

Table S6: Proteins with abnormal evolutionary history

Proteins from the integrated SC1 prophage					
NCBI gi	Organism of the closest homolog	Class	Kingdom	Function prediction	Comments
255764515	Liberibacter SC1 phage		Viruses	DNA/RNA helicase, SNF2 family	C-terminal half belongs to the phage
254781196	Liberibacter SC1 phage		Viruses	NAD-dependent DNA ligase	
254781197	Liberibacter SC1 phage		Viruses	guanylate kinase	Duplication upon phage integration
254781198	Liberibacter SC1 phage		Viruses	unknown	
254781199	Liberibacter SC1 phage		Viruses	transmembrane protein	
255764516	Liberibacter SC1 phage		Viruses	unknown	
255764517	Liberibacter SC1 phage		Viruses	unknown	
254781202	Liberibacter SC1 phage		Viruses	Structure protein of bacteriophage	Virus protein
254781203	Liberibacter SC1 phage		Viruses	unknown	
254781204	Liberibacter SC1 phage		Viruses	minor structure protein	Virus protein
254781205	Liberibacter SC1 phage		Viruses	unknown	
254781206	Liberibacter SC1 phage		Viruses	unknown	
254781207	Liberibacter SC1 phage		Viruses	unknown	
254781208	Liberibacter SC1 phage		Viruses	unknown	
254781209	Liberibacter SC1 phage		Viruses	phage related protein	Virus protein
254781210	Liberibacter SC1 phage		Viruses	Major capsid protein	Virus protein
254781211	Liberibacter SC1 phage		Viruses	unknown	
254781212	Liberibacter SC1 phage		Viruses	unknown	
254781213	Liberibacter SC1 phage		Viruses	head-to-tail joining protein, phage	Virus protein
254781214	Liberibacter SC1 phage		Viruses	unknown	
254781215	Liberibacter SC1 phage		Viruses	phage terminase, large subunit	Virus protein
254781216	Liberibacter SC1 phage		Viruses	unknown	
254781217	Liberibacter SC1 phage		Viruses	Phage protein related to DNA packing	Virus protein
254781218	Liberibacter SC1 phage		Viruses	transcriptional repressor	Virus protein
254781219	Liberibacter SC1 phage		Viruses	unknown	
254781220	Liberibacter SC1 phage		Viruses	unknown	
254781221	Liberibacter SC1 phage		Viruses	unknown	
254781222	Liberibacter SC1 phage		Viruses	acyltransferase, phage related	Virus protein
254781223	Liberibacter SC1 phage		Viruses	phage associated protein	Virus protein
254781224	Liberibacter SC1 phage		Viruses	transmembrane protein	
254781225	Liberibacter SC1 phage		Viruses	P4 family phage/plasmid primase	Virus protein
254781226	Liberibacter SC1 phage		Viruses	unknown	From Viruses
254781227	Liberibacter SC1 phage		Viruses	unknown	
254781228	Liberibacter SC1 phage		Viruses	unknown	
254780122	Liberibacter SC1 phage		Viruses	unknown	
254780123	Liberibacter SC1 phage		Viruses	unknown	
254780124	Liberibacter SC1 phage		Viruses	phage-related, probably endo/exonuclease	Virus protein
254780125	Liberibacter SC1 phage		Viruses	phage antirepressoer	Virus protein
254780126	Liberibacter SC1 phage		Viruses	single-stranded DNA-binding protein	
254780127	Liberibacter SC1 phage		Viruses	DNA polymerase from bacteriophage	Virus protein
254780128	Liberibacter SC1 phage		Viruses	restriction endonuclease	

254780129	Liberibacter SC1 phage		Viruses	DNA/RNA helicase, SNF2 family, N-terminal	
Liberibacter proteins with duplicated version in the integrated <i>liberibacter SC1 phage</i>					
NCBI gi	Organism of the closest homolog	Class	Kingdom	Function prediction	Comments
254780130	Liberibacter SC1 phage		Viruses	DNA/RNA helicase, SNF2 family, C-terminal	Duplicated upon phage integration
254780132	Liberibacter SC1 phage		Viruses	guanylate kinase	Duplicated upon phage integration
Potential phage proteins					
NCBI gi	Organism of the closest homolog	Class	Kingdom	Function prediction	Comments
254780988	Liberibacter SC1 phage		Viruses	Unknown transmembrane protein	from another bacteriophage?
254781013	Salinibacter ruber	Sphingobacteria	Bacteria	phage related protein	from another bacteriophage?
254781056	Janthinobacterium sp. Marseille	Betaproteobacteria	Bacteria	phage-related lysozyme	from another bacteriophage?
254781057	Acidobacterium sp. MP5ACTX9	Acidobacteria	Bacteria	phage-related protein	from another bacteriophage?
254781058	Janthinobacterium sp. Marseille	Betaproteobacteria	Bacteria	phage-related lysozyme	from another bacteriophage?
254781187	Liberibacter SC1 phage		Viruses	phage terminase, large subunit	from another bacteriophage?
254781186	Liberibacter SC2 phage		Viruses	Phage terminase, large subunit	Just piece of the protein
254781188	Liberibacter SC1 phage		Viruses	phage protein, terminase small subunit	from another bacteriophage?
254781190	Liberibacter SC1 phage		Viruses	primase	from another bacteriophage?
254781191	Liberibacter SC1 phage		Viruses	unknown	from another bacteriophage?
254781192	Xylella fastidiosa	Gammaproteobacteria	Bacteria	phage-related protein	from another bacteriophage?
254781193	Escherichia coli	Gammaproteobacteria	Bacteria	DNA polymerase from bacteriophage	from another bacteriophage?
254781194	Liberibacter SC1 phage		Viruses	Phage related endonuclease	from another bacteriophage?
Proteins originated from bacteria out of the class <i>Alphaproteobacteria</i>					
NCBI gi	Organism of the closest homolog	Class	Kingdom	Function prediction	Comments
254780144	Anaeromyxobacter sp. Fw109-5	Deltaproteobacteria	Bacteria	50S ribosomal protein L12P	The top one is exception Most best hits are from Alphaproteobacteria
254780229	Thermobifida fusca	Actinobacteria (class)	Bacteria	helicase	
254780386	Halomonas elongate	Gammaproteobacteria	Bacteria	Type I secretion membrane protein	
254780387	Providencia stuartii	Gammaproteobacteria	Bacteria	C4-dicarboxylate transporter DctA	
254780446	Xylella fastidiosa	Gammaproteobacteria	Bacteria	unknown	
254780735	Arthrobacter chlorophenolicus	Actinobacteria (class)	Bacteria	pilin component	
254780720	Neptuniibacter caesariensis	Gammaproteobacteria	Bacteria	Ferroxidase	
254780661	Sodalis glossinidius	Gammaproteobacteria	Bacteria	exonuclease I	
254780563	Micromonospora sp. ATCC 39149	Actinobacteria (class)	Bacteria	ABC-transporter extracellular solute-binding protein	fragment, too short to have sensible blast top hits
254780562	Xanthomonas oryzae	Gammaproteobacteria	Bacteria	unknown	
254780561	Photorhabdus luminescens	Gammaproteobacteria	Bacteria	thiamine transporter substrate binding subunit	
255764501	Arsenophonus nasoniae	Gammaproteobacteria	Bacteria	thiamine transporter membrane protein	
254780559	Arsenophonus nasoniae	Gammaproteobacteria	Bacteria	thiamine transporter ATP-binding subunit	
255764504	Neisseria lactamica	Betaproteobacteria	Bacteria	type II modification methyltransferase	
254780516	Neisseria lactamica	Betaproteobacteria	Bacteria	type II modification methyltransferase	
254780515	Neisseria lactamica	Betaproteobacteria	Bacteria	restriction enzyme	
254780514	Flavobacterium psychrophilum	Flavobacteria	Bacteria	type II restriction endonuclease	
254780836	Klebsiella pneumonia	Gammaproteobacteria	Bacteria	type I modification DNA methylase	
254780837	Klebsiella pneumonia	Gammaproteobacteria	Bacteria	restriction endonuclease S subunit	
254780843	Azotobacter vinelandii	Gammaproteobacteria	Bacteria	glucose/galactose transporter	
254780845	Thermobifida fusca	Actinobacteria (class)	Bacteria	ribonucleotide-diphosphate reductase subunit	related to mobile element in the

				beta	genome ?
254780918	Methylobacter tundripaludum	Gammaproteobacteria	Bacteria	glycosyl transferase family protein	
255764508	Bordetella bronchiseptica	Betaproteobacteria	Bacteria	unknown	
254780964	Thermobifida fusca	Actinobacteria (class)	Bacteria	ribonucleotide-diphosphate reductase subunit beta	related to mobile element in the genome?
254780982	Photobacterium profundum	Gammaproteobacteria	Bacteria	homoserine lactone efflux protein	
254780987	Pseudomonas fluorescens	Gammaproteobacteria	Bacteria	transcriptional regulator	
254781000	Sodalis glossinidius	Gammaproteobacteria	Bacteria	tRNA (uracil-5-)-methyltransferase	
254781016	Neptuniibacter caesariensis	Gammaproteobacteria	Bacteria	diphosphomevalonate decarboxylase	
254781017	Thiomicrospira crunogena	Gammaproteobacteria	Bacteria	GHMP kinase	
254781018	Dichelobacter nodosus	Gammaproteobacteria	Bacteria	GHMP kinase	
254781019	Neptuniibacter caesariensis	Gammaproteobacteria	Bacteria	hydroxymethylglutaryl-coenzyme A synthase	
254781020	Neptuniibacter caesariensis	Gammaproteobacteria	Bacteria	isopentenyl pyrophosphate isomerase	
255764509	Neptuniibacter caesariensis	Gammaproteobacteria	Bacteria	HMG-CoA reductase	
254781022	Sodalis glossinidius	Gammaproteobacteria	Bacteria	membrane protein	
254781025	Rhodothermus marinus	Sphingobacteria	Bacteria	deoxyuridine triphosphate nucleotidohydrolase	
254781068	Legionella pneumophila	Gammaproteobacteria	Bacteria	glycoside hydrolase family protein	fragment
254781070	Candidatus Regiella insecticola	Gammaproteobacteria	Bacteria	glycosyl hydrolase	fragment
254781071	Candidatus Hamiltonella defensa	Gammaproteobacteria	Bacteria	glycosyl hydrolase	fragment
254781114	Acidovorax delafieldii	Betaproteobacteria	Bacteria	glycosyl transferase	
254781147	Xylella fastidiosa	Gammaproteobacteria	Bacteria	transcriptional regulator	
254781149	Selenomonas noxia	Negativicutes	Bacteria	replicative DNA helicase	
254781169	Vibrio vulnificus	Gammaproteobacteria	Bacteria	sugar transporter	
254781170	Serratia proteamaculans	Gammaproteobacteria	Bacteria	deoxyribodipyrimidine photolyase	
254781171	Legionella longbeachae	Gammaproteobacteria	Bacteria	Na ⁺ /H ⁺ -dicarboxylate symporter	

Proteins with close eukaryotic homologs (but they are not likely to really originated in eukaryota)

NCBI gi	Organism of the closest homolog	Class	Kingdom	Function prediction	Comments
254780480	Ricinus communis		Eukaryota	deoxycytidine triphosphate deaminase	only first abnormal
254780640	Ricinus communis		Eukaryota	Chromosome segregation ATPase	fragment, too short to have sensible blast top hits
254780519	Gossypium hirsutum		Eukaryota	flagellar biosynthesis protein FliQ	only the top hit is abnormal

Potential protein involve in the virulence effect of the pathogen

NCBI gi	Organism of the closest homolog	Class	Kingdom	Function prediction	Comments
254780898	Thermodesulfovibrio yellowstonii	Nitrospira (class)	Bacteria	Protein serine/tyrosine phosphatase	has signal peptide
254780995	Photobacterium profundum	Gammaproteobacteria	Bacteria	Endonuclease/exonuclease/phosphatase family protein	has several similar proteins within the genome
254781003	Haliangium ochraceum	Deltaproteobacteria	Bacteria	Endonuclease/exonuclease/phosphatase family protein	has signal peptide, has several similar proteins within the genome
254780607	Yersinia frederiksenii	Gammaproteobacteria	Bacteria	unknown	has signal peptide
254780965	Stenotrophomonas maltophilia	Gammaproteobacteria	Bacteria	unknown	has signal peptide
254780953	Idiomarina baltica	Gammaproteobacteria	Bacteria	outer membrane lipoprotein	transmembrane protein
254780291	Photorhabdus luminescens	Gammaproteobacteria	Bacteria	unknown	transmembrane protein
254780298	Burkholderia sp. CCGE1001	Betaproteobacteria	Bacteria	unknown	transmembrane protein
254780338	Arsenophonus nasoniae	Gammaproteobacteria	Bacteria	unknown	transmembrane protein
254780449	Buchnera aphidicola	Gammaproteobacteria	Bacteria	unknown	transmembrane protein

