

Table S7. Genes in recombinant segments with protein product having ks/ka less than 4

O395	gene name	Function	rec*	ks/ka	expression data†
VC395_0130		DNA topoisomerase I-related protein	M	0.70	0.32
VC395_0129	purK	phosphoribosylaminoimidazole carboxylase, ATPase subunit	M	3.64	0.19
VC395_0127		conserved hypothetical protein	M	0.00	0.42
VC395_0212		conserved hypothetical protein	O	3.54	1.93
VC395_0221		conserved hypothetical protein	M	0.00	0.34
VC395_0223		Threonine efflux protein	M	3.89	2.17
VC395_0237		conserved hypothetical protein	MO	3.71	0.68
VC395_0257		putative lipopolysaccharide biosynthesis protein	O	3.41	0.78
VC395_0262		conserved hypothetical protein	O	0.00	1.25
VC395_0293		conserved hypothetical protein	O	0.00	1.65
VC395_0303		conserved hypothetical protein	O	3.80	3.63
VC395_0308		conserved hypothetical protein	O	0.63	2.82
VC395_0360		conserved hypothetical protein	O	0.00	1.24
VC395_0418		conserved hypothetical protein	O	2.14	0.54
VC395_0424		conserved hypothetical protein	O	0.00	#N/A
VC395_0425		conserved hypothetical protein	O	2.16	1.18
VC395_0563		conserved hypothetical protein	O	0.00	0.75
VC395_0614	sfsA	sugar fermentation stimulation protein	O	2.19	0.43
VC395_0615		conserved hypothetical protein	O	0.72	0.98
VC395_0617		conserved hypothetical protein	O	2.84	1.03
VC395_0650	ompU	outer membrane protein OmpU	O	0.00	0.47
VC395_0678		conserved hypothetical protein	O	3.59	0.73

VC395_0687		conserved hypothetical protein	O	0.00	1.81
VC395_0698	ribF	riboflavin kinase/FMN adenylyltransferase	O	3.51	0.43
VC395_0703		conserved hypothetical protein	O	2.06	1.32
VC395_0718		trp operon repressor, putative	O	3.39	0.51
VC395_0724		conserved hypothetical protein	O	0.00	1.08
VC395_0750		conserved hypothetical protein	O	1.64	1.13
VC395_0754		putative acetoin utilization protein	O	1.84	0.86
VC395_0755		conserved hypothetical protein	O	0.00	0.86
VC395_0757		conserved hypothetical protein	O	0.00	0.81
VC395_0771		conserved hypothetical protein	MO	2.80	1.04
VC395_0774		conserved hypothetical protein	MO	2.06	0.35
VC395_0782		conserved hypothetical protein	O	0.00	0.87
VC395_0783	xseA	exodeoxyribonuclease VII, large subunit	O	0.00	0.56
VC395_0814	citD	citrate lyase, gamma subunit	O	2.90	1.01
VC395_0817	citX	citX protein	O	0.00	0.78
VC395_0837	tagA	ToxR-activated gene A protein	O	1.74	0.47
VC395_0840	tagD	tagD protein	O	3.95	0.88
VC395_0841	tcpI	toxin co-regulated pilus biosynthesis protein I	O	3.72	0.23
VC395_0842	tcpP	toxin co-regulated pilus biosynthesis protein P	O	1.41	0.78
VC395_0906	ispA	geranyltranstransferase	N	0.00	0.47
VC395_0919	syd	syd protein	O	0.72	0.58
VC395_0953		conserved hypothetical protein	N	0.58	1.17
VC395_0959	lipB	lipoate-protein ligase B	N	1.23	0.63
VC395_0970		conserved hypothetical protein	O	1.20	1.14
VC395_0979	crr	PTS system, glucose-specific IIA component	N	0.00	0.52

VC395_0982		conserved hypothetical protein	N	0.00	0.64
VC395_1002	hemH	ferrochelatase	O	3.10	0.56
VC395_1012	glnS	glutaminyl-tRNA synthetase	O	0.00	0.29
VC395_1022		conserved hypothetical protein	O	2.17	0.95
VC395_1102		response regulator	O	2.46	0.51
VC395_1103		sensor histidine kinase	O	0.00	0.38
VC395_1121		preprotein translocase SecA subunit-related protein	O	4.00	0.95
VC395_1297		conserved hypothetical protein	O	0.00	1.15
VC395_1298		pseudouridine synthase family 1 protein	O	0.00	0.78
VC395_1303		NifS-related protein	O	2.77	1.06
VC395_1340		conserved hypothetical protein	O	0.00	2.14
VC395_1342		conserved hypothetical protein	O	0.00	2.30
VC395_1344		conserved hypothetical protein	O	0.00	1.89
VC395_1346		conserved hypothetical protein	O	1.05	1.81
VC395_1349		conserved hypothetical protein	O	0.00	2.13
VC395_1364		putative vitamin B12 ABC transporter, ATP-binding protein Btu	O	1.34	0.84
VC395_1399		conserved hypothetical protein	O	3.86	0.61
VC395_1415	thiD	phosphomethylpyrimidine kinase	O	3.80	1.33
VC395_1442		conserved hypothetical protein	O	0.00	1.37
VC395_1449		conserved hypothetical protein	O	1.87	0.67
VC395_1450		conserved hypothetical protein	O	2.14	1.63
VC395_1497		conserved hypothetical protein	O	1.80	1.35
VC395_1520	cheB-1	protein-glutamate methylesterase CheB	O	3.70	0.59
VC395_1525		methyl-accepting chemotaxis protein	O	2.32	0.61
VC395_1539		conserved hypothetical protein	MO	3.84	0.75

VC395_1548	potA	spermidine/putrescine ABC transporter, ATP-binding protein	MO	1.93	0.56
VC395_1560	ccoQ	cytochrome c oxidase, subunit CcoQ	O	0.00	1.45
VC395_1565		sensor histidine kinase/response regulator	O	1.76	0.36
VC395_1615		conserved hypothetical protein	MN	3.79	0.95
VC395_1676		conserved hypothetical protein	M	0.00	1.70
VC395_1677	perA	catalase/oxidase	M	2.07	0.29
VC395_1679		beta-lactamase-related protein	O	0.00	0.35
VC395_1685		conserved hypothetical protein	O	0.00	1.05
VC395_1688		conserved hypothetical protein	O	0.51	0.63
VC395_1691		conserved hypothetical protein	O	3.22	0.58
VC395_1692		conserved hypothetical protein	O	0.66	1.13
VC395_1695		enterobactin synthetase component F-related protein	O	0.00	0.30
VC395_1700	ankB	ankB protein	N	3.82	0.66
VC395_1703		conserved hypothetical protein	N	0.35	0.71
VC395_1731		conserved hypothetical protein	O	0.00	0.32
VC395_1745		conserved hypothetical protein	O	3.86	0.30
VC395_1803		conserved hypothetical protein	O	3.12	0.41
VC395_1814		DNA-binding protein inhibitor Id-2-related protein	O	3.33	0.79
VC395_1815		conserved hypothetical protein	O	1.04	1.21
VC395_1818	yciB	intracellular septation protein A	O	3.90	0.81
VC395_1839		conserved hypothetical protein	O	1.88	0.52
VC395_1845		conserved hypothetical protein	N	0.00	1.34
VC395_1847		conserved hypothetical protein	NO	3.98	1.12
VC395_1849		conserved hypothetical protein	O	2.56	0.97
VC395_1850		conserved hypothetical protein	O	0.00	0.84

VC395_1851	aat	leucyl/phenylalanyl-tRNA-protein transferase	O	2.13	0.43
VC395_1852		arginyl-tRNA-protein transferase-related protein	O	1.90	0.39
VC395_2020	ald	alanine dehydrogenase	O	0.00	0.62
VC395_2021		conserved hypothetical protein	O	1.84	0.57
VC395_2026	pyrF	orotidine 5`-phosphate decarboxylase	O	0.00	0.86
VC395_2046		conserved hypothetical protein	O	0.00	0.47
VC395_2060		FAD monooxygenase, PheA/TfdB family	O	1.68	0.59
VC395_2094	dgt	deoxyguanosinetriphosphate triphosphohydrolase	O	0.00	0.64
VC395_2098		putative peptidase	O	2.46	0.54
VC395_2101		putative serine hydrolase	O	1.11	1.01
VC395_2106		conserved hypothetical protein	O	0.00	1.58
VC395_2116		conserved hypothetical protein	O	1.84	0.56
VC395_2117		conserved hypothetical protein	O	0.93	0.62
VC395_2224		conserved hypothetical protein	O	3.67	0.56
VC395_2227		conserved hypothetical protein	O	3.73	1.20
VC395_2244	fliI	flagellum-specific ATP synthase FliI	O	1.82	0.81
VC395_2267		D,D-carboxypeptidase-related protein	O	2.54	0.73
VC395_2268		conserved hypothetical protein	O	0.00	1.15
VC395_2269		conserved hypothetical protein	O	0.00	1.29
VC395_2287		conserved hypothetical protein	O	0.00	1.27
VC395_2292	hemK	hemK protein	O	0.40	1.84
VC395_2317	cheR-2	chemotaxis protein methyltransferase CheR	O	2.34	1.30
VC395_2431		conserved hypothetical protein	O	0.00	1.08
VC395_2459		conserved hypothetical protein	N	0.00	0.30
VC395_2480		conserved hypothetical protein	O	3.89	1.00

VC395_2482		conserved hypothetical protein	O	0.00	0.93
VC395_2544		conserved hypothetical protein	O	2.36	1.14
VC395_2549		conserved hypothetical protein	O	1.41	1.68
VC395_2565	mazG	mazG protein	O	3.11	0.51
VC395_2572	acpS	holo-(acyl-carrier-protein) synthase	O	2.82	1.33
VC395_2585		conserved hypothetical protein	O	0.66	1.25
VC395_2623		conserved hypothetical protein	O	1.11	2.44
VC395_2635		conserved hypothetical protein	O	0.00	2.72
VC395_2638		3-deoxy-D-manno-octulosonate 8-phosphate phosphatase	O	1.83	0.88
VC395_2653		conserved hypothetical protein	O	0.00	1.35
VC395_2656		conserved hypothetical protein	O	0.00	1.43
VC395_2670	cysC	adenylylsulfate kinase	O	3.77	1.16
VC395_2680	fkfB	peptidyl-prolyl cis-trans isomerase, FKBP-type	O	2.96	0.92
VC395_2689	secY	preprotein translocase, SecY subunit	O	1.86	0.62
VC395_2690	rplO	ribosomal protein L15	O	0.00	1.67
VC395_2717	slyD	peptidyl-prolyl cis-trans isomerase, FKBP-type	O	3.85	0.78
VC395_2725		conserved hypothetical protein	O	3.18	1.46
VC395_2810		GGDEF family protein	O	0.73	0.29
VC395_2812	dcuA	C4-dicarboxylate transporter, anaerobic	M	1.06	0.29
VC395_0187	atpF	ATP synthase F0, B subunit	M	2.54	0.29
VC395_0181	gidB	glucose inhibited division protein B	O	0.00	0.30
VC395_A0015	vgrG-2	vgrG protein	O	3.83	0.20
VC395_A0026		conserved hypothetical protein	O	3.30	1.60
VC395_A0048		conserved hypothetical protein	O	0.00	0.29
VC395_A0055		conserved hypothetical protein	O	0.00	0.83

VC395_A0068	conserved hypothetical protein	O	1.40	0.25
VC395_A0069	conserved hypothetical protein	O	0.00	#N/A
VC395_A0078	conserved hypothetical protein	O	0.00	0.11
VC395_A0102	conserved hypothetical protein	O	0.00	0.23
VC395_A0131	conserved hypothetical protein	O	0.00	0.56
VC395_A0139	putative TRAP transporter large permease protein	O	0.00	0.16
VC395_A0151	conserved hypothetical protein	NO	0.00	0.38
VC395_A0155	conserved hypothetical protein	MNO	1.18	0.37
VC395_A0165	conserved hypothetical protein	N	0.78	0.26
VC395_A0169 frnE	frnE protein	N	3.90	0.20
VC395_A0806 fruB	PTS system, fructose-specific IIA/FPR component	O	3.66	0.28
VC395_A0801	aminotransferase, class II	O	2.06	0.23
VC395_A0799	conserved hypothetical protein	O	2.35	1.05
VC395_A0791 tatA-2	tatA protein	O	0.46	0.51
VC395_A0790	DedA family protein	O	0.49	0.48
VC395_A0789	conserved hypothetical protein	O	3.56	0.39
VC395_A0786	cytochrome b561, putative	O	1.99	0.66
VC395_A0778	conserved hypothetical protein	O	2.52	0.28
VC395_A0743 ddlA	D-alanine--D-alanine ligase	O	0.00	0.31
VC395_A0733	conserved hypothetical protein	O	2.07	0.29
VC395_A0732	conserved hypothetical protein	O	0.00	0.37
VC395_A0689	conserved hypothetical protein	O	0.00	0.77
VC395_A0671	conserved hypothetical protein	O	3.17	0.48
VC395_A0669	conserved hypothetical protein	O	0.00	0.31
VC395_A0661	conserved hypothetical protein	O	3.26	0.64

VC395_A0657	cscA	sucrose-6-phosphate dehydrogenase	O	3.61	0.27
VC395_A0656	cscK	fructokinase	O	3.16	0.58
VC395_A0650		CbbY family protein	O	0.00	0.38
VC395_A0633	napB	periplasmic nitrate reductase, cytochrome c-type protein	O	3.85	0.82
VC395_A0616		conserved hypothetical protein	O	0.98	0.43
VC395_A0599		conserved hypothetical protein	N	0.00	0.24
VC395_A0581		conserved hypothetical protein	O	0.00	0.71
VC395_A0571		conserved hypothetical protein	NO	0.00	0.44
VC395_A0567		conserved hypothetical protein	NO	0.00	0.69
VC395_A0558		transcriptional regulator, LysR family	M	3.35	0.38
VC395_A0553		conserved hypothetical protein	M	1.37	0.41
VC395_A0545		conserved hypothetical protein	MO	0.93	0.51
VC395_A0544		conserved hypothetical protein	O	0.00	0.61
VC395_A0536		conserved hypothetical protein	O	3.02	0.35
VC395_A0534		conserved hypothetical protein	O	4.00	0.20
VC395_A0834		conserved hypothetical protein	MO	0.73	0.85
VC395_A0858		conserved hypothetical protein	N	1.16	0.70
VC395_A0866		conserved hypothetical protein	O	0.00	0.96
VC395_A0868		conserved hypothetical protein	O	0.00	1.33
VC395_A0890		conserved hypothetical protein	O	2.09	0.61
VC395_A0891	ompW	outer membrane protein OmpW	O	1.74	0.28
VC395_A0918		conserved hypothetical protein	N	0.00	0.55
VC395_A0933	hutX	hutX protein	N	0.00	0.42
VC395_A0939	hutC	putative heme ABC transporter, permease protein	N	0.00	0.33
VC395_A0941		conserved hypothetical protein	N	1.99	0.56

VC395_A0944	conserved hypothetical protein	N	0.00	0.59
VC395_A0957	conserved hypothetical protein	N	2.18	0.44
VC395_A0960	conserved hypothetical protein	N	0.00	0.63
VC395_A0961	conserved hypothetical protein	N	2.77	0.22
VC395_A0964	sensory box/GGDEF family protein	N	2.13	0.31
VC395_A0989	putative glycine cleavage operon activator	M	2.75	0.53
VC395_A0993	conserved hypothetical protein	M	0.00	0.96
VC395_A0998	conserved hypothetical protein	M	0.37	0.86
VC395_A1001	conserved hypothetical protein	O	0.00	0.57
VC395_A1016 grx2	glutaredoxin 2	O	1.73	0.54
VC395_A1019	conserved hypothetical protein	O	0.47	1.33
VC395_A1101 pdxH	pyridoxamine 5`-phosphate oxidase	O	0.00	0.61

Footnote:

* This column indicates the lineage in which the recombination occurred.

† The expression data was from Bina et al.[1] and the data is the ratio of cDNA of the stool samples and genomic DNA. #N/A in this column means that no expression data can be obtained.

1. Bina J, Zhu J, Dziejman M, Faruque S, Calderwood S, et al. (2003) ToxR regulon of *Vibrio cholerae* and its expression in vibrios shed by cholera patients. *Proc Natl Acad Sci U S A* 100: 2801-2806.