

**Table S1. PICIs in the Gram-negative (GN) bacteria: Genomes and characteristics.**

PICI	Strain	Accession number (Genomic location)	Size (Kb)	att site core	att gene	Accessory genes
EcCICFT073	<i>Escherichia coli</i> CFT073	AE014075.1 (1377749-1389210)	11.4	GGACATATTT	<i>ycfD-phoQ</i>	<i>rdgR</i> ; <i>perC</i>
EcCIRM12579	<i>Escherichia coli</i> O55:H7 str. RM12579	NC_017656.1 (1438155-1449376)	11.2	GGACATATTT	<i>ycfD-phoQ</i>	<i>rdgR</i> ; <i>perC</i>
EcCI042	<i>Escherichia coli</i> 042	FN554766.1 (1832521-1843554)	11	ATAACAGCA	<i>tqsA</i>	<i>rdgR</i> ; <i>perC</i>
EcCIK1516	<i>Escherichia coli</i> O15:H18 str. K1516	JHJE01000001.1 (141718-153137)	11.4	ATAACAGCA	<i>tqsA</i>	<i>rdgR</i>
EcCIATCC 25922	<i>Escherichia coli</i> ATCC 25922	CP009072.1 (106749-118031)	11.3	TTTTAGTTATACGTTT TTTTAGTTATACGTTTGGTTATACGG	<i>yejM-luxR</i>	<i>rdgR</i>
EcCIED1a.1	<i>Escherichia coli</i> ED1a	CU928162.2 (2568989-2580428)	11.4	TTTTAGTTATACGTTT TTTTAGTTATACGTTTGGTTATACGG	<i>yejM-luxR</i>	<i>rdgR</i>
EcCI11128	<i>Escherichia coli</i> O111:H- str. 11128	AP010960.1 (2855234-2864550)	9.3	TTTTAGTTATACGTTT TTTTAGTTATACGTTTGGTTATACGG	<i>yejM-luxR</i>	<i>rdgR</i>
EcCI11368.1	<i>Escherichia coli</i> O26:H11 str. 11368	AP010953.1 (3041660-3050231)	8.5	TTTTAGTTATACGTTT TTTTAGTTATACGTTTGGTTATACGG	<i>yejM-luxR</i>	<i>rdgR</i>
EcCIIHE3034	<i>Escherichia coli</i> IHE3034	NC_017628.1 (920272-930825)	10.5	ATGATAGTTAT	<i>cspD-clpS</i>	<i>rdgR</i>
EcCI18098	<i>Escherichia coli</i> ST127 18098	AP010953.1 (3041660-3050231)	10.8	ATGATAGTTAT	<i>cspD-clpS</i>	<i>rdgR</i>
EcCIEC2733.1	<i>Escheichia coli</i> genome assembly 1.EC2733.1	CXXR01000010.1 (90531-101020)	10.5	ACATTATTAATATCGTGA	<i>lysR-smrA</i>	<i>rdgR</i>
EcCIDi14	<i>Escherichia coli</i> clone D i14	CP002212 (249047-259688)	10.6	CGGTGTAGTTAATGGTGTAGTTAATT	IS110 transposase	<i>rdgR</i>
EcCIRM13514	<i>Escherichia coli</i> O145 H28 str. RM13514	CP006027 (4527455-4539396)	11.9	GAGCAGATTCAA	<i>yicC-dinD</i>	<i>rdgR</i>
EcCI224	<i>Escherichia coli</i> strain Ecol_224	CP018948.1 (1961620-1972242)	10.6	AGAAATACCCGTAT	<i>frmR-thiM</i>	<i>rdgR</i>
PmCIHB03	<i>Pasteurella multocida</i> subsp. <i>multocida</i> str. HB03	CP003328.1 (1623899-1638673)	14.7	TTCGACTCCCATTCTC	<i>selA-hsrA</i>	<i>abiF</i>
PmCIOH1905	<i>Pasteurella multocida</i> OH1905	CP004392.1 (1709089-1717107)	8	AGTCCTGTTGGG	<i>dctQ-yeaQ</i>	
PmCI172	<i>Pasteurella multocida</i> 172	MH238469	7.8	AGTCCTGTTGGG	<i>dctQ-yeaQ</i>	
PmCI82	<i>Pasteurella multocida</i> 82	MH238468	7.9	AGTCCTGTTGGG	<i>dctQ-yeaQ</i>	
SdCI1012	<i>Shigella dysenteriae</i> 1012	AAMJ02000027.1 (22790-33855)	11	TTTTAGTTATACGTTT TTTTAGTTATACGTTTGGTTATACGG	<i>yejM-aidA</i>	<i>rdgR</i>

PICI	Strain	Accession number	Size	att site core	att gene	Accessory genes
SbCISb277	<i>Shigella boydii</i> Sb227	CP000036 (2097873-2108605)	10.7	TTTTAGTTATACGCTTAGTTATACGG/ TTTTAGTTATACGTTTGGTTATACGG	<i>yejM-aidA</i>	<i>rdgR; perC</i>
DiCI3937	<i>Dickeya dadantii</i> 3937	CP002038.1 (3753070-3764812)	11.7	GAGTGGATTTTAGTAGACTTAGGGAAACGT	<i>proA</i>	<i>yafN; yafO</i>
PcCIPCC221	<i>Pectobacterium carotovorum</i> subsp. <i>carotovorum</i> PCC21	CP003776.1 (1838416-1848145)	9.7	CTATCGGCATA	CMP	<i>parE; reB</i>
PcCISCRI1043	<i>Pectobacterium carotovora</i> subsp. <i>atroseptica</i> SCRI1043	NC_004547.2 (3091994-3101397)	9.4	GCATTCTCACTGAGTTTGCGGGTTTTTTGT TGCCTGTTATCTATCGGGATACCCCGTTTA CAGCCGAAAA	<i>yejM</i>	<i>parE</i>
CfCIP10159	<i>Citrobacter freundii</i> strain P10159	CP012554.1 (2684917-2697361)	12.4	ATCGAGTAAG	<i>yicC-yicG</i>	<i>perC</i>
AaCIF0387	<i>Aggregatibacter aphrophilus</i> F0387	ACZJ01000009.1 (141541-149751)	8.2	AGTCCTGTTGGG	<i>rpoD</i>	
AacCIRhAA1	<i>Aggregatibacter</i> <i>actinomycetemcomitans</i> RhAA1	AHGR01000004.1 (357167-365116)	7.9	AAAATAGTACCCATTT	<i>gltX-cspC</i>	
PhaCIATCC43949	<i>Photorhabdus asymbiotica</i> ATCC43949	FM162591 (3134213-3145217)	11	AACAAAATCAAACAA	<i>tusE-casI</i>	
NmCIFF6	<i>Necropsobacter massiliensis</i> genome assembly strain FF6	CDON01000001 (135049-142542)	7.5	TTTGGTAACACGTTTAGTAACAC	<i>gltX-tonB</i>	
CnCIND14b	<i>Cedecea neteri</i> strain ND14b	CP009460.1 (3954409-3966716)	12.3	TCCTATTATC	ADH-SDR	<i>yafN; yafO</i>

**Table S2. EcCICFT073 orthologies.**

EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
c1483	<i>int</i>	ecc:c1483	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	314	1.000		EcCICFT073				
		ece:Z1835	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	416	0.978	312	PICI?	1678546	1694015	15.5	HNH; <i>ter</i> L
		ecs:ECs1574	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	409	0.978	312	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1506	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	409	0.978	312	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		sfe:SFxv_1284	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	416	0.978	312	PICI?	1232114	1246489	14.4	HNH; <i>ter</i> L
		sfn:SFy_1623	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2003036	416	0.978	312	PICI?	1198620	1213000	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfs:SFyv_1675	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	416	0.978	312	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01185	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	409	0.978	312	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfx:S1211	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2457T	409	0.978	312	PICI?	1177656	1192394	14.7	Similar to <i>Shigella flexneri</i> 2002017
		ecf:ECH74115_1571	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	409	0.971	312	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1440	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	409	0.971	312	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1484	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	409	0.971	312	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ect:ECIAI39_2027	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IA139	416	0.974	312	PICI?	2060161	2074688	14.5	HNH; <i>ter</i> L
		elr:ECO55CA74_06770	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	409	0.971	312	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1387	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	416	0.971	312	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1490	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	409	0.971	312	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sfv:SFV_1147	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 8401	416	0.974	312	PICI?	1192843	1208358	15.5	Similar to <i>Shigella flexneri</i> 2002017
		eoc:CE10_1211	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 CE10	409	0.968	312	PICI?	1260279	1274777	14.5	HNH; <i>ter</i> L
		eoh:ECO103_1236	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	415	0.968	312	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1646	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	409	0.968	312	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elo:EC042_1767	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	405	0.946	312	PICI	1832521	1843545	11	
		ecq:ECED1_1798	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	409	0.942	312	PICI?	1739927	1756201	16.3	HNH; <i>ter</i> L
		elc:i14_0243	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	291	0.862	290	PICI	249047	259688	10.6	
		eld:i02_0243	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	291	0.862	290	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		ecoi:ECOPMV1_00884	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	412	0.756	308	PICI	919885	930438	10.5	
		eih:ECOK1_0883	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	412	0.756	308	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elu:UM146_13240	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	412	0.756	308	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		ssn:SSON_0868	<i>Shigella sonnei</i>	<i>Shigella sonnei</i> Ss046	412	0.760	308	PICI	922309	936578	14.3	
		ecm:EcSMS35_0939	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	406	0.685	305	PICI?	955625	970780	15.2	HNH; <i>ter</i> L
		yak:ACZ76_07050	<i>Yersinia aleksiciae</i>	<i>Yersinia aleksiciae</i> 159	407	0.543	3013	PICI?	1512198	1528170	15.9	
		xbv:XBW1_1862	<i>Xenorhabdus bovienii</i>	<i>Xenorhabdus bovienii</i> CS03	406	0.537	309	Defective PICI?				<i>att</i> ? Packaging?

EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
c1487	icd-like	ecc:c1487	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	428	1.000		EcCICFT073				
		elc:i14_0245	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	396	0.684	380	PICI	249047	259688	10.6	
		eld:i02_0245	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	396	0.684	380	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		elo:EC042_2166	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	357	0.630	354	Prophage?				Chimera prophage & PICI
		eoh:ECO103_1238	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	342	0.639	319	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1648	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	342	0.639	319	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ect:ECIAI39_2024	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	353	0.481	337	PICI?	2060161	2074688	14.5	HNH; terL
		ecoo:ECRM13514_4638	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	488	0.425	334	PICI	4527455	4539396	11.9	
		sbc:SbBS512_E2184	<i>Shigella boydii</i>	<i>Shigella boydii</i> CDC 3083-94	329	0.429	329	Defective PICI?				Only an <i>int</i> fragment and <i>alpA</i>
		eab:ECABU_c40880	<i>Escherichia coli</i>	<i>Escherichia coli</i> ABU 83972	283	0.610	200	Defective PICI?				Only an <i>int</i> fragment and <i>alpA</i>
ecf:ECH74115_1572	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	314	0.422	327	PICI	1535498	15466717	11.2			
c1488		ecc:c1488	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	76	1.000		EcCICFT073				
		eoi:ECO111_2916	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	152	0.903	72	PICI	2855234	2864550	9.3	
		ecq:ECED1_1789	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	63	0.525	59	PICI?	1739927	1756201	16.3	HNH; terL
		ecs:ECs1579	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	63	0.525	59	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1512	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	63	0.525	59	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		pgc:LG71_03455	<i>Pluralibacter gergoviae</i>	<i>Pluralibacter gergoviae</i> FB2	65	0.541	61	PICI?	713730	733670	19.9	tail
		eclo:ENC_17430	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> subsp. <i>cloacae</i> NCTC 9394	63	0.466	58	No insert				
		pfq:QQ39_05060	<i>Pragia fontium</i>	<i>Pragia fontium</i> 24613	74	0.508	65	Prophage				
		cif:AL515_00785	<i>Citrobacter</i>	<i>Citrobacter</i> sp. FDAARGOS_156	66	0.492	61	PICI?	164335	175860	11.5	Not commun structure
		xpo:XPY1_0943	<i>Xenorhabdus poinarii</i>	<i>Xenorhabdus poinarii</i> G6	84	0.519	54	Prophage?				Chimera prophage & PICI
xbv:XBW1_2816	<i>Xenorhabdus bovienii</i>	<i>Xenorhabdus bovienii</i> CS03	82	0.400	70	Prophage?				Chimera prophage & PICI		
c1490		ecc:c1490	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	73	1.000		EcCICFT073				
		ej:ECO26_3108	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	80	1.000	71	PICI	3041660	3050231	8.5	Similar to <i>Escherichia coli</i> O111:H- 11128
		sfs:SFyv_1680	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	73	0.973	73	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01188	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	73	0.973	73	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		eoi:ECO111_2916	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	152	0.972	71	PICI	2855234	2864550	9.3	
		elo:EC042_1762	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	155	0.513	78	PICI	1832521	1843545	11	
		ecoh:ECRM13516_1443	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	154	0.506	77	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1487	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	154	0.506	77	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1494	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	154	0.506	77	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1239	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	154	0.481	77	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115

EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		elc:i14_0247	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	78	0.405	74	PICI	249047	259688	10.6	
c1491		ecc:c1491	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	79	1.000		EcCICFT073				
		sbo:SBO_2132	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	93	0.835	79	PICI	2097873	2108560	10.7	
		ecoh:ECRM13516_144_3	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	154	0.855	76	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_148_7	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	154	0.855	76	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elo:EC042_1762	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	155	0.855	76	PICI	1832521	1843545	11	
		ej:ECO26_1649	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	154	0.855	76	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1494	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	154	0.855	76	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1239	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	154	0.842	76	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		eoi:ECO111_2917	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	77	0.849	73	PICI	2855234	2864550	9.3	
		eok:G2583_1393	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	77	0.849	73	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sfe:SFxv_1288	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	66	0.981	54	PICI?	1232114	1246489	14.4	HNH; terL
c1492		ecc:c1492	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	77	1.000		EcCICFT073				
		sfe:SFxv_1289	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	77	0.896	77	PICI?	1232114	1246489	14.4	HNH; terL
		sfi:SF1133a	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 301	77	0.896	77	PICI?	1174763	1189501	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfn:SFy_1629	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2003036	77	0.896	77	PICI?	1198620	1213000	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfs:SFyv_1682	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	77	0.896	77	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfi:NCTC1_01189	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	77	0.896	77	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		ecf:ECH74115_1575	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	77	0.870	77	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_144_4	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	77	0.870	77	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_097_4	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	77	0.870	77	PICI?	998523	1009658	11.1	terL?
		elo:EC042_1761	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	77	0.870	77	PICI	1832521	1843545	11	
		elr:ECO55CA74_06805	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	77	0.870	77	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
c1493	DUF4222	ecc:c1493	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	99	1.000		EcCICFT073				
		ecoo:ECRM13514_097_5	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	99	0.939	99	PICI?	998523	1009658	11.1	terL?
		eoh:ECO103_1241	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	99	0.939	99	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1651	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	99	0.939	99	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecf:ECH74115_1576	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	99	0.929	99	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_144_5	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	99	0.929	99	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1395	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	99	0.929	99	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1496	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	99	0.929	99	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115

EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		elo:EC042_1760	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	99	0.919	99	PICI	1832521	1843545	11	
		eoi:ECO111_2919	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	99	0.909	99	PICI	2855234	2864550	9.3	
		ecs:ECs1581	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	99	0.828	99	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
c1495	pri	ecc:c1495	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	584	1.000		EcCICFT073				
		ecoo:ECRM13514_0976	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	584	0.986	584	PICI?	998523	1009658	11.1	terL?
		ecoi:ECOPMV1_00890	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	582	0.916	584	PICI	919885	930438	10.5	
		eih:ECOK1_0889	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	582	0.916	584	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		eoc:CE10_1217	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 CE10	582	0.904	584	PICI?	1260279	1274777	14.5	HNH; terL
		ect:ECIAI39_2020	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	582	0.904	584	PICI?	2060161	2074688	14.5	HNH; terL
		sft:NCTC1_01191	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	582	0.904	584	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfl:SF1135	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 301	582	0.902	584	PICI?	1174763	1189501	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfs:SFyv_1688	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	582	0.902	584	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfx:S1215	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2457T	582	0.902	584	PICI?	1177656	1192394	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfv:SFV_1150	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 8401	582	0.901	584	PICI?	1192843	1208358	15.5	Similar to <i>Shigella flexneri</i> 2002017
c1496		ecc:c1496	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	85	1.000		EcCICFT073				
		ecoi:ECOPMV1_00891	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	85	1.000	85	PICI	919885	930438	10.5	
		eih:ECOK1_0890	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	85	1.000	85	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elu:UM146_13205	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	85	1.000	85	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		ect:ECIAI39_2019	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	85	0.988	85	PICI?	2060161	2074688	14.5	HNH; terL
		eoc:CE10_1218	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 CE10	85	0.988	85	PICI?	1260279	1274777	14.5	HNH; terL
		ecm:EcSMS35_0947	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	81	0.875	72	PICI?	955625	970780	15.2	HNH; terL
		ssn:SSON_0875	<i>Shigella sonnei</i>	<i>Shigella sonnei</i> Ss046	81	0.875	72	PICI	922309	936578	14.3	
		ej:ECO26_2320	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	81	0.861	72	PICI?	2239126	2254011	14.9	HNH; terL
		eln:NRG857_05750	<i>Escherichia coli</i>	<i>Escherichia coli</i> O83:H1 NRG 857C	81	0.833	72	Prophage?				Chimera prophage & PICI
		sfe:SFxv_1293	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	92	0.728	92	PICI?	1232114	1246489	14.4	HNH; terL
c1497	ssb	ecc:c1497	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	136	1.000		EcCICFT073				
		ecq:ECED1_1784	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	136	1.000	136	PICI?	1739927	1756201	16.3	HNH; terL
		ece:Z1845	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	136	0.985	136	PICI?	1678546	1694015	15.5	HNH; terL
		ecs:ECs1587	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	136	0.985	136	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1520	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	136	0.985	136	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		ej:ECO26_2319	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	136	0.985	136	PICI?	2239126	2254011	14.9	HNH; terL

EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		ecoh:ECRM13516_1448	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	136	0.978	136	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1492	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	136	0.978	136	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elo:EC042_1757	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	136	0.978	136	PICI	1832521	1843545	11	
		elr:ECO55CA74_06820	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	136	0.978	136	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1244	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	136	0.978	136	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
c1498		ecc:c1498	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	68	1.000		EcCICFT073				
		ecq:ECED1_2650	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	68	0.971	68	PICI	2568989	2580418	11.4	
		ecoh:ECRM13516_1452	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	68	0.971	68	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1496	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	68	0.971	68	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1657	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	68	0.971	68	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1247	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	68	0.956	68	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		elc:i14_0253	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	68	0.974	68	PICI	249047	259688	10.6	
		eld:i02_0253	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	68	0.974	68	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		ecoi:ECOPMV1_00893	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	68	0.676	68	PICI	919885	930438	10.5	
		eih:ECOK1_0892	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	68	0.676	68	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elo:EC042_1754	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	79	0.676	68	PICI	1832521	1843545	11	
c1499	capsid	ecc:c1499	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	351	1.000		EcCICFT073				
		ecoh:ECRM13516_1453	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	351	0.966	350	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1248	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	351	0.966	350	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1658	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	351	0.966	350	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1497	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	351	0.963	350	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecf:ECH74115_1583	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	351	0.969	350	PICI	1535498	15466717	11.2	
		elo:EC042_1753	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	351	0.969	350	PICI	1832521	1843545	11	
		elr:ECO55CA74_06840	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	351	0.969	350	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1400	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	351	0.969	350	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1503	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	351	0.969	350	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2125	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	351	0.960	350	PICI	2097873	2108560	10.7	
c1500	HDHD	ecc:c1500	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	111	1.000		EcCICFT073				
		ecoi:ECOPMV1_00895	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	111	0.991	111	PICI	919885	930438	10.5	
		eih:ECOK1_0894	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	111	0.991	111	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		el:UM146_13185	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	111	0.991	111	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1

EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		ecf:ECH74115_1584	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	111	0.982	111	PICI	1535498	15466717	11.2	
		elo:EC042_1752	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	111	0.982	111	PICI	1832521	1843545	11	
		elr:ECO55CA74_06845	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	111	0.982	111	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1401	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	111	0.982	111	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1504	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	111	0.982	111	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecq:ECED1_2652	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	111	0.973	111	PICI	2568989	2580418	11.4	
		elc:i14_0255	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	111	0.973	111	PICI	249047	259688	10.6	
c1501		ecc:c1501	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	137	1.000		EcCICFT073				
		ecoi:ECOPMV1_00896	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	137	0.993	137	PICI	919885	930438	10.5	
		eih:ECOK1_0895	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	137	0.993	137	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elU:UM146_13180	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	137	0.993	137	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		eok:G2583_1402	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	137	0.971	137	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06850	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	137	0.964	137	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecf:ECH74115_1585	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	137	0.964	137	PICI	1535498	15466717	11.2	
		etw:ECSP_1505	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	137	0.964	137	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoh:ECRM13516_1455	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	137	0.942	137	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1499	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	137	0.942	137	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1250	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	137	0.942	137	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
c1502		ecc:c1502	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	60	1.000		EcCICFT073				
		sbo:SBO_2122	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	147	0.933	60	PICI	2097873	2108560	10.7	
c1503		ecc:c1503	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	113	1.000		EcCICFT073				
		sbo:SBO_2121	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	113	1.000	113	PICI	2097873	2108560	10.7	
		elo:EC042_1750	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	113	0.982	113	PICI	1832521	1843545	11	
		aaw:AVL56_03045	<i>Alteromonas addita</i>	<i>Alteromonas addita</i> R10SW13	774	0.349	106	No insert				
		asp:AOR13_2906	<i>Alteromonas addita</i>	<i>Alteromonas stellipolaris</i> LMG 21856	774	0.349	106	No insert				
		asq:AVL57_04270	<i>Alteromonas addita</i>	<i>Alteromonas stellipolaris</i> LMG 21861	774	0.349	106	No insert				
		pte:PTT_18114	<i>Pyrenophora teres</i>	<i>Pyrenophora teres</i> f. <i>teres</i> 0-1	380	0.318	88					RefSeq (Assembly: <a href="#">GCA_000166005.1</a> )
		bve:AK36_4596	<i>Burkholderia vietnamiensis</i>	<i>Burkholderia vietnamiensis</i> LMG 10929	402	0.321	81	No insert				
		miu:ABE85_20515	<i>Mitsuaria</i>	<i>Mitsuaria</i> sp. 7	285	0.322	87	No insert				
		nda:Ndas_4923	<i>Nocardiopsis dassonvillei</i>	<i>Nocardiopsis dassonvillei</i> subsp. <i>dassonvillei</i> DSM 43111	768	0.308	117	No insert				
		spaa:SPAPADRAFT_153792	<i>Spathaspora passalidarum</i>	<i>Spathaspora passalidarum</i> NRRL Y-27907	711	0.309	81					RefSeq (Assembly: <a href="#">GCF_000223485.1</a> )



EcCICFT073 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
c1504		ecc:c1504	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	53	1.000		EcCICFT073				
		ola:105353925	<i>Oryzias latipes</i>	<i>Oryzias latipes</i>	372	0.372	42					RefSeq (Assembly: <a href="#">GCF_000313675.1</a> )
c1505		ecc:c1505	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	93	1.000		EcCICFT073				
		sfe:SFxv_1307	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	93	0.914	93	1232114	1246489	14.4	HNH; terL	
		sfl:SF1147	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 301	93	0.914	93	PICI?	1174763	1189501	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfn:SFy_1654	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2003036	93	0.914	93	PICI?	1198620	1213000	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfs:SFyv_1706	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	93	0.914	93	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01205	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	93	0.914	93	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfv:SFV_1162	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 8401	93	0.914	93	PICI?	1192843	1208358	15.5	Similar to <i>Shigella flexneri</i> 2002017
		sfx:S1229	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2457T	93	0.914	93	PICI?	1177656	1192394	14.7	Similar to <i>Shigella flexneri</i> 2002017
		eih:ECOK1_0897	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	93	0.914	93	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elo:EC042_1749	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	93	0.914	93	PICI	1832521	1843545	11	
		sbo:SBO_2120	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	93	0.914	93	PICI	2097873	2108560	10.7	
	c1506		ecc:c1506	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	145	1.000		EcCICFT073			
		ecoi:ECOPMV1_00898	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	145	0.936	140	PICI	919885	930438	10.5	
		elu:UM146_13170	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	168	0.936	140	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		sbo:SBO_2119	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	145	0.929	140	PICI	2097873	2108560	10.7	
		ece:Z1856	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	112	0.836	110	PICI?	1678546	1694015	15.5	HNH; terL
		tbr:Tb10.70.3460	<i>Trypanosoma brucei</i>	<i>Trypanosoma brucei</i> brucei TREU927	2151	0.329	70					RefSeq (Assembly: <a href="#">GCF_000002445.1</a> )
		mamo:A6B35_05040	<i>Mesorhizobium amorphae</i>	<i>Mesorhizobium amorphae</i> CCNWGS0123	278	0.314	102	No insert				
		apac:S7S_10755	<i>Alcanivorax pacificus</i>	<i>Alcanivorax pacificus</i> W11-5	223	0.318	66	No insert				
		phi:102103469	<i>Pseudopodoces humilis</i>	<i>Pseudopodoces humilis</i>	172	0.380	79					RefSeq (Assembly: <a href="#">GCF_000331425.1</a> )
		sbq:101031964	<i>Saimiri boliviensis</i>	<i>Saimiri boliviensis</i> boliviensis	1243	0.333	51					RefSeq (Assembly: <a href="#">GCF_000235385.1</a> )
	cin:100186217	<i>Ciona intestinalis</i>	<i>Ciona intestinalis</i>	2053	0.304	69					RefSeq (Assembly: <a href="#">GCF_000224145.2</a> )	
c1507		ecc:c1507	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	46	1.000		EcCICFT073				No matches in database (DB)

**Table S3. EcCIO42 orthologies.**

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
EC042_1767	int	elo:EC042_1767	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	405	1.000		EcCIO42				
		ej:ECO26_2328	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	405	0.985	405	PICI?	2239126	2254011	14.9	HNH; terL
		ecq:ECED1_1798	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	409	0.983	405	PICI?	1739927	1756201	16.3	HNH; terL
		ecf:ECH74115_1571	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	409	0.921	405	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1440	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	409	0.921	405	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1484	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	409	0.921	405	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06770	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	409	0.921	405	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1387	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	416	0.921	405	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1490	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	409	0.921	405	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ece:Z1835	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	416	0.921	405	PICI?	1678546	1694015	15.5	HNH; terL
		ecs:ECs1574	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	409	0.921	405	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1506	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	409	0.921	405	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		sfe:SFxv_1284	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	416	0.921	405	PICI?	1232114	1246489	14.4	HNH; terL
		sfn:SFy_1623	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2003036	416	0.921	405	PICI?	1198620	1213000	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfs:SFyv_1675	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	416	0.921	405	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01185	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	409	0.921	405	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfx:S1211	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2457T	409	0.921	405	PICI?	1177656	1192394	14.7	Similar to <i>Shigella flexneri</i> 2002017
		ect:ECIAI39_2027	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	416	0.919	405	PICI?	2060161	2074688	14.5	HNH; terL
		sfv:SFV_1147	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 8401	416	0.919	405	PICI?	1192843	1208358	15.5	Similar to <i>Shigella flexneri</i> 2002017
		eoc:CE10_1211	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 CE10	409	0.911	405	PICI?	1260279	1274777	14.5	HNH; terL
		eoh:ECO103_1236	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	415	0.909	405	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ecoi:ECOPMV1_00884	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	412	0.754	399	PICI	919885	930438	10.5	
		eih:ECOK1_0883	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	412	0.754	399	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
elu:UM146_13240	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	412	0.754	399	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1		
EC042_1766	alpA	elo:EC042_1766	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	62	1.000		EcCIO42				
		ect:ECIAI39_2026	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	62	1.000	62	PICI?	2060161	2074688	14.5	HNH; terL
		elr:ECO55CA74_06775	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	62	1.000	62	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elx:CDCO157_1507	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	62	1.000	62	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		eok:G2583_1388	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	62	1.000	62	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1491	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	62	1.000	62	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecq:ECED1_1797	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	62	0.984	62	PICI?	1739927	1756201	16.3	HNH; terL
		eoh:ECO103_1237	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	106	0.984	62	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		eoj:ECO26_1647	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	89	0.984	62	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecm:EcSMS35_094_1	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	74	0.741	54	PICI?	955625	970780	15.2	HNH; terL
		ddd:Dda3937_01590	<i>Dickeya dadantii</i>	<i>Dickeya dadantii</i> 3937	86	0.698	53	PICI?	296519	307403	10.8	tail protein
		ecoi:ECOPMV1_008_85	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	69	0.678	56	PICI	919885	930438	10.5	
		ecoo:ECRM13514_0_968	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	74	0.704	54	PICI?	998523	1009658	11.1	terL?
		eih:ECOK1_0884	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	69	0.679	56	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elu:UM146_13235	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	69	0.679	56	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		eas:Entas_3977	<i>Enterobacter asburiae</i>	<i>Enterobacter asburiae</i> LF7a	69	0.660	53	PICI?	4253162	4268649	15.5	terL
		raa:Q7S_08695	<i>Rahnella aquatilis</i>	<i>Rahnella aquatilis</i> HX2	100	0.654	52	Phage				
		sbc:SbBS512_E218_6	<i>Shigella boydii</i>	<i>Shigella boydii</i> CDC 3083-94	85	0.556	54	Defective PICI?				Only an <i>int</i> fragment, <i>alpA</i> ...
EC042_1765		elo:EC042_1765	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	263	1.000		EcCIO42				
		eoh:ECO103_1238	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	342	0.738	260	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		eoj:ECO26_1648	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	342	0.738	260	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecs:ECs1576	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	247	0.662	269	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1508	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	247	0.662	269	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		ecf:ECH74115_1572	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	314	0.686	236	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1_441	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	314	0.686	236	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1_485	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	314	0.686	236	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1390	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	314	0.700	233	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1492	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	314	0.700	233	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ect:ECIAI39_2024	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	353	0.546	273	PICI?	2060161	2074688	14.5	HNH; terL
EC042_1764		elo:EC042_1764	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	65	1.000		EcCIO42				
		ecf:ECH74115_1572	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	314	1.000	65	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1_441	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	314	1.000	65	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1_485	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	314	1.000	65	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06_785	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	109	1.000	65	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1390	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	314	1.000	65	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1492	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	314	1.000	65	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecs:ECs1577	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	65	0.953	64	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1510	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	65	0.953	64	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		sbc:SbBS512_E218_4	<i>Shigella boydii</i>	<i>Shigella boydii</i> CDC 3083-94	329	0.952	63	Defective PICI?				Only an <i>int</i> fragment, <i>alpA</i> ...
		sfe:SFxv_1287	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	100	0.986	60	PICI?	1232114	1246489	14.4	HNH; terL

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		sft:NCTC1_01187	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	66	0.986	60	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfx:S1212	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2457T	100	0.986	60	PICI?	1177656	1192394	14.7	Similar to <i>Shigella flexneri</i> 2002017
		eoj:ECO26_3107	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	186	0.810	58	PICI	3041660	3050231	8.5	Similar to <i>Escherichia coli</i> O111:H-11128
EC042_1763		elo:EC042_1763	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	70	1.000		EcCIO42				
		ecf:ECH74115_1573	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	70	1.000	70	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1442	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	70	1.000	70	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1486	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	70	1.000	70	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06790	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	70	1.000	70	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1391	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	70	1.000	70	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1493	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	70	1.000	70	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eck:EC55989_0274	<i>Escherichia coli</i>	<i>Escherichia coli</i> 55989	121	0.661	59	PICI	296286	311648	15.3	
		esl:O3K_20150	<i>Escherichia coli</i>	<i>Escherichia coli</i> O104:H4 2011C-3493	121	0.661	59	Prophage?				Chimera prophage & PICI
		eab:ECABU_c40900	<i>Escherichia coli</i>	<i>Escherichia coli</i> ABU 83972	118	0.627	59	PICI?	4152946	4166644	13.7	terL?
		pcv:BCS7_08090	<i>Pectobacterium carotovorum</i>	<i>Pectobacterium carotovorum</i> subsp. <i>odoriferum</i>	69	0.351	57	PICI	1837956	1854875	16.9	
EC042_1762		elo:EC042_1762	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	155	1.000		EcCIO42				
		ecoh:ECRM13516_1443	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	154	0.994	155	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1487	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	154	0.994	155	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1494	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	154	0.994	155	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoj:ECO26_1649	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	154	0.942	155	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1239	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	154	0.935	155	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2132	<i>Escherichia coli</i>	<i>Shigella boydii</i> Sb227	93	0.988	80	PICI	2097873	2108560	10.7	
		eoi:ECO111_2917	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	77	1.000	77	PICI	2855234	2864550	9.3	
		eok:G2583_1393	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	77	1.000	77	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecc:c1491	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	79	0.855	76	PICI	1377749	1389210	11.4	
		elc:i14_0247	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	78	0.836	73	PICI	249047	259688	10.6	
EC042_1761		elo:EC042_1761	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	77	1.000		EcCIO42				
		ecf:ECH74115_1575	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	77	1.000	77	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1444	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	77	1.000	77	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_0974	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	77	1.000	77	PICI?	998523	1009658	11.1	terL?
		elr:ECO55CA74_06805	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	77	1.000	77	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1394	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	77	1.000	77	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		etw:ECSP_1495	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	77	1.000	77	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1240	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	77	0.974	77	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1650	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	77	0.974	77	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sfe:SFxv_1289	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	77	0.974	77	PICI?	1232114	1246489	14.4	HNH; terL
		sft:SF1133a	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 301	77	0.974	77	PICI?	1174763	1189501	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfn:SFy_1629	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2003036	77	0.974	77	PICI?	1198620	1213000	14.4	Same as <i>Shigella flexneri</i> 2002017
		sfs:SFyv_1682	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> Shi06HN006	77	0.974	77	PICI?	1217313	1231688	14.4	Same as <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01189	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	77	0.974	77	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		ecc:c1492	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	77	0.870	77	PICI	1377749	1389210	11.4	
		eoi:ECO111_2918	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	77	0.766	77	PICI	2855234	2864550	9.3	
EC042_1760		elo:EC042_1760	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	99	1.000		EcCIO42				
		ecf:ECH74115_1576	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	99	0.990	99	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1445	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	99	0.990	99	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1489	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	99	0.990	99	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1395	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	99	0.990	99	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1496	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	99	0.990	99	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1241	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	99	0.980	99	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1651	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	99	0.980	99	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoi:ECO111_2919	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	99	0.949	99	PICI	2855234	2864550	9.3	
		ecc:c1493	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	99	0.919	99	PICI	1377749	1389210	11.4	
		sfe:SFxv_1290	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	99	0.818	99	PICI?	1232114	1246489	14.4	HNH; terL
EC042_1759	pri	elo:EC042_1759	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	466	1.000		EcCIO42				
		ecoh:ECRM13516_1446	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	466	0.998	466	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1490	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	466	0.998	466	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06810	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	466	0.998	466	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1242	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	466	0.998	466	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1396	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	466	0.998	466	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecf:ECH74115_1577	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	466	0.996	466	PICI	1535498	15466717	11.2	
		etw:ECSP_1497	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	466	0.996	466	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1652	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	466	0.996	466	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2131	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	466	0.991	466	PICI	2097873	2108560	10.7	
		eoi:ECO111_2920	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	466	0.951	466	PICI	2855234	2864550	9.3	

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		elc:i14_0250	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	471	0.875	471	PICI	249047	259688	10.6	
		eld:i02_0250	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	471	0.875	471	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		enc:ECL_01694	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> subsp. <i>cloacae</i> ATCC 13047	469	0.591	463	Prophage?				Chimera prophage & PICI
EC042_1758		elo:EC042_1758	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	83	1.000		EcCIO42				
		ecf:ECH74115_1578	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	83	1.000	83	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1447	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	83	1.000	83	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1491	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	83	1.000	83	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06815	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	83	1.000	83	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1243	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	83	1.000	83	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1653	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	83	1.000	83	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1397	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	83	1.000	83	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1498	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	83	1.000	83	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2129	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	93	1.000	83	PICI	2097873	2108560	10.7	
		ece:Z1844	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	83	0.915	82	PICI?	1678546	1694015	15.5	HNH; terL
		ecs:ECs1586	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	83	0.915	82	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1519	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	83	0.915	82	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		sfe:SFxv_1293	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	92	0.900	80	PICI?	1232114	1246489	14.4	HNH; terL
		sfl:SF1136	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 301	92	0.900	80	PICI?	1174763	1189501	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01192	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	92	0.900	80	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		eoi:ECO111_2922	<i>Escherichia coli</i>	<i>Escherichia coli</i> O111:H- 11128	81	0.852	81	PICI	2855234	2864550	9.3	
		ecq:ECED1_1785	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	92	0.808	78	PICI?	1739927	1756201	16.3	HNH; terL
		ect:ECIAI39_2019	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	85	0.759	79	PICI?	2060161	2074688	14.5	HNH; terL
EC042_1757	ssb	elo:EC042_1757	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	136	1.000		EcCIO42				
		ecoh:ECRM13516_1448	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	136	1.000	136	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1492	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	136	1.000	136	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06820	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	136	1.000	136	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1244	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	136	1.000	136	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1654	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	136	1.000	136	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1398	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	136	1.000	136	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2128	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	136	1.000	136	PICI	2097873	2108560	10.7	
		ecf:ECH74115_1579	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	136	0.993	136	PICI	1535498	15466717	11.2	
		etw:ECSP_1499	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	136	0.993	136	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		ecc:c1497	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	136	0.978	136	PICI	1377749	1389210	11.4	
		ecq:ECED1_1784	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	136	0.978	136	PICI?	1739927	1756201	16.3	HNH; terL
		ece:Z1845	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	136	0.978	136	PICI?	1678546	1694015	15.5	HNH; terL
		ecs:ECs1587	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	136	0.978	136	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1520	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	136	0.978	136	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		ect:ECIAI39_2018	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	136	0.831	136	PICI?	2060161	2074688	14.5	HNH; terL
EC042_1756	perC	elo:EC042_1756	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	90	1.000		EcCIO42				
		ecoh:ECRM13516_1449	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	90	1.000	90	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1493	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	90	1.000	90	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06825	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	90	1.000	90	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1245	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	90	1.000	90	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1655	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	90	1.000	90	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1500	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	90	1.000	90	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecs:ECs1588	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	90	0.900	90	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1521	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	90	0.900	90	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		ecq:ECED1_1783	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	122	0.844	77	PICI?	1739927	1756201	16.3	HNH; terL
		eck:EC55989_0279	<i>Escherichia coli</i>	<i>Escherichia coli</i> 55989	95	0.489	88	PICI	296286	311648	15.3	
EC042_1755		elo:EC042_1755	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	74	1.000		EcCIO42				
		ecoh:ECRM13516_1451	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	74	1.000	74	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1495	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	74	1.000	74	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06830	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	74	1.000	74	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1246	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	74	1.000	74	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1656	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	74	1.000	74	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1501	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	74	1.000	74	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2127	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	74	1.000	74	PICI	2097873	2108560	10.7	
		ece:Z1846	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	100	0.986	74	PICI?	1678546	1694015	15.5	HNH; terL
		ecs:ECs1589	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	100	0.986	74	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1522	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	100	0.986	74	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		ecq:ECED1_1781	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	100	0.932	74	PICI?	1739927	1756201	16.3	HNH; terL
		sft:SF1137	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 301	100	0.932	74	PICI?	1174763	1189501	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sft:NCTC1_01195	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> NCTC1	74	0.932	74	PICI?	1133207	1147945	14.7	Similar to <i>Shigella flexneri</i> 2002017
		sfv:SFV_1153	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 8401	100	0.932	74	PICI?	1192843	1208358	15.5	Similar to <i>Shigella flexneri</i> 2002017

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		sfx:S1219	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2457T	74	0.932	74	PICI?	1177656	1192394	14.7	Similar to <i>Shigella flexneri</i> 2002017
		ecm:EcSMS35_0949	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	80	0.444	72	PICI?	955625	970780	15.2	HNH; terL
EC042_1754		elo:EC042_1754	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	79	1.000		EcCIO42				
		sbo:SBO_2126	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	79	1.000	79	PICI	2097873	2108560	10.7	
		ecoi:ECOPMV1_00893	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	68	1.000	68	PICI	919885	930438	10.5	
		eih:ECOK1_0892	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	68	1.000	68	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elr:ECO55CA74_06835	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	68	1.000	68	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elu:UM146_13195	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	68	1.000	68	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		eok:G2583_1399	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	68	1.000	68	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecf:ECH74115_1582	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	68	0.985	68	PICI	1535498	15466717	11.2	
		etw:ECSP_1502	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	68	0.985	68	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1247	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	68	0.691	68	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ecoh:ECRM13516_1452	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	68	0.691	68	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
EC042_1753	capsid	elo:EC042_1753	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	351	1.000		EcCIO42				
		ecf:ECH74115_1583	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	351	1.000	351	PICI	1535498	15466717	11.2	
		elr:ECO55CA74_06840	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	351	1.000	351	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1400	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	351	1.000	351	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1503	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	351	1.000	351	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		sbo:SBO_2125	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	351	0.972	351	PICI	2097873	2108560	10.7	
		ecoh:ECRM13516_1453	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	351	0.960	351	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1248	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	351	0.960	351	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		eoj:ECO26_1658	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	351	0.960	351	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1497	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	351	0.957	351	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecc:c1499	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	351	0.969	350	PICI	1377749	1389210	11.4	
		ecoi:ECOPMV1_00894	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	351	0.954	350	PICI	919885	930438	10.5	
		eih:ECOK1_0893	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	351	0.954	350	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elu:UM146_13190	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	351	0.954	350	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		ecq:ECED1_2651	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	351	0.937	351	PICI	2568989	2580418	11.4	
		elc:i14_0254	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	351	0.934	350	PICI	249047	259688	10.6	
		eid:i02_0254	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	351	0.934	350	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		eln:NRG857_05760	<i>Escherichia coli</i>	<i>Escherichia coli</i> O83:H1 NRG 857C	346	0.547	340	Prophage?				Chimera prophage & PICI



EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
EC042_1752	HDHD	elo:EC042_1752	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	111	1.000		EcCIO42				
		ecf:ECH74115_1584	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	111	1.000	111	PICI	1535498	15466717	11.2	
		elr:ECO55CA74_06_845	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	111	1.000	111	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1401	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	111	1.000	111	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1504	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	111	1.000	111	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoi:ECOPMV1_008_95	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	111	0.991	111	PICI	919885	930438	10.5	
		eih:ECOK1_0894	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	111	0.991	111	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elU:UM146_13185	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	111	0.991	111	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		ecq:ECED1_2652	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	111	0.991	111	PICI	2568989	2580418	11.4	
		elc:i14_0255	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	111	0.991	111	PICI	249047	259688	10.6	
		eld:i02_0255	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	111	0.991	111	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		ecc:c1500	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	111	0.982	111	PICI	1377749	1389210	11.4	
		ecoh:ECRM13516_1_454	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	111	0.973	111	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1_498	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	111	0.973	111	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1249	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	111	0.973	111	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		eoj:ECO26_1659	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	111	0.973	111	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
sbo:SBO_2124	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	111	0.982	111	PICI	2097873	2108560	10.7			
ect:ECIAI39_0514	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 IAI39	113	0.545	112	Prophage?					Chimera prophage & PICI	
EC042_1751		elo:EC042_1751	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	130	1.000		EcCIO42				
		eok:G2583_1402	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	137	0.985	130	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06_850	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	137	0.977	130	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecf:ECH74115_1585	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	137	0.977	130	PICI	1535498	15466717	11.2	
		etw:ECSP_1505	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	137	0.977	130	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecc:c1501	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	137	0.954	130	PICI	1377749	1389210	11.4	
		ecoi:ECOPMV1_008_96	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	137	0.946	130	PICI	919885	930438	10.5	
		eih:ECOK1_0895	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	137	0.946	130	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		elU:UM146_13180	<i>Escherichia coli</i>	<i>Escherichia coli</i> UM146	137	0.946	130	PICI	2721434	2731984	10.5	Same as <i>Escherichia coli</i> PMV-1
		sbo:SBO_2123	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	137	0.931	130	PICI	2097873	2108560	10.7	
		ecq:ECED1_2653	<i>Escherichia coli</i>	<i>Escherichia coli</i> O81 ED1a	137	0.915	130	PICI	2568989	2580418	11.4	
		ecoh:ECRM13516_1_455	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	137	0.915	130	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1_499	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	137	0.915	130	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1250	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	137	0.915	130	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		eoj:ECO26_1660	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	137	0.915	130	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115

EcCIO42 gene	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		elc:i14_0256	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i14	137	0.885	130	PICI	249047	259688	10.6	
		eld:i02_0256	<i>Escherichia coli</i>	<i>Escherichia coli</i> clone D i2	137	0.885	130	PICI	249047	259688	10.6	Same as <i>Escherichia coli</i> clone D i14
		eoc:CE10_1475	<i>Escherichia coli</i>	<i>Escherichia coli</i> O7:K1 CE10	501	0.386	83	Phage				
EC042_1750		elo:EC042_1750	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	113	1.000		EcCIO42				
		ecc:c1503	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	113	0.982	113	PICI	1377749	1389210	11.4	
		sbo:SBO_2121	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	113	0.982	113	PICI	2097873	2108560	10.7	
		aaw:AVL56_03045	<i>Alteromonas addita</i>	<i>Alteromonas addita</i> R10SW13	774	0.340	106	No insert				
		asp:AOR13_2906	<i>Alteromonas stellipolaris</i>	<i>Alteromonas stellipolaris</i> LMG 21856	774	0.340	106	No insert				
		asq:AVL57_04270	<i>Alteromonas stellipolaris</i>	<i>Alteromonas stellipolaris</i> LMG 21861	774	0.340	106	No insert				
		pte:PTT_18114	<i>Pyrenophora teres</i>	<i>Pyrenophora teres</i> f. <i>teres</i> 0-1	380	0.318	88					RefSeq (Assembly: <a href="#">GCF_000166005.1</a> )
		tru:101068395	<i>Takifugu rubripes</i>	<i>Takifugu rubripes</i>	1244	0.312	96					RefSeq (Assembly: <a href="#">GCF_000180615.1</a> )
		miu:ABE85_20515	<i>Mitsuaria</i> sp. 7	<i>Mitsuaria</i> sp. 7	285	0.322	87	No insert				
		spaa:SPAPADRAFT_153792	<i>Spathaspora passalidarum</i>	<i>Spathaspora passalidarum</i> NRRL Y-27907	711	0.309	81					RefSeq (Assembly: <a href="#">GCF_000223485.1</a> )
		ang:ANI_1_2260104	<i>Aspergillus niger</i>	<i>Aspergillus niger</i> CBS 513.88	412	0.354	113					RefSeq (Assembly: <a href="#">GCF_000002855.3</a> )
EC042_1749		elo:EC042_1749	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	93	1.000		EcCIO42				
		eih:ECOK1_0897	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	93	0.957	93	PICI	920272	930825	10.5	Same as <i>Escherichia coli</i> PMV-1
		sbo:SBO_2120	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	93	0.957	93	PICI	2097873	2108560	10.7	
		ecf:ECH74115_1588	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	93	0.925	93	PICI	1535498	15466717	11.2	
		ecoh:ECRM13516_1457	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	93	0.925	93	PICI	1438775	1449995	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ecoo:ECRM13514_1501	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	93	0.925	93	PICI	1462244	1473465	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		elr:ECO55CA74_06860	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 RM12579	93	0.925	93	PICI	1438165	1449376	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eoh:ECO103_1252	<i>Escherichia coli</i>	<i>Escherichia coli</i> O103:H2 12009	93	0.925	93	PICI	1325875	1336965	11.1	Similar to <i>Escherichia coli</i> O157:H7 EC4115
		ej:ECO26_1662	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	93	0.925	93	PICI	1619447	1630554	11.1	Same as <i>Escherichia coli</i> O157:H7 EC4115
		eok:G2583_1404	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	93	0.925	93	PICI	1444572	1455794	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		etw:ECSP_1507	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	93	0.925	93	PICI	1535786	1547005	11.2	Same as <i>Escherichia coli</i> O157:H7 EC4115
		ece:Z1855	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EDL933	93	0.925	93	PICI?	1678546	1694015	15.5	HNH; terL
		ecs:ECs1599	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Sakai	93	0.925	93	PICI?	1594570	1610042	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		elx:CDCO157_1532	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 Xuzhou21	93	0.925	93	PICI?	1596512	1611982	15.5	Same as <i>Escherichia coli</i> O157:H7 EDL933
		ecc:c1505	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K2:H1 CFT073	93	0.914	93	PICI	1377749	1389210	11.4	
		sfe:SFxv_1307	<i>Shigella flexneri</i>	<i>Shigella flexneri</i> 2002017	93	0.903	93	PICI?	1232114	1246489	14.4	HNH; terL

**Table S4. PmCIATCC43137 orthologies.**

PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
DR93_170	int	pmul:DR93_170	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	427	1.000		PmCIATC C 43137				
		pmp:Pmu_15680	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	427	0.998	427	PmCIATC C 43137	1677145	1691873	14.7	
		pul:NT08PM_1626	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	427	0.965	427	PICI	1690704	1703854	13.1	
		pmu:PM1769	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	417	0.962	417	PICI	1994540	2009007	14.5	Similar to PmClPm3480
		hap:HAPS_1587	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> SH0165	416	0.644	417	PICI?	1557480	1565531	8	Not commun structure
		aah:CF65_01449	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> HK1651	307	0.639	277	No insert				
		mhae:F382_05840	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D153	408	0.447	425	Defective PICI?				
		mhal:N220_11990	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USMARC_2286	408	0.447	425	Defective PICI?				Same as <i>Mannheimia haemolytica</i> D153
		mhao:J451_06080	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D174	408	0.447	425	Defective PICI?				Same as <i>Mannheimia haemolytica</i> D153
		mhaq:WC39_02240	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> 89010807N	408	0.447	425	Defective PICI?				Same as <i>Mannheimia haemolytica</i> D153
mhay:VK67_02245	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> 89010807N lktA-	408	0.447	425	Defective PICI?				Same as <i>Mannheimia haemolytica</i> D153		
DR93_169		pmul:DR93_169	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	201	1.000		PmCIATC C 43137				
		pmp:Pmu_15680	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	201	1.000	201	PmCIATC C 43137	1677145	1691873	14.7	
		aap:NT05HA_1837	<i>Aggregatibacter aphrophilus</i>	<i>Aggregatibacter aphrophilus</i> NJ8700	167	0.310	142	PICI	1811901	1821358	9.4	
		bip:BinT_1433	<i>Brachyspira intermedia</i>	<i>Brachyspira intermedia</i>	7866	0.266	154	No insert				Plasmid
		arc:ABLL_0889	<i>Arcobacter</i> sp. L	<i>Arcobacter</i> sp. L	744	0.308	107	No insert				Plasmid
		stur:STURON_00280	<i>Spiroplasma turonicum</i>	<i>Spiroplasma turonicum</i> Tab4c	638	0.320	128	No insert				
		kga:ST1E_0968	<i>Candidatus Kinetoplastibacterium galatii</i>	<i>Candidatus Kinetoplastibacterium galatii</i> TCC219	295	0.316	79	No insert				
		cbv:U729_1798	<i>Clostridium baratii</i>	<i>Clostridium baratii</i> Sullivan	205	0.302	116	No insert				Plasmid
		gmx:100798343	<i>Glycine max</i> (soybean)	<i>Glycine max</i> (soybean)	345	0.330	112					RefSeq (Assembly: <a href="#">GCF_000004515.4</a> )
		bvt:P613_03425	<i>Borrelia valaisiana</i>	<i>Borrelia valaisiana</i> Tom4006	466	0.333	90	No insert				
cdg:CDB11_18763	<i>Clostridioides difficile</i>	<i>Clostridioides difficile</i> BI1	333	0.305	174	No insert						
DR93_168	merR	pmul:DR93_168	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	65	1.000		PmCIATC C 43137				
		pmp:Pmu_15660	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	65	1.000	65	PmCIATC C 43137	1677145	1691873	14.7	
		pmu:PM1772	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	65	1.000	65	PICI	1994540	2009007	14.5	Similar to PmClPm3480
		pul:NT08PM_1624	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	65	0.985	65	PICI	1690704	1703854	13.1	
		aap:NT05HA_2319	<i>Aggregatibacter aphrophilus</i>	<i>Aggregatibacter aphrophilus</i> NJ8700	63	0.390	59	PICI	1811901	1821358	9.4	
		asu:Asuc_1205	<i>Actinobacillus succinogenes</i>	<i>Actinobacillus succinogenes</i> 130Z	61	0.393	56	No insert				
		emu:EMQU_1667	<i>Enterococcus mundtii</i>	<i>Enterococcus mundtii</i> QU 25	152	0.385	52	No insert				

PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		tin:Tint_1645	<i>Thiomonas intermedia</i>	<i>Thiomonas intermedia</i> K12	73	0.339	62	No insert				
		dly:Dehly_1676	<i>Dehalogenimonas lykanthroporepellens</i>	<i>Dehalogenimonas lykanthroporepellens</i> BL-DC-9	119	0.351	57	Prophage				
		thi:THI_3204	<i>Thiomonas arsenitoxydans</i>	<i>Thiomonas arsenitoxydans</i>	73	0.323	62	No insert				
		gsb:GSUB_10080	<i>Geoalkalibacter subterraneus</i>	<i>Geoalkalibacter subterraneus</i> Red1	69	0.377	53	Prophage				
DR93_167		pmul:DR93_167	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	140	1.000		PmCIATC C 43137				
		pmp:Pmu_15650	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	140	1.000	140	PmCIATC C 43137	1677145	1691873	14.7	
		pmu:PM1773	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	140	0.979	140	PICI	1994540	2009007	14.5	Similar to PmCIPm3480
		pul:NT08PM_1623	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	140	0.964	85	PICI	1690704	1703854	13.1	
		etc:ETAC_13005	<i>Edwardsiella piscicida</i>	<i>Edwardsiella piscicida</i> C07-087	144	0.329	85	PICI	2913709	2929995	16.3	
		pge:LG71_03425	<i>Pluralibacter gergoviae</i>	<i>Pluralibacter gergoviae</i> FB2	144	0.329	92	Prophage				Tail protein
		yef:FORC2_0765	<i>Yersinia enterocolitica</i>	<i>Yersinia enterocolitica</i> FORC_002	129	0.315	85	PICI?	869225	883876	14.6	Tail protein
		pec:W5S_3563	<i>Pectobacterium</i>	<i>Pectobacterium</i> sp. SCC3193	143	0.306	85	Defective PICI				
		senc:SEET0819_22135	<i>Salmonella enterica</i> subsp. <i>enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Tennessee</i> TXSC_TXSC08-19	144	0.318	85	PICI?	4601635	4620336	18.7	Tail protein
		sbc:SbBS512_E4075	<i>Shigella boydii</i>	<i>Shigella boydii</i> CDC 3083-94	143	0.318	85	Defective PICI	3800221	3813466	13	Transposases
		eta:ETA_24300	<i>Erwinia tasmaniensis</i>	<i>Erwinia tasmaniensis</i> Et1/99	138	0.306	85	PICI?	2728486	2741458	13	Tail protein
DR93_166	Rha	pmul:DR93_166	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	239	1.000		PmCIATC C 43137				
		pmp:Pmu_15640	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	239	1.000	239	PmCIATC C 43137	1677145	1691873	14.7	
		pul:NT08PM_1622	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	239	0.912	239	PICI	1690704	1703854	13.1	
		pmu:PM1774	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	239	0.883	239	PICI	1994540	2009007	14.5	Similar to PmCIPm3480
		mhat:B824_10850	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USDA-ARS-USMARC-184	222	0.668	214	PICI	1058301	1066853	8.5	
		hia:H733_0898	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> CGSHiCZ412602	227	0.656	212	Defective PICI				
		aeu:ACEE_02550	<i>Actinobacillus equuli</i>	<i>Actinobacillus equuli</i> subsp. <i>equuli</i> 19392	233	0.650	214	PICI?	557158	568179	11	Not commun structure
		asi:ASU2_00405	<i>Actinobacillus suis</i>	<i>Actinobacillus suis</i> H91-0380	233	0.645	214	PICI?	73077	80675	7.6	Not commun structure
		ass:ASU1_00410	<i>Actinobacillus suis</i>	<i>Actinobacillus suis</i> ATCC 33415	233	0.645	214	PICI?	73071	82984	9.9	Not commun structure
		mham:J450_1860	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D171	202	0.668	199	PICI?	2445215	2453749	8.5	Same as <i>Mannheimia haemolytica</i> USDA-ARS-USMARC-184
		aacn:AANUM_0892	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> NUM4039	228	0.537	205	PICI?	855426	865368	9.9	No primase
DR93_165		pmul:DR93_165	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	92	1.000		PmCIATC C 43137				
		pmp:Pmu_15630	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	92	1.000	92	PmCIATC C 43137	1677145	1691873	14.7	
		pmu:PM1775	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	92	0.935	92	PICI	1994540	2009007	14.5	Similar to PmCIPm3480

PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		pul:NT08PM_1 621	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	95	0.925	93	PICI	1690704	1703854	13.1	
		swd:Swoo_385 0	<i>Shewanella woodyi</i>	<i>Shewanella woodyi</i> ATCC 51908	470	0.306	85	No insert				
		tva:TVAG_244 940	<i>Trichomonas vaginalis</i>	<i>Trichomonas vaginalis</i> G3	2416	0.302	86					RefSeq (Assembly: <a href="#">GCF_000002825.2</a> )
		pjd:Pjdr2_4470	<i>Paenibacillus</i>	<i>Paenibacillus</i> sp. <i>JDR-2</i>	721	0.339	56	No insert				
		cbv:U729_120 0	<i>Clostridium baratii</i>	<i>Clostridium baratii</i> Sullivan	218	0.381	42	No insert				
		tch:CHITON_0 004	<i>Thermococcus chitonophagus</i>	<i>Thermococcus chitonophagus</i> 1	589	0.333	84	No insert				
		bvg:10490153 7	<i>Beta vulgaris</i>	<i>Beta vulgaris</i> subsp. <i>vulgaris</i> (sugar beet)	853	0.321	56					RefSeq (Assembly: <a href="#">GCF_000511025.1</a> )
		riv:Riv7116_24 25	<i>Rivularia</i>	<i>Rivularia</i> sp. <i>PCC 7116</i>	563	0.462	39	No insert				
DR93_164		pmul:DR93_16 4	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	91	1.000		PmCIATC C 43137				
		pmp:Pmu_156 10	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	95	1.000	91	PmCIATC C 43137	1677145	1691873	14.7	
		pmu:PM1776	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	95	0.945	91	PICI	1994540	2009007	14.5	Similar to PmCIPm3480
		aan:D7S_0141 4	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> D7S-1	91	0.371	89	PICI	1321056	1330241	9.2	
		mvr:X781_111 80	<i>Mannheimia</i> sp.	<i>Mannheimia</i> sp. <i>USDA-ARS-USMARC-1261</i>	87	0.429	91	PICI?	1128249	1143315	15	Not commun structure; <i>terL</i>
		hif:HIBPF_067 32	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3031	98	0.323	96	PICI?	617232	628294	11	Not commun structure
		hil:HICON_152 20	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3047	100	0.313	99	PICI?	1359833	1373077	13.2	Not commun structure; similar to <i>H.influenzae</i> F3031
		hiu:HIB_05670	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> 10810	94	0.333	93	PICI?	563371	577256	13.8	Not commun structure
		mham:J450_1 1855	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D171	95	0.310	84	PICI?	2445215	2453749	8.5	Same as <i>Mannheimia haemolytica</i> <i>USDA-ARS-USMARC-184</i>
		mhat:B824_10 840	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> <i>USDA-ARS-USMARC-184</i>	83	0.312	80	PICI	1058301	1066853	8.5	
		aqu:10531404 3	<i>Amphimedon</i>	<i>Amphimedon queenslandica</i>	436	0.347	49					RefSeq (Assembly: <a href="#">GCF_000090795.1</a> )
DR93_163		pmul:DR93_16 3	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	120	1.000		PmCIATC C 43137				
		pmp:Pmu_156 00	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	120	1.000	120	PmCIATC C 43137	1677145	1691873	14.7	
		pul:NT08PM_1 619	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	120	1.000	120	PICI	1690704	1703854	13.1	
		aacn:AANUM_0889	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> NUM4039	124	0.646	99	PICI?	855426	865368	9.9	No primase
		hia:H733_0899	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> CGSHiCZ412602	124	0.616	99	PICI?	972960	980869	7.9	
		aan:D7S_0141 5	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> D7S-1	127	0.555	110	PICI	1321056	1330241	9.2	
		aap:NT05HA_1832	<i>Aggregatibacter aphrophilus</i>	<i>Aggregatibacter aphrophilus</i> NJ8700	127	0.555	110	PICI	1811901	1821358	9.4	
		aeu:ACEE_02 555	<i>Actinobacillus equuli</i>	<i>Actinobacillus equuli</i> subsp. <i>equuli</i> 19392	127	0.492	124	PICI?	557158	568179	11	Not commun structure
		asi:ASU2_004 00	<i>Actinobacillus suis</i>	<i>Actinobacillus suis</i> H91-0380	127	0.480	125	PICI?	73077	80675	7.6	Not commun structure
		ass:ASU1_004 05	<i>Actinobacillus suis</i>	<i>Actinobacillus suis</i> ATCC 33415	127	0.480	125	PICI?	73071	82984	9.9	Not commun structure
		kpb:FH42_073 75	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> blaNDM-1	934	0.324	102	No insert				

PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments	
DR93_162	ash	pmul:DR93_16 2	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	186	1.000		PmCIATC C 43137					
		pmp:Pmu_155 90	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	186	1.000	186	PmCIATC C 43137	1677145	1691873	14.7		
		pul:NT08PM_1 618	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	186	1.000	186	PICI	1690704	1703854	13.1		
		pmu:PM1778	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	186	0.962	186	PICI	1994540	2009007	14.5	Similar to PmCIPm3480	
		aap:NT05HA_2318	<i>Aggregatibacter aphrophilus</i>	<i>Aggregatibacter aphrophilus</i> NJ8700	182	0.481	185	PICI	2254923	2263135	8.2		
		mhae:F382_00 545	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D153	353	0.444	160	Defective PICI?					No primase; two integrases
		mhal:N220_07 655	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USMARC_2286	353	0.444	160	Defective PICI?					Same as <i>Mannheimia haemolytica</i> D153
		mhao:J451_00 515	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D174	353	0.444	160	Defective PICI?					Same as <i>Mannheimia haemolytica</i> D153
		mhq:D650_15 250	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USDA-ARS- USMARC-183	353	0.444	160	Defective PICI?					Same as <i>Mannheimia haemolytica</i> D153
		mhx:MHH_c21 280	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> M42548	353	0.444	160	Defective PICI?					Same as <i>Mannheimia haemolytica</i> D153
mvi:X808_179 60	<i>Mannheimia varigena</i>	<i>Mannheimia varigena</i> USDA-ARS-USMARC- 1296	188	0.441	161	PICI	1898061	1907756	9.7				
DR93_161		pmul:DR93_16 1	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	131	1.000		PmCIATC C 43137					
		pmu:PM1779	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	136	0.607	140	PICI	1994540	2009007	14.5	Similar to PmCIPm3480	
		pul:NT08PM_1 617	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	73	0.808	73	PICI	1690704	1703854	13.1		
		hif:HIBPF_067 30	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3031	320	0.485	101	PICI?	617232	628294	11	Not commun structure	
		hiu:HIB_05620	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> 10810	309	0.500	100	PICI?	563371	577256	13.8	Not commun structure	
		aacn:AANUM_0885	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> NUM4039	204	0.430	107	PICI?	855426	865368	9.9	No primase	
		aan:D7S_0140 9	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> D7S-1	267	0.430	107	PICI	1321056	1330241	9.2		
		hsm:HSM_023 9	<i>Haemophilus somnus</i>	<i>Haemophilus somnus</i> 2336	162	0.398	123	Defective PICI?				No integrase	
		mvr:X781_110 90	<i>Mannheimia</i>	<i>Mannheimia</i> sp. USDA-ARS-USMARC-1261	149	0.416	113	PICI?	1128249	1143315	15	Not commun structure; terL	
		aap:NT05HA_1826	<i>Aggregatibacter aphrophilus</i>	<i>Aggregatibacter aphrophilus</i> NJ8700	307	0.395	129	PICI	1811901	1821358	9.4		
	hso:HS_0528	<i>Haemophilus somnus</i>	<i>Haemophilus somnus</i> 129PT	163	0.420	88	PICI?	562065	574352	12.3	Not commun structure		
DR93_160		pmul:DR93_16 0	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	108	1.000		PmCIATC C 43137					
		pmp:Pmu_155 80	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	108	1.000	108	PmCIATC C 43137	1677145	1691873	14.7		
		pmu:PM1780	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	108	0.972	108	PICI	1994540	2009007	14.5	Similar to PmCIPm3480	
		pul:NT08PM_1 616	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	108	0.917	108	PICI	1690704	1703854	13.1		
		eft:M395_0327 0	<i>Enterococcus faecium</i>	<i>Enterococcus faecium</i> T110	289	0.337	98	No insert					
		efau:EFAU085_00598	<i>Enterococcus faecium</i>	<i>Enterococcus faecium</i> Aus0085	289	0.337	98	No insert					
		efc:EFAU004_00650	<i>Enterococcus faecium</i>	<i>Enterococcus faecium</i> Aus0004	289	0.337	98	No insert					

PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		efm:M7W_838	<i>Enterococcus faecium</i>	<i>Enterococcus faecium</i> NRRL B-2354	289	0.337	98	No insert				
		efu:HMPREF0 351_10674	<i>Enterococcus faecium</i>	<i>Enterococcus faecium</i> DO	289	0.337	98	No insert				
		sbd:ATN00_10 730	<i>Sphingobium baderi</i>	<i>Sphingobium baderi</i> DE-13	462	0.306	108	No insert				
		hvo:HVO_194 3	<i>Haloferax volcanii</i>	<i>Haloferax volcanii</i> DS2	746	0.305	95	No insert				
DR93_159		pmul:DR93_15 9	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	144	1.000		PmCIATC C 43137				
		pmp:Pmu_155 70	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	143	1.000	143	PmCIATC C 43137	1677145	1691873	14.7	
		pmu:PM1781	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	144	0.979	144	PICI	1994540	2009007	14.5	Similar to PmCIPm3480
		pul:NT08PM_1 615	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	143	0.958	144	PICI	1690704	1703854	13.1	
		aan:D7S_0140 6	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> D7S-1	169	0.443	97	PICI	1321056	1330241	9.2	
		aacn:AANUM_0882	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> NUM4039	169	0.443	97	PICI?	855426	865368	9.9	No primase
		aah:CF65_007 82	<i>Aggregatibacter actinomycetemcomitans</i>	<i>Aggregatibacter actinomycetemcomitans</i> HK1651	106	0.396	91	No insert				Only integrase
		mhat:B824_46 50	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USDA-ARS-USMARC-184	79	0.462	78	No insert				Only integrase
		aap:NT05HA_1823	<i>Aggregatibacter aphrophilus</i>	<i>Aggregatibacter aphrophilus</i> NJ8700	179	0.349	106	PICI	1811901	1821358	9.4	
		hil:HICON_151 70	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3047	227	0.317	139	PICI?	1359833	1373077	13.2	Not commun structure; similar to <i>H.influenzae</i> F3031
		hif:HIBPF_066 90	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3031	227	0.317	139	PICI?	617232	628294	11	Not commun structure
DR93_158	<i>pri</i>	pmul:DR93_15 8	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	725	1.000		PmCIATC C 43137				
		pmp:Pmu_155 60	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	725	1.000	725	PmCIATC C 43137	1677145	1691873	14.7	
		pul:NT08PM_1 614	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	725	0.999	725	PICI	1690704	1703854	13.1	
		pmu:PM1782	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	725	0.992	725	PICI	1994540	2009007	14.5	Similar to PmCIPm3480
		hpas:JL26_02 260	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> SH03	724	0.532	726	PICI?	395669	4055177	9.8	Not commun structure
		hpaz:K756_02 740	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> ZJ0906	724	0.530	726	PICI?	515457	524474	9	Not commun structure; similar to <i>H. parasuis</i> SH03
		hap:HAPS_15 81	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> SH0165	728	0.528	726	PICI?	781463	790311	8.8	Not commun structure
		hpak:JT17_11 140	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> KL0318	728	0.517	726	PICI?	2198349	2207437	9.1	Not commun structure; similar to <i>H. parasuis</i> SH03
		hif:HIBPF_066 80	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3031	730	0.489	736	PICI?	617232	628294	11	Not commun structure
		hil:HICON_151 60	<i>Haemophilus influenzae</i>	<i>Haemophilus influenzae</i> F3047	730	0.488	735	PICI?	1359833	1373077	13.2	Not commun structure; similar to <i>H.influenzae</i> F3031
		kqu:AVR78_10 885	<i>Klebsiella quasipneumoniae</i>	<i>Klebsiella quasipneumoniae</i> ATCC 700603	704	0.429	721	PICI	5087576	5108642	21	
DR93_157	<i>abfF</i>	pmul:DR93_15 7	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	316	1.000		PmCIATC C 43137				
		pmp:Pmu_155 50	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	316	1.000	316	PmCIATC C 43137	1677145	1691873	14.7	
		pul:NT08PM_1 613	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> 3480	316	0.997	316	PICI	1690704	1703854	13.1	

PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		pmu:PM1783	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> subsp. <i>multocida</i> Pm70	316	0.994	316	PICI	1994540	2009007	14.5	Similar to PmCIPm3480
		mhae:F382_09 970	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D153	315	0.521	313	No insert				
		mhal:N220_02 070	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USMARC_2286	315	0.521	313	No insert				
		mham:J450_0 8895	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D171	315	0.521	313	No insert				
		mhao:J451_10 190	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> D174	315	0.521	313	No insert				
		mhaq:WC39_1 1775	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> 89010807N	315	0.521	313	No insert				
		mhat:B824_22 520	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> USDA-ARS- USMARC-184	315	0.521	313	No insert				
		mhay:VK67_1 1780	<i>Mannheimia haemolytica</i>	<i>Mannheimia haemolytica</i> 89010807N lktA-	315	0.521	313	No insert				
DR93_156		pmul:DR93_15 6	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	349	1.000		PmCIATC C 43137				
		pmp:Pmu_155 40	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	349	1.000	349	PmCIATC C 43137	1677145	1691873	14.7	
		eec:EcWSU1_ 02439	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> EcWSU1	353	0.531	354	Defective phage?				
		ecf:ECH74115 _3238	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 EC4115	353	0.537	352	Prophage				
		ecp:ECP_1145	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K15:H31 536	353	0.537	352	Prophage				
		ese:ECSF_104 8	<i>Escherichia coli</i>	<i>Escherichia coli</i> O150:H5 SE15	357	0.537	352	Prophage				
		etw:ECSF_298 2	<i>Escherichia coli</i>	<i>Escherichia coli</i> O157:H7 TW14359	353	0.537	352	Prophage				
		senj:CFSAN00 1992_20510	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Javiana CFSAN001992	353	0.511	352	Prophage				
		eok:G2583_06 68	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	353	0.534	352	Prophage				
		eln:NRG857_0 5550	<i>Escherichia coli</i>	<i>Escherichia coli</i> O83:H1 NRG 857C	353	0.534	352	Prophage				
		vv:VV93_v1c4 1070	<i>Vibrio vulnificus</i>	<i>Vibrio vulnificus</i> 93U204	351	0.490	349	No insert				
DR93_155		pmul:DR93_15 5	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	124	1.000		PmCIATC C 43137				
		pmp:Pmu_155 30	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> 36950	124	1.000	124	PmCIATC C 43137	1677145	1691873	14.7	
		lrz:BJ169_0608 0	<i>Luteibacter rhizovicius</i>	<i>Luteibacter rhizovicius</i> LJ96T	124	0.565	124	No insert				
		pao:Pat9b_343 8	<i>Pantoea</i>	<i>Pantoea</i> sp. At-9b	123	0.553	123	Prophage				
		aat:EP13_181 85	<i>Alteromonas australica</i>	<i>Alteromonas australica</i> H 17	125	0.577	123	No insert				
		ddd:Dda3937_ 01763	<i>Dickeya dadantii</i>	<i>Dickeya dadantii</i> 3937	126	0.561	123	Prophage				
		vv:VV93_v1c4 1080	<i>Vibrio vulnificus</i>	<i>Vibrio vulnificus</i> 93U204	132	0.565	124	No insert				
		shal:SHALO_2 495	<i>Sulfurospirillum halorespirans</i>	<i>Sulfurospirillum halorespirans</i> DSM 13726	124	0.537	123	No insert				
		ecp:ECP_1144	<i>Escherichia coli</i>	<i>Escherichia coli</i> O6:K15:H31 536	125	0.537	123	Prophage				
		eln:NRG857_0 5545	<i>Escherichia coli</i>	<i>Escherichia coli</i> O83:H1 NRG 857C	125	0.537	123	Prophage				
		eok:G2583_06 67	<i>Escherichia coli</i>	<i>Escherichia coli</i> O55:H7 CB9615	125	0.537	123	Prophage				



PmCIATCC 43137	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
DR93_154		pmul:DR93_15 4	<i>Pasteurella multocida</i>	<i>Pasteurella multocida</i> ATCC 43137	31			PmCIATC C 43137				No matches in database (DB)

**Table S5. P4 orthologies.**

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
1261092	<i>int</i>	vg:1261092		<i>Enterobacteria phage P4</i>	439	1.000						
		eih:ECOK1_4788	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	422	0.995	410	P4-like	4929672	4941310	11.6	
		csj:CSK29544_02175	<i>Cronobacter sakazakii</i>	<i>Cronobacter sakazakii</i> ATCC 29544	420	0.943	420	Defective P4-like				Only <i>int</i> , <i>psu</i> and <i>pri</i> fragment
		senn:SN31241_8570	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Newport</i> USMARC-S3124.1	425	0.954	414	P4-like	867520	879568	12	
		ron:TE10_04950	<i>Raoultella ornithinolytica</i>	<i>Raoultella ornithinolytica</i> S12	421	0.961	410	P4-like	1067123	1079262	12.1	
		sent:TY21A_22985	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	421	0.961	410	P4-like	4666556	4677971	11.4	
		stt:t4518	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty2	421	0.961	410	P4-like	4666559	4677974	11.4	
		sty:STY4821	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> CT18	421	0.961	410	P4-like	4683670	4695086	11.4	
		eclo:ENC_43890	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> subsp. <i>cloacae</i> NCTC 9394	418	0.940	418	P4-like	4472603	4482957	10.5	Draft genome
		seeb:SEE B0189_019950	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Bareilly</i> CFSAN000189	419	0.963	410	P4-like	4089428	4101526	12	
		csi:P262_05052	<i>Cronobacter sakazakii</i>	<i>Cronobacter sakazakii</i> CMCC 45402	425	0.937	414	P4-like	3760642	3771860	11.2	
		sek:SSPA3984	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Paratyphi</i> A AKU1260	419	0.961	410	P4-like	4456338	4466061	9.7	
		spt:SPA4288	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Paratyphi</i> A ATCC9150	419	0.961	410	P4-like	4461107	4470831	9.7	
		sbo:SBO_4174	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	421	0.956	410	P4-like	4217005	4228846	11.8	
		kpz:KPNIH27_02710	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPNIH27	423	0.954	410	P4-like	576483	588499	12	
		eoj:ECO26_5435	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	420	0.949	410	P4-like	5524027	5538050	14	
		etr:ETA_3092	<i>Edwardsiella tarda</i>	<i>Edwardsiella tarda</i> EIB202	420	0.959	410	Defective P4-like				Only <i>int</i> , <i>psu</i> and <i>sid</i>
		kpa:KPNJ1_04920	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> 30660/NJST258_1	420	0.954	410	P4-like	4695067	4706266	11.2	
		kpc:KPNIH10_02775	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPNIH10	420	0.954	410	P4-like	585958	597158	11.2	
		kpg:KPNIH32_02935	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPNIH32	420	0.954	410	P4-like	588185	599385	11.2	
		kph:KPNIH24_02795	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPNIH24	420	0.954	410	P4-like	585958	597158	11.2	
		kpj:N559_4601	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> JM45	420	0.954	410	P4-like	4681698	4692896	11.2	
		kpm:KPHS_05400	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> HS11286	420	0.954	410	P4-like	581768	594033	12.3	
		kpne:KU54_023815	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> 32192	420	0.954	410	P4-like	4703179	4714379	11.2	
		kpnu:L186_23655	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> 34618	420	0.954	410	P4-like	4682111	4693311	11.2	
		kpq:KPR0928_02785	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPR0928	420	0.954	410	P4-like	585959	597159	11.2	
		kps:KPNJ2_04869	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> 30684/NJST258_2	420	0.954	410	P4-like	4707358	4718557	11.2	

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		kpw:KPNI H30_0293 0	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPNIH30	420	0.954	410	P4-like	585959	597159	11.2	
		kvd:KR75_ 10995	<i>Klebsiella varicola</i>	<i>Klebsiella varicola</i> DX120E	420	0.954	410	P4-like	4867698	4878882	11.2	
		see:SNL 254_A483 6	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Newport SL254	421	0.950	410	P4-like	4709611	4721659	12	
		ecle:ECNI H2_03585	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> ECNIH2	420	0.946	410	Defective P4- like				Disrupted <i>pri</i>
		ehm:AB28 4_22310	<i>Enterobacter hormaechei</i>	<i>Enterobacter hormaechei</i> CAV1176	420	0.946	410	Defective P4- like				Disrupted <i>pri</i>
		lax:APT61 _19835	<i>Leclercia adecarboxylata</i>	<i>Leclercia adecarboxylata</i> USDA-ARS-USMARC- 60222	417	0.946	410	Defective P4- like				Only <i>int</i> and <i>psu</i>
		ecoi:ECOP MV1_0473 9	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	417	0.937	410	P4-like	4850307	4861972	11.6	
		serf:L085_ 01585	<i>Serratia</i>	<i>Serratia</i> sp. FS14	425	0.868	409	Defective P4- like				Only <i>int</i>
		ebi:EbC_3 9600	<i>Erwinia billingiae</i>	<i>Erwinia billingiae</i> Eb661	417	0.856	410	P4-like	4406158	4418027	11.9	
1261084	<i>cII</i>	vg:126108 4		<i>Enterobacteria phage P4</i>	264	1.000						
		eih:ECOK 1_4789	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	264	1.000	264	P4-like	4929672	4941310	11.6	
		raq:Rahaq 2_3977	<i>Rahnella aquatilis</i>	<i>Rahnella aquatilis</i> CIP 78.65 = ATCC 33071	266	0.532	265	Defective P4- like				<i>ogr</i> , <i>beta</i> and <i>gop</i>
		bug:BC10 01_0005	<i>Burkholderia</i>	<i>Burkholderia</i> sp. CCGE1001	273	0.498	259	Defective P4- like				Only <i>cII</i> , <i>gop</i> and <i>beta</i>
		rsl:RPSI07 _0197	<i>Ralstonia solanacearum</i>	<i>Ralstonia solanacearum</i> PSI07	273	0.372	269	Defective P4- like				Only <i>cII</i> and <i>beta</i>
		van:VAA_ 00672	<i>Vibrio anguillarum</i>	<i>Vibrio anguillarum</i> 775	274	0.343	274	No insert				
		vpk:M636_ 19810	<i>Vibrio parahaemolyticus</i>	<i>Vibrio parahaemolyticus</i> O1:K33 CDC_K4557	274	0.343	274	No insert				
		lag:N175_ 13100	<i>Vibrio anguillarum</i>	<i>Vibrio anguillarum</i> M3	270	0.344	270	Defective P4- like				
		vau:VANG NB10_ci04 18	<i>Vibrio anguillarum</i>	<i>Vibrio anguillarum</i> NB10	270	0.344	270	No insert				
		del:DelCs1 4_4395	<i>Delftia</i>	<i>Delftia</i> sp. Cs1-4	218	0.363	190	Defective P4- like				Only <i>cII</i> and <i>beta</i>
		psy:PCNP T3_00440	<i>Psychromonas</i>	<i>Psychromonas</i> sp. CNPT3	237	0.341	214	No insert				
1261083	<i>beta</i>	vg:126108 3		<i>Enterobacteria phage P4</i>	355	1.000						
		eih:ECOK 1_4790	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	355	1.000	355	P4-like	4929672	4941310	11.6	
		raq:Rahaq 2_3978	<i>Rahnella aquatilis</i>	<i>Rahnella aquatilis</i> CIP 78.65 = ATCC 33071	353	0.701	351	Defective P4- like				<i>ogr</i> , <i>beta</i> and <i>gop</i>
		bug:BC10 01_0007	<i>Burkholderia</i>	<i>Burkholderia</i> sp. CCGE1001	353	0.588	352	Defective P4- like				Only <i>cII</i> , <i>gop</i> and <i>beta</i>
		mpt:Mpe_ A1938	<i>Methylobium petroleiphilum</i>	<i>Methylobium petroleiphilum</i> PM1	359	0.438	356	No insert				
		del:DelCs1 4_4396	<i>Delftia</i>	<i>Delftia</i> sp. Cs1-4	360	0.429	361	Defective P4- like				Only <i>cII</i> and <i>beta</i>
		rsl:RPSI07 _0196	<i>Ralstonia solanacearum</i>	<i>Ralstonia solanacearum</i> PSI07	354	0.415	352	Defective P4- like				Only <i>cII</i> and <i>beta</i>
		hpas:JL26 _02970	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> SH03	369	0.378	360	P4-like? Phage?				Phage proteins: <i>lexA</i> ...
		hpaz:K756 _05755	<i>Haemophilus parasuis</i>	<i>Haemophilus parasuis</i> ZJ0906	369	0.378	360	P4-like? Phage?				Phage proteins: <i>lexA</i> ...

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		gan:UMN179_02358	<i>Gallibacterium anatis</i>	<i>Gallibacterium anatis</i> UMN179	368	0.350	374	Phage				
		lag:N175_13095	<i>Vibrio anguillarum</i>	<i>Vibrio anguillarum</i> M3	376	0.306	369	Defective P4-like				
1261097	<i>gop</i>	vg:1261097		<i>Enterobacteria phage P4</i>	133	1.000						
		raq:Rahaq2_3979	<i>Rahnella aquatilis</i>	<i>Rahnella aquatilis</i> CIP 78.65 = ATCC 33071	137	0.481	133	Defective P4-like				<i>ogr</i> , <i>beta</i> and <i>gop</i>
		bug:BC1001_0008	<i>Burkholderia</i>	<i>Burkholderia</i> sp. CCGE1001	141	0.350	137	Defective P4-like				Only <i>cll</i> , <i>gop</i> and <i>beta</i>
		cbr:CBG19597	<i>Caenorhabditis briggsae</i>	<i>Caenorhabditis briggsae</i> AF16	513	0.307	88					RefSeq (Assembly: <a href="#">GCF_000004555.1</a> )
		maj:MAA_08300	<i>Metarhizium robertsii</i>	<i>Metarhizium robertsii</i> ARSEF 23	1753	0.329	82					RefSeq (Assembly: <a href="#">GCF_000187425.2</a> )
		cac:CA_C0250	<i>Clostridium acetobutylicum</i>	<i>Clostridium acetobutylicum</i> ATCC 824	688	0.353	68	No insert				
		cae:SMB_G0255	<i>Clostridium acetobutylicum</i>	<i>Clostridium acetobutylicum</i> DSM 1731	688	0.353	68	No insert				
		cay:CEA_G0256	<i>Clostridium acetobutylicum</i>	<i>Clostridium acetobutylicum</i> EA 2018	688	0.353	68	No insert				
		srd:SD10_27760	<i>Spirosoma radiotolerans</i>	<i>Spirosoma radiotolerans</i> DG5A	494	0.306	98	No insert				
		nsl:BOX37_10940	<i>Nocardia soli</i>	<i>Nocardia soli</i> Y48	330	0.339	56	No insert				
		sli:Slin_5408	<i>Spirosoma linguale</i>	<i>Spirosoma linguale</i> DSM 74	494	0.060	98	No insert				
1261094	<i>psu</i>	vg:1261094		<i>Enterobacteria phage P4</i>	190	1.000						
		ecoo:ECR M13514_3795	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	190	0.995	190	P4-like	3690842	3702177	11.3	
		ej:ECO26_4938	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	190	0.995	190	P4-like	4952573	4966595	14	
		sent:TY21A_13410	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	190	0.995	190	P4-like	2734973	2745406	10.4	
		stt:t2648	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty2	190	0.995	190	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		ec:EcIC_1061	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	190	0.989	190	P4-like	45053	55477	10.4	
		eih:ECOK1_4791	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	190	0.989	190	P4-like	4929672	4941310	11.6	
		eal:EAKF1_ch3364	<i>Escherichia albertii</i>	<i>Escherichia albertii</i> KF1	190	0.984	190	Defective P4-like				Several <i>int</i>
		sbo:SBO_4171	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	190	0.984	190	P4-like	4217005	4228846	11.8	
		seeh:SEE H1578_04860	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Heidelberg</i> 41578	190	0.984	190	P4-like	885261	896545	11.3	
		efe:EFER_0448	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	190	0.984	190	P4-like	448071	459263	11.2	
		ecoi:ECOP MV1_04741	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	190	0.984	190	P4-like	4850307	4861972	11.6	
		ecoh:ECR M13516_4455	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	190	0.958	190	P4-like	4410536	4422590	12	
		ecm:EcSM S35_4004	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	190	0.953	190	P4-like	4081414	4092685	11.3	
		elo:EO42_3995	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	190	0.942	190	P4-like	4236680	4247745	11	
		cmw:AFK63_19225	<i>Cronobacter muytjensii</i>	<i>Cronobacter muytjensii</i> ATCC 51329	188	0.651	186	P4-like	4183320	4195597	12.3	

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		enl:A3UG_00580	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> subsp. <i>dissolvens</i> SDM	187	0.660	188	P4-like	104977	116426	11.5	
		etd:ETAF_0744	<i>Edwardsiella tarda</i>	<i>Edwardsiella tarda</i> FL6-60	188	0.638	188	P4-like	864265	875965	11.7	
1261088	delta	vg:1261088		<i>Enterobacteria phage P4</i>	166	1.000						
		eih:ECOK_1_4792	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	166	0.982	166	P4-like	4929672	4941310	11.6	
		efe:EFER_0447	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	166	0.982	166	P4-like	448071	459263	11.2	
		ecoo:ECR M13514_3794	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	166	0.976	166	P4-like	3690842	3702177	11.3	
		ecl:EcolC_1060	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	166	0.976	166	P4-like	1146254	1156920	10.7	
		ej:ECO26_4937	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	166	0.976	166	P4-like	4952573	4966595	14	
		ecoi:ECOP MV1_04742	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	166	0.970	166	P4-like	4850307	4861972	11.6	
		eal:EAKF1_ch3363	<i>Escherichia albertii</i>	<i>Escherichia albertii</i> KF1	55	0.982	55	Defective P4-like				Several int
		seeh:SEE H1578_04865	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Heidelberg</i> 41578	55	0.945	55	P4-like	885261	896545	11.3	
		sent:TY21A_13415	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	55	0.945	55	P4-like	2734973	2745406	10.4	
		stt:t2649	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty2	55	0.945	55	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		serf:L085_00060	<i>Serratia</i>	<i>Serratia</i> sp. <i>FS14</i>	55	0.545	44	Defective P4-like?				Only <i>delta</i> and a lysozime
		sers:SERR SCBL_03910	<i>Serratia</i>	<i>Serratia</i> sp. <i>SCBI</i>	98	0.545	44	Defective P4-like?				Only <i>delta</i> and a lysozime
		smac:SMD B11_0175	<i>Serratia marcescens</i>	<i>Serratia marcescens</i> subsp. <i>marcescens</i> Db11	75	0.545	44	Defective P4-like?				Only <i>delta</i> and a lysozime
1261087	sid	vg:1261087		<i>Enterobacteria phage P4</i>	244	1.000						
		ecoh:ECR M13516_4457	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	244	0.992	244	P4-like	4410536	4422590	12	
		elo:EC042_3996	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	244	0.996	244	P4-like	4236680	4247745	11	
		sbo:SBO_4170	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	244	0.996	244	P4-like	4217005	4228846	11.8	
		ecl:EcolC_0049	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	244	0.988	244	P4-like	45053	55477	10.4	
		ecoi:ECOP MV1_04743	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	244	0.992	244	P4-like	4850307	4861972	11.6	
		efe:EFER_0446	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	266	0.992	244	P4-like	448071	459263	11.2	
		ecoo:ECR M13514_3793	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	244	0.988	244	P4-like	3690842	3702177	11.3	
		eih:ECOK_1_4793	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	244	0.980	244	P4-like	4929672	4941310	11.6	
		ecm:EcSM S35_4005	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	244	0.980	244	P4-like	4081414	4092685	11.3	
		ej:ECO26_4936	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	244	0.984	244	P4-like	4952573	4966595	14	

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		sent:TY21 A_13420	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty21a	244	0.980	244	P4-like	2734973	2745406	10.4	
		stt:t2650	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty2	244	0.980	244	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		seeh:SEE H1578_04 870	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Heidelberg 41578	244	0.980	244	P4-like	885261	896545	11.3	
		seeb:SEE B0189_01 9925	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Bareilly CFSAN000189	244	0.657	239	P4-like	4089428	4101526	12	
		senj:CFSA N001992_ 19715	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Javiana CFSAN001992	245	0.653	239	P4-like	4078550	4089203	10.6	
1261090	alpA	vg:126109 0		<i>Enterobacteria phage P4</i>	88	1.000						
		ec:EcIC_1058	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	88	0.989	88	P4-like	1146254	1156920	10.7	
		ecm:EcSM S35_4006	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	88	0.989	88	P4-like	4081414	4092685	11.3	
		ecoh:ECR M13516_4 459	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	88	0.989	88	P4-like	4410536	4422590	12	
		ecoi:ECOP MV1_0474 4	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	88	0.989	88	P4-like	4850307	4861972	11.6	
		ecoo:ECR M13514_3 792	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	88	0.989	88	P4-like	3690842	3702177	11.3	
		efe:EFER_0445	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	88	0.989	88	P4-like	448071	459263	11.2	
		eih:ECOK 1_4794	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	88	0.989	88	P4-like	4929672	4941310	11.6	
		elo:EC042_3997	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	88	0.989	88	P4-like	4236680	4247745	11	
		ej:ECO26_4934	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	88	0.989	88	P4-like	4952573	4966595	14	
		sbo:SBO_4169	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	88	0.989	88	P4-like	4217005	4228846	11.8	
		seeh:SEE H1578_04 875	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Heidelberg 41578	88	0.989	88	P4-like	885261	896545	11.3	
		sent:TY21 A_13425	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty21a	88	0.977	88	P4-like	2734973	2745406	10.4	
		stt:t2651	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty2	72	0.972	72	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		csi:P262_0 5045	<i>Cronobacter sakazakii</i>	<i>Cronobacter sakazakii</i> CMCC 45402	88	0.750	88	P4-like	3760642	3771860	11.2	
		kpv:KPNIH 29_25720	<i>Klebsiella pneumoniae</i>	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> KPNIH29	88	0.716	88	P4-like	5163114	5174288	11.2	
1261091	cl	vg:126109 1		<i>Enterobacteria phage P4</i>	138	1.000						
		ej:ECO26_4933	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	199	0.993	138	P4-like	4952573	4966595	14	
		sbo:SBO_4168	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	199	0.993	138	P4-like	4217005	4228846	11.8	
		eih:ECOK 1_4795	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	199	0.971	138	P4-like	4929672	4941310	11.6	
		ecoh:ECR M13516_4 460	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	199	0.935	138	P4-like	4410536	4422590	12	
		efe:EFER_0444	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	137	0.927	137	P4-like	448071	459263	11.2	

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		ecoo:ECR M13514_4 676	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	199	0.906	138	P4-like	4558846	4569909	11	
		ecI:EcolC_ 0047	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	196	0.848	138	P4-like	45053	55477	10.4	
		seeh:SEE H1578_04 880	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Heidelberg</i> 41578	196	0.848	138	P4-like	885261	896545	11.3	
		sent:TY21 A_13430	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	196	0.848	138	P4-like	2734973	2745406	10.4	
		ecm:EcSM S35_4007	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	134	0.854	137	P4-like	4081414	4092685	11.3	
		stt:t2652	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty2	134	0.854	137	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		elo:EC042 _3998	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	134	0.825	137	P4-like	4236680	4247745	11	
		ses:SARI_ 03878	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>arizonae</i> serovar 62:z4,z23:- RSK2980	200	0.717	138	P4-like	3804516	3815458	10.9	
		kok:KONI H1_28730	<i>Klebsiella oxytoca</i>	<i>Klebsiella oxytoca</i> KONIH1	183	0.704	115	P4-like	5994027	6004738	10.7	
1261085	epsilon	vg:126108 5		<i>Enterobacteria phage P4</i>	95	1.000						
		ecm:EcSM S35_4008	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	95	0.989	95	P4-like	4081414	4092685	11.3	
		ecoh:ECR M13516_4 461	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	95	0.989	95	P4-like	4410536	4422590	12	
		ecoi:ECOP MV1_0474 8	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	95	0.989	95	P4-like	4850307	4861972	11.6	
		ecoo:ECR M13514_3 790	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	95	0.989	95	P4-like	3690842	3702177	11.3	
		efe:EFER_ 0443	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	95	0.989	95	P4-like	448071	459263	11.2	
		eih:ECOK 1_4796	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	95	0.989	95	P4-like	4929672	4941310	11.6	
		elo:EC042 _3999	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	95	0.989	95	P4-like	4236680	4247745	11	
		eoJ:ECO26 _4932	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	95	0.989	95	P4-like	4952573	4966595	14	
		seeh:SEE H1578_04 885	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Heidelberg</i> 41578	95	0.989	95	P4-like	885261	896545	11.3	
		sent:TY21 A_13435	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	95	0.989	95	P4-like	2734973	2745406	10.4	
		stt:t2653	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty2	95	0.989	95	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		ecI:EcolC_ 0046	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	95	0.979	95	P4-like	45053	55477	10.4	
		ecl:ECNI H2_03625	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> ECNIH2	99	0.687	99	Defective P4-like				Disrupted <i>pri</i>
		ehm:AB28 4_22265	<i>Enterobacter hormaechei</i>	<i>Enterobacter hormaechei</i> CAV1176	99	0.687	99	Defective P4-like				Disrupted <i>pri</i>
1261086	ORF151	vg:126108 6		<i>Enterobacteria phage P4</i>	151	1.000						
		seeh:SEE H1578_04 890	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Heidelberg</i> 41578	151	1.000	151	P4-like	885261	896545	11.3	
		sent:TY21 A_13440	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	151	1.000	151	P4-like	2734973	2745406	10.4	

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		stt:t2654	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty2	151	1.000	151	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a
		ecl:EcolC_0045	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	151	0.993	151	P4-like	45053	55477	10.4	
		ecoo:ECR M13514_3789	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	151	0.993	151	P4-like	3690842	3702177	11.3	
		sbo:SBO_4167	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	151	0.993	151	P4-like	4217005	4228846	11.8	
		eih:ECOK_1_4797	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	151	0.987	151	P4-like	4929672	4941310	11.6	
		ecoi:ECOP MV1_04749	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	151	0.987	151	P4-like	4850307	4861972	11.6	
		efe:EFER_0442	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	151	0.987	151	P4-like	448071	459263	11.2	
		ecm:EcSM S35_4009	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	151	0.987	151	P4-like	4081414	4092685	11.3	
		ecoh:ECR M13516_4462	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	151	0.980	151	P4-like	4410536	4422590	12	
		ej:ECO26_4931	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	151	0.974	151	P4-like	4952573	4966595	14	
		elo:EC042_4000	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	151	0.974	151	P4-like	4236680	4247745	11	
		ses:SARI_03876	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>arizonae</i> serovar 62:z4,z23:- RSK2980	149	0.702	151	P4-like	3804516	3815458	10.9	
		ecl:ECNI H2_03630	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> ECNIH2	149	0.675	151	Defective P4-like				Disrupted <i>pri</i>
		ehm:AB28_4_22260	<i>Enterobacter hormaechei</i>	<i>Enterobacter hormaechei</i> CAV1176	149	0.675	151	Defective P4-like				Disrupted <i>pri</i>
		dat:HRM2_26500	<i>Desulfobacterium autotrophicum</i>	<i>Desulfobacterium autotrophicum</i> HRM2	1206	0.355	107	No insert				
1261093	ORF106	vg:1261093		<i>Enterobacteria phage P4</i>	106	1.000						
		ecl:EcolC_0044	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	106	1.000	106	P4-like	45053	55477	10.4	
		ecm:EcSM S35_4010	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	106	1.000	106	P4-like	4081414	4092685	11.3	
		ecoh:ECR M13516_4463	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	106	1.000	106	P4-like	4410536	4422590	12	
		ecoi:ECOP MV1_04750	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	106	1.000	106	P4-like	4850307	4861972	11.6	
		ecoo:ECR M13514_3788	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	106	1.000	106	P4-like	3690842	3702177	11.3	
		eih:ECOK_1_4798	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	106	1.000	106	P4-like	4929672	4941310	11.6	
		elo:EC042_4001	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 042	106	1.000	106	P4-like	4236680	4247745	11	
		ej:ECO26_4927	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	106	1.000	106	P4-like	4952573	4966595	14	
		sbo:SBO_4166	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	106	1.000	106	P4-like	4217005	4228846	11.8	
		seeh:SEE H1578_04895	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Heidelberg 41578	106	1.000	106	P4-like	885261	896545	11.3	
		sent:TY21A_13445	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty21a	106	1.000	106	P4-like	2734973	2745406	10.4	
		stt:t2655	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty2	106	1.000	106	P4-like	2734973	2745406	10.4	Same as <i>S. enterica</i> Ty21a



P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		efe:EFER_0441	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	106	0.991	106	P4-like	448071	459263	11.2	
		senj:CFSA N001992_19695	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Javiana</i> CFSAN001992	106	0.925	106	P4-like	4078550	4089203	10.6	
		ses:SARI_03874	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>arizonae</i> serovar 62:z4,z23:- RSK2980	106	0.925	106	P4-like	3804516	3815458	10.9	
		seb:STM474_2872	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhimurium</i> ST4/74	106	0.915	106	P4-like	2890042	2900481	10.4	
		sef:UMN798_2969	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhimurium</i> 798	106	0.915	106	P4-like	2888784	2899223	10.4	Same as <i>S. typhimurium</i> ST4/74
		sey:SL1344_2721	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhimurium</i> SL1344	106	0.915	106	P4-like	2890042	2900481	10.4	Same as <i>S. typhimurium</i> ST4/74
		sty:STY4831	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> CT18	106	0.915	106	P4-like	4683670	4695086	11.4	
		ron:TE10_01825	<i>Raoultella ornithinolytica</i>	<i>Raoultella ornithinolytica</i> S12	106	0.915	106	P4-like	377086	387244	10.2	
		seeb:SEE B0189_019905	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Bareilly</i> CFSAN00189	106	0.915	106	P4-like	4089428	4101526	12	
		sek:SSPA3992	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Paratyphi A</i> AKU12601	106	0.906	106	P4-like	4456338	4466061	9.7	
		senb:BN855_28010	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Bovismorbificans</i> 3114	106	0.915	106	P4-like	2783062	2792517	9.5	
		spq:SPAB_03425	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Paratyphi B</i>	106	0.915	106	Defective P4-like				No int
		spt:SPA4298	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Paratyphi A</i> ATCC9150	106	0.906	106	Defective P4-like				No int
		etd:ETAF_0749	<i>Edwardsiella tarda</i>	<i>Edwardsiella tarda</i> FL6-60	106	0.906	106	P4-like	864265	875965	11.7	
		ecl:ECNI H2_03640	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> ECNIH2	106	0.887	106	Defective P4-like				Disrupted <i>pri</i>
		ehm:AB284_22250	<i>Enterobacter cloacae</i>	<i>Enterobacter hormaechei</i> CAV1176	106	0.887	106	Defective P4-like				Disrupted <i>pri</i>
1261095	<i>pri/alpha</i>	vg:1261095		<i>Enterobacteria phage P4</i>	777	1.000						
		efe:EFER_0440	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	777	0.994	777	P4-like	448071	459263	11.2	
		ecm:EcSM S35_4012	<i>Escherichia coli</i>	<i>Escherichia coli</i> SMS-3-5	777	0.994	777	P4-like	4081414	4092685	11.3	
		elo:EC042_4002	<i>Escherichia coli</i>	<i>Escherichia coli</i> O44:H18 O42	777	0.995	776	P4-like	4236680	4247745	11	
		ecl:EcolC_0043	<i>Escherichia coli</i>	<i>Escherichia coli</i> ATCC 8739	777	0.992	777	P4-like	45053	55477	10.4	
		ej:ECO26_4926	<i>Escherichia coli</i>	<i>Escherichia coli</i> O26:H11 11368	777	0.992	776	P4-like	4952573	4966595	14	
		ecoo:ECR M13514_3787	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	777	0.992	777	P4-like	3690842	3702177	11.3	
		sent:TY21 A_13450	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty21a	777	0.991	776	P4-like	2734973	2745406	10.4	
		stt:t2656	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> Ty2	777	0.991	776	P4-like	2734973	2745406	10.4	
		eih:ECOK1_4799	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	777	0.991	776	P4-like	4929672	4941310	11.6	
		ecoi:ECOP MV1_04751	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	777	0.991	776	P4-like	4850307	4861972	11.6	
		seeh:SEE H1578_04900	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Heidelberg</i> 41578	777	0.990	776	P4-like	885261	896545	11.3	
		sbo:SBO_4165	<i>Shigella boydii</i>	<i>Shigella boydii</i> Sb227	777	0.988	776	P4-like	4217005	4228846	11.8	

P4	Function	Orthologs	Species	Full name	Length	Similarity	Overlap	Element	Start	End	Size	Comments
		ecoh:ECR M13516_4 464	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13516	777	0.988	777	P4-like	4410536	4422590	12	
		sty:STY48 32	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi CT18	777	0.862	774	P4-like	4683670	4695086	11.4	
		ecln:ECNI H4_05540	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> ECNIH4	777	0.846	774	P4-like	1150352	1161464	11.1	
		eni:A3UG_00545	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> subsp. <i>dissolvens</i> SDM	777	0.845	774	P4-like	104980	116427	11.5	
		ebt:EBL_c 09330	<i>Shimwellia blattae</i>	<i>Shimwellia blattae</i> DSM 4481 = NBRC 105725	777	0.848	774	P4-like	944228	954134	9.9	
		etd:ETAF_0750	<i>Edwardsiella tarda</i>	<i>Edwardsiella tarda</i> FL6-60	777	0.850	774	P4-like	864265	875965	11.7	
1261089		vg:126108 9		<i>Enterobacteria phage P4</i>	111	1.000						
		ecoi:ECOP MV1_0475 2	<i>Escherichia coli</i>	<i>Escherichia coli</i> PMV-1	111	0.928	111	P4-like	4850307	4861972	11.6	
		eih:ECOK 1_4800	<i>Escherichia coli</i>	<i>Escherichia coli</i> IHE3034	78	0.974	77	P4-like	4929672	4941310	11.6	
		efe:EFER_0439	<i>Escherichia fergusonii</i>	<i>Escherichia fergusonii</i> ATCC 35469	72	0.915	47	P4-like	448071	459263	11.2	
		ecoo:ECR M13514_4 682	<i>Escherichia coli</i>	<i>Escherichia coli</i> O145:H28 RM13514	48	0.915	47	P4-like	4558846	4569909	11	
		eal:EAKF1 _ch3360c	<i>Escherichia albertii</i>	<i>Escherichia albertii</i> KF1	38	0.882	34	Defective P4-like				Several <i>int</i>
		stt:t4530	<i>Salmonella enterica</i>	<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi Ty2	46	0.605	38	P4-like	4666559	4677974	11.4	
		ete:ETEE_0923	<i>Edwardsiella anguillarum</i>	<i>Edwardsiella anguillarum</i> ET080813	70	0.526	38	P4-like	864925	874993	10	
		enc:ECL_0 0700	<i>Enterobacter cloacae</i>	<i>Enterobacter cloacae</i> subsp. <i>cloacae</i> ATCC 13047	47	0.526	38	Defective P4-like				No <i>int</i>
		pmo:Pmob_0545	<i>Petrotoga mobilis</i>	<i>Petrotoga mobilis</i> SJ95	450	0.305	95	No insert				
		pri:PRIO_5 948	<i>Paenibacillus riograndensis</i>	<i>Paenibacillus riograndensis</i> SBR5	662	0.333	57	No insert				

**Table S6. Oligonucleotides used in this study.**

Strain	Oligonucleotides	Sequence (5'-3')
<b>CFT073</b> <i>lacZ::tetA</i>	EcoCFT073-lacZ-1m	AATGGATTTTCCTTACGCGAAATACGGGCAGACATAGCCTGCC CGGTTATTATTATTTTTGCGCTGTTAATCACTTTACTT
	EcoCFT073-lacZ-2c	GGCTCGTATGTTGTGTGAAATTGTGAGCGGATAACAATTTCA CACAGGATACAGCTATGACTGGTTATCAAGAGGGTCATTA
<b>CFT073</b> <i>c1501::tetA</i>	EcoCFT073-tet-1m	TACGATGGCAGAAACCAGGGCGATGACGGCGACATCGATCG CATACTGAAAACCATCTGACGCTGTTAATCACTTTACTT
	EcoCFT073-tet-2c	CCCCGTAACGGGTCCATATGCCGGAAGGACCCATAAAAAA AGCCGGATTTCTCCGGCCTTGTCCGGTTATCAAGAGGGTCATT A
<b>CFT073</b> $\Delta$ <i>int</i>	EcoCFT073-int-2m	CAACGATCGGTGTAGTTAATGGTGTAGTTAATTGTGATGACC GGAATCAAATTATGAGCGTGTAGGCTGGAGCTGCTTCG
	EcoCFT073-int-3c	TTGTGTCTCGTTGTTTCAGAGTTGTCCGCATCCTGAAAAATC GCAAAAAAATTATATTTCCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>alpA</i>	EcoCFT073-rep-6m	ACCCAACCCAATAATCCACCCAATGACTCTTTAAGAAACAACA AAGGGGGAATTGTGTTAGTGTAGGCTGGAGCTGCTTCG
	EcoCFT073-rep-8c	GTTAGATCTCTGTATTAGTGGATGGGTGGCGGCTGTGTGCC GCCAGCCTGATTAGTGAACCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>pri</i>	EcoCFT073-pri-3m	GGCACGGGCAAACATCCAGAAGCTGAAAACCATGATTAACG GATTCAGGGGTAATAAATGGTGTAGGCTGGAGCTGCTTCG
	EcoCFT073-pri-4c	GTATTTTTCTTTACTCAGGTAGACAGGGTAGACAGCCATTGC AACAAATTATAAAAACGCCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>c1499</i>	EcoCFT073-cap-1m	ACCTGAATCGCGGGGATATTGCCGAATTTAAATTCAGTCCGC TGTTTACCACGCTGTTTTGTGTAGGCTGGAGCTGCTTCG
	EcoCFT073-cap-2c	AATATCTGCCGGAACCGGCTGCCGTGCCGTGTGCGTCTGCA CGTACTCAATCGCCGGATCCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>c1500</i>	EcoCFT073-Ac1500-1m	GGGGGATTCTATGGACACTCCATACATTGAGTTATTTGCAGG CAGTCAGCAGGTCCGCACTGTGTAGGCTGGAGCTGCTTCG
	EcoCFT073-Ac1500-2c	GTTCCCCCTGCTTATCGGGCCAGCGGCTGAACGGATACGCC AGAACCCGCAAAGGCGCGCATATGAATATCCTCCTTA
<b>CFT073</b> <i>c1499::cat</i>	EcoCFT073-adjustchlor-5m	GCGGCGCAGGGTATGAATCAGTTTACGGGGGTGAATAATG ACAGTAAAAGCAATGGCACGGCGCGCCTACCTGTGACGG
	EcoCFT073-adjustchlor-6c	TCAATCGCCGGATCTCCGTCCTCAATCCAGTTTTTTCGGGTAA AACATGTTTTGTGTTGCGGGAATAGGAAGTTTCAATTTAAATGGC
<b>CFT073</b> $\Delta$ <i>cos.1</i>	CFT073-AcosN-9m	ACAAGGCCGAGAAATCCGGCTTTTTTTATGGGTCTTTCCG GCATATGGACCCGTTACGGTCCATATGAATATCCTCCTTAG
	CFT073-AcosN-10c	TAATCAAGTGGTGGTGGTGTACCTTACGGAAAAACGTCAT AAATAGCGAAAAACCCGCGTGTGTAGGCTGGAGCTGCTTCG
<b>CFT073</b> $\Delta$ <i>cos.2</i>	CFT073-AcosN-11m	AACTTGCAGAGAAACCGGACATGGATCCCGAAAAATTTTCAT AAATAGTGAACCGCGCGGTCCATATGAATATCCTCCTTAG
	CFT073-AcosN-12c	CCCCCATCGTTCTGATAGTCTGGTGTGTCGTCGGGTCCTTCCTG GAATTATGGCCCGTTACGTGTGTAGGCTGGAGCTGCTTCG
<b>CFT073</b> $\Delta$ <i>phi1</i>	EcoCFT073-phi1-1m	GTAACGGGTTAATGAAAACAATAAGTTAGAGTAAAAACAATA AGTTGGGTTGGTGGTCATGTGTAGGCTGGAGCTGCTTC
	EcoCFT073-phi1-2c	GCCGTTTAAATCATGATGTTAGAAGCACTGTTTTTTAACGAT GGCGACAAATTGGCGGCCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>phi2</i>	EcoCFT073-phi2-1m	GCGGGACACTTTCAGGATTTTGAATTTATTCAATTTTTCCCTT TCTCCAAAATCTCTCCATGTGTAGGCTGGAGCTGCTTC
	EcoCFT073-phi2-2c	TTAGATGATTAATCCTTTATATTCAATGCATTAAGTTTGT GAGTGGTTTTGCCGTTTCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>phi4</i>	EcoCFT073-phi4-1m	TGATGTAATCTTCCCCAAAACCTTCCCCAAAACCTGGCTAT TTTCTATGCTGTTTTGATGTGTAGGCTGGAGCTGCTTC
	EcoCFT073-phi4-2c	ATAAAAATTATGTATTTCAACTCGCTGATATTTAATCATAAATAT TATTTTCTTGTCTTTGCATATGAATATCCTCCTTA
<b>CFT073</b> $\Delta$ <i>phi5</i>	EcoCFT-phi5-7m	GTGAGATGCTTTACGTCTTCCAAGCCCCCTTCTTGCCGTAA ATGTGTGTAGGCTGGAGCTGCTTC

	EcoCFT-phi5-8c	GGCTTTTTTGTGATATTGCTGGTCGTATTACCGTCATATTCC TTCATATGAATATCCTCCTTA
<b>phi80 <math>\Delta</math>terS</b>	Ecophi80-AterS-1m	TAAAAACGGCTAAATAGCCAGAGGGCGTTTCCTTTCTCTGTT TTTGTGTATGGAGTGAGCTGTGTAGGCTGGAGCTGCTTCG
	Ecophi80-AterS-2c	CGATATATTCACTCAGCAACCCCGGTATTATTTTCATCCAGCG CAGCTGCTTTGTTTCATGGCATATGAATATCCTCCTTA
<b>IHE3034 RS04635- RS04640::cat</b>	IHE3034- adjustchlor-1m	TTATTGAACAAAACCTGAGAAAACGACATGAAAGCGTCATAAATC GCCATTTTAGATGATTAGGCGCGCCTACCTGTGACGG
	IHE3034- adjustchlor-2c	CACGAACAATATCGAACAACCGCGAACAAGATCAACACGCT TTAATCATTATCATTTCGGAATAGGAACCTTCATTTAAATGGC
<b>O42 1749::cat</b>	O42-adjustchlor-1m	CATGGAGCAATCAGCCGATACAGAACAGTAAAGCCGATAACT TGTTAATCACTCGCAGCAGGCGCGCCTACCTGTGACGG
	O42-adjustchlor-2c	TAATTAATGATTTGCACTACAAAAAGTGCCATAAATCGCAAA ATGACTACACCAGTGACTACACCGTTCCGGAATAGGAA
<b>18098 ORF17- ORF18::cat</b>	18098-chlor-1m	GCGCGAAAAATACTTACCAGTGGAAGAGGCGCGGAGCGGTTA CGGCGGTAACGGTTGATAGGCGCGCCTACCTGTGACGG
	18098-chlor-2c	CATTAACACACCGTTCCACGAACAATATCGAACAACCACGA ACAAAGATGGAATAGGAACCTTCATTTAAATGGC

Plasmid	Oligonucleotides	Sequence (5'-3')
<b>pJP1285</b>	EcoCFT073-3mHindIII	CCCAAGCTTTGGATGCTGATAATTACCACG
	EcoCFT073int-1cSphI	ACATGCATGCCAAAAAAATTATATTTCTCTGGC
<b>pJP1286</b>	EcoCFT073-3mHindIII	CCCAAGCTTTGGATGCTGATAATTACCACG
	EcoCFT073-2cSphI	ACATGCATGCATCGCTCAGTTTGTAAAGTGC
<b>pJP1287</b>	EcoCFT073-1mHindIII	CCCAAGCTTGTACCCTGAATGATAAACACG
	EcoCFT073int-1cSphI	ACATGCATGCCAAAAAAATTATATTTCTCTGGC
<b>pJP2027</b>	EcCICFT073-rep-1mPstI	AACTGCAGAACCAATGCATTGGATCCAGAAGCTGAA AACCATG
	EcCICFT073-rep-2cNotI	ATAAGAATGCGGCCGCTAAACTATTTAAGTTTTCTG ATGTGCGC
<b>pJP2028</b>	EcCICFT073-rep-1mPstI	AACTGCAGAACCAATGCATTGGATCCAGAAGCTGAA AACCATG
	EcCICFT073-rep-3cNotI	ATAAGAATGCGGCCGCTAAACTATCAAATTATAAAAA CGCGTCGC
<b>pJP2029</b>	EcCICFT073-rep-1mPstI	AACTGCAGAACCAATGCATTGGATCCAGAAGCTGAA AACCATG
	EcCICFT073-rep-4c	CTCACTGTCCGCCATCTGCG
	EcCICFT073-rep-5m	CGCAGATGGCGGACAGTGAGGTGACGGTGATGAAG CACTGG
	EcCICFT073-rep-2cNotI	ATAAGAATGCGGCCGCTAAACTATTTAAGTTTTCTG ATGTGCGC
<b>pJP2030</b>	Eco-cos-lambda-3mE	CCGGAATTCGTTGTTGTTCTGCGGGTTCTG
	Eco-cos-lambda-4cH	CCCAAGCTTCTCAATAGTTCCTGGCTGGAG
<b>pJP2031</b>	Eco-cos-phi80-1mE	CCGGAATTCACCGTCAGTGCCGATAAGTTC
	Eco-cos-phi80-2cH	CCCAAGCTTTCGCGTGCGGAATACCATTCCG
<b>pJP2032</b>	Eco-cos-phi4CFT-3mE	CCGGAATTCGATTGTTGGTCTGCTGGTAGC
	Eco-cos-phi4CFT-4cH	CCCAAGCTTGATATCAGTTCCCTCTGCGC
<b>pJP2033</b>	Eco-cos-islaCFT-3mE	CCGGAATTCGTCCTTGATCGATGTTGG
	Eco-cos-islaCFT-4cS	ACCGGTCGACTCACTGGAGTACTCGTCACGG
<b>pJP2034</b>	Eco-cos-islaCFT-5mS	ACGCGTCGACAGAACATCGATTTGATGAAGG

	Eco-cos- <i>islaCFT-6cE</i>	CCGGAATTCGCGATTGTAGGCCAGCATTTC
<b>pJP1288</b>	EcoCFT073rep-1mS	ACGCGTCGACGTAACCACATTGCCAATAGCC
	EcoCFT073rep-3cB	CGCGGATCCTTAGTGAAGTGCCTCGC
<b>pJP1289</b>	EcoCFT073rep-1mS	ACGCGTCGACGTAACCACATTGCCAATAGCC
	EcoCFT073rep-2cB	CGCGGATCCATCTGTGCTTAACACA
<b>pJP1290</b>	EcoCFT073rep-1mS	ACGCGTCGACGTAACCACATTGCCAATAGCC
	EcoCFT073rep-5cB	CGCGGATCCCTCATGCGTTGGGGATAACG
<b>pJP1291</b>	EcoCFT073rep-1mS	ACGCGTCGACGTAACCACATTGCCAATAGCC
	EcoCFT073rep-2c	ATCTGTGCTTAACACA
	EcoCFT073rep-4m	TGTGTTAAGCACAGATGCAGTTCCTAATCAGG
	EcoCFT073rep-5cB	CGCGGATCCCTCATGCGTTGGGGATAACG
<b>pJP2037</b>	EcoCFT073- <i>alpA-1mE</i>	CCGGAATTCACAACCCAACCCAATAATCC
	EcoCFT073- <i>alpA-3cK</i>	GGGGTACCGCTGTGTGCCGCCAGCCTG
<b>pJP2038</b>	EcoCFT073- <i>c1483-1mE</i>	CCGGAATTCGTAACCACATTGCCAATAGCC
	EcoCFT073- <i>alpA-11cH</i>	CCCAAGCTTTCAGGCCTGTAAGTTGCTGAC
<b>pJP2039</b>	EcoCFT073-2mE	CCGGAATTCGCGTTTCTGCCAGTGACGTTT
	EcoCFT073-3cH	CCCAAGCTTTGTTTGACGTCTGTAGCAAG

Southern Blot	Oligonucleotides	Sequence (5'-3')
<b>PmC1172 probe</b>	Pm-172-1m	TATACCCGTTCAACATAACCC
	Pm-172-2c	CTGCGACGTATGGAACACAGC
<b>Phage Pm172 probe</b>	Pm-172-3m	CAGAATGGTCACGTCATACCG
	Pm-172-4c	GCCTTGGGGGATACGAATTTG
<b>EcC1CFT073 probe</b>	EcoCFT073- <i>c1501-1m</i>	TTTGCGGGTTCTGGCGTATCC
	EcoCFT073- <i>c1501-2c</i>	AGCCGGATTTCTCCGGCCTTG

Excision, circularisation and integration	Oligonucleotides	Sequence (5'-3')
<b>Excision</b>	EcoCFT073-1m	GTACCCTGAATGATAAACACG
	EcoCFT073-4c	TCAACGGGTTGATACTTTACG
<b>Circularisation</b>	EcoCFT073-3m	TGGATGCTGATAATTACCACG
	EcoCFT073-2c	ATCGCTCAGTTTGTAAAGTGC
<b>Integration</b>	EcoCFT073-1m	GTACCCTGAATGATAAACACG
	EcoCFT073-2c	ATCGCTCAGTTTGTAAAGTGC

**Table S7. Strains used in this study.**

Strain	Description	Reference
<b><i>Pasteurella multocida</i></b>		
JP13738	Pm86. Natural isolate	This work
JP13739	Pm172. Natural isolate	This work
<b><i>Escherichia coli</i></b>		
CFT073	Natural isolate	
C600	Laboratory strain	ATCC 23738
594	Laboratory strain	
WG5	Laboratory strain	
DH5 $\alpha$	Laboratory strain	
JP9293	CFT073 c1501::tetA	This work
JP9296	JP9293 $\Delta\theta 1::cat$	This work
JP9297	JP9293 $\Delta\theta 2::cat$	This work
JP9298	JP9293 $\Delta\theta 4::cat$	This work
JP12731	JP9293 $\Delta\theta 5::cat$	This work
JP9794	JP9293 $\Delta int$	This work
JP9795	JP9293 $\Delta alpA$	This work
JP9796	JP9293 $\Delta pri-rep$	This work
JP9797	JP9293 $\Delta c1499$	This work
JP15258	JP9293 $\Delta c1500$	This work
JP9802	CFT073 lacZ::tetA	This work
JP13343	CFT073 c1499::cat	This work
JP13408	IHE3034 RS04635-RS04640::cat	This work
JP13409	O42 1749::cat	This work
JP15585	18098 ORF17-ORF18::cat	This work
JP13694	CFT073 c1499::cat $\Delta\theta 4$	This work
JP14200	DH5alpha pJP1285	This work
JP14201	DH5alpha pJP1287	This work
JP14202	DH5alpha pJP1286	This work
JP13734	DH5alpha pJP2027	This work
JP13735	DH5alpha pJP2028	This work
JP13736	DH5alpha pJP2029	This work
JP10400	C600 lambda lysogen	This work
JP13503	JP10400 EcCICFT073-c1499::cat	This work
JP15111	JP10400 EcCICFT073-c1499::cat $\Delta cos.1$	This work
JP15112	JP10400 EcCICFT073-c1499::cat $\Delta cos.2$	This work
JP12507	594 phi80 lysogen	This work
JP13888	JP12507 EcCICFT073-c1499::cat	This work
JP15113	JP12507 EcCICFT073-c1499::cat $\Delta cos.1$	This work
JP15114	JP12507 EcCICFT073-c1499::cat $\Delta cos.2$	This work
JP15116	JP12507 EcCICFT073-c1499::cat $\Delta cos.1 \Delta cos.2$	This work

Strain	Description	Reference
JP15175	JP12507 $\Delta terS$ EcCICFT073-c1499:: <i>cat</i>	This work
JP12712	JP10400 pET28a	This work
JP12713	JP10400 pJP2030	This work
JP12714	JP10400 pJP2032	This work
JP12715	JP10400 pJP2033	This work
JP15178	JP10400 pJP2034	This work
JP14701	JP12507 pET28a	This work
JP14702	JP12507 pJP2031	This work
JP15179	JP12507 pJP2032	This work
JP14703	JP12507 pJP2033	This work
JP15180	JP12507 pJP2034	This work
JP12677	C600 EcCICFT073-c1501:: <i>tetA</i>	This work
JP15181	C600 EcCICFT073-c1501:: <i>tetA</i> $\Delta c1499$	This work
JP15182	C600 EcCICFT073-c1501:: <i>tetA</i> $\Delta c1500$	This work
JP16616	C600 EcCICFT073-c1499:: <i>cat</i> pBAD18	This work
JP16617	C600 EcCICFT073-c1499:: <i>cat</i> pJP2037	This work
JP16618	C600 EcCICFT073-c1499:: <i>cat</i> $\Delta int$ pJP2037	This work
JP16619	C600 EcCICFT073-c1499:: <i>cat</i> $\Delta pri$ pJP2037	This work
JP9542	DH5 $\alpha$ pJP1288	This work
JP9543	DH5 $\alpha$ pJP1289	This work
JP9544	DH5 $\alpha$ pJP1290	This work
JP9730	DH5 $\alpha$ pJP1291	This work
JP15799	DH5 $\alpha$ pBAD18 pJP2038	This work
JP15800	DH5 $\alpha$ pJP2037 pJP2038	This work
JP15801	DH5 $\alpha$ pBAD18 pJP2039	This work
JP15802	DH5 $\alpha$ pJP2037 pJP2039	This work
JP15218	C600 pJP1290	This work
JP13040	JP10400 pJP1290	This work
JP16582	594 pJP1290	This work
JP13043	JP12507 pJP1290	This work
JP17362	JP12507 $\Delta terS$ pJP1290	This work

**Table S8. Plasmid used in this study.**

Plasmid	Description	Reference
pMAK700	Cm <sup>R</sup> . Thermosensitive plasmid in <i>E. coli</i>	(Hamilton <i>et al.</i> , 1989)
pK03 Blue	Cm <sup>R</sup> . Thermosensitive plasmid in <i>E. coli</i>	(Solano <i>et al.</i> , 2009)
pGE593	Amp <sup>R</sup> . Lac reporter plasmid	(Eraso and Weinstock, 1992)
pRW224	Tet <sup>R</sup> . Lac reporter plasmid	(Lodge <i>et al.</i> , 1992)
pBAD18	Amp <sup>R</sup> . Expression vector	(Guzman <i>et al.</i> , 1995)
pET28a	Km <sup>R</sup> . Expression vector	(Novagen)
pKD46	Amp <sup>R</sup> . Thermosensitive plasmid with Red system of lambda phage	(Datsenko and Wanner, 2000)
pCP20	Amp <sup>R</sup> . Thermosensitive plasmid in <i>E. coli</i> with FLP recombinase	(Datsenko and Wanner, 2000)
pJP1285	pMAK700 <i>int-att<sub>P</sub></i> EcCICFT073	This work
pJP1287	pMAK700 <i>int-att<sub>L</sub></i> EcCICFT073	This work
pJP1286	pMAK700 $\Delta$ <i>int-att<sub>P</sub></i> EcCICFT073	This work
pJP2027	pK03 Blue <i>pri-ori</i> EcCICFT073	This work
pJP2028	pK03 Blue <i>pri-<math>\Delta</math>ori</i> EcCICFT073	This work
pJP2029	pK03 Blue $\Delta$ <i>pri-ori</i> EcCICFT073	This work
pJP2030	pET28a cos lambda	This work
pJP2031	pET28a cos phi80	This work
pJP2032	pET28a cos phi4 CFT073	This work
pJP2033	pET28a cos.1 EcCICFT073	This work
pJP2034	pET28a cos.2 EcCICFT073	This work
pJP1288	pGE593 <i>alpA-alpA-lacZ</i> EcCICFT073	This work
pJP1289	pGE593 $\Delta$ <i>alpA-alpA-lacZ</i> EcCICFT073	This work
pJP1290	pGE593 <i>alpA-lcd_like-lacZ</i> EcCICFT073	This work
pJP1291	pGE593 $\Delta$ <i>alpA-lcd_like-lacZ</i> EcCICFT073	This work
pJP2037	pBAD18 <i>alpA</i> EcCICFT073	This work
pJP2038	pRW224 promoter <i>alpA-lacZ</i> EcCICFT073	This work
pJP2039	pRW224 promoter <i>int-lacZ</i> EcCICFT073	This work

## References

- Datsenko KA, Wanner BL. (2000). One-step inactivation of chromosomal genes in *Escherichia coli* K-12 using PCR products. *Proc Natl Acad Sci USA* **97**: 6640–6645.
- Guzman LM, Belin D, Carson MJ, Beckwith J. (1995). Tight regulation, modulation, and high-level expression by vectors containing the arabinose PBAD promoter. *J Bacteriol* **177**: 4121–4130.
- Hamilton CM, Aldea M, Washburn BK, Babitzke P, Kushner SR. (1989). New method for generating deletions and gene replacements in *Escherichia coli*. *J Bacteriol* **171**: 4617–4622.
- Lodge J, Fear J, Busby S, Gunasekaran P, Kamini NR. (1992). Broad host range plasmids carrying the *Escherichia coli* lactose and galactose operons. *FEMS Microbiol Lett* **74**: 271–276.
- Solano C, García B, Latasa C, Toledo-Arana A, Zorraquino V, Valle J, *et al.* (2009). Genetic reductionist approach for dissecting individual roles of GGDEF proteins within the c-di-GMP signaling network in *Salmonella*. *Proc Natl Acad Sci USA* **106**: 7997–8002.