.37	down	<i>ugpB</i>	UgbB, glycerol-3-phosphate ABC transporter, periplasmic glycerol-3-phosphate-binding protein
BruAb2_0736	2.86	down		
BruAb2_0865	2.26	down	<i>nrdE</i>	ribonucleotide-diphosphate reductase subunit alpha

BruAb1_1444	2.62	down		transporter
BruAb1_0701	2.50	down	<i>ksgA</i>	dimethyladenosine transferase
BruAb1_1421	2.11	down	<i>ftsA</i>	FtsA, cell division protein FtsA
BruAb1_1898	2.27	down	<i>sucB</i>	dihydrolipoamide succinyltransferase
BruAb1_1754	2.06	down		ATP-dependent helicase
BruAb1_trna_0026	3.93	down		tRNA-Lys
BruAb1_1248	2.57	down	<i>rpoB</i>	DNA-directed RNA polymerase subunit beta
BruAb1_0399	2.22	down		hypothetical protein
BruAb1_1255	3.99	down	<i>tuf</i>	elongation factor Tu
BruAb1_0720	2.30	down		outer-membrane protein, 25 kDa
BruAb2_0767	2.80	down		hypothetical protein
BruAb1_0657	3.43	down	<i>omp2b</i>	Omp2b, porin
BruAb1_1914	2.59	down		hypothetical protein
BruAb2_0569	2.06	down	<i>ugpE</i>	UgpE, glycerol-3-phosphate ABC transporter, permease protein
BruAb1_0973	2.64	down		hypothetical protein
BruAb1_0993	3.00	down		hypothetical protein
BruAb1_0819	2.83	down	<i>nuoD</i>	NADH dehydrogenase subunit D
BruAb1_0599	2.13	down		peptidoglycan-binding protein
BruAb1_0804	2.92	down	<i>rpsI</i>	30S ribosomal protein S9
BruAb1_0164	2.30	down		hypothetical protein
BruAb2_0881	3.37	down		nitrite extrusion protein
BruAb1_1243	4.96	down	<i>rpsL</i>	30S ribosomal protein S12
BruAb1_1240	3.71	down	<i>tuf</i>	elongation factor Tu
BruAb1_0477	3.37	down	<i>rpsF</i>	30S ribosomal protein S6
BruAb1_1908	2.66	down	<i>dapF</i>	diaminopimelate epimerase
BruAb1_1134	2.13	down	<i>pdhB</i>	pyruvate dehydrogenase subunit beta
