

strain	programmes			strain	programmes			strain	programmes			protein description
WA1	SignalP 4.0	LipoP 1.0	SpLip	P8544	SignalP 4.0	LipoP 1.0	SpLip	P7455	SignalP 4.0	LipoP 1.0	SpLip	
			<i>L. interrogans copenhagen</i>				<i>L. interrogans copenhagen</i>				<i>L. interrogans copenhagen</i>	
			<i>L. interrogans serovar lai</i>				<i>L. interrogans serovar lai</i>				<i>L. interrogans serovar lai</i>	
BHWA1_00007	S		•	Bhyov8544_1204	S	SpII	•	Bhya7455_2607	S	SpII		response regulator aspartate phosphatase containing TPR repeat domain
BHWA1_00008		SpII		Bhyov8544_1203				Bhya7455_2608				hypothetical protein
BHWA1_00005				Bhyov8544_1206	S	SpI		Bhya7455_2605	S	SpI		hypothetical protein
BHWA1_00016				not in genome				Bhya7455_1957	S	SpI		hypothetical protein
BHWA1_00017	S	SpII		Bhyov8544_1195	S			Bhya7455_1957				hypothetical protein
BHWA1_00010		SpII	•	Bhyov8544_1201		SpII	•	Bhya7455_2610		SpII	•	hypothetical protein
BHWA1_00027	S	SpII		Bhyov8544_1186	S	SpI		Bhya7455_1948	S	SpI		hypothetical protein
BHWA1_00028	S	SpII		Bhyov8544_1185	S	SpI		Bhya7455_1947	S	SpI		hypothetical protein
BHWA1_00029		SpII		Bhyov8544_1184		SpI		Bhya7455_1946				hypothetical protein
BHWA1_00036				Bhyov8544_1176			•	Bhya7455_1938		SpII	•	beta-hexosaminidase
BHWA1_00039	S	SpII	•	Bhyov8544_1173	S	SpII	•	Bhya7455_1935	S	SpII	•	hypothetical protein
BHWA1_00040	S	SpII	•	Bhyov8544_1172	S	SpII	•	Bhya7455_1934	S	SpII	•	Metal binding protein
BHWA1_00043	S	SpI	•	Bhyov8544_1169	S	SpII		Bhya7455_1931	S	SpI	•	hypothetical protein
BHWA1_00044	S	SpII	•	Bhyov8544_1168	S	SpI	•	Bhya7455_1930	S	SpI	•	hypothetical protein
BHWA1_00049	S	SpI		Bhyov8544_1163	S	SpI		Bhya7455_1925	S	SpI		hypothetical protein
BHWA1_00052		SpI		Bhyov8544_2689	S	SpI		Bhya7455_1922	S	SpI		methyl-accepting chemotaxis protein McpA
BHWA1_00063		SpI		Bhyov8544_1813		SpI		Bhya7455_1123		SpI		carbamate kinase
BHWA1_00072		SpII	•	Bhyov8544_1823		SpII	•	Bhya7455_1113	S	SpII	•	ankyrin repeat-containing protein
BHWA1_00084	S	SpI		Bhyov8544_1835	S	SpI		Bhya7455_1101	S			probable periplasmic protein
BHWA1_00110		SpI		Bhyov8544_1861		SpI		Bhya7455_1073		SpI		acetyl-CoA acetyltransferase
BHWA1_00112				Bhyov8544_1863		SpI		Bhya7455_1071		SpI		3-hydroxybutyryl-CoA dehydratase
BHWA1_00116	S	SpI		Bhyov8544_1547	S	SpI		Bhya7455_1067	S	SpI		ankyrin repeat-containing protein

BHWA1_00155		Spl			Bhyov8544_1510		Spl			Bhya7455_1030		Spl			hypothetical protein
BHWA1_00170		SplI	•	•	Bhyov8544_1495		SplI	•	•	Bhya7455_1015		SplI	•	•	hypothetical protein
BHWA1_00181	S	SplI	•	•	Bhyov8544_1484	S	SplI	•	•	Bhya7455_1004	S	SplI	•	•	extracellular solute-binding protein family 5
BHWA1_00182		Spl			Bhyov8544_1483		Spl			Bhya7455_1003		Spl			hypothetical protein
BHWA1_00206		Spl			Bhyov8544_0551		Spl			Bhya7455_0365		Spl			outer membrane protein OmpA family 5
BHWA1_00208					Bhyov8544_0549			•	•	Bhya7455_0363			•	•	ankyrin-repeat containing protein
BHWA1_00209			•	•	Bhyov8544_0548					Bhya7455_0362					ankyrin repeat-containing protein
BHWA1_00215		Spl			Bhyov8544_0542					Bhya7455_0356					hypothetical protein
BHWA1_00222		Spl			Bhyov8544_0533		Spl			Bhya7455_0348		SplI			hypothetical protein
BHWA1_00229	S	SplI	•	•	Bhyov8544_0526	S	SplI	•	•	Bhya7455_0341	S	SplI	•		hypothetical protein
BHWA1_00230		SplI	**	**	Bhyov8544_0525		SplI	**	**	Bhya7455_0340		SplI	**	**	hypothetical protein
BHWA1_00248		Spl			Bhyov8544_0507					Bhya7455_0322					ankyrin repeat-containing protein
BHWA1_00249		Spl			Bhyov8544_0506		Spl			Bhya7455_0321		Spl			ankyrin repeat-containing protein
BHWA1_00253	S	Spl			Bhyov8544_0502	S	Spl			Bhya7455_0317	S				hypothetical protein
BHWA1_00254	S	Spl			Bhyov8544_0501	S	Spl			Bhya7455_0316	S	Spl			hypothetical protein
BHWA1_00255	S	Spl			Bhyov8544_0500	S	Spl			Bhya7455_0315	S	Spl			signal peptide protein
BHWA1_00263		Spl			Bhyov8544_0493		Spl			Bhya7455_0308		Spl			hypothetical protein
BHWA1_00276		SplI	**	**	Bhyov8544_0480					Bhya7455_0295		SplI	**	**	hypothetical protein
BHWA1_00277		SplI	**	**	Bhyov8544_0479		SplI	**	**	Bhya7455_0294		SplI	**	**	hypothetical protein
BHWA1_00280					Bhyov8544_0476		Spl			Bhya7455_0291					oxidoreductase, aldo/keto reductase family protein
BHWA1_00282		SplI		•	Bhyov8544_0474		SplI	•	•	Bhya7455_0289		SplI	•	•	hypothetical protein
BHWA1_00290		SplI			Bhyov8544_0466		SplI			Bhya7455_0281		SplI			outer membrane lipoprotein carrier protein LolA
BHWA1_00295	S	SplI			Bhyov8544_0461		Spl			Bhya7455_0276	S	Spl			ankyrin repeat-containing protein
BHWA1_00298		SplI			not in genome					not in genome					putative ABC transporter substrate binding protein
BHWA1_00301	S	SplI			Bhyov8544_0456	S	Spl			Bhya7455_0271	S	Spl			hypothetical protein
BHWA1_00310		Spl			Bhyov8544_0447					B.hyoa7455_0262					UDP-N-acetylmuramate--alanine
BHWA1_00312	S	SplI	•	•	Bhyov8544_0445	S	SplI	•	•	Bhya7455_0260	S	SplI	•	•	hypothetical protein
BHWA1_00317		SplI	•	•	Bhyov8544_0440		SplI	•	•	Bhya7455_0255		SplI	•	•	ABC-type nitrate/sulfonate/bicarbonate transport system
BHWA1_00318		Spl			Bhyov8544_0439		Spl			Bhya7455_0254		Spl			taurine ABC transporter, permease

															protein
BHWA1_00321	S	SpII	•	•	Bhyov8544_0436	S	SpII	•	•	Bhya7455_0251	S	SpII	•	•	ABC-type nitrate/sulfonate/bicarbonate transport system
BHWA1_00322					Bhyov8544_0435					Bhya7455_0250	S	SpII	•	•	ABC-type nitrate/sulfonate/bicarbonate transport system
BHWA1_00333	S				Bhyov8544_0425	S				Bhya7455_0240	S				hypothetical protein
BHWA1_00336		SpII	•	•	Bhyov8544_0422		SpII	•	•	Bhya7455_0237		SpII	•	•	hypothetical protein
BHWA1_00338					Bhyov8544_0420		SpII			Bhya7455_0235		Spl			hypothetical protein
BHWA1_00340		Spl			Bhyov8544_0418		SpII			Bhya7455_0233		Spl			membrane carboxypeptidase
BHWA1_00341	S	SpII	•	•	Bhyov8544_0417	S	SpII	•	•	Bhya7455_0232		SpII	•	•	hypothetical protein
BHWA1_00343	S	Spl			Bhyov8544_0415	S	SpII			Bhya7455_0230	S				flagellar biosynthesis protein FlIP
BHWA1_00359			•	•	not in genome					not in genome					ankyrin repeat-containing protein
BHWA1_00361		SpII			Bhyov8544_0398		SpII	•	•	Bhya7455_0213		SpII	•	•	ankyrin repeat-containing protein
BHWA1_00381	S	Spl			Bhyov8544_0378	S	SpII			Bhya7455_0194	S	Spl			Na ⁺ -transporting methylmalonyl-CoA/oxaloacetate decarboxylase, I subunit
BHWA1_00393	S	SpII	•	•	Bhyov8544_0367	S	SpII	•	•	Bhya7455_0183	S	SpII	•	•	hypothetical protein
BHWA1_00396					Bhyov8544_0459		Spl			Bhya7455_0274		Spl			ABC-type uncharacterized transport system, periplasmic component
BHWA1_00407		SpII	•	•	Bhyov8544_0355		SpII	•	•	Bhya7455_0171		SpII	•	•	solute binding protein-like protein
BHWA1_00430	S	SpII	•	•	Bhyov8544_0332	S	SpII	•	•	Bhya7455_0148	S	SpII	•	•	putative ABC transporter periplasmic binding protein
BHWA1_00440		SpII	•	•	Bhyov8544_0325		SpII	•	•	Bhya7455_0137		SpII	•	•	hypothetical protein
BHWA1_00447		Spl	•	•	Bhyov8544_0318			•	•	Bhya7455_0130			•	•	hypothetical protein
BHWA1_00550		Spl			Bhyov8544_0315		SpII			Bhya7455_0127		Spl			aminodeoxychorismate lyase
BHWA1_00452	S	Spl			Bhyov8544_0313	S	SpII			Bhya7455_0125	S	Spl			putative ABC transporter periplasmic binding protein
BHWA1_00454		SpII	•	•	Bhyov8544_0311		SpII	•	•	Bhya7455_0123			•	•	hypothetical protein
BHWA1_00455	S	SpII	•	•	Bhyov8544_0310		SpII	•	•	Bhya7455_0122		SpII	•	•	hypothetical protein
BHWA1_00462	S	SpII	•	•	Bhyov8544_0305	S	SpII	•	•	Bhya7455_0115	S	SpII	•	•	putative dynein heavy chain
BHWA1_00470		Spl			Bhyov8544_1620		Spl			Bhya7455_0107		Spl			hypothetical protein
BHWA1_00476		Spl			Bhyov8544_1625		Spl			Bhya7455_0101		Spl			1-deoxy-D-xylulose-5-phosphate reductoisomerase
BHWA1_00481	S				Bhyov8544_0630	S				Bhya7455_0095	S				ankyrin repeat-containing protein
BHWA1_00521	S	SpII	•	•	Bhyov8544_1670	S	SpII	•	•	Bhya7455_0055	S	SpII	•	•	ABC-type oligopeptide transport system, periplasmic component

BHWA1_00529	S	SplI	•	•	Bhyov8544_1609	S	SplI	•	•	Bhya7455_0047	S	SplI	•	•	ModA, ABC-type molybdate transport system, periplasmic component
BHWA1_00532	S	Spl			not in genome					B.hyoa7455_0044	S	Spl			periplasmic protein
BHWA1_00537	S	SplI	•	•	Bhyov8544_1601		SplI	•	•	B.hyoa7455_0039		SplI		•	iron compound ABC transporter periplasmic iron compound-binding protein
BHWA1_00559	S	Spl			Bhyov8544_1581	S	Spl			Bhya7455_0018	S	Spl			hypothetical protein
BHWA1_00567		Spl			Bhyov8544_1573		Spl			B.hyoa7455_0010					Lytic transglycosylase catalytic
BHWA1_00586	S	SplI	•	•	Bhyov8544_1556	S	SplI	•	•	Bhya7455_2511	S	SplI	•	•	hypothetical protein
BHWA1_00588		SplI		•	Bhyov8544_1554		SplI	•	•	Bhya7455_2509		SplI	•	•	enzyme of poly-gamma-glutamate biosynthesis (capsule formation)-protein
BHWA1_00591	S	Spl			Bhyov8544_1551	S	Spl			Bhya7455_2635	S	Spl			ankyrin repeat-containing protein
BHWA1_00593		SplI	•	•	Bhyov8544_2667			•	•	Bhya7455_2634		SplI	•	•	putative inversin protein alternative isoform
BHWA1_00595	S	Spl			not in genome					not in genome					ankyrin repeat-containing protein
BHWA1_00596		Spl			Bhyov8544_2665					Bhya7455_2505	S	Spl			ankyrin repeat-containing protein
BHWA1_00604		Spl			Bhyov8544_1409		Spl			B.hyoa7455_0854		Spl			ABC-type nitrate/sulfonate/bicarbonate transport system, periplasmic component
BHWA1_00619	S				Bhyov8544_1424	S	Spl			Bhya7455_0869	S	Spl			hypothetical protein
BHWA1_00635					not in genome					Bhya7455_0902		Spl			hypothetical protein
BHWA1_00641	S	SplI	•	•	Bhyov8544_1446	S	SplI	•	•	Bhya7455_0891	S	SplI	•	•	hypothetical protein
BHWA1_00644	S	Spl			Bhyov8544_1449	S				Bhya7455_0894	S	Spl			hypothetical protein
BHWA1_00653		Spl			Bhyov8544_1457		Spl			Bhya7455_0905					hypothetical protein
BHWA1_00656	S	Spl			Bhyov8544_1460	S	Spl			Bhya7455_0905	S	Spl			flavodoxin
BHWA1_00657		SplI	•	•	Bhyov8544_1461		SplI	•	•	Bhya7455_0906		SplI	•	•	flavodoxin
BHWA1_00661		Spl			Bhyov8544_1466		Spl			Bhya7455_0911		Spl			NHL repeat containing protein
BHWA1_00671		Spl			Bhyov8544_0858		Spl			B.hyoa7455_0920		Spl			miaA, tR delta(2)-isopentenylpyrophosphate transferase
BHWA1_00676		SplI	•	•	Bhyov8544_0853		SplI	•	•	Bhya7455_0925			•	•	hypothetical protein
BHWA1_00677	S	Spl			Bhyov8544_0852	S	Spl			Bhya7455_0926	S				SCP-like extracellular protein
BHWA1_00684	S	Spl			Bhyov8544_0845	S	Spl			Bhya7455_0933	S	Spl			ankyrin repeat-containing protein
BHWA1_00707		SplI		•	Bhyov8544_0824		SplI			Bhya7455_0956		SplI	•	•	hypothetical protein
BHWA1_00709	S	SplI		•	Bhyov8544_0822	S	SplI	•	•	Bhya7455_0958	S	SplI	•	•	hypothetical protein
BHWA1_00742	S/TM	Spl			Bhyov8544_0787	S/TM	Spl			Bhya7455_0990	S	Spl			hypothetical protein

BHWA1_00732		SplI	•	•	Bhyov8544_0798		SplI	•	•	Bhya7455_0980		SplI	•	•	hypothetical protein
BHWA1_00733		Spl			Bhyov8544_0797		Spl			Bhya7455_0981		Spl			hypothetical protein
BHWA1_00738		Spl			Bhyov8544_0791		Spl			Bhya7455_0986		Spl			putative YD repeat protein
BHWA1_00739		Spl			Bhyov8544_0790		Spl			Bhya7455_0987		Spl			hypothetical protein
BHWA1_00763	S/TM	Spl			Bhyov8544_0764	S/TM	Spl			Bhya7455_2302	S				FMN-binding domain protein
BHWA1_00764		SplI	•	•	Bhyov8544_0763	S	SplI	•	•	Bhya7455_2303		SplI	•	•	hypothetical protein
BHWA1_00765		Spl			Bhyov8544_0762		Spl			Bhya7455_2304		Spl			hypothetical protein
BHWA1_00770	S	SplI	•	•	Bhyov8544_0757	S	SplI	•	•	Bhya7455_2309	S	SplI	•	•	hypothetical protein
BHWA1_00794	S	Spl			Bhyov8544_0733	S	Spl			Bhya7455_1234	S	Spl			ankyrin repeat-containing protein
BHWA1_00795		Spl			Bhyov8544_0732		Spl			Bhya7455_1235		Spl			fibronectin type III domain contain protein
BHWA1_00797		SplI	•	•	Bhyov8544_0730		SplI	•	•	Bhya7455_1237		SplI	•	•	ABC-type nitrate/sulfonate/bicarbonate transport system, periplasmic component
BHWA1_00800		Spl			Bhyov8544_0727		Spl			Bhya7455_1240		Spl			putative rubrerythrin
BHWA1_00822					Bhyov8544_2121		Spl			Bhya7455_1262					glycosyl transferase family 8
BHWA1_00835		SplI	•	•	Bhyov8544_2129		SplI	•	•	Bhya7455_1272		SplI	•	•	hypothetical protein
BHWA1_00852	S	SplI	•	•	Bhyov8544_2145	S	SplI	•	•	Bhya7455_1288	S	SplI	•	•	hypothetical protein
BHWA1_00854	S	SplI	•	•	not in Genome					Bhya7455_1290				•	ankyrin repeat-containing protein
BHWA1_00855	S	SplI	•	•	Bhyov8544_2152	S	SplI	•	•	Bhya7455_1291	S	SplI	•	•	hypothetical protein
BHWA1_00856		SplI	•	•	Bhyov8544_2150		SplI	•	•	Bhya7455_2652		SplI	•	•	hypothetical protein
BHWA1_00852					Bhyov8544_2145					Bhya7455_2571		Spl			hypothetical protein
BHWA1_00855					Bhyov8544_2148					Bhya7455_2670					periplasmic-iron-binding protein BitB
BHWA1_00862		Spl			Bhyov8544_2642		Spl			Bhya7455_2571					hypothetical protein
BHWA1_00868	S	SplI	•	•	Bhyov8544_2669	S	SplI	•	•	Bhya7455_2670	S	SplI	•	•	periplasmic-iron-binding protein B
BHWA1_00869	S	SplI	•	•	Bhyov8544_2696	S	SplI	•	•	Bhya7455_2675		SplI	•	•	periplasmic-iron-binding protein B
BHWA1_00873		SplI			not in genome					Bhya7455_1767		SplI			hypothetical protein
BHWA1_00874	S	SplI	•	•	Bhyov8544_2188	S	SplI	•	•	Bhya7455_1768	S	SplI	•	•	hypothetical protein
BHWA1_00875		SplI	•	•	Bhyov8544_2187		SplI	•	•	Bhya7455_1769:		SplI	•	•	hypothetical protein
BHWA1_00876		SplI	•	•	Bhyov8544_2186		SplI	•	•	Bhya7455_1770		SplI	•	•	hypothetical protein
BHWA1_00877		SplI	•	•	Bhyov8544_2185		SplI	•	•	Bhya7455_1771		SplI	•	•	hypothetical protein

BHWA1_00878		Spl			Bhyov8544_2184					Bhya7455_1772					hypothetical protein
BHWA1_00881	S	Spl	•	•	Bhyov8544_2181			•	•	Bhya7455_1775	S	Spl	•	•	hypothetical protein
BHWA1_00886		Spl	•	•	Bhyov8544_2176		Spl	•	•	Bhya7455_1780		Spl	•	•	ABC transporter substrate binding protein
BHWA1_00891	S	Spl	•	•	Bhyov8544_2171	S	Spl	•	•	Bhya7455_1785	S	Spl	•	•	periplasmic solute binding protein
BHWA1_00892	S	Spl	•	•	Bhyov8544_2170	S	Spl	•	•	Bhya7455_1786	S	Spl	•	•	Heat shock protein
BHWA1_00893	S	Spl	•	•	Bhyov8544_2169		Spl	•	•	Bhya7455_1787	S	Spl	•	•	hypothetical protein
BHWA1_00908					Bhyov8544_2153		Spl			Bhya7455_1803		Spl			hypothetical protein
BHWA1_00910		Spl			Bhyov8544_2489		Spl			Bhya7455_1806		Spl			DP-dependent 7-alpha-hydroxystyrene dehydrogenase
BHWA1_00934		Spl			Bhyov8544_1907		Spl			Bhya7455_1750		Spl			putative divergent polysaccharide deacetylase
BHWA1_00939		Spl			Bhyov8544_1902		Spl			Bhya7455_1745		Spl			hypothetical protein
BHWA1_00940		Spl			Bhyov8544_1901		Spl			Bhya7455_1744		Spl			hypothetical protein
BHWA1_00941		Spl	•	•	Bhyov8544_1900		Spl	•	•	Bhya7455_1743		Spl	•	•	hypothetical protein
BHWA1_00958		Spl			Bhyov8544_1885		Spl			Bhya7455_1728		Spl			putative ABC-type transport system protein involved in gliding motility auxiliary component-like protein
BHWA1_00966	S	Spl			Bhyov8544_1876	S	Spl			Bhya7455_1719	S	Spl			TPR domain-containing protein
BHWA1_00976		Spl			Bhyov8544_1868					Bhya7455_1710		Spl			ferredoxin
BHWA1_01010		Spl	•	•	Bhyov8544_1298			•	•	Bhya7455_1163					extracellular solute-binding protein family 5
BHWA1_01019	S	Spl	•	•	Bhyov8544_1289	S	Spl	•	•	Bhya7455_1171	S	Spl	•	•	putative 5'-nucleotidase
BHWA1_01020	S	Spl			Bhyov8544_1288	S	Spl			Bhya7455_1172	S				rhodanese-like domain protein
BHWA1_01036	S	Spl	•	•	Bhyov8544_1272	S	Spl	•	•	Bhya7455_1188	S	Spl	•	•	ankyrin repeat-containing protein
BHWA1_01053		Spl	•	•	Bhyov8544_1255		Spl	•	•	Bhya7455_1205		Spl	•	•	putative lipoprotein
BHWA1_01054	S	Spl	•	•	Bhyov8544_1254	S	Spl	•	•	Bhya7455_1206	S	Spl	•	•	Heat shock protein
BHWA1_01055	S	Spl			Bhyov8544_1253	S	Spl			Bhya7455_1207	S	Spl			ankyrin repeat-containing protein
BHWA1_01056					Bhyov8544_1252	S	Spl			Bhya7455_1208	S	Spl			ankyrin repeat-containing protein
BHWA1_01057	S/TM	Spl			not in Genome					not in genome					hypothetical protein
BHWA1_01058	S				Bhyov8544_1251					B.hyoa7455_1209					ankyrin repeat-containing protein
BHWA1_01059		Spl			Bhyov8544_1250		Spl			B.hyoa7455_1210					ankyrin repeat-containing protein
BHWA1_01070	S	Spl	•	•	not in Genome					not in genome					SmpB outer membrane protein
BHWA1_01077		Spl	•	•	Bhyov8544_2271		Spl	•	•	Bhya7455_2155		Spl	•	•	hypothetical protein

BHWA1_01081		Spl			Bhyov8544_2275		Spl			Bhya7455_2159		Spl		hypothetical protein	
BHWA1_01099	S	Spl			not in Genome					Bhya7455_2235	S	Spl		hypothetical protein	
BHWA1_01111		Spl			Bhyov8544_2417		Spl			Bhya7455_2224		Spl		hypothetical protein	
BHWA1_01114			•	•	not in Genome					Bhya7455_2221			•	•	hypothetical protein
BHWA1_01115					Bhyov8544_2413		Spl			Bhya7455_2220		Spl		hypothetical protein	
BHWA1_01117		Spl	•	•	Bhyov8544_2411		Spl	•	•	Bhya7455_2218		Spl	•	•	bifunctional methionine sulfoxide reductase
BHWA1_01118		Spl	•	•	Bhyov8544_2410		Spl	•	•	Bhya7455_2217		Spl	•	•	bifunctional methionine sulfoxide reductase
BHWA1_01120		Spl			Bhyov8544_2408		Spl			Bhya7455_2215		Spl		hypothetical protein	
BHWA1_01125	S	Spl	•	•	Bhyov8544_2403		Spl	•	•	Bhya7455_2210		Spl	•	•	ankyrin repeat-containing protein
BHWA1_01126		Spl	•	•	Bhyov8544_2402		Spl	•	•	Bhya7455_2209		Spl	•	•	hypothetical protein
BHWA1_01127	S	Spl	•	•	Bhyov8544_2228	S	Spl	•	•	Bhya7455_2111	S	Spl	•	•	ankyrin repeat-containing protein
BHWA1_01139		Spl	•	•	Bhyov8544_2236		Spl	•	•	Bhya7455_2102		Spl	•	•	hypothetical protein
BHWA1_01160	S	Spl			Bhyov8544_2456					Bhya7455_2690	S	Spl		hypothetical protein	
BHWA1_01168		Spl			Bhyov8544_2448		Spl			Bhya7455_2331		Spl		hypothetical protein	
BHWA1_01179	S	Spl	•	•	Bhyov8544_2437		Spl	•	•	Bhya7455_2320		Spl	•	•	extracellular solute-binding protein family 3
BHWA1_01185	S	Spl			Bhyov8544_2716	S	Spl			Bhya7455_2314				hypothetical protein	
BHWA1_01188		Spl			Bhyov8544_2376		Spl			Bhya7455_2496		Spl		hypothetical protein	
BHWA1_01194					Bhyov8544_2382	S	Spl			Bhya7455_2502	S	Spl		hypothetical protein	
BHWA1_01195		Spl			Bhyov8544_2383					Bhya7455_2503				hypothetical protein	
BHWA1_01196					Bhyov8544_2384	S	Spl	•	•	Bhya7455_2330		Spl		•	hypothetical protein
BHWA1_01205		Spl			Bhyov8544_2393		Spl			Bhya7455_2523		Spl		hypothetical protein	
BHWA1_01219	S	Spl			Bhyov8544_1072	S	Spl			Bhya7455_0840	S	Spl		TPR domain-containing protein	
BHWA1_01225		Spl			Bhyov8544_1066		Spl			Bhya7455_0834				hypothetical protein	
BHWA1_01226	S	Spl			Bhyov8544_1065		Spl			Bhya7455_0833	S	Spl		hypothetical protein	
BHWA1_01227			•	•	Bhyov8544_1063			•	•	Bhya7455_0831			•	•	hypothetical protein
BHWA1_01234	S	Spl			Bhyov8544_1056	S				Bhya7455_0824	S	Spl		hypothetical protein	
BHWA1_01241	S				Bhyov8544_1049	S				Bhya7455_0817	S			hypothetical protein	
BHWA1_01244	S	Spl			Bhyov8544_1046	S	Spl			Bhya7455_0814	S	Spl		flagellar filament outer layer protein FlaA	
BHWA1_01250	S	Spl	••	••	Bhyov8544_1040	S	Spl	••	••	Bhya7455_0808	S	Spl	••	••	hypothetical protein

BHWA1_01251	S		•	•	Bhyov8544_1039		Spl	•	•	Bhya7455_0807	S	Spl	•	•	hypothetical protein
BHWA1_01259		Spl			Bhyov8544_1031					Bhya7455_0799		Spl			ankyrin repeat-containing protein
BHWA1_01266	S	Spl	•	•	Bhyov8544_1025	S	Spl	•	•	Bhya7455_0793	S	Spl	•	•	hypothetical protein
BHWA1_01267			•	•	Bhyov8544_1024		Spl	•	•	Bhya7455_0792		Spl	•	•	alkaline phosphatase III
BHWA1_01277		Spl			Bhyov8544_1014		Spl			Bhya7455_0783		Spl			hypothetical protein
BHWA1_01278		Spl			Bhyov8544_1013		Spl			Bhya7455_0781		Spl			hypothetical protein
BHWA1_01279		Spl			Bhyov8544_1012		Spl			Bhya7455_0780		Spl			hypothetical protein
BHWA1_01280	S		•	•	Bhyov8544_1011	S	Spl	•	•	Bhya7455_0779	S	Spl	•	•	hypothetical protein
BHWA1_01290	S	Spl			Bhyov8544_1000	S	Spl			Bhya7455_0769	S	Spl			hypothetical protein
BHWA1_01291		Spl			Bhyov8544_0999		Spl			Bhya7455_0768		Spl			TPR domain-containing protein
BHWA1_01296		Spl	•	•	Bhyov8544_0993		Spl	•	•	Bhya7455_0762		Spl	•	•	hypothetical protein
BHWA1_01301	S	Spl			Bhyov8544_0988	S	Spl			Bhya7455_0757	S	Spl			hypothetical protein
BHWA1_01306	S		•	•	Bhyov8544_0983	S		•	•	Bhya7455_0752	S			•	hypothetical protein
BHWA1_01327					Bhyov8544_1754		Spl			Bhya7455_0735		Spl			hypothetical protein
BHWA1_01341	S	Spl			Bhyov8544_1768	S	Spl			Bhya7455_0722	S	Spl			hypothetical protein
BHWA1_01350		Spl			Bhyov8544_1777		Spl			Bhya7455_0713		Spl			putative methyl-accepting chemotaxis protein A
BHWA1_01359		Spl			Bhyov8544_1786		Spl			Bhya7455_0704		Spl			hypothetical protein
BHWA1_01372	S	Spl			Bhyov8544_1799	S	Spl			Bhya7455_0691	S	Spl			outer membrane protein
BHWA1_01373					Bhyov8544_1800		Spl			Bhya7455_0690					outer membrane chaperone Skp (OmpH)
BHWA1_01406		Spl			Bhyov8544_2590		Spl			Bhya7455_2565		Spl			hypothetical protein
BHWA1_01424					Bhyov8544_2042		Spl			Bhya7455_1891		Spl			N-acetylmuramoyl-L-alanine amidase
BHWA1_01425		Spl			Bhyov8544_2043		Spl			Bhya7455_1892					ankyrin repeat-containing protein
BHWA1_01426					Bhyov8544_2044		Spl	•	•	Bhya7455_1893		Spl	•	•	extracellular solute binding protein family 5
BHWA1_01433		Spl			Bhyov8544_2051		Spl			Bhya7455_1900		Spl			permease
BHWA1_01438	S				Bhyov8544_2055	S				Bhya7455_1904	S				putative acriflavin resistance protein
BHWA1_01441	S				Bhyov8544_2058	S	Spl			Bhya7455_1907		Spl			hypothetical protein
BHWA1_01447	S	Spl	•	•	Bhyov8544_2064	S	Spl	•	•	Bhya7455_1913	S	Spl	•	•	hypothetical protein
BHWA1_01453	S	Spl	•	•	Bhyov8544_2070	S	Spl	•	•	Bhya7455_1919	S	Spl	•	•	putative leucine aminopeptidase
BHWA1_01472		Spl	•	•	Bhyov8544_2504		Spl	•	•	Bhya7455_2439		Spl	•	•	hypothetical protein

BHWA1_01473	S	SplI	•	•	Bhyov8544_2503	S	SplI	•	•	Bhya7455_2440	S	SplI	•	•	hypothetical protein
BHWA1_01477					Bhyov8544_2499		Spl			Bhya7455_2444					serine endoprotease
BHWA1_01479	S	SplI	•	•	Bhyov8544_2497	S	SplI	•	•	Bhya7455_2446	S	SplI	•	•	hypothetical protein
BHWA1_01480		SplI	•	•	Bhyov8544_2496		SplI	•	•	Bhya7455_2447		SplI		•	hypothetical protein
BHWA1_01486	S	SplI	•	•	Bhyov8544_2073	S	SplI	•	•	Bhya7455_2342	S	SplI	•	•	hypothetical protein
BHWA1_01489	S	Spl			Bhyov8544_2076	S	Spl			Bhya7455_2345	S				SCP-like extracellular protein
BHWA1_01499	S	Spl			Bhyov8544_2085	S	Spl			Bhya7455_2354	S	Spl			hypothetical protein
BHWA1_01504		Spl			Bhyov8544_2091		Spl			Bhya7455_2360		Spl			hypothetical protein
BHWA1_01505		Spl			Bhyov8544_2092		Spl			Bhya7455_2673		Spl			hypothetical protein
BHWA1_01516	S	Spl			Bhyov8544_2105	S	Spl			Bhya7455_2420	S				hypothetical protein
BHWA1_01521		SplI	•	•	Bhyov8544_2348		SplI	•	•	Bhya7455_2380		SplI	•	•	hypothetical protein
BHWA1_01522		SplI	•	•	Bhyov8544_2347		SplI	•	•	Bhya7455_2381		SplI	•	•	extracellular solute-binding protein family 5
BHWA1_01523	S	SplI	•	•	Bhyov8544_2346		SplI	•	•	Bhya7455_2382	S	SplI	•	•	extracellular solute-binding protein family 5
BHWA1_01524	S	SplI	•	•	Bhyov8544_2345	S	SplI	•	•	Bhya7455_2383	S		•	•	extracellular solute-binding protein family 5
BHWA1_01539		Spl			Bhyov8544_2330		Spl			Bhya7455_2398		Spl			putative inner membrane protein
BHWA1_01549	S	SplI			Bhyov8544_2694	S				Bhya7455_2666	S				basic membrane lipoprotein
BHWA1_01560		Spl			Bhyov8544_1931		Spl			Bhya7455_2185					hypothetical protein
BHWA1_01562					Bhyov8544_1933		Spl			Bhya7455_2187		Spl			hypothetical protein
BHWA1_01563					Bhyov8544_1934					Bhya7455_2188		Spl			hypothetical protein
BHWA1_01567		SplI	•	•	Bhyov8544_1938		SplI	•	•	Bhya7455_2192		SplI	•	•	extracellular solute-binding protein family 3
BHWA1_01573	S	SplI	•	•	Bhyov8544_1944	S	Spl	•	•	Bhya7455_2198	S	SplI	•	•	hypothetical protein
BHWA1_01574			•	•	Bhyov8544_1945			•	•	Bhya7455_2199	S		•	•	hypothetical protein
BHWA1_01579					Bhyov8544_1951		Spl			Bhya7455_2204		Spl			putative penicillin binding protein
BHWA1_01582		Spl			Bhyov8544_1954		Spl			Bhya7455_2207		Spl			hypothetical protein
BHWA1_01600	S	Spl			Bhyov8544_1973					Bhya7455_2361					variable surface protein - VspE
BHWA1_01601		Spl			Bhyov8544_2680	S	Spl			Bhya7455_2651		Spl			variable surface protein - VspF
BHWA1_01607		SplI	•	•	Bhyov8544_1086		SplI	•	•	Bhya7455_1968		SplI	•	•	hypothetical protein
BHWA1_01620	S	SplI	•	•	Bhyov8544_1100	S	SplI	•	•	Bhya7455_1982	S	SplI	•	•	hypothetical protein
BHWA1_01623			•	•	Bhyov8544_1103		SplI	•	•	Bhya7455_1985		SplI	•	•	molybdenum ABC transporter, molybdate-binding protein

BHWA1_01636		SplI	•	•	Bhyov8544_1116		Spli	•	•	Bhya7455_1294		SplI	•	•	hypothetical protein
BHWA1_01646	S	Spl			Bhyov8544_1127	S	Spl			Bhya7455_1305	S	Spl			putative periplasmic protein
BHWA1_01647	S	Spl			Bhyov8544_1128	S	Spl			Bhya7455_1306	S	Spl			putative periplasmic protein
BHWA1_01654					Bhyov8544_1135	S	Spl			Bhya7455_1313	S	Spl			hypothetical protein
BHWA1_01655		Spl			not in Genome					not in genome					hypothetical protein
BHWA1_01666		SplI	•	•	Bhyov8544_1146		SplI	•	•	Bhya7455_1324"		SplI	•	•	hypothetical protein
BHWA1_01672					Bhyov8544_1152		Spl			Bhya7455_1330		Spl			putative electron transport complex
BHWA1_01681		Spl			Bhyov8544_2372					Bhya7455_1339					glyceraldehyde-3-phosphate dehydrogenase
BHWA1_01699			**	**	Bhyov8544_0592				•	Bhya7455_1358			**	**	hypothetical protein
BHWA1_01702			**	**	Bhyov8544_2659			**	**	Bhya7455_1427			**	**	hypothetical hypothetical protein
BHWA1_01713		Spl			Bhyov8544_1738		Spl			Bhya7455_1437		Spl			hypothetical protein
BHWA1_01719		SplI	•	•	Bhyov8544_1732		SplI	•	•	Bhya7455_1443		SplI	•	•	hypothetical protein
BHWA1_01736		SplI	•	•	Bhyov8544_1714	S	SplI	•	•	Bhya7455_1462	S	SplI	•	•	hypothetical protein
BHWA1_01745		SplI	•	•	Bhyov8544_1705	S	SplI	•	•	Bhya7455_1470	S	SplI	•	•	hypothetical protein
BHWA1_01750		Spl			Bhyov8544_1700		Spl			Bhya7455_1475		Spl			L-lactate dehydrogenase
BHWA1_01751	S	SplI	•	•	Bhyov8544_1699	S	SplI	•	•	Bhya7455_1476	S	SplI	•	•	BlpG, outer membrane lipoprotein
BHWA1_01753		SplI	•	•	Bhyov8544_1697		SplI	•	•	Bhya7455_1478		SplI	•	•	BlpE, outer membrane lipoprotein
BHWA1_01754	S	SplI	•	•	Bhyov8544_1696	S	SplI	•	•	Bhya7455_1479	S	SplI	•	•	BmpB, outer membrane lipoprotein
BHWA1_01763		Spl			Bhyov8544_1687					Bhya7455_1488					NfeD, Membrane-bound serine protease (ClpP class)
BHWA1_01766		Spl			Bhyov8544_1684		Spl			Bhya7455_1491		Spl			hypothetical protein
BHWA1_01770		Spl			Bhyov8544_1680		Spl			Bhya7455_1495		Spl			putative phosphotransferase system enzyme IIBC
BHWA1_01786	S	Spl			Bhyov8544_2011	S	Spl			Bhya7455_1694	S	Spl			hypothetical protein
BHWA1_01787	S	SplI	•	•	Bhyov8544_2010	S	SplI	•	•	Bhya7455_1693	S	SplI	•	•	OmpA family protein
BHWA1_01788	S	SplI	•	•	Bhyov8544_2009	S	Spli	•	•	Bhya7455_1692	S	SplI	•	•	outer membrane protein
BHWA1_01792		SplI	•	•	Bhyov8544_2005		SplI	•	•	Bhya7455_1689		SplI	•	•	arylsulfate sulfotransferase
BHWA1_01796	S	SplI	•	•	Bhyov8544_2002	S	SplI	•	•	Bhya7455_1686		SplI	•	•	hypothetical protein
BHWA1_01798		SplI			Bhyov8544_2000		Spl			Bhya7455_1684		Spl			TPR domain-containing protein
BHWA1_01829		Spl			Bhyov8544_2513		Spl			Bhya7455_1660		Spl			hypothetical protein
BHWA1_01832					Bhyov8544_2516					Bhya7455_1657		Spl			hypothetical protein

BHWA1_01855			•	•	Bhyov8544_2621			•	•	Bhya7455_2534			•	Hol [Serpulina phage VSH-1]	
BHWA1_01857		Spl			Bhyov8544_2619		Spl			Bhya7455_2532		Spl		methyl-accepting chemotaxis protein McpB	
BHWA1_01859		Spl	••	••	Bhyov8544_0554		Spl	••	••	Bhya7455_2596		Spl	••	••	hypothetical protein
BHWA1_01868		Spl			Bhyov8544_0561					Bhya7455_1501		Spl			hypothetical protein
BHWA1_01869					Bhyov8544_0561		Spl			Bhya7455_1502					acyl-CoA synthetase
BHWA1_01876		Spl			Bhyov8544_0569		Spl			Bhya7455_1509		Spl			carboxyl-terminal protease
BHWA1_01879	S	Spl			Bhyov8544_0572	S	Spl			not in genome					hypothetical protein
BHWA1_01880	S	Spl			Bhyov8544_0573	S	Spl			Bhya7455_1512	S	Spl			hypothetical protein
BHWA1_01881		Spl			Bhyov8544_0574	S	Spl			Bhya7455_1513	S	Spl			hypothetical protein
BHWA1_01889		Spl	•	•	Bhyov8544_0583		Spl	•	•	Bhya7455_1521		Spl	•	•	hypothetical protein
BHWA1_01895		Spl			Bhyov8544_0589		Spl			Bhya7455_1527		Spl			ankyrin repeat-containing protein
BHWA1_01899		Spl	•	•	Bhyov8544_0594		Spl	•	•	Bhya7455_1532		Spl	•	•	hypothetical protein
BHWA1_01903	S	Spl	•	•	Bhyov8544_0598	S	Spl	•	•	Bhya7455_1536		Spl	•	•	amino acid-binding protein
BHWA1_01904		Spl	•	•	Bhyov8544_0599	S	Spl	•	•	Bhya7455_1537		Spl	•	•	amino acid-binding protein
BHWA1_01920				•	Bhyov8544_0615			•	•	Bhya7455_1553			•	•	Nat-dependent transporter of the family
BHWA1_01927		Spl	•	•	Bhyov8544_0622		Spl	•	•	Bhya7455_1560		Spl	•	•	hypothetical protein
BHWA1_01933		Spl			Bhyov8544_0627		Spl			Bhya7455_1565		Spl			hypothetical protein
BHWA1_01943			••	••	Bhyov8544_0638			••	••	Bhya7455_1827			••	••	2-ketoisovalerate ferredoxin reductase
BHWA1_01948	S	Spl			Bhyov8544_0643	S	Spl			Bhya7455_1832	S	Spl			hypothetical protein
BHWA1_01985					Bhyov8544_0680					Bhya7455_1868		Spl			hypothetical protein
BHWA1_01970		Spl	•	•	Bhyov8544_0665		Spl	•	•	Bhya7455_1854		Spl	•	•	hypothetical protein
BHWA1_01971	S	Spl	•	•	Bhyov8544_0666	S	Spl	•	•	Bhya7455_1855	S	Spl	•	•	hypothetical protein
BHWA1_01972	S	Spl			Bhyov8544_0667	S				Bhya7455_1856	S	Spl			hypothetical protein
BHWA1_01985		Spl	•	•	Bhyov8544_0680			•	•	Bhya7455_1868			•	•	hypothetical protein
BHWA1_01987		Spl	•	•	Bhyov8544_0684			•	•	Bhya7455_1871			•	•	hypothetical protein
BHWA1_01988	S		•	•	Bhyov8544_0685	S	Spl	•	•	Bhya7455_1872	S	Spl	•	•	hypothetical protein
BHWA1_01991	S	Spl			Bhyov8544_0688	S	Spl			Bhya7455_2641	S	Spl			hypothetical protein
BHWA1_01999	S	Spl	•	•	Bhyov8544_0698	S	Spl	•	•	Bhya7455_2288	S	Spl	•	•	hypothetical protein
BHWA1_02008	S	Spl	•	•	Bhyov8544_0706	S	Spl	•	•	Bhya7455_2280	S		•	•	extracellular solute-binding protein family 3

BHWA1_02012		Spl			Bhyov8544_0710		Spl			Bhya7455_2276		Spl			hypothetical membrane-spanning protein
BHWA1_02018		Spl			Bhyov8544_0716		Spl			Bhya7455_2270		Spl			coenzyme A disulfide reductase
BHWA1_02022	S	SplI	•	•	Bhyov8544_2540	S	SplI	•	•	Bhya7455_2266	S	SplI	•	•	Hydrolase of the alpha/beta superfamily
BHWA1_02033	S	SplI			Bhyov8544_2530	S	SplI			Bhya7455_2657	S	SplI			ankyrin repeat-containing protein
BHWA1_02034	S	SplI	•	•	Bhyov8544_2529					B.hyoa7455_2656					ankyrin repeat-containing protein
BHWA1_02035	S	SplI	•	•	Bhyov8544_2701					Bhya7455_2263	S	SplI			putative ankyrin repeat-containing protein
BHWA1_02037		Spl			Bhyov8544_2195	S	Spl			Bhya7455_2261	S	Spl			outer membrane protein
BHWA1_02038		SplI	•	•	Bhyov8544_2196		SplI	•	•	Bhya7455_2260		SplI	•	•	membrane fusion protein
BHWA1_02040	S	Spl								Bhya7455_2258					hypothetical protein
BHWA1_02041		Spl			Bhyov8544_2199		Spl			Bhya7455_2257		Spl			hypothetical protein
BHWA1_02051		SplI	•	•	Bhyov8544_2209		SplI	•	•	Bhya7455_2247		SplI	•	•	hypothetical protein
BHWA1_02054	S				Bhyov8544_2212	S				Bhya7455_2244	S				hypothetical protein
BHWA1_02058		Spl			Bhyov8544_2216					Bhya7455_2240		Spl			hypothetical protein
BHWA1_02059		SplI	•	•	Bhyov8544_2217	S		•	•	Bhya7455_2239	S	SplI	•	•	oligopeptide ABC transporter periplasmic subunit
BHWA1_02071		Spl			Bhyov8544_2636		Spl			Bhya7455_2584		Spl			hypothetical protein
BHWA1_02073	S	Spl			Bhyov8544_2633	S	Spl			Bhya7455_2581	S	Spl			hypothetical protein
BHWA1_02075		SplI	••	••	Bhyov8544_2631		SplI	••	••	Bhya7455_2579		SplI	••	••	hypothetical protein
BHWA1_02083	S	Spl			Bhyov8544_0865	S	Spl			Bhya7455_1573	S	Spl			hypothetical protein
BHWA1_02088	S		•	•	Bhyov8544_0870	S	SplI	•	•	Bhya7455_1578	S	SplI	•	•	hypothetical protein
BHWA1_02093	S	SplI	•	•	Bhyov8544_0875	S	SplI	•	•	Bhya7455_1583	S	SplI	•	•	hypothetical protein
BHWA1_02106		SplI	•	•	Bhyov8544_0887		SplI	•	•	Bhya7455_1595		SplI	•	•	hypothetical protein
BHWA1_02108		SplI	•	•	Bhyov8544_0889		SplI	•	•	Bhya7455_1597		SplI	•	•	N-acetylmuramoyl-L-alanine amide
BHWA1_02111	S	SplI	•	•	Bhyov8544_0892	S	SplI	•	•	Bhya7455_1600	S	SplI	•	•	putative peptidoglycan-associated outer membrane lipoprotein
BHWA1_02112	S				Bhyov8544_0893	S				Bhya7455_1601	S				tia invasion determinant
BHWA1_02113		SplI	•	•	Bhyov8544_0894		SplI	•	•	Bhya7455_1602		SplI	•	•	hypothetical protein
BHWA1_02114		Spl			Bhyov8544_0895		Spl			Bhya7455_1603		Spl			OmpA family protein
BHWA1_02115		Spl			Bhyov8544_0896		Spl			Bhya7455_1604		Spl			hypothetical protein
BHWA1_02116	S/TM	Spl			Bhyov8544_0897	S/TM	Spl			Bhya7455_1605	S/TM	Spl			hypothetical protein
BHWA1_02170			•	•	Bhyov8544_0952		SplI	•	•	Bhya7455_2025		SplI	•	•	hypothetical protein

BHWA1_02173					Bhyov8544_0955		Spl			Bhya7455_2022		Spl		hypothetical protein	
BHWA1_02188		Spl			Bhyov8544_0970		Spl			Bhya7455_2007		Spl		hypothetical protein	
BHWA1_02195	S	Spl	•	•	Bhyov8544_0978	S	Spl	•	•	Bhya7455_1999		Spl	•	•	putative ankyrin repeat-containing protein
BHWA1_02196		Spl	•	•	Bhyov8544_2709					Bhya7455_2685					putative ankyrin repeat-containing protein
BHWA1_02197		Spl	•	•	Bhyov8544_2710					Bhya7455_2684"					putative ankyrin repeat-containing protein
BHWA1_02198		Spl	•	•	Bhyov8544_2711					Bhya7455_2400			•	•	putative ankyrin repeat-containing protein
BHWA1_02200					Bhyov8544_1612					Bhya7455_2401		Spl			putative lipopolysaccharide 1,2-glucosyltransferase RfaJ
BHWA1_02225	S		•	•	Bhyov8544_2610	S	Spl	•	•	Bhya7455_2553	S	Spl	•	•	ABC-type oligopeptide transport system, periplasmic component
BHWA1_02226			•	•	Bhyov8544_2611		Spl	•	•	Bhya7455_2554		Spl	•	•	ABC-type oligopeptide transport system, periplasmic component
BHWA1_02244	S	Spl			Bhyov8544_0019	S	Spl			Bhya7455_0670	S	Spl			hypothetical protein
BHWA1_02255	S	Spl			Bhyov8544_0030	S	Spl			Bhya7455_0659	S	Spl			hypothetical protein
BHWA1_02257	S	Spl	•	•	Bhyov8544_0032	S	Spl	•	•	Bhya7455_0657		Spl	•	•	cinnamyl-alcohol dehydrogenase 2 (cad)
BHWA1_02267	S	Spl	**	**	Bhyov8544_0040	S	Spl	**	**	Bhya7455_0644	S	Spl	**	**	TPR domain-containing protein
BHWA1_02273	S	Spl	•	•	Bhyov8544_0047	S	Spl	•	•	Bhya7455_0638	S	Spl	•	•	hypothetical protein
BHWA1_02279			**	**	Bhyov8544_0051			**	**	Bhya7455_0632			**	**	hypothetical protein
BHWA1_02286		Spl			Bhyov8544_0059		Spl			Bhya7455_0623		Spl			hypothetical protein
BHWA1_02287	S	Spl	•	•	Bhyov8544_0060		Spl	•	•	Bhya7455_0622	S		•	•	hypothetical protein
BHWA1_02288		Spl	•	•	Bhyov8544_0061		Spl	•	•	Bhya7455_0621		Spl	•	•	hypothetical protein
BHWA1_02289		Spl	•	•	Bhyov8544_0062		Spl	•	•	Bhya7455_0620		Spl	•	•	hypothetical protein
BHWA1_02291		Spl			Bhyov8544_0064					Bhya7455_0618					tia invasion determinant
BHWA1_02292	S				Bhyov8544_0065	S	Spl			Bhya7455_0617	S				hypothetical protein
BHWA1_02294		Spl		**	Bhyov8544_0067					Bhya7455_0615		Spl		**	hypothetical protein
BHWA1_02304	S				Bhyov8544_0077	S	Spl			Bhya7455_0604	S	Spl			putative peptidoglycan-binding LysM:Peptidase M23B family
BHWA1_02313					Bhyov8544_0085					Bhya7455_0596		Spl			hypothetical protein
BHWA1_02349		Spl			Bhyov8544_0119		Spl			Bhya7455_0562		Spl			hypothetical protein
BHWA1_02361	S	Spl			Bhyov8544_0129	S	Spl			Bhya7455_0552	S	Spl			hypothetical protein
BHWA1_02363	S	Spl			Bhyov8544_0131	S				Bhya7455_0550	S/TM	Spl			hypothetical protein
BHWA1_02367		Spl			Bhyov8544_0135	S	Spl			Bhya7455_0546					hypothetical protein

BHWA1_02368		Spl			Bhyov8544_0136		Spl			Bhya7455_0545		Spl			hypothetical protein
BHWA1_02375	S	Spl			Bhyov8544_0143	S	Spl			Bhya7455_0538	S	Spl			spermidine/putrescine transport A binding protein
BHWA1_02376	S	Spl			Bhyov8544_0144	S	Spl			Bhya7455_0537	S	Spl			putative UshA protein; putative 5'-nucleotidase/2',3'-cyclic phosphodiesterase-like esterase
BHWA1_02382	S	Spl			Bhyov8544_0150	S	Spl			Bhya7455_0531	S	Spl			variable surface protein VspH
BHWA1_02388	S	Spl			Bhyov8544_0156	S				Bhya7455_0525	S	Spl			TPR domain-containing protein
BHWA1_02396		Spl		•	Bhyov8544_0164		Spl	•	•	Bhya7455_0517		Spl	•	•	TRAP transporter solute receptor family
BHWA1_02399		Spl	•	•	Bhyov8544_0167		Spl	•	•	Bhya7455_0514			•	•	hypothetical protein
BHWA1_02401					Bhyov8544_0169					Bhya7455_0512		Spl			hypothetical protein
BHWA1_02404	S	Spl	•	•	not on the genome					not in genome					hypothetical protein
BHWA1_02405	S	Spl	•	•	not on the genome					not in genome					hypothetical protein
BHWA1_02414	S	Spl			Bhyov8544_0181	S	Spl			Bhya7455_0500	S	Spl			ankyrin repeat-containing protein
BHWA1_02424		Spl			Bhyov8544_0188		Spl			Bhya7455_0490		Spl			shikimate kinase
BHWA1_02427		Spl	•	•	Bhyov8544_0191		Spl	•	•	Bhya7455_0487		Spl	•	•	hypothetical protein
BHWA1_02431		Spl	•	•	Bhyov8544_0195		Spl	•	•	Bhya7455_0483		Spl	•	•	metal dependent amidohydrolase
BHWA1_02453	S	Spl			Bhyov8544_0217	S	Spl			Bhya7455_0461	S	Spl			hypothetical protein
BHWA1_02454		Spl	•	•	Bhyov8544_0218		Spl	•	•	Bhya7455_0460		Spl	•	•	hypothetical protein
BHWA1_02455		Spl	•	•	Bhyov8544_0219		Spl	•	•	Bhya7455_0459	S	Spl	•	•	hypothetical protein
BHWA1_02456	S	Spl	**	**	Bhyov8544_0220	S	Spl	•	•	not in genome					hypothetical protein
BHWA1_02466	S	Spl			Bhyov8544_0230	S	Spl			Bhya7455_0448	S	Spl			hypothetical protein
BHWA1_02467		Spl			Bhyov8544_0231		Spl			B.hyoa7455_0447		Spl			hypothetical protein
BHWA1_02468	S	Spl	•	•	Bhyov8544_0232	S	Spl	•	•	Bhya7455_0446	S	Spl	•	•	periplasmic ATP/GTP-binding protein
BHWA1_02472	S	Spl	•	•	Bhyov8544_0236	S		•	•	Bhya7455_0442	S	Spl	•	•	hypothetical protein
BHWA1_02480		Spl	•	•	Bhyov8544_0244					Bhya7455_0434		Spl	•	•	hypothetical protein
BHWA1_02483					Bhyov8544_0244		Spl			B.hyoa7455_0430		Spl			Alkyl sulfatase-related hydrolase
BHWA1_02484		Spl	•	•	Bhyov8544_0248		Spl	•	•	Bhya7455_0430			•	•	Alkyl sulfatase-related hydrolase
BHWA1_02499			•	•	Bhyov8544_0263			•	•	Bhya7455_0415			•	•	serine phosphatase RsbU, regulator sigma subunit
BHWA1_02504					Bhyov8544_0286	s	Spl	•	•	Bhya7455_0410					DH:ubiquinone oxidoreductase 24
BHWA1_02523	S	Spl	•	•	not in genome					not in genome					hypothetical protein

BHWA1_02524					Bhyov8544_0286					Bhya7455_0393	S	SpII	•	•	hypothetical protein
BHWA1_02537			•	•	Bhyov8544_0298		SpII	•	•	Bhya7455_0382		SpII	•	•	OppA, ABC-type oligopeptide transport system, periplasmic component
BHWA1_02540		SpII			Bhyov8544_0301					Bhya7455_0379			•	•	hypothetical protein
BHWA1_02543			•	•	Bhyov8544_1399			•	•	Bhya7455_0376			•	•	UDP-glucose 6-dehydrogenase
BHWA1_02552	S	SpII		•	Bhyov8544_1390	S	SpII	•	•	Bhya7455_0367	S	SpII	•	•	galactose/glucose-binding protein
BHWA1_02553	S	SpII	•	•	Bhyov8544_1389	S	SpII	•	•	Bhya7455_1359	S	SpII	•	•	galactose/glucose-binding protein
BHWA1_02554		Spl			Bhyov8544_1388		Spl			Bhya7455_1360		SpII			galactose/glucose-binding protein
BHWA1_02559		Spl			Bhyov8544_1383		Spl			Bhya7455_1365		SpII			hypothetical protein
BHWA1_02563		Spl			Bhyov8544_1379		Spl			Bhya7455_1369					hypothetical protein
BHWA1_02566		SpII			Bhyov8544_1377		SpII			Bhya7455_1371		SpII			extracellular solute-binding protein family 3
BHWA1_02570		SpII	•	•	Bhyov8544_1373		SpII	•	•	Bhya7455_1375		SpII	•	•	periplasmic-iron-binding protein B
BHWA1_02571		SpII	•	•	Bhyov8544_1372		SpII	•	•	Bhya7455_1376		SpII	•	•	periplasmic-iron-binding protein B
										Bhya7455_1390				•	N-acetylmuramoyl-L-alanine amidase
BHWA1_02583		Spl			Bhyov8544_1361		Spl			Bhya7455_1384		SpII			methyl-accepting chemotaxis protein
BHWA1_02592		SpII	•	•	Bhyov8544_1347	S	SpII	•	•	Bhya7455_1393		SpII	•	•	TPR domain-containing protein
BHWA1_02597		SpII	•	•	Bhyov8544_1347			•	•	Bhya7455_1398	S	SpII	•	•	hypothetical protein
BHWA1_02609		Spl			Bhyov8544_1335					Bhya7455_1410					putative membrane protein containing von Willebrand factor (vWA) type 1 domain
BHWA1_02610		Spl			Bhyov8544_1334		Spl			Bhya7455_1411		SpII			putative aerotolerance-related exported protein BatC containing TPR domain
BHWA1_02612	S	SpII			Bhyov8544_1332	S	SpII			Bhya7455_1413	S	SpII			aerotolerance-related exported protein BatE containing TPR domain
BHWA1_02614	S	SpII	•	•	Bhyov8544_1330	S	SpII	•	•	Bhya7455_1415	S	SpII	•	•	thiol-disulfide interchange protein DsbD-like protein
BHWA1_02615	S	Spl	•	•	Bhyov8544_1329	S		•	•	Bhya7455_1416	S	SpII	•	•	thiol-disulfide interchange protein DsbD-like protein
BHWA1_02618		SpII	•	•	Bhyov8544_2617		SpII	•	•	Bhya7455_1419		SpII	•	•	putative 5'-nucleotidase/2',3'-cyclic nucleotide phosphodiesterase-like esterase
BHWA1_02622	S	SpII	•	•	Bhyov8544_2613	S	SpII	•	•	Bhya7455_1423	S	SpII	•	•	hypothetical protein
BHWA1_02629	S	Spl			Bhyov8544_1246	S	Spl			Bhya7455_2077	S	SpII			hypothetical protein
BHWA1_02628		SpII	•	•	Bhyov8544_1247		SpII	•	•	Bhya7455_2078	S	SpII	•		AMP-activated protein kinase (AMPK) beta subunit glycogen binding domain (GBD)
BHWA1_02294					not in genome					Bhya7455_0615				•	hypothetical protein
BHWA1_02633		SpII			Bhyov8544_1242		SpII			Bhya7455_2073		SpII			hypothetical protein

BHWA1_02651				Bhyov8544_1224	S	Spl			Bhya7455_2055	S	SplI			TPR domain protein
BHWA1_02660		Spl		Bhyov8544_1215		Spl			Bhya7455_2046		SplI			hypothetical protein
				Bhyov8544_2264	S	SplI			Bhya7455_2148	S	SplI			smpA 16 kDa outer membrane lipoprotein B. hyodysenteriae
				not in genome					Bhya7455_0608		SplI			hypothetical protein Bint_2375 [Brachyspira intermedia PWS/A
				not in genome					Bhya7455_1998		SplI			ankyrin repeat-containing protein [Brachyspira hyodysenteriae WA

- probable lipoprotein
- possible lipoprotein
- S Signal peptide
- Spl signal peptidase 1
- SplI Signal peptidase 2