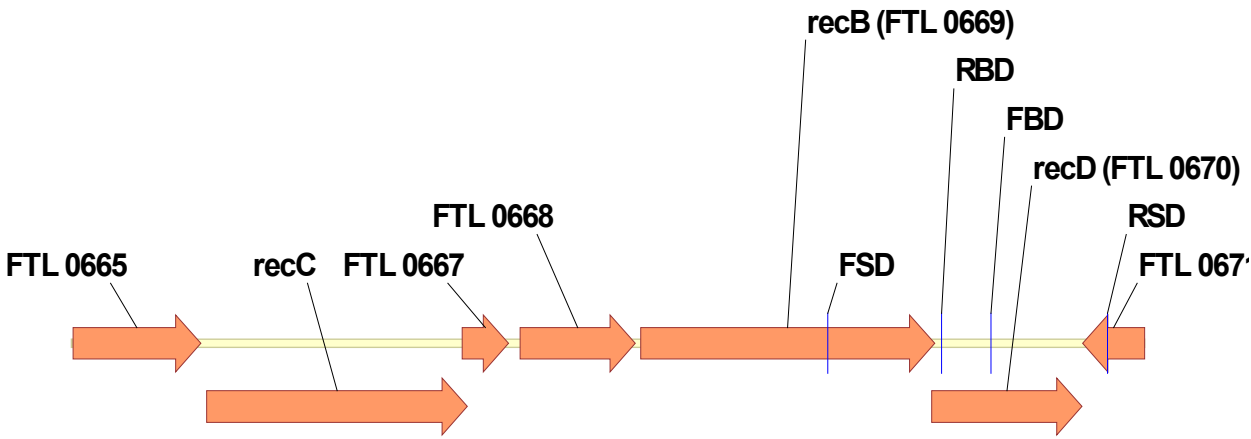
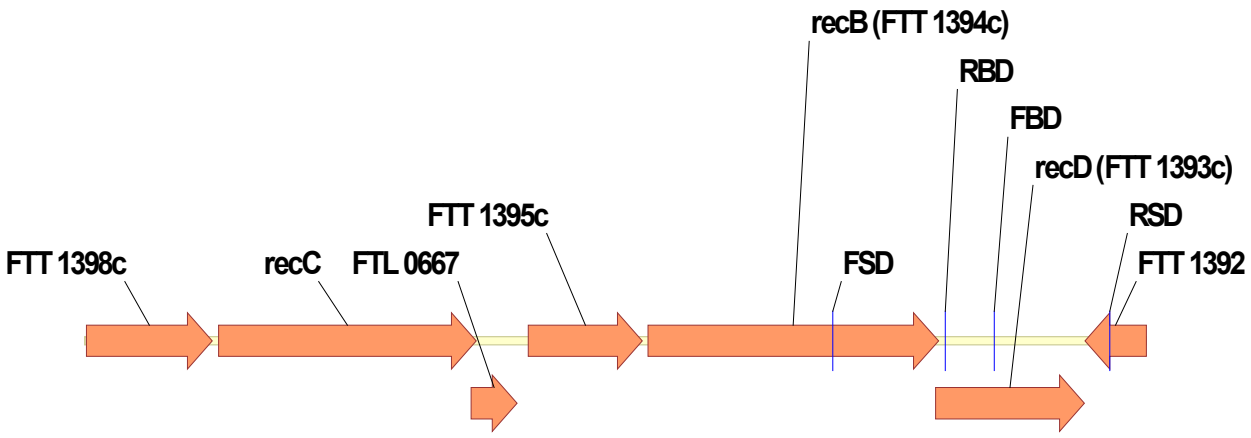


Supplementary 1.

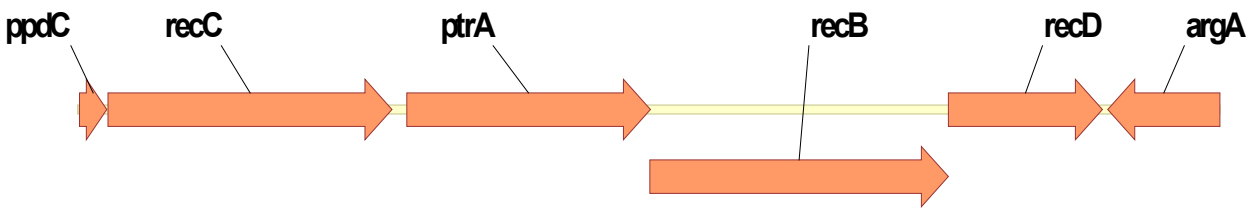
Structure of the genome regions of *F. tularensis* and *E. coli* with *recBCD* genes



F tularensis LVS *recBCD* region  
13328 bp



F tularensis SCHU S4 *recBCD* region  
13327 bp



E coli K-12 MG1655 *recBCD* region  
13523 bp

Multiple alignment of the amino acid sequence of the RecD proteins of *F. tularensis* and *E. coli*.

Strain	RecD protein accession number
<i>E. coli</i> K-12 MG1655	NP_417296.1
<i>F. tularensis</i> subsp. <i>holarctica</i> LVS	AJI59740.1

	1	50
<i>E. coli</i> _K-12_MG1655_RecD (1)	-----MKLQKQLREAVE	
<i>F. tularensis</i> _LVS_RecD (1)	MLVYLMEMIMYKTFHKACEQLADIRAIDFFFAKEVFDL	MKKTTPSNTTIS
Consensus (1)		MK L L
	51	100
<i>E. coli</i> _K-12_MG1655_RecD (13)	HKQLRPLDVQFALTWAGDEHPAVTLAAALSHDAGEGHVCLPLSRENN-	
<i>F. tularensis</i> _LVS_RecD (51)	SESYPFFHGAKNDLEQKSNEILFHILMKMHVYSHGHSCLIKIADISNKT	
Consensus (51)	P A L L L H GH CL IA I N	
	101	150
<i>E. coli</i> _K-12_MG1655_RecD (62)	-EASHPLLATCVSEIGELQNWEECLLASQAVSRGDEPTPMILCGDRIYIN	
<i>F. tularensis</i> _LVS_RecD (101)	IFASEQSNQSDAKVGFKMPSSDKIASILDNIYDNLPIYFAKQYDSLYTK	
Consensus (101)	AS S L D L P D LYI	
	151	200
<i>E. coli</i> _K-12_MG1655_RecD (111)	RMWCNERTVRRFFNEVNHAIEVDALLAQTLDKLFPVSDIEINWQVAAAV	
<i>F. tularensis</i> _LVS_RecD (151)	RLWNYENETANFIKLKTIQNTQKNRIEEVVDKLEPEAGEINWQQAQVIK	
Consensus (151)	RLW E IA F D I LDKLF A EINWQ A	
	201	250
<i>E. coli</i> _K-12_MG1655_RecD (161)	ALTRRISVISGGPGTGKTTTVAKLIALIQADGERCRIRLAAPTGKAAA	
<i>F. tularensis</i> _LVS_RecD (201)	SINYNFSIISGGPGTGKTTTVAKLIALQMINQ-NQQRIALAPTGKAAQ	
Consensus (201)	AL SIISGGPGTGKTTTVAKL AI L RI L APTGKAA	
	251	300
<i>E. coli</i> _K-12_MG1655_RecD (211)	RLTESLKGALR-----QLPLTDEQKK-----RIPEAS	
<i>F. tularensis</i> _LVS_RecD (250)	RMTESLKNLTATVIPSSLTTESTIQKNDIFKQVQDELNSVAQYLNLEAQ	
Consensus (251)	RLTESL L Q Q DA	
	301	350
<i>E. coli</i> _K-12_MG1655_RecD (239)	TIHRLIGAOFGSQRLLRHAGNPLHLDVIVDEASMDIPMSRLIDALPD	
<i>F. tularensis</i> _LVS_RecD (300)	TIHRLGLRNSSTYVKYNQSKAPFDVIIVDEASMDMNFIKLIRAVAD	
Consensus (301)	TIHR LG P S LKH DVIIVDEASMDL I KLI AL D	
	351	400
<i>E. coli</i> _K-12_MG1655_RecD (289)	HARVIFLIGDRDQLASVEAGAVLGDICAYANAGFTAERARQLSRLTGTHVP	
<i>F. tularensis</i> _LVS_RecD (350)	NTKLILLIGDTNQLPSVEAGSLLANFTHDKYQ-----	
Consensus (351)	KLI IGD QL SVEAGALLA A	
	401	450
<i>E. coli</i> _K-12_MG1655_RecD (339)	AGTGTEAASIRDSLCLLQKSYRFGSDSGIGQLAAAINRGDKTAVKTVFQQ	
<i>F. tularensis</i> _LVS_RecD (381)	-----SITPYTTLIKNYRS--QQYINNLAASVLKGVNIDS---Q	
Consensus (401)	SI LL K YR I NLAAAI KGD Q	
	451	500
<i>E. coli</i> _K-12_MG1655_RecD (389)	DFTDTEKRLIQSGEDYIAMLEEAAGYGRYLDLLQARAPDLIQAFNEY	
<i>F. tularensis</i> _LVS_RecD (417)	QNENIKFHSIRN-----LDIYIREYAKRYSQLEKCRYKEALTENKE	
Consensus (451)	I L LD L YAK L D I N F	
	501	550
<i>E. coli</i> _K-12_MG1655_RecD (439)	QLICALREGPFGVAGLNERIEQFMQQKRKIHRHPHSRWYEGRPVMTIARD	
<i>F. tularensis</i> _LVS_RecD (460)	RILVANKNLEIGTDKLNQKIEKFM-----KPIDSNYKCKPIMITQNS	
Consensus (501)	IL A K G LN KIE FM P Y GKPMI N	
	551	600
<i>E. coli</i> _K-12_MG1655_RecD (489)	SALGLFNGDIGIALDRQG-TRVWFAMPDGNIKSVQPSRLPEHEETWAMT	
<i>F. tularensis</i> _LVS_RecD (503)	YSLGLFNGDIGIMWPDDTGKLRAEDGKDAKAFSLN--MLEKYEVSVMAMT	
Consensus (551)	ALGLFNGDIGI G R WF DA SLN LP HES WAMT	
	601	650
<i>E. coli</i> _K-12_MG1655_RecD (538)	VHKSQGSEFDHAAIILPFSQRTPVVTRELVTAVTRARRRSLYADERILS	
<i>F. tularensis</i> _LVS_RecD (551)	IHKIQGSEFDEIVLILPAEDNEALSKQLLYTAITRAKYKLTIIISQSSLR	
Consensus (601)	IHKSQGSEFD IILPA LSK LLYTAITRAK KLSI AD L	
	651	672
<i>E. coli</i> _K-12_MG1655_RecD (588)	AAIATRTERRSGLAALFSSRE-	
<i>F. tularensis</i> _LVS_RecD (601)	DIAQKDINRNSNISELVSLSTQ	
Consensus (651)	R S IA L S	