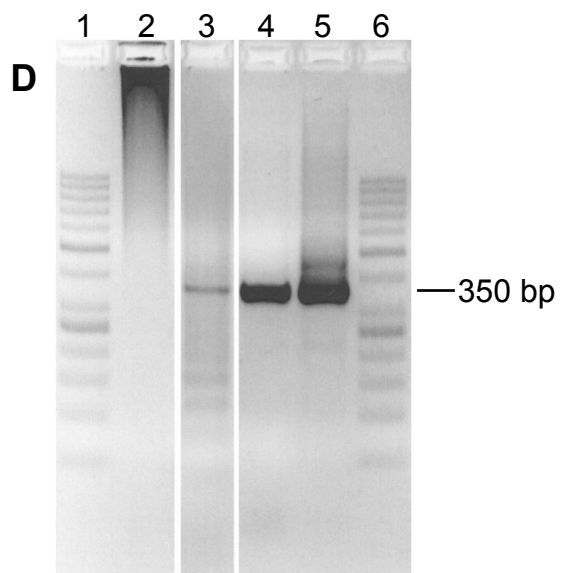
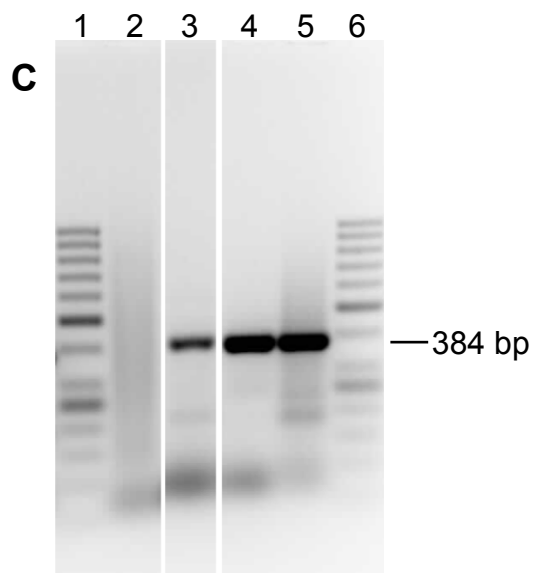
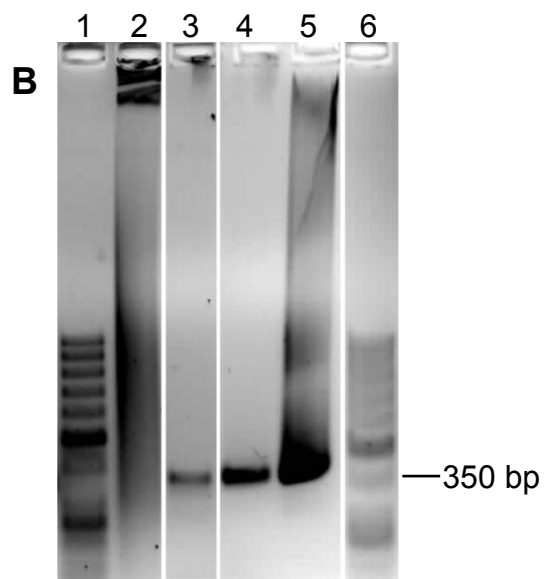
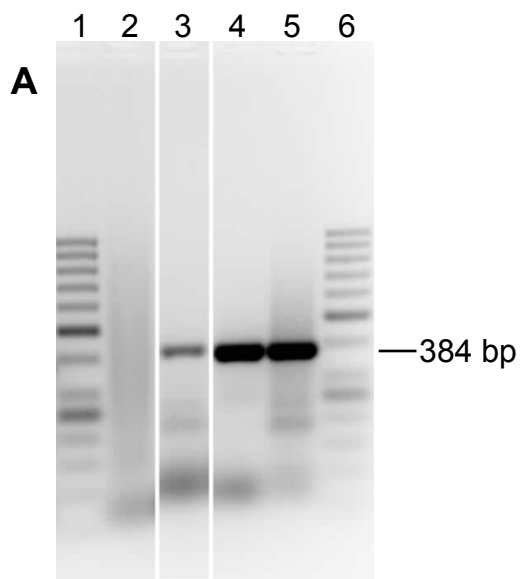


Supplementary Figure 1



Supplementary Fig. 1. PCR amplification of *nodC* and *nifH* of seed extracts from inoculated plants. Negro Jamapa bean seeds. Seeds from year 2012. Only second rounds of PCRs are shown.

Panels A and B. Seeds from plants inoculated with CCGM1.1 strain.

Panel A, PCR for *nodC* amplification. Lanes: 1) molecular weight marker, 2) negative control, 3) seeds from plants inoculated with CCGM1.1, 4) seed extract mixed with CCGM1.1 lysate (to assess seed inhibition), 5) CCGM1.1 lysate, 6) molecular weight marker. Embryos from fresh seeds.

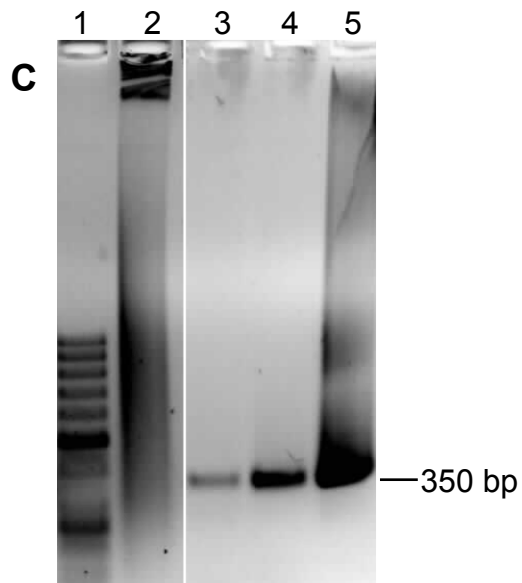
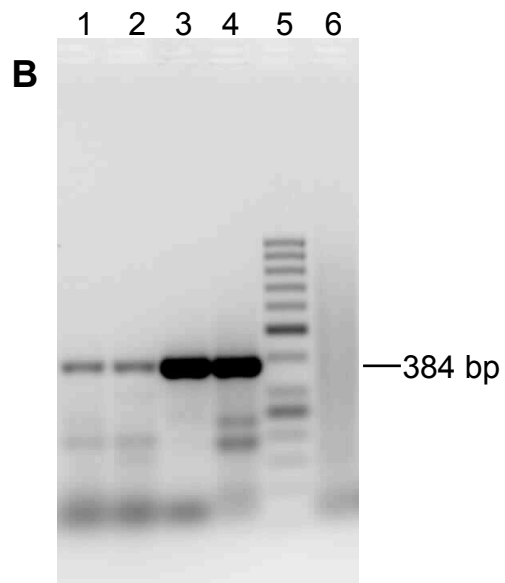
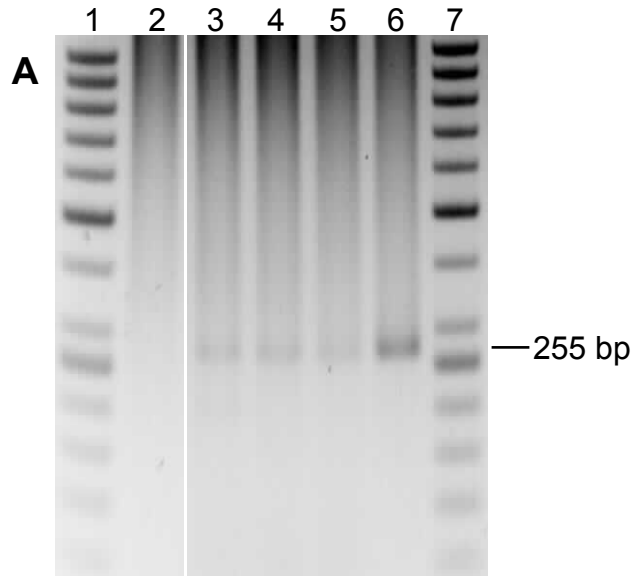
Panel B, PCR for *nifH* amplification. Lanes: 1) molecular weight marker, 2) negative control, 3) seeds from plants inoculated with CCGM1.1, 4) seed extract mixed with CCGM1.1 lysate (to assess seed inhibition), 5) CCGM1.1 lysate, 6) molecular weight marker. Embryos from dry, scarified seeds.

Panels C and D. Seeds from plants inoculated with CCGM7-dsRed strain.

Panel C, PCR for *nodC* amplification. Lanes: 1) molecular weight marker, 2) negative control, 3) seeds from plants inoculated with CCGM7-dsRed, 4) seed extract mixed with CCGM7-dsRed lysate (to assess seed inhibition), 5) CCGM7-dsRed lysate, 6) molecular weight marker. Embryos from fresh seeds.

Panel D, PCR for *nifH* amplification. Lanes: 1) molecular weight marker, 2) negative control, 3) seeds from plants inoculated with CCGM7-dsRed, 4) seed extract mixed with CCGM7-dsRed lysate (to assess seed inhibition), 5) CCGM7-dsRed lysate, 6) molecular weight marker. Embryos from dry, scarified seeds.

Supplementary Figure 2



Supplementary Fig. 2. PCR amplification of *rpoB*, *nodC* and *nifH* of seed extracts from non-inoculated plants fertilized with combined nitrogen. Negro Jamapa bean seeds. Only second rounds of PCRs are shown.

Panel A, PCR for *rpoB* amplification. Lanes: 1) molecular weight marker, 2) negative control, 3) seed extract of non-inoculated plants fertilized with combined nitrogen from year 2011, 4) seed extract of non-inoculated from year 2012, 5) seed extract mixed with bacterial lysate, 6) bacterial lysate, 7) molecular weight marker. Embryos from fresh seeds. The PCR products of lanes 3 and 4 were sequenced and matched that of CCGM7 strain.

Panel B, PCR for *nodC* amplification. Lanes: 1) seed extract of non-inoculated plants from year 2011, 2) seed extract of non-inoculated plants from year 2012, 3) seed extract mixed with bacterial lysate, 4) bacterial lysate, 5) molecular weight marker, 6) negative control. Embryos from fresh seeds.

Panel C, PCR for *nifH* amplification. Lanes: 1) molecular weight marker, 2) negative control, 3) seed extract mixed with bacterial lysate, 4) bacterial lysate, 5) seed extract of non-inoculated plants from year 2012. Embryos from dry, scarified seeds. The PCR product of lane 5 was sequenced and matched with *nifH* of *Rhizobium* strains.

Supplementary Table 1. Growth of rhizobia strains in MM with diverse carbon and nitrogen sources.

Condition	Strains			
	<i>R. etli</i> CFN42	<i>R. l. phaseoli</i> CIAT652	<i>R. l. phaseoli</i> CCGM1	<i>S. americanum</i> CCGM7
MM suppl. with 10 mM NH ₄ Cl and 10 mM of:				
Succinic acid	+	+	+	+
Pyruvic acid	+	+	+	+
Glucose	+	+	+	+
Mannose	+	+	+	+
Arabinose	+	+	+	+
Galactose	+	+	+	+
Lactose	+	+	+	+
MM suppl. with 10 mM KNO ₃ and 10mM of:				
Succinic acid	+	+	+	+
Pyruvic acid	+	+	+	+
Glucose	++	++	+	+
Mannose	++	++	+	+
Arabinose	+	++	+	+
Galactose	++	++	+	+
Lactose	-	++	-	-
MM suppl. with (as N and C source):				
Glutamic acid 1 mM	+	+	-	+
Glutamic acid 5 mM	+	+	+	+
Glutamic acid 10 mM	+	+	+	+
MM suppl. with (as N and C source):				
Glutamine 1 mM	-	-	-	+
Glutamine 5 mM	+	+	+	+
Glutamine 10 mM	+	+	+	+

Supplementary Table 2. Growth of rhizobia strains in diverse stress conditions.

Condition	Strains			
	<i>R. etli</i> CFN42	<i>R. l. phaseoli</i> CIAT652	<i>R. l. phaseoli</i> CCGM1	<i>S. americanum</i> CCGM7
Temperature (°C)				
30	++	++	++	+++
35	+	+	+	++
37	+	+	+	++
38	+	-	-	-
39	+	-	-	-
Salt (% NaCl)				
0	++	++	++	+++
0.25	++	++	+	++
0.5	++	+	+	++
0.75	+	+	-	+
0.9	+	-	-	+
1.0	-	-	-	+
1.2	-	-	-	-
Chloride (% NaClO)				
0	++	++	++	+++
0.1	++	++	++	++
0.2	+	+	-	+
0.3	+	+	-	-
0.4	+	-	-	-
0.5	-	-	-	-
pH				
10	-	-	-	+
9.8	-	-	-	+
9.5	+	-	-	+
9.3	+	+	-	++
9.0	+	+	-	++
8.5	+	+	-	++
8.0	+	+	+	++
7.2, control PY	++	++	++	+++
6.0	+	+	+	++
5.8	+	+	+	+

5.6	+	+	+	+
5.4	+	+	+	-
5.2	+	+	+	-
4.9	+	+	+	-
4.8	+	+	+	-
4.7	+	+	+	-
4.6	-	-	-	-

Supplementary Table 3. Part A. Predicted CCGM1 CDS not shared with the *Rhizobium* group (*R. phaseoli*, *R. etli*).

CDS	PREDICTED FUNCTION	GENE NAME
RLPCCGM1_c0005	micrococcal nuclease (thermonuclease)	-
RLPCCGM1_c0006	hypothetical protein	-
RLPCCGM1_c0029	hypothetical protein	-
RLPCCGM1_c0033	mobile element protein	-
RLPCCGM1_c0047	cellulosome anchoring protein	-
RLPCCGM1_c0050	acyltransferase protein	-
RLPCCGM1_c0061	transcriptional regulator GntR	-
RLPCCGM1_c0120	hypothetical protein	-
RLPCCGM1_c0161	hypothetical protein	-
RLPCCGM1_c0169	oxidoreductase	-
RLPCCGM1_c0204	hypothetical protein	-
RLPCCGM1_c0205	hypothetical protein	-
RLPCCGM1_c0207	hypothetical protein	-
RLPCCGM1_c0208	hypothetical protein	-
RLPCCGM1_c0242	membrane alanine aminopeptidase N	-
RLPCCGM1_c0244	hypothetical protein	-
RLPCCGM1_c0285	hypothetical protein	-
RLPCCGM1_c0296	porin	-
RLPCCGM1_c0318	hypothetical protein	-
RLPCCGM1_c0397	monooxygenase	-
RLPCCGM1_c0398	PadR transcriptional regulator	-
RLPCCGM1_c0403	regulatory inactivation of DnaA Hda protein	-
RLPCCGM1_c0407	adenylate cyclase	-
RLPCCGM1_c0408	adenylate cyclase	-
RLPCCGM1_c0434	hypothetical protein	-
RLPCCGM1_c0435	hypothetical protein	-
RLPCCGM1_c0436	hypothetical protein	-
RLPCCGM1_c0438	3-demethylubiquinone-9 3-methyltransferase	-
RLPCCGM1_c0446	transposase	-
RLPCCGM1_c0458	cellulose synthase catalytic subunit	-
RLPCCGM1_c0497	hypothetical protein	-
RLPCCGM1_c0500	adenylate cyclase	-
RLPCCGM1_c0535	biotin-protein ligase	-
RLPCCGM1_c0626	hypothetical protein	-
RLPCCGM1_c0657	hypothetical protein	-
RLPCCGM1_c0679	periplasmic protein-like protein	-
RLPCCGM1_c0681	ornithine cyclodeaminase	-
RLPCCGM1_c0682	mandelate racemase/muconate lactonizing enzyme	-
RLPCCGM1_c0683	LysR family transcriptional regulator	-
RLPCCGM1_c0684	DNA helicase	-
RLPCCGM1_c0685	DNA helicase	-
RLPCCGM1_c0707	hypothetical protein	-
RLPCCGM1_c0748	soluble lytic murein transglycosylase	-
RLPCCGM1_c0764	phage terminase, large subunit	-
RLPCCGM1_c0765	hypothetical protein	-
RLPCCGM1_c0766	hypothetical protein	-
RLPCCGM1_c0767	hypothetical protein	-
RLPCCGM1_c0768	hypothetical protein	-
RLPCCGM1_c0769	hypothetical protein	-
RLPCCGM1_c0770	hypothetical protein	-
RLPCCGM1_c0771	hypothetical protein	-
RLPCCGM1_c0772	hypothetical protein	-

RLPCCGM1_c0773	hypothetical protein	-
RLPCCGM1_c0781	transposase	-
RLPCCGM1_c0787	DNA repair protein RadC	-
RLPCCGM1_c0797	acetyltransferase protein	-
RLPCCGM1_c0810	biotin carboxyl carrier protein of acetyl-CoA carboxylase	-
RLPCCGM1_c0832	hypothetical protein	-
RLPCCGM1_c0833	hypothetical protein	-
RLPCCGM1_c0834	hypothetical protein	-
RLPCCGM1_c0835	hypothetical protein	-
RLPCCGM1_c0836	hypothetical protein	-
RLPCCGM1_c0837	hypothetical protein	-
RLPCCGM1_c0838	hypothetical protein	-
RLPCCGM1_c0839	hypothetical protein	-
RLPCCGM1_c0840	phage protein	-
RLPCCGM1_c0844	hypothetical protein	-
RLPCCGM1_c0846	hypothetical protein	-
RLPCCGM1_c0847	phage protein	-
RLPCCGM1_c0848	hypothetical protein	-
RLPCCGM1_c0850	hypothetical protein	-
RLPCCGM1_c0851	hypothetical protein	-
RLPCCGM1_c0852	flagellar protein FlgJ	-
RLPCCGM1_c0853	hypothetical protein	-
RLPCCGM1_c0855	hypothetical protein	-
RLPCCGM1_c0856	hypothetical protein	-
RLPCCGM1_c0857	hypothetical protein	-
RLPCCGM1_c0858	phage antirepressor protein	-
RLPCCGM1_c0859	hypothetical protein	-
RLPCCGM1_c0861	hypothetical protein	-
RLPCCGM1_c0862	hypothetical protein	-
RLPCCGM1_c0863	hypothetical protein	-
RLPCCGM1_c0864	transmembrane protein	-
RLPCCGM1_c0865	succinoglycan biosynthesis protein exoI	-
RLPCCGM1_c0868	hypothetical protein	-
RLPCCGM1_c0874	hypothetical protein	-
RLPCCGM1_c0939	polar amino acid transport system permease protein	-
RLPCCGM1_c0940	polar amino acid transport system permease protein	-
RLPCCGM1_c0954	siroheme synthase	-
RLPCCGM1_c0958	2-octaprenyl-6-methoxyphenol hydroxylase	-
RLPCCGM1_c0959	2-octaprenyl-6-methoxyphenol hydroxylase	-
RLPCCGM1_c1091	hypothetical protein	-
RLPCCGM1_c1132	citrate synthase	-
RLPCCGM1_c1165	transposase	-
RLPCCGM1_c1188	transcriptional regulator protein	-
RLPCCGM1_c1236	hypothetical protein	-
RLPCCGM1_c1238	hypothetical protein	-
RLPCCGM1_c1239	hypothetical protein	-
RLPCCGM1_c1243	two component sensor kinase	-
RLPCCGM1_c1244	hypothetical protein	-
RLPCCGM1_c1247	hypothetical protein	-
RLPCCGM1_c1248	hypothetical protein	-
RLPCCGM1_c1249	hypothetical protein	-
RLPCCGM1_c1250	phage endolysin	-
RLPCCGM1_c1251	hypothetical protein	-
RLPCCGM1_c1252	hypothetical protein	-
RLPCCGM1_c1253	hypothetical protein	-

RLPCCGM1_c1254	hypothetical protein	-
RLPCCGM1_c1255	hypothetical protein	-
RLPCCGM1_c1256	hypothetical protein	-
RLPCCGM1_c1257	hypothetical protein	-
RLPCCGM1_c1258	hypothetical protein	-
RLPCCGM1_c1259	hypothetical protein	-
RLPCCGM1_c1260	hypothetical protein	-
RLPCCGM1_c1261	hypothetical protein	-
RLPCCGM1_c1262	hypothetical protein	-
RLPCCGM1_c1263	hypothetical protein	-
RLPCCGM1_c1264	hypothetical protein	-
RLPCCGM1_c1265	hypothetical protein	-
RLPCCGM1_c1266	hypothetical protein	-
RLPCCGM1_c1267	hypothetical protein	-
RLPCCGM1_c1268	SAM-dependent methyltransferase	-
RLPCCGM1_c1269	hypothetical protein	-
RLPCCGM1_c1271	hypothetical protein	-
RLPCCGM1_c1272	phage protein	-
RLPCCGM1_c1273	phage protein	-
RLPCCGM1_c1274	hypothetical protein	-
RLPCCGM1_c1275	peptidase S49	-
RLPCCGM1_c1276	phage portal protein, lambda family	-
RLPCCGM1_c1277	hypothetical protein	-
RLPCCGM1_c1278	hypothetical protein	-
RLPCCGM1_c1279	bacteriophage tail assembly protein	-
RLPCCGM1_c1280	hypothetical protein	-
RLPCCGM1_c1281	hypothetical protein	-
RLPCCGM1_c1282	hypothetical protein	-
RLPCCGM1_c1283	hypothetical protein	-
RLPCCGM1_c1284	hypothetical protein	-
RLPCCGM1_c1285	hypothetical protein	-
RLPCCGM1_c1286	hypothetical protein	-
RLPCCGM1_c1287	hypothetical protein	-
RLPCCGM1_c1288	hypothetical protein	-
RLPCCGM1_c1289	hypothetical protein	-
RLPCCGM1_c1290	hypothetical protein	-
RLPCCGM1_c1291	hypothetical protein	-
RLPCCGM1_c1292	hypothetical protein	-
RLPCCGM1_c1293	hypothetical protein	-
RLPCCGM1_c1294	hypothetical protein	-
RLPCCGM1_c1295	hypothetical protein	-
RLPCCGM1_c1296	phage repressor	-
RLPCCGM1_c1297	hypothetical protein	-
RLPCCGM1_c1298	hypothetical protein	-
RLPCCGM1_c1299	hypothetical protein	-
RLPCCGM1_c1300	hypothetical protein	-
RLPCCGM1_c1301	hypothetical protein	-
RLPCCGM1_c1302	hypothetical protein	-
RLPCCGM1_c1303	hypothetical protein	-
RLPCCGM1_c1304	hypothetical protein	-
RLPCCGM1_c1305	hypothetical protein	-
RLPCCGM1_c1306	hypothetical protein	-
RLPCCGM1_c1307	hypothetical protein	-
RLPCCGM1_c1339	hypothetical protein	-
RLPCCGM1_c1354	mobile element protein	-

RLPCCGM1_c1362	hypothetical protein	-
RLPCCGM1_c1389	hypothetical protein	-
RLPCCGM1_c1419	sensory box/GGDEF family protein	-
RLPCCGM1_c1424	muconate cycloisomerase	-
RLPCCGM1_c1510	hypothetical protein	-
RLPCCGM1_c1531	transposase	-
RLPCCGM1_c1551	3-oxoacyl-(acyl-carrier-protein) synthase	-
RLPCCGM1_c1558	L-threonine 3-O-phosphate decarboxylase	-
RLPCCGM1_c1584	haloacid dehalogenase-like hydrolase	-
RLPCCGM1_c1601	dihydroxyacetone kinase, ATP-dependent	-
RLPCCGM1_c1603	hypothetical protein	-
RLPCCGM1_c1606	hypothetical protein	-
RLPCCGM1_c1610	MutT/NUDIX family NTP pyrophosphohydrolase	-
RLPCCGM1_c1614	oxidoreductase	-
RLPCCGM1_c1634	hypothetical protein	-
RLPCCGM1_c1646	hypothetical protein	-
RLPCCGM1_c1654	hypothetical protein	-
RLPCCGM1_c1655	hypothetical protein	-
RLPCCGM1_c1658	transposase	-
RLPCCGM1_c1714	hypothetical protein	-
RLPCCGM1_c1731	hypothetical protein	-
RLPCCGM1_c1823	transcriptional regulator, TetR family	-
RLPCCGM1_c1847	hypothetical protein	-
RLPCCGM1_c1864	hypothetical protein	-
RLPCCGM1_c1987	hypothetical protein	-
RLPCCGM1_c2011	hypothetical protein	-
RLPCCGM1_c2012	adenine specific DNA methyltransferase, D12 class	-
RLPCCGM1_c2014	hypothetical protein	-
RLPCCGM1_c2015	hypothetical protein	-
RLPCCGM1_c2016	tail protein	-
RLPCCGM1_c2017	phage FluMu protein gp47	-
RLPCCGM1_c2018	hypothetical protein	-
RLPCCGM1_c2019	Mu-like prophage protein gp45-like protein	-
RLPCCGM1_c2020	Mu P family protein	-
RLPCCGM1_c2021	Mu-like prophage DNA circulation protein	-
RLPCCGM1_c2022	hypothetical protein	-
RLPCCGM1_c2023	hypothetical protein	-
RLPCCGM1_c2024	hypothetical protein	-
RLPCCGM1_c2025	hypothetical protein	-
RLPCCGM1_c2026	Mu tail sheath family protein	-
RLPCCGM1_c2027	hypothetical protein	-
RLPCCGM1_c2028	hypothetical protein	-
RLPCCGM1_c2029	hypothetical protein	-
RLPCCGM1_c2030	hypothetical protein	-
RLPCCGM1_c2031	hypothetical protein	-
RLPCCGM1_c2032	Mu-like prophage FluMu major head subunit	-
RLPCCGM1_c2033	hypothetical protein	-
RLPCCGM1_c2034	Mu-like prophage I protein-like protein	-
RLPCCGM1_c2035	phage virion morphogenesis protein	-
RLPCCGM1_c2036	phage (Mu-like) virion morphogenesis protein	-
RLPCCGM1_c2037	Mu-like prophage FluMu protein gp29	-
RLPCCGM1_c2038	Mu-like prophage FluMu protein gp28	-
RLPCCGM1_c2039	Mu-like prophage FluMu protein gp27	-
RLPCCGM1_c2040	phage protein	-
RLPCCGM1_c2041	hypothetical protein	-

RLPCCGM1_c2042	hypothetical protein	-
RLPCCGM1_c2043	hypothetical protein	-
RLPCCGM1_c2044	hypothetical protein	-
RLPCCGM1_c2045	hypothetical protein	-
RLPCCGM1_c2046	protein gp16	-
RLPCCGM1_c2047	hypothetical protein	-
RLPCCGM1_c2048	hypothetical protein	-
RLPCCGM1_c2049	hypothetical protein	-
RLPCCGM1_c2050	hypothetical protein	-
RLPCCGM1_c2051	hypothetical protein	-
RLPCCGM1_c2052	hypothetical protein	-
RLPCCGM1_c2053	bacteriophage DNA transposition protein B	-
RLPCCGM1_c2054	transposase	-
RLPCCGM1_c2055	hypothetical protein	-
RLPCCGM1_c2056	chromosome partitioning protein parB	parB
RLPCCGM1_c2057	hypothetical protein	-
RLPCCGM1_c2058	hypothetical protein	-
RLPCCGM1_c2059	hypothetical protein	-
RLPCCGM1_c2060	hypothetical protein	-
RLPCCGM1_c2061	hypothetical protein	-
RLPCCGM1_c2100	hypothetical protein	-
RLPCCGM1_c2128	dehydrogenase	-
RLPCCGM1_c2253	addiction module antidote protein, CopG/Arc/MetJ family	-
RLPCCGM1_c2254	hypothetical protein	-
RLPCCGM1_c2272	antitoxin ParD	parD
RLPCCGM1_c2273	plasmid stabilization system	-
RLPCCGM1_c2306	hypothetical protein	-
RLPCCGM1_c2363	mannose-1-phosphate guanylyltransferase	-
RLPCCGM1_c2376	hypothetical protein	-
RLPCCGM1_c2448	hypothetical protein	-
RLPCCGM1_c2536	spermidine Putrescine ABC transporter permease component potC	-
RLPCCGM1_c2657	transcriptional regulator IrhA	-
RLPCCGM1_c2709	adenylate cyclase protein	-
RLPCCGM1_c2743	hypothetical protein	-
RLPCCGM1_c2781	hypothetical protein	-
RLPCCGM1_c2830	hypothetical protein	-
RLPCCGM1_c2876	ribonuclease	-
RLPCCGM1_c2921	transposase	-
RLPCCGM1_c2962	hypothetical protein	-
RLPCCGM1_c3052	hypothetical protein	-
RLPCCGM1_c3157	hypothetical protein	-
RLPCCGM1_c3175	D-amino-acid dehydrogenase	-
RLPCCGM1_c3176	amino acid ABC transporter ATP-binding protein	-
RLPCCGM1_c3177	polar amino acid ABC transporter, inner membrane subunit	-
RLPCCGM1_c3178	extracellular solute-binding protein	-
RLPCCGM1_c3179	GntR family transcriptional regulator	-
RLPCCGM1_c3201	transport protein	-
RLPCCGM1_c3202	transcriptional regulator, LysR family	-
RLPCCGM1_c3278	membrane-bound lytic murein transglycosylase	mltA
RLPCCGM1_c3335	Superfamily I DNA/RNA helicase protein	-
RLPCCGM1_c3336	Superfamily I DNA/RNA helicase protein	-
RLPCCGM1_c3373	hypothetical protein	-
RLPCCGM1_c3375	hypothetical protein	-
RLPCCGM1_c3376	pvuII DNA methyltransferase	-
RLPCCGM1_c3377	integrase family protein	-

RLPCCGM1_c3540	hypothetical protein	-
RLPCCGM1_c3593	acetyltransferase protein	-
RLPCCGM1_c3672	hypothetical protein	-
RLPCCGM1_c3753	two-component response regulator protein	-
RLPCCGM1_c3798	hypothetical protein	-
RLPCCGM1_c4039	methyltransferase type 11	-
RLPCCGM1_c4052	glycosyl transferase	-
RLPCCGM1_c4053	methyltransferase type 11	-
RLPCCGM1_c4054	DegT/DnrJ/EryC1/StrS aminotransferase family protein	-
RLPCCGM1_c4055	hypothetical protein	-
RLPCCGM1_c4057	glycosyl transferase	-
RLPCCGM1_c4071	hypothetical protein	-
RLPCCGM1_c4074	hypothetical protein	-
RLPCCGM1_c4131	scaffold protein for (4Fe-4S) cluster assembly ApbC, MRP-like protein	-
RLPCCGM1_c4166	transposase	-
RLPCCGM1_c4179	cyl-CoA dehydrogenase protein	-
RLPCCGM1_c4207	diguanylate cyclase/phosphodiesterase with PAS/PAC sensor(s)	-
RLPCCGM1_c4254	glutamate 5-kinase	-
RLPCCGM1_c4273	hypothetical protein	-
RLPCCGM1_c4277	acetyltransferase	-
RLPCCGM1_c4278	transcriptional regulator	-
RLPCCGM1_c4292	hypothetical protein	-
RLPCCGM1_c4297	hypothetical protein	-
RLPCCGM1_p0001	methyl-accepting chemotaxis protein	-
RLPCCGM1_p0002	micrococcal nuclease (thermonuclease)	-
RLPCCGM1_p0004	hypothetical protein	-
RLPCCGM1_p0005	hypothetical protein	-
RLPCCGM1_p0006	hypothetical protein	-
RLPCCGM1_p0007	hypothetical protein	-
RLPCCGM1_p0008	hypothetical protein	-
RLPCCGM1_p0009	exported glutamine-rich protein	-
RLPCCGM1_p0010	transmembrane protein	-
RLPCCGM1_p0012	hypothetical protein	-
RLPCCGM1_p0013	phenazine biosynthesis protein PhzF	-
RLPCCGM1_p0014	manganese transport protein	-
RLPCCGM1_p0015	hypothetical protein	-
RLPCCGM1_p0017	hypothetical protein	-
RLPCCGM1_p0018	hypothetical protein	-
RLPCCGM1_p0019	hypothetical protein	-
RLPCCGM1_p0020	chemotaxis protein methyltransferase CheR	cheR
RLPCCGM1_p0021	hypothetical protein	-
RLPCCGM1_p0022	hypothetical protein	-
RLPCCGM1_p0023	sensor histidine kinase	-
RLPCCGM1_p0024	hypothetical protein	-
RLPCCGM1_p0025	hypothetical protein	-
RLPCCGM1_p0026	transcriptional regulator, PadR family	-
RLPCCGM1_p0027	zinc-binding dehydrogenase	-
RLPCCGM1_p0028	hypothetical protein	-
RLPCCGM1_p0029	hypothetical protein	-
RLPCCGM1_p0030	AraC family transcriptional regulator	-
RLPCCGM1_p0031	oxidoreductase	-
RLPCCGM1_p0032	nucleoside-diphosphate-sugar epimerase	-
RLPCCGM1_p0033	hypothetical protein	-
RLPCCGM1_p0034	aldo-keto reductase	-
RLPCCGM1_p0038	hicB family protein	-

RLPCCGM1_p0039	hypothetical protein	-
RLPCCGM1_p0040	potassium efflux system KefA protein	-
RLPCCGM1_p0041	arylsulfatase	-
RLPCCGM1_p0043	hypothetical protein	-
RLPCCGM1_p0044	hypothetical protein	-
RLPCCGM1_p0046	hypothetical protein	-
RLPCCGM1_p0047	hypothetical protein	-
RLPCCGM1_p0048	hypothetical protein	-
RLPCCGM1_p0049	hypothetical protein	-
RLPCCGM1_p0050	hypothetical protein	-
RLPCCGM1_p0051	HupE-UreJ family metal transporter	hupE
RLPCCGM1_p0052	phosphoglycerate kinase	-
RLPCCGM1_p0053	hypothetical protein	-
RLPCCGM1_p0054	cysteine rich repeat domain protein	-
RLPCCGM1_p0055	OmpA/MotB domain protein	-
RLPCCGM1_p0056	hypothetical protein	-
RLPCCGM1_p0057	hypothetical protein	-
RLPCCGM1_p0058	hypothetical protein	-
RLPCCGM1_p0060	hypothetical protein	-
RLPCCGM1_p0062	hypothetical protein	-
RLPCCGM1_p0064	endoribonuclease L- <i>psp</i> family protein	-
RLPCCGM1_p0067	hypothetical protein	-
RLPCCGM1_p0068	aldehyde dehydrogenase	-
RLPCCGM1_p0069	LysR family transcriptional regulator	-
RLPCCGM1_p0079	hypothetical protein	-
RLPCCGM1_p0082	cytochrome c-like protein	-
RLPCCGM1_p0083	MerR family transcriptional regulator	-
RLPCCGM1_p0085	adenylate/guanylate cyclase	-
RLPCCGM1_p0086	hypothetical protein	-
RLPCCGM1_p0088	hypothetical protein	-
RLPCCGM1_p0089	hypothetical protein	-
RLPCCGM1_p0090	hypothetical protein	-
RLPCCGM1_p0095	diguanylate cyclase/phosphodiesterase	-
RLPCCGM1_p0096	glycosyl transferase family protein	-
RLPCCGM1_p0098	two component transcriptional regulator	two
RLPCCGM1_p0099	response regulator receiver domain protein (CheY-like receiver)	-
RLPCCGM1_p0100	transcriptional regulator, Cro/CI family	-
RLPCCGM1_p0101	transmembrane protein	-
RLPCCGM1_p0102	hypothetical protein	-
RLPCCGM1_p0104	transposase	-
RLPCCGM1_p0105	prolyl endopeptidase	-
RLPCCGM1_p0106	prolyl endopeptidase	-
RLPCCGM1_p0107	hypothetical protein	-
RLPCCGM1_p0108	transposase	-
RLPCCGM1_p0110	hypothetical protein	-
RLPCCGM1_p0111	integrase protein	-
RLPCCGM1_p0112	hypothetical protein	-
RLPCCGM1_p0113	hypothetical protein	-
RLPCCGM1_p0117	gifsy-2 prophage protein	-
RLPCCGM1_p0119	gifsy-2 prophage protein	-
RLPCCGM1_p0120	chaperone protein HtpG	-
RLPCCGM1_p0121	two-component response regulator protein	-
RLPCCGM1_p0122	integrase/recombinase clustered with segregation and condensation pro	-
RLPCCGM1_p0123	integrase/recombinase clustered with segregation and condensation pro	-
RLPCCGM1_p0124	hypothetical protein	-

RLPCCGM1_p0145	hydrolase of the alpha/beta superfamily	-
RLPCCGM1_p0166	transposase	-
RLPCCGM1_p0181	TetR family transcriptional regulator	-
RLPCCGM1_p0182	oxidoreductase	-
RLPCCGM1_p0237	insertion sequence transposase protein	-
RLPCCGM1_p0246	ABC transporter, periplasmic substrate-binding protein	-
RLPCCGM1_p0247	ABC transporter, periplasmic substrate-binding protein	-
RLPCCGM1_p0282	transcriptional regulator protein	-
RLPCCGM1_p0283	metal activated pyridoxal enzyme	-
RLPCCGM1_p0286	glutathione S-transferase	-
RLPCCGM1_p0287	isochorismatase hydrolase	-
RLPCCGM1_p0302	inner membrane component of tripartite multidrug resistance system	-
RLPCCGM1_p0310	hypothetical protein	-
RLPCCGM1_p0346	hypothetical protein	-
RLPCCGM1_p0470	hypothetical protein	-
RLPCCGM1_p0471	hypothetical protein	-
RLPCCGM1_p0472	hypothetical protein	-
RLPCCGM1_p0498	ankyrin repeat-rich membrane spanning protein	-
RLPCCGM1_p0520	multi-sensor hybrid histidine kinase	-
RLPCCGM1_p0528	hypothetical protein	-
RLPCCGM1_p0530	iIron-uptake factor PiuB	-
RLPCCGM1_p0531	hypothetical protein	-
RLPCCGM1_p0533	insertion sequence transposase protein	-
RLPCCGM1_p0537	hypothetical protein	-
RLPCCGM1_p0538	hypothetical protein	-
RLPCCGM1_p0547	hypothetical protein	-
RLPCCGM1_p0551	retron-type RNA-directed DNA polymerase	-
RLPCCGM1_p0552	hypothetical protein	-
RLPCCGM1_p0565	transposase	-
RLPCCGM1_p0566	hypothetical protein	-
RLPCCGM1_p0577	hypothetical protein	-
RLPCCGM1_p0578	transcriptional regulator protein	-
RLPCCGM1_p0593	type III secretion bridge between inner and outermembrane lipoprotein	-
RLPCCGM1_p0601	hypothetical protein	-
RLPCCGM1_p0605	transposase	-
RLPCCGM1_p0606	sensor histidine kinase	-
RLPCCGM1_p0608	hypothetical protein	-
RLPCCGM1_p0609	hypothetical protein	-
RLPCCGM1_p0611	transposase	-
RLPCCGM1_p0612	transposase	-
RLPCCGM1_p0627	ABC transporter, permease protein	-
RLPCCGM1_p0628	hypothetical protein	-
RLPCCGM1_p0629	hypothetical protein	-
RLPCCGM1_p0630	hypothetical protein	-
RLPCCGM1_p0638	hypothetical protein	-
RLPCCGM1_p0639	hypothetical protein	-
RLPCCGM1_p0640	hypothetical protein	-
RLPCCGM1_p0658	hypothetical protein	-
RLPCCGM1_p0671	transposase	-
RLPCCGM1_p0685	RNA-directed DNA polymerase RetA	retA
RLPCCGM1_p0687	heat shock protein 60 family chaperone GroEL	-
RLPCCGM1_p0699	FMN reductase	-
RLPCCGM1_p0717	transposase	-
RLPCCGM1_p0718	transposase	-
RLPCCGM1_p0747	nodZ protein	-

RLPCCGM1_p0750	6-O-carbamoyl transferase	-
RLPCCGM1_p0756	hypothetical protein	-
RLPCCGM1_p0757	IS4 insertion sequence transposase protein	-
RLPCCGM1_p0760	hypothetical protein	-
RLPCCGM1_p0768	insertion sequence transposase protein	-
RLPCCGM1_p0769	transposase	-
RLPCCGM1_p0780	hypothetical protein	-
RLPCCGM1_p0782	hypothetical protein	-
RLPCCGM1_p0783	insertion sequence transposase protein	-
RLPCCGM1_p0784	hypothetical protein	-
RLPCCGM1_p0785	hypothetical protein	-
RLPCCGM1_p0787	hypothetical protein	-
RLPCCGM1_p0811	insertion sequence transposase protein, IS21/IS408/IS1162 family	-
RLPCCGM1_p0853	hypothetical protein	-
RLPCCGM1_p0872	hypothetical protein	-
RLPCCGM1_p0879	hypothetical protein	-
RLPCCGM1_p0889	multimeric flavodoxin WrbA	-
RLPCCGM1_p0930	hypothetical protein	-
RLPCCGM1_p0965	hypothetical protein	-
RLPCCGM1_p1014	gamma-aminobutyratealpha-ketoglutarate aminotransferase	-
RLPCCGM1_p1015	gamma-aminobutyratealpha-ketoglutarate aminotransferase	-
RLPCCGM1_p1018	hypothetical protein	-
RLPCCGM1_p1042	hypothetical protein	-
RLPCCGM1_p1043	hypothetical protein	-
RLPCCGM1_p1044	hypothetical protein	-
RLPCCGM1_p1045	hypothetical protein	-
RLPCCGM1_p1150	N-acetylglucosamine-1-phosphate uridyltransferase/Glucosamine-1-pho	-
RLPCCGM1_p1158	flagellar hook-length control protein FliK	-
RLPCCGM1_p1166	hypothetical protein	-
RLPCCGM1_p1167	type IV secretion system protein VirD4	virD4
RLPCCGM1_p1187	hypothetical protein	-
RLPCCGM1_p1188	hypothetical protein	-
RLPCCGM1_p1252	hypothetical protein	-
RLPCCGM1_p1337	hypothetical protein	-
RLPCCGM1_p1347	hypothetical protein	-
RLPCCGM1_p1379	RNA polymerase sigma-C factor	-
RLPCCGM1_p1380	hypothetical protein	-
RLPCCGM1_p1393	hypothetical protein	-
RLPCCGM1_p1395	electron transfer flavoprotein, alpha subunit	-
RLPCCGM1_p1435	hypothetical protein	-
RLPCCGM1_p1512	hypothetical protein	-
RLPCCGM1_p1513	hypothetical protein	-
RLPCCGM1_p1524	hypothetical protein	-
RLPCCGM1_p1525	addiction module antitoxin	-
RLPCCGM1_p1534	sugar phosphatase YfbT	-
RLPCCGM1_p1537	TetR family transcriptional regulator	-
RLPCCGM1_p1538	short-chain dehydrogenase	-
RLPCCGM1_p1540	syrB regulator	syrB
RLPCCGM1_p1559	amino acid ABC transporter substrate-binding protein	-
RLPCCGM1_p1605	hypothetical protein	-
RLPCCGM1_p1679	transposase	-
RLPCCGM1_p1680	major pilus subunit of type IV secretion complex (VirB2)	-
RLPCCGM1_p1697	hypothetical protein	-
RLPCCGM1_p1708	hypothetical protein	-
RLPCCGM1_p1710	transporter protein	-

RLPCCGM1_p1711	hypothetical protein	-
RLPCCGM1_p1712	hypothetical protein	-
RLPCCGM1_p1713	hypothetical protein	-
RLPCCGM1_p1714	XRE family transcriptional regulator	-
RLPCCGM1_p1715	transcriptional regulation	-
RLPCCGM1_p1716	hypothetical protein	-
RLPCCGM1_p1717	nopaline-binding periplasmic protein	nocT
RLPCCGM1_p1718	opine ABC transporter permease	-
RLPCCGM1_p1719	nopaline transport system permease protein NocQ	nocQ
RLPCCGM1_p1720	LysR family transcriptional regulator	-
RLPCCGM1_p1722	hypothetical protein	-
RLPCCGM1_p1723	hypothetical protein	-
RLPCCGM1_p1724	hypothetical protein	-
RLPCCGM1_p1725	hypothetical protein	-
RLPCCGM1_p1726	hypothetical protein	-
RLPCCGM1_p1727	membrane protein	-
RLPCCGM1_p1728	hypothetical protein	-
RLPCCGM1_p1729	hypothetical protein	-
RLPCCGM1_p1730	hypothetical protein	-
RLPCCGM1_p1731	FAD-dependent pyridine nucleotide-disulfide oxidoreductase	-
RLPCCGM1_p1733	hypothetical protein	-
RLPCCGM1_p1734	hypothetical protein	-
RLPCCGM1_p1735	hypothetical protein	-
RLPCCGM1_p1736	ABC transporter integral membrane protein	-
RLPCCGM1_p1737	ABC transporter ATP-binding protein	-
RLPCCGM1_p1738	ABC transporter, permease protein	-
RLPCCGM1_p1739	lipoprotein	-
RLPCCGM1_p1740	two component transcriptional regulator	-
RLPCCGM1_p1741	sensory histidine kinase QseC	qseC
RLPCCGM1_p1742	phosphosugar isomerase	-
RLPCCGM1_p1743	transmembrane protein	-
RLPCCGM1_p1744	hypothetical protein	-
RLPCCGM1_p1745	cyclopropane-fatty-acyl-phospholipid synthase	cfa
RLPCCGM1_p1747	hypothetical protein	-
RLPCCGM1_p1748	carboxylesterase	-
RLPCCGM1_p1749	fatty acid desaturase	-
RLPCCGM1_p1750	hypothetical protein	-
RLPCCGM1_p1751	hypothetical protein	-
RLPCCGM1_p1752	aminotransferase	-
RLPCCGM1_p1753	phosphoserine phosphatase	-
RLPCCGM1_p1754	sensory histidine kinase QseC	qseC
RLPCCGM1_p1755	two component transcriptional regulator	qseB
RLPCCGM1_p1756	hypothetical protein	-
RLPCCGM1_p1757	hypothetical protein	-
RLPCCGM1_p1762	GreA/GreB family elongation factor	-
RLPCCGM1_p1763	regulator of nucleoside diphosphate kinase	rnk
RLPCCGM1_p1764	LysR family transcriptional regulator	-
RLPCCGM1_p1765	alcohol dehydrogenase GroES-like protein	-
RLPCCGM1_p1767	signal peptide protein	-
RLPCCGM1_p1768	cell division protein FtsH	-
RLPCCGM1_p1769	hypothetical protein	-
RLPCCGM1_p1770	hypothetical protein	-
RLPCCGM1_p1772	hypothetical protein	-
RLPCCGM1_p1792	hypothetical protein	-
RLPCCGM1_p1815	hypothetical protein	-

RLPCCGM1_p1822	hypothetical protein	-
RLPCCGM1_p1826	hypothetical protein	-
RLPCCGM1_p1835	hypothetical protein	-
RLPCCGM1_p1836	transposase	-
RLPCCGM1_p1837	hypothetical protein	-
RLPCCGM1_p1838	IS3 family transposase	-
RLPCCGM1_p1839	transposase	-
RLPCCGM1_p1845	hypothetical protein	-
RLPCCGM1_p1855	hypothetical protein	-
RLPCCGM1_p1887	RNA polymerase sigma-C factor	-
RLPCCGM1_p1888	hypothetical protein	-
RLPCCGM1_p1901	insertion sequence transposase	-
RLPCCGM1_p1902	hypothetical protein	-
RLPCCGM1_p1904	hypothetical protein	-
RLPCCGM1_p1915	transposase	-
RLPCCGM1_p1942	transmembrane protein	-
RLPCCGM1_p1964	hypothetical protein	-
RLPCCGM1_p2009	allophanate hydrolase protein	-
RLPCCGM1_p2010	allophanate hydrolase	-
RLPCCGM1_p2018	transport secretion system IV protein, VirB2	virB2
RLPCCGM1_p2031	adenylate/guanylate cyclase	-
RLPCCGM1_p2075	glycerate dehydrogenase	serA
RLPCCGM1_p2076	hypothetical protein	-
RLPCCGM1_p2102	VapB protein (antitoxin to VapC)	-
RLPCCGM1_p2103	plasmid stability protein	-
RLPCCGM1_p2125	hypothetical protein	-
RLPCCGM1_p2139	amino acid ABC transporter substrate-binding protein	-
RLPCCGM1_p2140	periplasmic binding protein	-
RLPCCGM1_p2160	ABC transporter permease protein	-
RLPCCGM1_p2180	UDP-galactose-lipid carrier transferase	-
RLPCCGM1_p2182	hypothetical protein	-
RLPCCGM1_p2183	hypothetical protein	-
RLPCCGM1_p2186	transposase	-

Supplementary Table 3. Part B. Predicted CCGM7 CDS not shared with the *Sinorhizobium* group (*S. meliloti*, *S. medicae*, *S. fredii*).

CDS	PREDICTED FUNCTION	GENE NAME
SAMCCGM7_c0005	leucine-responsive regulatory protein	-
SAMCCGM7_c0013	ABC transporter, membrane spanning protein	-
SAMCCGM7_c0015	ferric enterobactin transport ATP-binding protein FepC	fepC
SAMCCGM7_c0016	ABC transporter permease	-
SAMCCGM7_c0017	ABC transporter	-
SAMCCGM7_c0019	hypothetical protein	-
SAMCCGM7_c0025	hypothetical protein	-
SAMCCGM7_c0027	hypothetical protein	-
SAMCCGM7_c0029	hypothetical protein	-
SAMCCGM7_c0032	hypothetical protein	-
SAMCCGM7_c0034	glutathione S-transferase	-
SAMCCGM7_c0035	dehydrogenase/reductase oxidoreductase protein	-
SAMCCGM7_c0042	hypothetical protein	-
SAMCCGM7_c0044	general L-amino acid transport ATP-binding protein AapP	aapP
SAMCCGM7_c0045	hypothetical protein	-
SAMCCGM7_c0046	GntR family transcriptional regulator	-
SAMCCGM7_c0047	general L-amino acid transport system permease	-
SAMCCGM7_c0048	glutamate Aspartate transport system permease protein GltJ	-

SAMCCGM7_c0049	general L-amino acid-binding periplasmic protein AapJ	aapJ
SAMCCGM7_c0050	hypothetical protein	-
SAMCCGM7_c0051	hypothetical protein	-
SAMCCGM7_c0058	oxidoreductase	-
SAMCCGM7_c0064	oligopeptide transport system permease protein OppB	-
SAMCCGM7_c0065	oligopeptide transport system permease protein OppB	-
SAMCCGM7_c0073	leucine-responsive regulatory protein	lrp
SAMCCGM7_c0074	hypothetical protein	-
SAMCCGM7_c0075	leucine-responsive regulatory protein	-
SAMCCGM7_c0076	hypothetical protein	-
SAMCCGM7_c0077	reductase	-
SAMCCGM7_c0079	HTH-type transcriptional regulator TtuA	ttuA
SAMCCGM7_c0080	hypothetical protein	-
SAMCCGM7_c0082	hypothetical protein	-
SAMCCGM7_c0086	hypothetical protein	-
SAMCCGM7_c0088	hypothetical protein	-
SAMCCGM7_c0095	hypothetical protein	-
SAMCCGM7_c0120	kinase/phosphotransferase	-
SAMCCGM7_c0124	acetyltransferase	-
SAMCCGM7_c0126	dehydrogenase	-
SAMCCGM7_c0127	D-3-phosphoglycerate dehydrogenase	-
SAMCCGM7_c0129	hypothetical protein	-
SAMCCGM7_c0130	aromatic hydrocarbon utilization transcriptional regulator CatR-LysR family	-
SAMCCGM7_c0131	transposase	-
SAMCCGM7_c0132	transposase	-
SAMCCGM7_c0133	transposase	-
SAMCCGM7_c0134	L-ectoine synthase	ectC
SAMCCGM7_c0136	transposase	-
SAMCCGM7_c0137	transposase	-
SAMCCGM7_c0138	transposase	-
SAMCCGM7_c0139	hypothetical protein	-
SAMCCGM7_c0152	hypothetical protein	-
SAMCCGM7_c0153	cytochrome c	-
SAMCCGM7_c0154	imidazolonepropionase and amidohydrolase	-
SAMCCGM7_c0155	amidohydrolase	-
SAMCCGM7_c0156	nodulation protein D	nodD
SAMCCGM7_c0157	hypothetical protein	-
SAMCCGM7_c0158	AraC family transcriptional regulator protein	-
SAMCCGM7_c0159	hypothetical protein	-
SAMCCGM7_c0160	acyltransferase	nodA
SAMCCGM7_c0161	nodulation protein N	nodN
SAMCCGM7_c0162	hypothetical protein	-
SAMCCGM7_c0163	hypothetical protein	-
SAMCCGM7_c0164	hypothetical protein	-
SAMCCGM7_c0165	hypothetical protein	-
SAMCCGM7_c0166	hypothetical protein	-
SAMCCGM7_c0167	molybdopterin biosynthesis MoeB protein	-
SAMCCGM7_c0170	ATP-dependent DNA ligase protein	-
SAMCCGM7_c0172	transposase	-
SAMCCGM7_c0173	hypothetical protein	-
SAMCCGM7_c0175	hypothetical protein	-
SAMCCGM7_c0177	hypothetical protein	-
SAMCCGM7_c0178	hypothetical protein	-
SAMCCGM7_c0181	hypothetical protein	-
SAMCCGM7_c0182	hypothetical protein	-
SAMCCGM7_c0183	methyltransferase	-
SAMCCGM7_c0186	nodulation protein D	nodD
SAMCCGM7_c0191	nodulation protein O	nodO
SAMCCGM7_c0192	hypothetical protein	-
SAMCCGM7_c0194	transposase	-

SAMCCGM7_c0195	hypothetical protein	-
SAMCCGM7_c0196	short Chain	-
SAMCCGM7_c0197	hypothetical protein	-
SAMCCGM7_c0199	hypothetical protein	-
SAMCCGM7_c0201	hypothetical protein	-
SAMCCGM7_c0202	bifunctional reductase protein	-
SAMCCGM7_c0203	hypothetical protein	-
SAMCCGM7_c0204	hypothetical protein	-
SAMCCGM7_c0205	hypothetical protein	-
SAMCCGM7_c0206	hypothetical protein	-
SAMCCGM7_c0207	hypothetical protein	-
SAMCCGM7_c0208	hypothetical protein	-
SAMCCGM7_c0209	hypothetical protein	-
SAMCCGM7_c0210	hypothetical protein	-
SAMCCGM7_c0217	hypothetical protein	-
SAMCCGM7_c0218	hypothetical protein	-
SAMCCGM7_c0219	hypothetical protein	-
SAMCCGM7_c0220	hypothetical protein	-
SAMCCGM7_c0221	hypothetical protein	-
SAMCCGM7_c0224	bacterial luciferase family protein YtmO, in cluster with L-cystine ABC transporter	-
SAMCCGM7_c0225	coenzyme F420-dependent N5	-
SAMCCGM7_c0226	hypothetical protein	-
SAMCCGM7_c0227	hypothetical protein	-
SAMCCGM7_c0228	hypothetical protein	-
SAMCCGM7_c0229	GCN5 N-acetyltransferase	-
SAMCCGM7_c0230	hypothetical protein	-
SAMCCGM7_c0231	integrase	-
SAMCCGM7_c0233	hypothetical protein	-
SAMCCGM7_c0234	hypothetical protein	-
SAMCCGM7_c0235	hypothetical protein	-
SAMCCGM7_c0236	glycine cleavage system transcriptional activator GcvA	-
SAMCCGM7_c0237	hypothetical protein	-
SAMCCGM7_c0238	transposase	-
SAMCCGM7_c0239	hypothetical protein	-
SAMCCGM7_c0241	phenazine biosynthesis protein PhzF	-
SAMCCGM7_c0242	hypothetical protein	-
SAMCCGM7_c0243	hypothetical protein	-
SAMCCGM7_c0244	Asp/Glu/Hydantoin racemase family protein	-
SAMCCGM7_c0245	hypothetical protein	-
SAMCCGM7_c0246	hypothetical protein	-
SAMCCGM7_c0247	ornithine cyclodeaminase	-
SAMCCGM7_c0248	hypothetical protein	-
SAMCCGM7_c0249	transposase	-
SAMCCGM7_c0250	transposase	-
SAMCCGM7_c0251	hypothetical protein	-
SAMCCGM7_c0253	hypothetical protein	-
SAMCCGM7_c0258	hypothetical protein	-
SAMCCGM7_c0270	hypothetical protein	-
SAMCCGM7_c0293	hypothetical protein	-
SAMCCGM7_c0295	hypothetical protein	-
SAMCCGM7_c0307	two component transcriptional regulator, winged helix family	-
SAMCCGM7_c0308	two component regulatory protein	-
SAMCCGM7_c0336	hypothetical protein	-
SAMCCGM7_c0342	hypothetical protein	-
SAMCCGM7_c0360	hypothetical protein	-
SAMCCGM7_c0411	hypothetical protein	-
SAMCCGM7_c0449	hypothetical protein	-
SAMCCGM7_c0458	hypothetical protein	-
SAMCCGM7_c0472	hypothetical protein	-
SAMCCGM7_c0512	hypothetical protein	-

SAMCCGM7_c0527	hypothetical protein	-
SAMCCGM7_c0536	hypothetical protein	-
SAMCCGM7_c0551	hypothetical protein	-
SAMCCGM7_c0557	hypothetical protein	-
SAMCCGM7_c0579	hypothetical protein	-
SAMCCGM7_c0591	hypothetical protein	-
SAMCCGM7_c0593	hypothetical protein	-
SAMCCGM7_c0622	hypothetical protein	-
SAMCCGM7_c0627	hypothetical protein	-
SAMCCGM7_c0629	glutathione-regulated potassium-efflux system protein	-
SAMCCGM7_c0636	hypothetical protein	-
SAMCCGM7_c0639	hypothetical protein	-
SAMCCGM7_c0648	hypothetical protein	-
SAMCCGM7_c0656	hypothetical protein	-
SAMCCGM7_c0669	hypothetical protein	-
SAMCCGM7_c0680	flagellar M-ring protein	fliF
SAMCCGM7_c0703	hypothetical protein	-
SAMCCGM7_c0741	hypothetical protein	-
SAMCCGM7_c0748	hypothetical protein	-
SAMCCGM7_c0764	hypothetical protein	-
SAMCCGM7_c0770	hypothetical protein	-
SAMCCGM7_c0771	proline racemase	-
SAMCCGM7_c0772	L-proline glycine betaine binding ABC transporter protein ProX	-
SAMCCGM7_c0774	hypothetical protein	-
SAMCCGM7_c0783	alcohol dehydrogenase class III	adh
SAMCCGM7_c0784	dehydrogenase	-
SAMCCGM7_c0792	dipeptide-binding ABC transporter, periplasmic substrate-binding component	-
SAMCCGM7_c0808	hypothetical protein	-
SAMCCGM7_c0812	hypothetical protein	-
SAMCCGM7_c0819	hypothetical protein	-
SAMCCGM7_c0823	MFS permease	-
SAMCCGM7_c0830	dienelactone hydrolase family	-
SAMCCGM7_c0839	hypothetical protein	-
SAMCCGM7_c0906	hypothetical protein	-
SAMCCGM7_c0911	hypothetical protein	-
SAMCCGM7_c0934	hypothetical protein	-
SAMCCGM7_c0940	hypothetical protein	-
SAMCCGM7_c0947	hypothetical protein	-
SAMCCGM7_c0965	acetyltransferase	-
SAMCCGM7_c0967	hypothetical protein	-
SAMCCGM7_c0970	hypothetical protein	-
SAMCCGM7_c1000	hypothetical protein	-
SAMCCGM7_c1020	hypothetical protein	-
SAMCCGM7_c1030	hypothetical protein	-
SAMCCGM7_c1036	hypothetical protein	-
SAMCCGM7_c1066	hypothetical protein	-
SAMCCGM7_c1105	hypothetical protein	-
SAMCCGM7_c1161	hypothetical protein	-
SAMCCGM7_c1191	hypothetical protein	-
SAMCCGM7_c1192	hypothetical protein	-
SAMCCGM7_c1255	hypothetical protein	-
SAMCCGM7_c1263	hypothetical protein	-
SAMCCGM7_c1269	glycerophosphoryl diester phosphodiesterase	-
SAMCCGM7_c1274	hypothetical protein	-
SAMCCGM7_c1276	N-Acetyl-D-glucosamine ABC transport system, sugar-binding protein	-
SAMCCGM7_c1285	hypothetical protein	-
SAMCCGM7_c1317	universal stress protein UspA and nucleotide-binding protein	-
SAMCCGM7_c1325	hypothetical protein	-
SAMCCGM7_c1326	nitric oxide reductase activation protein NorD	-
SAMCCGM7_c1327	3-oxoacyl-(acyl-carrier protein) reductase	-

SAMCCGM7_c1334	IS4 transposase	-
SAMCCGM7_c1348	ferredoxin-type protein NapF (periplasmic nitrate reductase)	-
SAMCCGM7_c1353	hypothetical protein	-
SAMCCGM7_c1368	hypothetical protein	-
SAMCCGM7_c1382	O-acetylhomoserine (thiol)-lyase	cysD
SAMCCGM7_c1385	IclR family transcriptional regulator	-
SAMCCGM7_c1387	transposase	-
SAMCCGM7_c1388	helix-turn-helix, Fis-type	-
SAMCCGM7_c1389	ABC transporter periplasmic protein	-
SAMCCGM7_c1390	D-dipeptide transport system permease protein DdpB	ddpB
SAMCCGM7_c1391	peptide ABC transporter permease	-
SAMCCGM7_c1392	hypothetical protein	-
SAMCCGM7_c1393	oligopeptide transport ATP-binding protein OppD	-
SAMCCGM7_c1394	dipeptide transport ATP-binding protein DppF	dppF
SAMCCGM7_c1396	peptidase M14 carboxypeptidase A	-
SAMCCGM7_c1398	transposase	-
SAMCCGM7_c1399	enoyl-CoA hydratase/isomerase	-
SAMCCGM7_c1400	ATP-dependent AMP-binding family protein	-
SAMCCGM7_c1402	transposase	-
SAMCCGM7_c1403	transposase	-
SAMCCGM7_c1418	AsnC family transcriptional regulator	-
SAMCCGM7_c1422	glycerol-3-phosphate ABC transporter, permease protein UgpE	-
SAMCCGM7_c1425	hypothetical protein	-
SAMCCGM7_c1448	hypothetical protein	-
SAMCCGM7_c1465	hypothetical protein	-
SAMCCGM7_c1474	hypothetical protein	-
SAMCCGM7_c1510	hypothetical protein	-
SAMCCGM7_c1519	hypothetical protein	-
SAMCCGM7_c1520	ferrichrome-iron transporter, receptor protein	fhuA
SAMCCGM7_c1527	hypothetical protein	-
SAMCCGM7_c1529	hypothetical protein	-
SAMCCGM7_c1531	hypothetical protein	-
SAMCCGM7_c1548	hypothetical protein	-
SAMCCGM7_c1552	hypothetical protein	-
SAMCCGM7_c1562	4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase	-
SAMCCGM7_c1607	hypothetical protein	-
SAMCCGM7_c1619	hypothetical protein	-
SAMCCGM7_c1620	hypothetical protein	-
SAMCCGM7_c1638	surface polysaccharides/antigen	-
SAMCCGM7_c1640	hypothetical protein	-
SAMCCGM7_c1656	hypothetical protein	-
SAMCCGM7_c1694	methyl-accepting chemotaxis protein	-
SAMCCGM7_c1742	glyoxalase	-
SAMCCGM7_c1749	hypothetical protein	-
SAMCCGM7_c1750	hypothetical protein	-
SAMCCGM7_c1759	hypothetical protein	-
SAMCCGM7_c1760	hypothetical protein	-
SAMCCGM7_c1761	hypothetical protein	-
SAMCCGM7_c1762	hypothetical protein	-
SAMCCGM7_c1763	IclR family transcriptional regulator	-
SAMCCGM7_c1764	hypothetical protein	-
SAMCCGM7_c1765	catechol 1,2-dioxygenase	-
SAMCCGM7_c1766	xylose isomerase domain-containing protein	-
SAMCCGM7_c1768	pyridoxine/pyridoxamine 5'-phosphate oxidase	pdxH
SAMCCGM7_c1769	integral membrane protein	-
SAMCCGM7_c1770	maleylacetate reductase	tftE
SAMCCGM7_c1771	hypothetical protein	-
SAMCCGM7_c1772	hypothetical protein	-
SAMCCGM7_c1774	D-amino acid dehydrogenase small subunit	-
SAMCCGM7_c1775	3-dehydroquinate dehydratase	-

SAMCCGM7_c1777	3-oxoacyl-(acyl-carrier protein) reductase	-
SAMCCGM7_c1779	xylose isomerase domain-containing protein	-
SAMCCGM7_c1780	hypothetical protein	-
SAMCCGM7_c1781	short-chain dehydrogenase/reductase SDR	-
SAMCCGM7_c1782	TetR family transcriptional regulator	-
SAMCCGM7_c1797	hypothetical protein	-
SAMCCGM7_c1801	hypothetical protein	-
SAMCCGM7_c1813	hydrolases or acyltransferases (alpha/beta hydrolase superfamily)	-
SAMCCGM7_c1817	hypothetical protein	-
SAMCCGM7_c1831	hypothetical protein	-
SAMCCGM7_c1832	hypothetical protein	-
SAMCCGM7_c1833	hypothetical protein	-
SAMCCGM7_c1835	hypothetical protein	-
SAMCCGM7_c1836	hypothetical protein	-
SAMCCGM7_c1837	hypothetical protein	-
SAMCCGM7_c1838	hypothetical protein	-
SAMCCGM7_c1839	hypothetical protein	-
SAMCCGM7_c1841	3-oxoacyl-(acyl-carrier protein) reductase	-
SAMCCGM7_c1842	hypothetical protein	-
SAMCCGM7_c1844	hypothetical protein	-
SAMCCGM7_c1845	methylase	-
SAMCCGM7_c1846	L-asparaginase	-
SAMCCGM7_c1847	adenylate cyclase	-
SAMCCGM7_c1848	hypothetical protein	-
SAMCCGM7_c1849	LuxR family transcriptional regulator	-
SAMCCGM7_c1850	transcriptional regulatory protein	-
SAMCCGM7_c1852	metallo-beta-lactamase family protein	-
SAMCCGM7_c1853	hypothetical protein	-
SAMCCGM7_c1855	hypothetical protein	-
SAMCCGM7_c1856	hypothetical protein	-
SAMCCGM7_c1857	AraC family transcriptional regulator	-
SAMCCGM7_c1862	hypothetical protein	-
SAMCCGM7_c1863	hypothetical protein	-
SAMCCGM7_c1865	hypothetical protein	-
SAMCCGM7_c1866	NADPH-dependent FMN reductase	-
SAMCCGM7_c1867	PadR family transcriptional regulator	-
SAMCCGM7_c1868	metallo-beta-lactamase family protein	-
SAMCCGM7_c1870	binding-protein-dependent transport systems inner membrane component	-
SAMCCGM7_c1872	taurine-binding periplasmic protein TauA	-
SAMCCGM7_c1873	hypothetical protein	-
SAMCCGM7_c1874	hypothetical protein	-
SAMCCGM7_c1875	hypothetical protein	-
SAMCCGM7_c1876	nucleoside-diphosphate-sugar epimerase	-
SAMCCGM7_c1878	hypothetical protein	-
SAMCCGM7_c1880	FAD-dependent oxidoreductase	-
SAMCCGM7_c1883	choline dehydrogenase	-
SAMCCGM7_c1884	hypothetical protein	-
SAMCCGM7_c1885	hypothetical protein	-
SAMCCGM7_c1886	hypothetical protein	-
SAMCCGM7_c1887	xylose isomerase domain-containing protein	-
SAMCCGM7_c1894	hypothetical protein	-
SAMCCGM7_c1896	pyruvate carboxyl transferase	-
SAMCCGM7_c1897	mimosine-binding periplasmic protein	-
SAMCCGM7_c1898	hypothetical protein	-
SAMCCGM7_c1899	polar amino acid ABC transporter, inner membrane subunit	-
SAMCCGM7_c1901	cystathionine beta-lyase PatB	patB
SAMCCGM7_c1902	endoribonuclease L-PSP	-
SAMCCGM7_c1903	D-cysteine desulfhydrase	dcyD
SAMCCGM7_c1904	alkyl hydroperoxide reductase subunit C	ahpC
SAMCCGM7_c1905	alkyl hydroperoxide reductase protein F	-

SAMCCGM7_c1906	alkyl hydroperoxide reductase protein F	-
SAMCCGM7_c1907	alkyl hydroperoxide reductase protein F	-
SAMCCGM7_c1908	transcription regulator	-
SAMCCGM7_c1909	AraC family transcriptional regulator	-
SAMCCGM7_c1910	iron-chelator utilization protein	-
SAMCCGM7_c1911	transport protein permease	-
SAMCCGM7_c1912	hypothetical protein	-
SAMCCGM7_c1913	hypothetical protein	-
SAMCCGM7_c1915	4-hydroxyphenylacetate 3-monooxygenase, reductase component	hpaC
SAMCCGM7_c1916	hypothetical protein	-
SAMCCGM7_c1919	periplasmic binding protein	-
SAMCCGM7_c1920	ABC-type sugar transport system, permease component	-
SAMCCGM7_c1921	ABC transporter, permease protein	-
SAMCCGM7_c1922	sugar dehydrogenase	-
SAMCCGM7_c1923	trehalose import ATP-binding protein SugC	sugC
SAMCCGM7_c1924	chemoreceptor protein	-
SAMCCGM7_c1926	HAD-superfamily hydrolase	-
SAMCCGM7_c1927	hypothetical protein	-
SAMCCGM7_c1929	DegT/DnrJ/EryC1/StrS aminotransferase	-
SAMCCGM7_c1930	ROK family protein	-
SAMCCGM7_c1931	hypothetical protein	-
SAMCCGM7_c1932	nodulation protein O	nodO
SAMCCGM7_c1933	Lactococcin-G-processing and transport ATP-binding protein LagD	lagD
SAMCCGM7_c1934	protein secretion protein, HlyD family	-
SAMCCGM7_c1935	hypothetical protein	-
SAMCCGM7_c1936	hypothetical protein	-
SAMCCGM7_c1937	dipeptidyl peptidase IV	-
SAMCCGM7_c1938	hypothetical protein	-
SAMCCGM7_c1941	membrane-fusion protein	-
SAMCCGM7_c1943	trehalose synthase	treT
SAMCCGM7_c1944	phosphatase	-
SAMCCGM7_c1945	aminotransferase	-
SAMCCGM7_c1946	paromamine 6'-oxidase	neoG
SAMCCGM7_c1947	hypothetical protein	-
SAMCCGM7_c1948	modular protein	-
SAMCCGM7_c1951	chromate transporter protein	-
SAMCCGM7_c1952	coproporphyrinogen III oxidase	hemN
SAMCCGM7_c1953	uptake hydrogenase small subunit	hupS
SAMCCGM7_c1954	uptake hydrogenase large subunit	hupL
SAMCCGM7_c1955	Ni/Fe-hydrogenase, 1 b-type cytochrome subunit	hupC
SAMCCGM7_c1956	hydrogenase maturation	hupD
SAMCCGM7_c1957	hydrogenase expression/formation	hupF
SAMCCGM7_c1958	hypothetical protein	-
SAMCCGM7_c1959	hydrogenase expression/formation	hupH
SAMCCGM7_c1960	rubredoxin-type Fe(Cys) ₄ protein	-
SAMCCGM7_c1961	hydrogenase expression/formation	hupJ
SAMCCGM7_c1962	hydrogenase expression/formation	hupK
SAMCCGM7_c1963	hydrogenase expression/formation	hypA
SAMCCGM7_c1964	hypothetical protein	-
SAMCCGM7_c1965	hydrogenase nickel incorporation	hypB
SAMCCGM7_c1966	carbamoyl phosphate phosphatase, (NiFe) hydrogenase maturation protein	hypF
SAMCCGM7_c1967	hydrogenase expression/formation	hypC
SAMCCGM7_c1968	hydrogenase expression/formation	hypD
SAMCCGM7_c1969	hydrogenase maturation	hypE
SAMCCGM7_c1971	hypothetical protein	-
SAMCCGM7_c1972	amidase	-
SAMCCGM7_c1975	hypothetical protein	-
SAMCCGM7_c1977	aspartate ammonia-lyase	aspA
SAMCCGM7_c1978	succinate-semialdehyde dehydrogenase (NADP+)	-
SAMCCGM7_c1982	AsnC family alanine catabolic operon transcriptional regulator	dadR

SAMCCGM7_c1983	AsnC family transcriptional regulator	-
SAMCCGM7_c1984	acetylornithine deacetylase	-
SAMCCGM7_c1986	glutamine transport system permease protein GlnP	glnP
SAMCCGM7_c1987	glutamine transport ATP-binding protein GlnQ	glnQ
SAMCCGM7_c1989	hypothetical protein	-
SAMCCGM7_c1993	hypothetical protein	-
SAMCCGM7_c1996	hypothetical protein	-
SAMCCGM7_c1997	hypothetical protein	-
SAMCCGM7_c1998	AraC family transcriptional regulator	-
SAMCCGM7_c1999	major facilitator superfamily permease	-
SAMCCGM7_c2000	hypothetical protein	-
SAMCCGM7_c2003	nodulation protein D	nodD
SAMCCGM7_c2004	hypothetical protein	-
SAMCCGM7_c2005	hypothetical protein	-
SAMCCGM7_c2006	hypothetical protein	-
SAMCCGM7_c2007	hypothetical protein	-
SAMCCGM7_c2008	acyltransferase	-
SAMCCGM7_c2009	hypothetical protein	-
SAMCCGM7_c2010	acyltransferase	-
SAMCCGM7_c2019	resolvase/Integrase TinR protein	-
SAMCCGM7_c2020	hypothetical protein	-
SAMCCGM7_c2021	hypothetical protein	-
SAMCCGM7_c2022	hypothetical protein	-
SAMCCGM7_c2023	hypothetical protein	-
SAMCCGM7_c2024	transposase	-
SAMCCGM7_c2025	hypothetical protein	-
SAMCCGM7_c2026	hypothetical protein	-
SAMCCGM7_c2028	phosphopantetheinyl transferase	-
SAMCCGM7_c2029	efflux protein, MATE family	-
SAMCCGM7_c2030	long-chain-fatty-acid--CoA ligase	-
SAMCCGM7_c2031	aerobic C4-dicarboxylate transporter for fumarate, L-malate, D-malate, succinate	-
SAMCCGM7_c2032	AraC family transcriptional regulator	-
SAMCCGM7_c2040	two-component sensor histidine kinase	-
SAMCCGM7_c2041	hypothetical protein	-
SAMCCGM7_c2042	hypothetical protein	-
SAMCCGM7_c2047	hypothetical protein	-
SAMCCGM7_c2048	transposase number 1 for insertion sequence NGRIS-16h	-
SAMCCGM7_c2054	hypothetical protein	-
SAMCCGM7_c2060	hypothetical protein	-
SAMCCGM7_c2069	peptide ABC transporter	-
SAMCCGM7_c2075	hypothetical protein	-
SAMCCGM7_c2076	hypothetical protein	-
SAMCCGM7_c2078	transposase	-
SAMCCGM7_c2080	hypothetical protein	-
SAMCCGM7_c2081	hypothetical protein	-
SAMCCGM7_c2082	hypothetical protein	-
SAMCCGM7_c2083	methyltransferase type 11	-
SAMCCGM7_c2085	3-oxoacyl-(acyl-carrier-protein)	-
SAMCCGM7_c2087	hypothetical protein	-
SAMCCGM7_c2089	D-amino acid oxidase protein	-
SAMCCGM7_c2090	D-amino acid oxidase protein	-
SAMCCGM7_c2091	hypothetical protein	-
SAMCCGM7_c2092	ArsR family transcriptional regulator	-
SAMCCGM7_c2097	hypothetical protein	-
SAMCCGM7_c2098	hypothetical protein	-
SAMCCGM7_c2102	hypothetical protein	-
SAMCCGM7_c2103	hypothetical protein	-
SAMCCGM7_c2104	hypothetical protein	-
SAMCCGM7_c2105	LysR family transcriptional regulator	-
SAMCCGM7_c2106	alkyl sulfatase beta-lactamase family protein	-

SAMCCGM7_c2107	hypothetical protein	-
SAMCCGM7_c2108	hypothetical protein	-
SAMCCGM7_c2110	pyridoxamine 5'-phosphate oxidase	-
SAMCCGM7_c2111	hypothetical protein	-
SAMCCGM7_c2113	short-chain dehydrogenase/reductase SDR	-
SAMCCGM7_c2116	hypothetical protein	-
SAMCCGM7_c2117	plasmid stabilization protein	-
SAMCCGM7_c2118	hypothetical protein	-
SAMCCGM7_c2119	ParB domain protein nuclease	-
SAMCCGM7_c2120	hypothetical protein	-
SAMCCGM7_c2121	hypothetical protein	-
SAMCCGM7_c2125	filamentation protein	-
SAMCCGM7_c2126	filamentation protein	-
SAMCCGM7_c2127	filamentation protein	-
SAMCCGM7_c2132	hypothetical protein	-
SAMCCGM7_c2139	hypothetical protein	-
SAMCCGM7_c2140	hypothetical protein	-
SAMCCGM7_c2141	hypothetical protein	-
SAMCCGM7_c2142	hypothetical protein	-
SAMCCGM7_c2143	hypothetical protein	-
SAMCCGM7_c2145	spermidine/putrescine import ATP-binding protein PotA	potA
SAMCCGM7_c2146	ABC transporter permease component	-
SAMCCGM7_c2147	putrescine transport system permease protein PotH	-
SAMCCGM7_c2148	ABC transporter, periplasmic spermidine putrescine-binding protein PotD	-
SAMCCGM7_c2149	HTH-type transcriptional regulator DgdR	-
SAMCCGM7_c2150	creatinine amidohydrolase	crnA
SAMCCGM7_c2151	hypothetical protein	-
SAMCCGM7_c2152	hypothetical protein	-
SAMCCGM7_c2163	hypothetical protein	-
SAMCCGM7_c2165	hypothetical protein	-
SAMCCGM7_c2166	hypothetical protein	-
SAMCCGM7_c2167	hypothetical protein	-
SAMCCGM7_c2168	heat shock protein 70	-
SAMCCGM7_c2170	hypothetical protein	-
SAMCCGM7_c2171	hypothetical protein	-
SAMCCGM7_c2176	hypothetical protein	-
SAMCCGM7_c2178	transposase	-
SAMCCGM7_c2179	phage DNA invertase	-
SAMCCGM7_c2180	DNA-invertase	-
SAMCCGM7_c2181	hypothetical protein	-
SAMCCGM7_c2182	hypothetical protein	-
SAMCCGM7_c2184	nucleotidyltransferase	-
SAMCCGM7_c2196	nucleoside-diphosphate-sugar epimerase	-
SAMCCGM7_c2206	hypothetical protein	-
SAMCCGM7_c2208	hypothetical protein	-
SAMCCGM7_c2212	4-hydroxyphenylpyruvate dioxygenase	-
SAMCCGM7_c2241	hypothetical protein	-
SAMCCGM7_c2243	hypothetical protein	-
SAMCCGM7_c2245	hypothetical protein	-
SAMCCGM7_c2258	hypothetical protein	-
SAMCCGM7_c2259	glutathione S-transferase	-
SAMCCGM7_c2260	hypothetical protein	-
SAMCCGM7_c2265	hypothetical protein	-
SAMCCGM7_c2272	hypothetical protein	-
SAMCCGM7_c2278	hypothetical protein	-
SAMCCGM7_c2281	hypothetical protein	-
SAMCCGM7_c2298	hypothetical protein	-
SAMCCGM7_c2301	hydrolase of the alpha/beta superfamily	-
SAMCCGM7_c2303	hypothetical protein	-
SAMCCGM7_c2304	IS4 insertion sequence transposase	-

SAMCCGM7_c2305	aminoglycoside N3-acetyltransferase	aacC
SAMCCGM7_c2314	hypothetical protein	-
SAMCCGM7_c2316	nuclease (thermonuclease) protein	-
SAMCCGM7_c2332	hypothetical protein	-
SAMCCGM7_c2334	proline racemase	-
SAMCCGM7_c2335	hypothetical protein	-
SAMCCGM7_c2339	glycine betaine/L-proline transport system permease protein ProW	proW
SAMCCGM7_c2342	L-proline glycine betaine binding ABC transporter protein ProX	-
SAMCCGM7_c2343	3-oxoacyl-(acyl-carrier protein) reductase	-
SAMCCGM7_c2344	4-hydroxy-tetrahydrodipicolinate synthase 1	dapA
SAMCCGM7_c2345	oxidoreductase protein	-
SAMCCGM7_c2346	hypothetical protein	-
SAMCCGM7_c2347	transcriptional regulator	-
SAMCCGM7_c2348	pyridoxamine 5'-phosphate oxidase-like FMN-binding protein	-
SAMCCGM7_c2349	hypothetical protein	-
SAMCCGM7_c2351	hypothetical protein	-
SAMCCGM7_c2354	hypothetical protein	-
SAMCCGM7_c2356	GNAT family acetyltransferase	-
SAMCCGM7_c2357	Na ⁺ /H ⁺ antiporter protein	-
SAMCCGM7_c2358	hypothetical protein	-
SAMCCGM7_c2361	hypothetical protein	-
SAMCCGM7_c2362	hypothetical protein	-
SAMCCGM7_c2403	hypothetical protein	-
SAMCCGM7_c2414	serine/threonine-protein kinase	-
SAMCCGM7_c2415	hypothetical protein	-
SAMCCGM7_c2416	hypothetical protein	-
SAMCCGM7_c2417	outer membrane protein	-
SAMCCGM7_c2418	hypothetical protein	-
SAMCCGM7_c2419	FHA domain protein	-
SAMCCGM7_c2420	hypothetical protein	-
SAMCCGM7_c2421	hypothetical protein	-
SAMCCGM7_c2422	hypothetical protein	-
SAMCCGM7_c2423	protein of avirulence locus ImpE	impE
SAMCCGM7_c2424	hypothetical protein	-
SAMCCGM7_c2425	hypothetical protein	-
SAMCCGM7_c2426	hypothetical protein	-
SAMCCGM7_c2427	ImpA protein	-
SAMCCGM7_c2429	cytoplasmic protein	-
SAMCCGM7_c2430	transmembrane protein	-
SAMCCGM7_c2431	hypothetical protein	-
SAMCCGM7_c2432	fimbrial operon protein	-
SAMCCGM7_c2434	hypothetical protein	-
SAMCCGM7_c2435	hypothetical protein	-
SAMCCGM7_c2436	hypothetical protein	-
SAMCCGM7_c2437	hypothetical protein	-
SAMCCGM7_c2471	hypothetical protein	-
SAMCCGM7_c2490	gamma-aminobutyrate:alpha-ketoglutarate aminotransferase	-
SAMCCGM7_c2492	transposase	-
SAMCCGM7_c2514	hypothetical protein	-
SAMCCGM7_c2522	hypothetical protein	-
SAMCCGM7_c2523	hypothetical protein	-
SAMCCGM7_c2525	hypothetical protein	-
SAMCCGM7_c2527	type I secretion system membrane fusion protein PrsE	prsE
SAMCCGM7_c2528	alkaline protease secretion ATP-binding protein AprD	aprD
SAMCCGM7_c2530	hypothetical protein	-
SAMCCGM7_c2531	5'-nucleotidase SurE	surE
SAMCCGM7_c2532	FAD dependent oxidoreductase	-
SAMCCGM7_c2533	short-chain dehydrogenase	-
SAMCCGM7_c2534	saccharopine dehydrogenase	-
SAMCCGM7_c2535	hypothetical protein	-

SAMCCGM7_c2536	hypothetical protein	-
SAMCCGM7_c2537	hypothetical protein	-
SAMCCGM7_c2538	TetR family transcriptional regulator	-
SAMCCGM7_c2539	hypothetical protein	-
SAMCCGM7_c2540	hypothetical protein	-
SAMCCGM7_c2541	3-keto-5-aminohexanoate cleavage enzyme	kce
SAMCCGM7_c2542	hypothetical protein	-
SAMCCGM7_c2547	ABC transporter permease	-
SAMCCGM7_c2548	ABC transporter permease	-
SAMCCGM7_c2557	branched chain amino acid ABC transporter ATPase	livF
SAMCCGM7_c2559	hypothetical protein	-
SAMCCGM7_c2566	NAD(P)H-flavin oxidoreductase	-
SAMCCGM7_c2567	shikimate kinase	aroK
SAMCCGM7_c2568	hypothetical protein	-
SAMCCGM7_c2571	transposase	-
SAMCCGM7_c2572	transposase	-
SAMCCGM7_c2573	transposase	-
SAMCCGM7_c2576	ATP-dependent DNA ligase protein	-
SAMCCGM7_c2578	hypothetical protein	-
SAMCCGM7_c2579	hypothetical protein	-
SAMCCGM7_c2583	hypothetical protein	-
SAMCCGM7_c2586	AraC family transcriptional regulator	-
SAMCCGM7_c2587	hypothetical protein	-
SAMCCGM7_c2590	hypothetical protein	-
SAMCCGM7_c2591	hypothetical protein	-
SAMCCGM7_c2592	hypothetical protein	-
SAMCCGM7_c2593	hypothetical protein	-
SAMCCGM7_c2594	hypothetical protein	-
SAMCCGM7_c2597	hypothetical protein	-
SAMCCGM7_c2621	OmpA/MotB domain protein	-
SAMCCGM7_c2629	hypothetical protein	-
SAMCCGM7_c2630	hypothetical protein	-
SAMCCGM7_c2632	activator of ProP osmoprotectant transporter	-
SAMCCGM7_c2636	hypothetical protein	-
SAMCCGM7_c2637	hypothetical protein	-
SAMCCGM7_c2645	hypothetical protein	-
SAMCCGM7_c2646	hypothetical protein	-
SAMCCGM7_c2648	ATP-dependent DNA ligase protein	-
SAMCCGM7_c2652	hypothetical protein	-
SAMCCGM7_c2654	hypothetical protein	-
SAMCCGM7_c2655	hypothetical protein	-
SAMCCGM7_c2656	hypothetical protein	-
SAMCCGM7_c2657	hypothetical protein	-
SAMCCGM7_c2658	oxidoreductase	-
SAMCCGM7_c2659	adenylate/guanylate cyclase	-
SAMCCGM7_c2660	Crp/FNR family transcriptional regulator	-
SAMCCGM7_c2661	hypothetical protein	-
SAMCCGM7_c2662	hypothetical protein	-
SAMCCGM7_c2674	capsule polysaccharide export protein	-
SAMCCGM7_c2675	hypothetical protein	-
SAMCCGM7_c2678	filamentation induced by cAMP protein Fic	-
SAMCCGM7_c2679	transposase	-
SAMCCGM7_c2680	filamentation induced by cAMP protein Fic	-
SAMCCGM7_c2682	hypothetical protein	-
SAMCCGM7_c2683	hypothetical protein	-
SAMCCGM7_c2684	hypothetical protein	-
SAMCCGM7_c2685	hypothetical protein	-
SAMCCGM7_c2700	hypothetical protein	-
SAMCCGM7_c2704	hypothetical protein	-
SAMCCGM7_c2708	hypothetical protein	-

SAMCCGM7_c2709	hypothetical protein	-
SAMCCGM7_c2711	IS66 insertion sequence transposase	-
SAMCCGM7_c2713	transposase	-
SAMCCGM7_c2716	hypothetical protein	-
SAMCCGM7_c2720	hypothetical protein	-
SAMCCGM7_c2727	hypothetical protein	-
SAMCCGM7_c2729	hypothetical protein	-
SAMCCGM7_c2734	hypothetical protein	-
SAMCCGM7_c2740	hypothetical protein	-
SAMCCGM7_c2743	hypothetical protein	-
SAMCCGM7_c2744	hypothetical protein	-
SAMCCGM7_c2745	hypothetical protein	-
SAMCCGM7_c2750	hypothetical protein	-
SAMCCGM7_c2762	hypothetical protein	-
SAMCCGM7_c2787	hypothetical protein	-
SAMCCGM7_c2808	hypothetical protein	-
SAMCCGM7_c2809	hypothetical protein	-
SAMCCGM7_c2823	hypothetical protein	-
SAMCCGM7_c2872	hypothetical protein	-
SAMCCGM7_c2882	hypothetical protein	-
SAMCCGM7_c2894	hypothetical protein	-
SAMCCGM7_c2904	hypothetical protein	-
SAMCCGM7_c2914	hypothetical protein	-
SAMCCGM7_c2941	lipoyl synthase	lipA
SAMCCGM7_c2999	hypothetical protein	-
SAMCCGM7_c3017	tetracycline efflux protein TetA	-
SAMCCGM7_c3018	tetracycline efflux protein TetA	-
SAMCCGM7_c3036	hypothetical protein	-
SAMCCGM7_c3042	amidase	-
SAMCCGM7_c3108	hypothetical protein	-
SAMCCGM7_c3140	glucosamine--fructose-6-phosphate aminotransferase	-
SAMCCGM7_c3141	C4-dicarboxylate transport protein	-
SAMCCGM7_c3150	aquaporin Z	-
SAMCCGM7_c3151	aquaporin Z	-
SAMCCGM7_c3159	hypothetical protein	-
SAMCCGM7_c3163	Lacl family transcriptional regulator	-
SAMCCGM7_c3164	hypothetical protein	-
SAMCCGM7_c3165	sugar ABC transporter permease	-
SAMCCGM7_c3166	sn-glycerol-3-phosphate transport system permease protein UgpA	ugpA
SAMCCGM7_c3167	sn-glycerol-3-phosphate import ATP-binding protein UgpC	ugpC
SAMCCGM7_c3168	hypothetical protein	-
SAMCCGM7_c3170	hypothetical protein	-
SAMCCGM7_c3189	hypothetical protein	-
SAMCCGM7_c3195	hypothetical protein	-
SAMCCGM7_c3196	hypothetical protein	-
SAMCCGM7_c3197	hypothetical protein	-
SAMCCGM7_c3201	hypothetical protein	-
SAMCCGM7_c3217	hypothetical protein	-
SAMCCGM7_c3241	hypothetical protein	-
SAMCCGM7_c3255	hypothetical protein	-
SAMCCGM7_c3260	hypothetical protein	-
SAMCCGM7_c3269	hypothetical protein	-
SAMCCGM7_c3293	hypothetical protein	-
SAMCCGM7_c3301	hypothetical protein	-
SAMCCGM7_c3309	hypothetical protein	-
SAMCCGM7_c3320	hypothetical protein	-
SAMCCGM7_c3333	hypothetical protein	-
SAMCCGM7_c3351	hypothetical protein	-
SAMCCGM7_c3352	low-specificity L-threonine aldolase	-
SAMCCGM7_c3353	hypothetical protein	-

SAMCCGM7_c3357	ATP-dependent DNA ligase clustered with Ku protein, LigD	-
SAMCCGM7_c3376	hypothetical protein	-
SAMCCGM7_c3393	hypothetical protein	-
SAMCCGM7_c3404	hypothetical protein	-
SAMCCGM7_c3434	hypothetical protein	-
SAMCCGM7_c3435	hypothetical protein	-
SAMCCGM7_c3467	asparagine synthetase (glutamine-hydrolyzing)	-
SAMCCGM7_c3481	hypothetical protein	-
SAMCCGM7_c3489	pantothenate kinase	-
SAMCCGM7_c3498	hypothetical protein	-
SAMCCGM7_c3510	hypothetical protein	-
SAMCCGM7_c3512	hypothetical protein	-
SAMCCGM7_c3527	hypothetical protein	-
SAMCCGM7_c3528	hypothetical protein	-
SAMCCGM7_c3529	hypothetical protein	-
SAMCCGM7_c3532	L-lactate dehydrogenase	ldh
SAMCCGM7_c3534	hypothetical protein	-
SAMCCGM7_c3547	hypothetical protein	-
SAMCCGM7_c3561	hypothetical protein	-
SAMCCGM7_c3584	hypothetical protein	-
SAMCCGM7_c3588	transposase	-
SAMCCGM7_c3592	hypothetical protein	-
SAMCCGM7_c3600	potassium efflux system KefA protein / Small-conductance mechanosensitive chan-	-
SAMCCGM7_c3612	hypothetical protein	-
SAMCCGM7_c3617	hypothetical protein	-
SAMCCGM7_c3620	hypothetical protein	-
SAMCCGM7_c3625	hypothetical protein	-
SAMCCGM7_c3633	hypothetical protein	-
SAMCCGM7_c3641	hypothetical protein	-
SAMCCGM7_c3643	hypothetical protein	-
SAMCCGM7_c3653	hypothetical protein	-
SAMCCGM7_c3670	hypothetical protein	-
SAMCCGM7_c3671	hypothetical protein	-
SAMCCGM7_c3695	ATP-binding component of ABC transporter	-
SAMCCGM7_c3696	hypothetical protein	-
SAMCCGM7_c3721	hypothetical protein	-
SAMCCGM7_c3738	hypothetical protein	-
SAMCCGM7_c3743	hypothetical protein	-
SAMCCGM7_c3744	transposase	-
SAMCCGM7_c3751	hypothetical protein	-
SAMCCGM7_c3752	hypothetical protein	-
SAMCCGM7_c3753	transmembrane HlyD type I secretion protein	-
SAMCCGM7_c3758	hypothetical protein	-
SAMCCGM7_c3770	transposase	-
SAMCCGM7_c3771	transposase	-
SAMCCGM7_c3772	transposase	-
SAMCCGM7_c3774	integrase/recombinase	-
SAMCCGM7_c3780	hypothetical protein	-
SAMCCGM7_c3805	hypothetical protein	-
SAMCCGM7_c3806	hypothetical protein	-
SAMCCGM7_c3813	hypothetical protein	-
SAMCCGM7_c3815	transmembrane protein	-
SAMCCGM7_c3816	LysR family transcriptional regulator	-
SAMCCGM7_c3817	hypothetical protein	-
SAMCCGM7_c3818	cell division trigger factor	-
SAMCCGM7_c3821	hypothetical protein	-
SAMCCGM7_c3822	hypothetical protein	-
SAMCCGM7_c3823	3-oxoacyl-(acyl-carrier-protein) synthase, KASII	-
SAMCCGM7_c3824	hypothetical protein	-
SAMCCGM7_c3830	fumarylacetoacetate (FAA) hydrolase	-

SAMCCGM7_c3831	sugar ABC transport system, permease	-
SAMCCGM7_c3832	ribose import ATP-binding protein RbsA	rbsA
SAMCCGM7_c3834	2-hydroxymuconic semialdehyde hydrolase, protein PydB	-
SAMCCGM7_c3835	dioxygenase protein PydA	-
SAMCCGM7_c3836	GntR family transcriptional regulator	-
SAMCCGM7_c3837	hypothetical protein	-
SAMCCGM7_c3838	hypothetical protein	-
SAMCCGM7_c3839	hypothetical protein	-
SAMCCGM7_c3840	TetR family transcriptional regulator	-
SAMCCGM7_c3841	ThiJ/Pfpl family protein	-
SAMCCGM7_c3843	7-alpha-hydroxysteroid dehydrogenase	hdhA
SAMCCGM7_c3844	hypothetical protein	-
SAMCCGM7_c3845	amine oxidase	-
SAMCCGM7_c3846	alcohol dehydrogenase	-
SAMCCGM7_c3848	aminotransferase, class I and II	-
SAMCCGM7_c3849	aminotransferase, class I and II	-
SAMCCGM7_c3850	aminotransferase	-
SAMCCGM7_c3851	6-phosphogluconolactonase	-
SAMCCGM7_c3857	hypothetical protein	-
SAMCCGM7_c3858	hypothetical protein	-
SAMCCGM7_c3859	hypothetical protein	-
SAMCCGM7_c3863	hypothetical protein	-
SAMCCGM7_c3864	hypothetical protein	-
SAMCCGM7_c3865	hypothetical protein	-
SAMCCGM7_c3868	hypothetical protein	-
SAMCCGM7_c3869	hypothetical protein	-
SAMCCGM7_c3870	hypothetical protein	-
SAMCCGM7_c3871	extracellular nuclease	-
SAMCCGM7_c3872	hypothetical protein	-
SAMCCGM7_c3873	hypothetical protein	-
SAMCCGM7_c3874	ATP-binding protein	-
SAMCCGM7_c3875	phosphoadenosine phosphosulfate reductase	-
SAMCCGM7_c3876	cell division protein FtsK	-
SAMCCGM7_c3877	hypothetical protein	-
SAMCCGM7_c3878	hypothetical protein	-
SAMCCGM7_c3879	hypothetical protein	-
SAMCCGM7_c3880	hypothetical protein	-
SAMCCGM7_c3897	plasmid partitioning protein RepAa2	repA
SAMCCGM7_c3898	replication protein	repB
SAMCCGM7_c3899	plasmid replication protein RepCa2	repC
SAMCCGM7_c3900	hypothetical protein	-
SAMCCGM7_c3903	hypothetical protein	-
SAMCCGM7_c3904	segregation and condensation protein B	-
SAMCCGM7_c3905	hypothetical protein	-
SAMCCGM7_c3906	hypothetical protein	-
SAMCCGM7_c3907	hypothetical protein	-
SAMCCGM7_c3908	hypothetical protein	-
SAMCCGM7_c3909	hypothetical protein	-
SAMCCGM7_c3910	hypothetical protein	-
SAMCCGM7_c3911	hypothetical protein	-
SAMCCGM7_c3912	hypothetical protein	-
SAMCCGM7_c3913	hypothetical protein	-
SAMCCGM7_c3914	hypothetical protein	-
SAMCCGM7_c3915	hypothetical protein	-
SAMCCGM7_c3918	hypothetical protein	-
SAMCCGM7_c3919	glutathione S-transferase	-
SAMCCGM7_c3921	hypothetical protein	-
SAMCCGM7_c3932	hypothetical protein	-
SAMCCGM7_c3934	hypothetical protein	-
SAMCCGM7_c3935	hypothetical protein	-

SAMCCGM7_c3936	translation initiation inhibitor protein	-
SAMCCGM7_c3937	cation transport protein chaC	-
SAMCCGM7_c3943	hypothetical protein	-
SAMCCGM7_c3946	hypothetical protein	-
SAMCCGM7_c3948	hypothetical protein	-
SAMCCGM7_c3950	hypothetical protein	-
SAMCCGM7_c3951	hypothetical protein	-
SAMCCGM7_c3961	phosphonate ABC transporter	-
SAMCCGM7_c3962	integral membrane sensor signal transduction histidine kinase	-
SAMCCGM7_c3963	transcriptional regulator, nitrogen regulation protein NR(I)	-
SAMCCGM7_c3964	arsenite oxidase small subunit precursor	aroB
SAMCCGM7_c3965	arsenite oxidase subunit AioA	aioA
SAMCCGM7_c3966	ArsR family transcriptional regulator	-
SAMCCGM7_c3967	hypothetical protein	-
SAMCCGM7_c3969	phosphate regulon transcriptional regulatory protein PhoB	phoB
SAMCCGM7_c3970	phosphate regulon, two-component response regulator protein	phoB
SAMCCGM7_c3971	phosphate-specific transport system accessory protein PhoU	phoU
SAMCCGM7_c3973	phosphate ABC transporter permease PstA	-
SAMCCGM7_c3974	high-affinity phosphate ABC transporter membrane protein	pstC
SAMCCGM7_c3975	phosphate ABC transporter, periplasmic phosphate-binding protein PstS	-
SAMCCGM7_c3978	hypothetical protein	-
SAMCCGM7_c3984	hypothetical protein	-
SAMCCGM7_c3986	hypothetical protein	-
SAMCCGM7_c3987	hypothetical protein	-
SAMCCGM7_c3992	AraC family transcriptional regulator	-
SAMCCGM7_c3993	dehydrogenase/reductase	-
SAMCCGM7_c3994	phage integrase	-
SAMCCGM7_c3995	hypothetical protein	-
SAMCCGM7_c4009	hypothetical protein	-
SAMCCGM7_c4012	hypothetical protein	-
SAMCCGM7_c4016	hypothetical protein	-
SAMCCGM7_c4020	hypothetical protein	-
SAMCCGM7_c4021	C4-dicarboxylate transport transcriptional regulatory protein DctD	dctD
SAMCCGM7_c4022	C4-dicarboxylate transport sensor	dctB
SAMCCGM7_c4023	proton/sodium-glutamate symport protein	gltT
SAMCCGM7_c4025	hypothetical protein	-
SAMCCGM7_c4028	hypothetical protein	-
SAMCCGM7_c4030	transcriptional regulator	-
SAMCCGM7_c4031	hypothetical protein	-
SAMCCGM7_c4034	hypothetical protein	-
SAMCCGM7_c4036	DNA repair protein	-
SAMCCGM7_c4039	hypothetical protein	-
SAMCCGM7_c4043	DNA-directed DNA polymerase protein	-
SAMCCGM7_c4044	DNA polymerase IV	-
SAMCCGM7_c4046	hypothetical protein	-
SAMCCGM7_c4048	LysR family transcriptional regulator	-
SAMCCGM7_c4049	transporter protein	-
SAMCCGM7_c4050	hypothetical protein	-
SAMCCGM7_c4052	diguanylate cyclase	-
SAMCCGM7_c4053	diguanylate cyclase/phosphodiesterase (GGDEF & EAL domains)	-
SAMCCGM7_c4054	HipA domain-containing protein	-
SAMCCGM7_c4055	XRE family transcriptional regulator	-
SAMCCGM7_c4060	general stress protein	-
SAMCCGM7_c4062	ATP-dependent DNA ligase clustered with Ku protein, LigD	-
SAMCCGM7_c4064	exonuclease RNase T and DNA polymerase III	-
SAMCCGM7_c4065	hypothetical protein	-
SAMCCGM7_c4067	surface polysaccharides/antigen	-
SAMCCGM7_c4068	hypothetical protein	-
SAMCCGM7_c4070	hypothetical protein	-
SAMCCGM7_c4072	hypothetical protein	-

SAMCCGM7_c4074	hypothetical protein	-
SAMCCGM7_c4080	amino acid ABC transporter,substrate-binding protein	-
SAMCCGM7_c4081	glutamine transport ATP-binding protein GlnQ	glnQ
SAMCCGM7_c4082	polar amino acid ABC transporter inner membrane subunit	-
SAMCCGM7_c4083	polar amino acid ABC transporter, inner membrane subunit	-
SAMCCGM7_c4084	hypothetical protein	-
SAMCCGM7_c4085	xylose isomerase domain-containing protein	-
SAMCCGM7_c4086	LysR family transcriptional regulator	-
SAMCCGM7_c4087	hypothetical protein	-
SAMCCGM7_c4090	hypothetical protein	-
SAMCCGM7_c4091	hypothetical protein	-
SAMCCGM7_c4093	hypothetical protein	-
SAMCCGM7_c4094	plasmid maintenance system killer	-
SAMCCGM7_c4106	hypothetical protein	-
SAMCCGM7_c4126	hypothetical protein	-
SAMCCGM7_c4131	AraC family transcriptional regulator	-
SAMCCGM7_c4141	hypothetical protein	-
SAMCCGM7_c4146	hypothetical protein	-
SAMCCGM7_c4163	tRNA/rRNA methyltransferase protein	-
SAMCCGM7_c4176	hypothetical protein	-
SAMCCGM7_c4195	hypothetical protein	-
SAMCCGM7_c4221	hypothetical protein	-
SAMCCGM7_c4222	hypothetical protein	-
SAMCCGM7_c4224	hypothetical protein	-
SAMCCGM7_c4239	hypothetical protein	-
SAMCCGM7_c4266	hypothetical protein	-
SAMCCGM7_c4280	hypothetical protein	-
SAMCCGM7_c4291	hypothetical protein	-
SAMCCGM7_c4301	hypothetical protein	-
SAMCCGM7_c4309	immunoreactive	-
SAMCCGM7_c4310	hypothetical protein	-
SAMCCGM7_c4339	hypothetical protein	-
SAMCCGM7_c4340	hypothetical protein	-
SAMCCGM7_c4341	secretion activator protein	-
SAMCCGM7_c4362	hypothetical protein	-
SAMCCGM7_c4363	hypothetical protein	-
SAMCCGM7_c4378	hypothetical protein	-
SAMCCGM7_c4380	hypothetical protein	-
SAMCCGM7_c4397	hypothetical protein	-
SAMCCGM7_c4404	hypothetical protein	-
SAMCCGM7_c4410	hypothetical protein	-
SAMCCGM7_c4413	hypothetical protein	-
SAMCCGM7_c4429	adenylate cyclase	-
SAMCCGM7_c4431	adenylate cyclase	-
SAMCCGM7_c4440	hypothetical protein	-
SAMCCGM7_c4454	hypothetical protein	-
SAMCCGM7_c4465	hypothetical protein	-
SAMCCGM7_c4502	hypothetical protein	-
SAMCCGM7_c4512	hypothetical protein	-
SAMCCGM7_c4566	hypothetical protein	-
SAMCCGM7_c4583	hypothetical protein	-
SAMCCGM7_c4588	hypothetical protein	-
SAMCCGM7_c4620	hypothetical protein	-
SAMCCGM7_c4642	hypothetical protein	-
SAMCCGM7_c4654	hypothetical protein	-
SAMCCGM7_c4656	LuxR family transcriptional regulator	-
SAMCCGM7_c4666	hypothetical protein	-
SAMCCGM7_c4691	hypothetical protein	-
SAMCCGM7_c4699	hypothetical protein	-
SAMCCGM7_c4709	hypothetical protein	-

SAMCCGM7_c4715	hypothetical protein	-
SAMCCGM7_c4719	hypothetical protein	-
SAMCCGM7_c4757	hypothetical protein	-
SAMCCGM7_c4758	hypothetical protein	-
SAMCCGM7_c4759	hypothetical protein	-
SAMCCGM7_c4760	hypothetical protein	-
SAMCCGM7_c4765	hypothetical protein	-
SAMCCGM7_c4778	hypothetical protein	-
SAMCCGM7_c4782	hypothetical protein	-
SAMCCGM7_c4788	hypothetical protein	-
SAMCCGM7_c4790	hypothetical protein	-
SAMCCGM7_c4794	hypothetical protein	-
SAMCCGM7_c4807	hypothetical protein	-
SAMCCGM7_c4811	hypothetical protein	-
SAMCCGM7_c4819	hypothetical protein	-
SAMCCGM7_c4822	hypothetical protein	-
SAMCCGM7_c4827	hypothetical protein	-
SAMCCGM7_c4835	hypothetical protein	-
SAMCCGM7_c4841	hypothetical protein	-
SAMCCGM7_c4874	hypothetical protein	-
SAMCCGM7_c4895	hypothetical protein	-
SAMCCGM7_c4919	dethiobiotin synthetase	-
SAMCCGM7_c4928	hypothetical protein	-
SAMCCGM7_c4971	hypothetical protein	-
SAMCCGM7_c4990	hypothetical protein	-
SAMCCGM7_c4991	hypothetical protein	-
SAMCCGM7_c4992	hypothetical protein	-
SAMCCGM7_c4998	alcohol dehydrogenase	-
SAMCCGM7_c4999	hypothetical protein	-
SAMCCGM7_c5000	amine oxidase	-
SAMCCGM7_c5001	LysR family transcriptional regulator	-
SAMCCGM7_c5002	aminotransferase, class I and II	-
SAMCCGM7_c5003	endoribonuclease	-
SAMCCGM7_c5004	glutamate/glutamine/aspartate/asparagine-binding protein BztA	bztA
SAMCCGM7_c5005	hypothetical protein	-
SAMCCGM7_c5006	glutamate/glutamine/aspartate/asparagine transport system permease protein BztI	bztB
SAMCCGM7_c5007	glutamate/glutamine/aspartate/asparagine transport system permease protein BztI	bztC
SAMCCGM7_c5008	general L-amino acid transport ATP-binding protein AapP	aapP
SAMCCGM7_c5024	S-isoprenylcysteine methyltransferase	-
SAMCCGM7_c5042	hypothetical protein	-
SAMCCGM7_c5057	hypothetical protein	-
SAMCCGM7_c5066	hypothetical protein	-
SAMCCGM7_c5067	hypothetical protein	-
SAMCCGM7_c5075	short-chain dehydrogenase/reductase SDR	-
SAMCCGM7_c5076	regulatory protein GntR HTH	-
SAMCCGM7_c5077	glucose 1-dehydrogenase	-
SAMCCGM7_c5078	L-proline glycine betaine binding ABC transporter protein ProX	-
SAMCCGM7_c5079	L-proline glycine betaine ABC transport system permease	-
SAMCCGM7_c5081	hypothetical protein	-
SAMCCGM7_c5082	transport protein	-
SAMCCGM7_c5083	transcriptional regulator, LysR family	-
SAMCCGM7_c5088	hypothetical protein	-
SAMCCGM7_c5111	S-(hydroxymethyl)glutathione dehydrogenase	-
SAMCCGM7_c5116	ribonuclease activity regulator protein RraA	-
SAMCCGM7_c5117	ribulose-5-phosphate 4-epimerase and epimerases and aldolase	-
SAMCCGM7_c5121	Fe(3+) ions import ATP-binding protein FbpC	fbcP
SAMCCGM7_c5122	binding-protein-dependent transporters inner membrane component	-
SAMCCGM7_c5123	ABC-type Fe3+ transport system, periplasmic component	-
SAMCCGM7_c5125	GntR family transcriptional regulator	-
SAMCCGM7_c5126	small heat shock protein	-

SAMCCGM7_c5131	hypothetical protein	-
SAMCCGM7_c5133	ABC-type transport, permease protein	-
SAMCCGM7_c5137	3-oxoacyl-(acyl-carrier protein) reductase	-
SAMCCGM7_c5159	cytidine/deoxycytidylate deaminase family protein	-
SAMCCGM7_c5161	hypothetical protein	-
SAMCCGM7_c5165	hypothetical protein	-
SAMCCGM7_c5177	hypothetical protein	-
SAMCCGM7_c5179	hypothetical protein	-
SAMCCGM7_c5180	flavin-containing monooxygenase	-
SAMCCGM7_c5193	LysR family transcriptional regulator	-
SAMCCGM7_c5194	hydrolase	-
SAMCCGM7_c5195	hypothetical protein	-
SAMCCGM7_c5200	hypothetical protein	-
SAMCCGM7_c5201	hypothetical protein	-
SAMCCGM7_c5202	transposase	-
SAMCCGM7_c5203	hypothetical protein	-
SAMCCGM7_c5216	membrane-anchored protein	-
SAMCCGM7_c5218	hypothetical protein	-
SAMCCGM7_c5219	endo-1,3-1,4-BETA-glycanase ⁻ , Ä†EgIC	-
SAMCCGM7_c5224	hypothetical protein	-
SAMCCGM7_c5227	hypothetical protein	-
SAMCCGM7_c5230	transposase	-
SAMCCGM7_c5239	hypothetical protein	-
SAMCCGM7_c5240	cytolethal distending toxin subunit B	-
SAMCCGM7_c5253	hypothetical protein	-
SAMCCGM7_c5255	oligopeptide transport system permease protein OppB	-
SAMCCGM7_c5256	hypothetical protein	-
SAMCCGM7_c5257	D-3-phosphoglycerate dehydrogenase	-
SAMCCGM7_c5258	D-3-phosphoglycerate dehydrogenase	-
SAMCCGM7_c5259	acetylornithine deacetylase	-
SAMCCGM7_c5274	hypothetical protein	-
SAMCCGM7_c5297	electron transfer flavoprotein, alpha subunit	-
SAMCCGM7_c5320	hypothetical protein	-
SAMCCGM7_c5374	hypothetical protein	-
SAMCCGM7_c5377	hypothetical protein	-
SAMCCGM7_c5380	hypothetical protein	-
SAMCCGM7_c5382	multidrug and toxin extrusion (MATE) family efflux pump YdhE/NorM	-
SAMCCGM7_c5383	ABC-type antimicrobial peptide transport system, permease component	-
SAMCCGM7_c5391	glycine betaine/L-proline ABC transporter permease	-
SAMCCGM7_c5399	hypothetical protein	-
SAMCCGM7_c5400	hypothetical protein	-
SAMCCGM7_c5410	hypothetical protein	-
SAMCCGM7_c5422	hypothetical protein	-
SAMCCGM7_c5424	hypothetical protein	-
SAMCCGM7_c5427	hypothetical protein	-
SAMCCGM7_c5431	hypothetical protein	-
SAMCCGM7_c5437	ATP-dependent DNA ligase	-
SAMCCGM7_c5438	DNA ligase	-
SAMCCGM7_c5444	hypothetical protein	-
SAMCCGM7_c5460	hypothetical protein	-
SAMCCGM7_c5483	chromosome partition protein smc	-
SAMCCGM7_c5486	hypothetical protein	-
SAMCCGM7_c5491	hypothetical protein	-
SAMCCGM7_c5501	hypothetical protein	-
SAMCCGM7_c5510	hypothetical protein	-
SAMCCGM7_c5513	hypothetical protein	-
SAMCCGM7_c5514	oxidoreductase	-
SAMCCGM7_c5515	short-chain dehydrogenase/reductase SDR	-
SAMCCGM7_c5516	hypothetical protein	-
SAMCCGM7_c5517	hypothetical protein	-

SAMCCGM7_c5518	hypothetical protein	-
SAMCCGM7_c5520	hypothetical protein	-
SAMCCGM7_c5521	hypothetical protein	-
SAMCCGM7_c5523	hypothetical protein	-
SAMCCGM7_c5524	hypothetical protein	-
SAMCCGM7_c5525	hypothetical protein	-
SAMCCGM7_c5527	hypothetical protein	-
SAMCCGM7_c5533	MotA/TolQ/ExbB proton channel family protein, probably associated with flagella	-
SAMCCGM7_c5557	hypothetical protein	-
SAMCCGM7_c5565	hypothetical protein	-
SAMCCGM7_c5573	hypothetical protein	-
SAMCCGM7_c5580	hypothetical protein	-
SAMCCGM7_c5583	hypothetical protein	-
SAMCCGM7_c5592	hypothetical protein	-
SAMCCGM7_c5613	hypothetical protein	-
SAMCCGM7_c5624	NAD(P) transhydrogenase alpha subunit	-
SAMCCGM7_c5642	hypothetical protein	-
SAMCCGM7_c5669	AraC family transcriptional regulator	-
SAMCCGM7_c5715	PE-PGRS family protein	-
SAMCCGM7_c5720	hypothetical protein	-
SAMCCGM7_c5727	hypothetical protein	-
SAMCCGM7_c5734	hypothetical protein	-
SAMCCGM7_c5742	hypothetical protein	-
SAMCCGM7_c5744	hypothetical protein	-
SAMCCGM7_c5758	hypothetical protein	-
SAMCCGM7_c5778	hypothetical protein	-
SAMCCGM7_c5805	hypothetical protein	-
SAMCCGM7_c5817	lipoprotein	-
SAMCCGM7_c5818	lipoprotein	-
SAMCCGM7_c5823	hypothetical protein	-
SAMCCGM7_c5846	hypothetical protein	-
SAMCCGM7_c5861	hypothetical protein	-
SAMCCGM7_c5863	hypothetical protein	-
SAMCCGM7_c5867	type I restriction-modification system, DNA-methyltransferase subunit M	-
SAMCCGM7_c5868	type I restriction-modification system, specificity subunit S	-
SAMCCGM7_c5870	metal-dependent hydrolase	-
SAMCCGM7_c5872	hypothetical protein	-
SAMCCGM7_c5873	hypothetical protein	-
SAMCCGM7_c5874	hypothetical protein	-
SAMCCGM7_c5875	hypothetical protein	-
SAMCCGM7_c5876	hypothetical protein	-
SAMCCGM7_c5877	hypothetical protein	-
SAMCCGM7_c5878	hypothetical protein	-
SAMCCGM7_c5879	hypothetical protein	-
SAMCCGM7_c5880	hypothetical protein	-
SAMCCGM7_c5882	hypothetical protein	-
SAMCCGM7_c5883	hypothetical protein	-
SAMCCGM7_c5897	hypothetical protein	-
SAMCCGM7_c5903	hypothetical protein	-
SAMCCGM7_c5904	hypothetical protein	-
SAMCCGM7_c5908	DNA polymerase protein	-
SAMCCGM7_c5909	DNA polymerase protein	-
SAMCCGM7_c5916	hypothetical protein	-
SAMCCGM7_c5921	transcriptional regulator	-
SAMCCGM7_c5933	hypothetical protein	-
SAMCCGM7_c5951	hypothetical protein	-
SAMCCGM7_c5954	hypothetical protein	-
SAMCCGM7_c5955	hypothetical protein	-
SAMCCGM7_c5956	hypothetical protein	-
SAMCCGM7_c5957	choline dehydrogenase	betA

SAMCCGM7_c5958	L-proline glycine betaine binding ABC transporter protein ProX	-
SAMCCGM7_c5959	3-hydroxyisobutyrate dehydrogenase	-
SAMCCGM7_c5960	LysR family transcriptional regulator	-
SAMCCGM7_c5965	hypothetical protein	-
SAMCCGM7_c5978	hypothetical protein	-
SAMCCGM7_c5989	TetR family transcriptional regulator	-
SAMCCGM7_c5990	hypothetical protein	-
SAMCCGM7_c5995	multidrug-efflux transporter	-
SAMCCGM7_c5996	hypothetical protein	-
SAMCCGM7_c5998	hypothetical protein	-
SAMCCGM7_c6000	transposase	-
SAMCCGM7_c6002	hypothetical protein	-
SAMCCGM7_c6003	hypothetical protein	-
SAMCCGM7_c6006	hypothetical protein	-
SAMCCGM7_c6008	hypothetical protein	-
SAMCCGM7_c6009	hypothetical protein	-
SAMCCGM7_c6017	hypothetical protein	-
SAMCCGM7_c6018	hypothetical protein	-
SAMCCGM7_c6019	hypothetical protein	-
SAMCCGM7_c6034	secretion protein HlyD	-
SAMCCGM7_c6036	hypothetical protein	-
SAMCCGM7_c6037	epoxide hydrolase	-
SAMCCGM7_c6039	hypothetical protein	-
SAMCCGM7_c6042	hypothetical protein	-
SAMCCGM7_c6043	hypothetical protein	-
SAMCCGM7_c6044	peptide methionine sulfoxide reductase MsrB	msrB
SAMCCGM7_c6049	pyridoxamine 5'-phosphate oxidase FMN-binding protein	-
SAMCCGM7_c6054	hypothetical protein	-
SAMCCGM7_c6061	hypothetical protein	-
SAMCCGM7_c6065	hypothetical protein	-
SAMCCGM7_c6071	hypothetical protein	-
SAMCCGM7_c6072	hypothetical protein	-
SAMCCGM7_c6073	signal transduction histidine kinase	-
SAMCCGM7_c6075	hypothetical protein	-
SAMCCGM7_c6090	sensor histidine kinase domain-containing protein	-
SAMCCGM7_c6091	hypothetical protein	-
SAMCCGM7_c6092	two-component sensor histidine kinase protein	-
SAMCCGM7_c6093	hypothetical protein	-
SAMCCGM7_c6094	iron(III) ABC transporter, ATP-binding protein	-
SAMCCGM7_c6095	ferric cations import ATP-binding protein fbpC	-
SAMCCGM7_c6096	inositol-1-monophosphatase	-
SAMCCGM7_c6097	inositol-1-monophosphatase	-
SAMCCGM7_c6102	hypothetical protein	-
SAMCCGM7_c6103	LysR family transcriptional regulator	-
SAMCCGM7_c6105	hypothetical protein	-
SAMCCGM7_c6109	hypothetical protein	-
SAMCCGM7_c6111	hypothetical protein	-
SAMCCGM7_c6112	transcriptional regulator SyrB	-
SAMCCGM7_c6113	hypothetical protein	-
SAMCCGM7_c6114	radical SAM superfamily enzyme	-
SAMCCGM7_c6116	sn-glycerol-3-phosphate import ATP-binding protein UgpC	ugpC
SAMCCGM7_c6118	sugar ABC transporter, permease protein	-
SAMCCGM7_c6119	glycerol-3-phosphate ABC transporter	-
SAMCCGM7_c6120	metallophosphoesterase	-
SAMCCGM7_c6121	hydrolase phosphatase	-
SAMCCGM7_c6122	MFS-type transport protein	-
SAMCCGM7_c6123	hypothetical protein	-
SAMCCGM7_c6125	hypothetical protein	-
SAMCCGM7_c6126	hypothetical protein	-
SAMCCGM7_c6127	hypothetical protein	-

SAMCCGM7_c6128	hypothetical protein	-
SAMCCGM7_c6129	hypothetical protein	-
SAMCCGM7_c6130	hypothetical protein	-
SAMCCGM7_c6132	serine protease, subtilase family protein	-
SAMCCGM7_c6133	hypothetical protein	-
SAMCCGM7_c6134	hypothetical protein	-
SAMCCGM7_c6135	hypothetical protein	-
SAMCCGM7_c6136	hypothetical protein	-
SAMCCGM7_c6137	hypothetical protein	-
SAMCCGM7_c6138	hydroperoxide reductase	-
SAMCCGM7_c6141	hypothetical protein	-
SAMCCGM7_c6143	hypothetical protein	-
SAMCCGM7_c6145	homocitrate synthase	nifV
SAMCCGM7_c6156	hypothetical protein	-
SAMCCGM7_c6158	exopolysaccharide production protein ExoZ	-
SAMCCGM7_c6159	exopolysaccharide production protein ExoZ	-
SAMCCGM7_c6162	NodH protein	-
SAMCCGM7_c6163	hypothetical protein	-
SAMCCGM7_c6173	acyltransferase	nodA
SAMCCGM7_c6175	hypothetical protein	-
SAMCCGM7_c6177	Lacl family transcriptional regulator	-
SAMCCGM7_c6178	hypothetical protein	-
SAMCCGM7_c6179	plasmid replication protein RepC	repC
SAMCCGM7_c6183	hypothetical protein	-
SAMCCGM7_c6184	hypothetical protein	-
SAMCCGM7_c6186	hypothetical protein	-
SAMCCGM7_c6187	hypothetical protein	-
SAMCCGM7_c6188	hypothetical protein	-
SAMCCGM7_c6189	hypothetical protein	-
SAMCCGM7_c6190	hypothetical protein	-
SAMCCGM7_c6191	hypothetical protein	-
SAMCCGM7_c6193	hypothetical protein	-
SAMCCGM7_c6202	conjugal transfer protein traF precursor	-
SAMCCGM7_c6205	hypothetical protein	-
SAMCCGM7_c6206	hypothetical protein	-
SAMCCGM7_c6208	hypothetical protein	-
SAMCCGM7_c6209	hypothetical protein	-
SAMCCGM7_c6210	transposase	-
SAMCCGM7_c6211	transposase	-
SAMCCGM7_c6213	transposase	-
SAMCCGM7_c6215	dehydrogenase	-
SAMCCGM7_c6216	transposase	-
SAMCCGM7_c6217	transposase	-
SAMCCGM7_c6218	hypothetical protein	-
SAMCCGM7_c6219	L-lysine 2,3-aminomutase	kamA
SAMCCGM7_c6221	transposase	-
SAMCCGM7_c6222	transposase	-
SAMCCGM7_c6224	hypothetical protein	-
SAMCCGM7_c6225	transposase	-
SAMCCGM7_c6226	D-amino acid dehydrogenase small subunit	dadA
SAMCCGM7_c6227	transposase	-
SAMCCGM7_c6228	UDP-N-acetylmuramoylalanyl-D-glutamate--2,6-diaminopimelate ligase	-
SAMCCGM7_c6229	hypothetical protein	-
SAMCCGM7_c6232	pyruvate carboxyl transferase	-
SAMCCGM7_c6233	hypothetical protein	-
SAMCCGM7_c6237	hypothetical protein	-
SAMCCGM7_c6249	hypothetical protein	-
SAMCCGM7_c6250	hypothetical protein	-
SAMCCGM7_c6253	hypothetical protein	-
SAMCCGM7_c6276	hypothetical protein	-

SAMCCGM7_c6294	low molecular weight protein tyrosine phosphatase	-
SAMCCGM7_c6315	hypothetical protein	-
SAMCCGM7_c6325	ATPase associated with various cellular activity, AAA_5	-
SAMCCGM7_c6326	ATPase associated with various cellular activity, AAA_5	-
SAMCCGM7_c6327	hypothetical protein	-
SAMCCGM7_c6331	hypothetical protein	-
SAMCCGM7_c6348	hypothetical protein	-
SAMCCGM7_c6349	hypothetical protein	-
SAMCCGM7_c6361	hypothetical protein	-
SAMCCGM7_c6365	hypothetical protein	-
SAMCCGM7_c6410	hypothetical protein	-
SAMCCGM7_c6418	hypothetical protein	-
SAMCCGM7_c6436	hypothetical protein	-
SAMCCGM7_c6465	hypothetical protein	-
SAMCCGM7_c6467	hypothetical protein	-
SAMCCGM7_c6479	hypothetical protein	-
SAMCCGM7_c6488	hypothetical protein	-
SAMCCGM7_c6508	dehydrogenase	-
SAMCCGM7_c6513	transposase	-
SAMCCGM7_c6514	hypothetical protein	-
SAMCCGM7_c6518	hypothetical protein	-
SAMCCGM7_c6535	hypothetical protein	-
SAMCCGM7_c6564	endonuclease V	-
SAMCCGM7_c6577	hypothetical protein	-
SAMCCGM7_c6598	hypothetical protein	-
SAMCCGM7_c6612	hypothetical protein	-
SAMCCGM7_c6613	ThiJ/PfpI family protein	-
SAMCCGM7_c6614	adenylate cyclase	-
SAMCCGM7_c6615	adenylate cyclase	-
SAMCCGM7_c6617	hypothetical protein	-
SAMCCGM7_c6618	adenylate cyclase	-
SAMCCGM7_c6621	transcriptional regulatory protein	-
SAMCCGM7_c6622	hypothetical protein	-
SAMCCGM7_c6623	hypothetical protein	-
SAMCCGM7_c6642	hypothetical protein	-
SAMCCGM7_c6643	hypothetical protein	-
SAMCCGM7_c6644	hypothetical protein	-
SAMCCGM7_c6645	dipeptide transport ATP-binding protein DppF	dppF
SAMCCGM7_c6646	oligopeptide transport ATP-binding protein OppD	-
SAMCCGM7_c6647	peptide ABC transporter permease	-
SAMCCGM7_c6648	dipeptide transport system permease protein DppB	-
SAMCCGM7_c6649	dipeptide-binding ABC transporte	-
SAMCCGM7_c6650	fatty acid desaturase	-
SAMCCGM7_c6651	hypothetical protein	-
SAMCCGM7_c6652	hypothetical protein	-
SAMCCGM7_c6653	aliphatic sulfonate ABC transporter ATP-binding protein	ssuC
SAMCCGM7_c6655	sulfate and thiosulfate binding protein CysP	-
SAMCCGM7_c6656	glycolate dehydrogenase, iron-sulfur subunit GlcF	-
SAMCCGM7_c6657	hypothetical protein	-
SAMCCGM7_c6658	transposase	-
SAMCCGM7_c6659	hypothetical protein	-
SAMCCGM7_c6660	hypothetical protein	-
SAMCCGM7_c6661	hypothetical protein	-
SAMCCGM7_c6662	hypothetical protein	-
SAMCCGM7_c6664	NAD(P) transhydrogenase subunit beta	-
SAMCCGM7_c6665	succinylglutamate desuccinylase/aspartoacylase	-
SAMCCGM7_c6666	hypothetical protein	-
SAMCCGM7_c6667	hypothetical protein	-
SAMCCGM7_c6668	NAD(P)H oxidoreductase	-
SAMCCGM7_c6669	transposase	-

SAMCCGM7_c6670	electron transfer flavoprotein, beta subunit	-
SAMCCGM7_c6673	D-3-phosphoglycerate dehydrogenase	-

Supplementary Table 4. Prediction of the genes of CCGM1 prophages

Prophage 1 (Ph1)										
Gene	Start	Stop	Code. strd.	aa	Predicted product	Homologue (by function)	Best phage hit	E-value	Percentage	
									Identity	Coverage
RLPCCGM1_c2006	775755	776486	+	243	autoinducer transcriptional regulator protein					
RLPCCGM1_c2007	776710	777375	+	221	autoinducer synthesis protein					
RLPCCGM1_c2008	777372	777563	+	63	hypothetical protein					
RLPCCGM1_c2009	777684	778052	-	122	two-component response regulator protein					
RLPCCGM1_c2011	778562	778867	-	101	hypothetical protein					
RLPCCGM1_c2012	778869	779582	-	237	adenine specific DNA methyltransferase, D12 class	Gp27	Burkholderia phage phiE125	7E-71	51	87
RLPCCGM1_c2013	779819	781717	-	632	hypothetical protein	Uncharacterized protein	Rhizobium phage vB_RleS_L338C	0E+00	72	96
RLPCCGM1_c2014	781721	782392	-	223	hypothetical protein					
RLPCCGM1_c2015	782389	783405	-	338	hypothetical protein	Uncharacterized protein	Rhizobium phage RHEph06	5E-19	31	64
RLPCCGM1_c2016	783405	784001	-	198	tail protein	Protein gp48	Enterobacteria phage Mu	3E-10	27	96
RLPCCGM1_c2017	784001	785140	-	379	phage FluMu protein gp47	Protein gp47	Enterobacteria phage Mu	1E-37	28	100
RLPCCGM1_c2018	785142	785603	-	153	hypothetical protein					
RLPCCGM1_c2019	785659	786171	-	170	Mu-like prophage protein gp45-like protein	Sb19	Salmonella phage ST64B	4E-11	34	59
RLPCCGM1_c2020	786171	787370	-	399	Mu P family protein	Baseplate assembly protein	Enterobacteria phage D108	3E-35	30	96
RLPCCGM1_c2021	787367	788611	-	414	Mu-like prophage DNA circulation protein	Putative uncharacterized protein	Enterobacteria phage phiP27	2E-16	26	96
RLPCCGM1_c2022	788611	791034	-	807	hypothetical protein	Gp18	Burkholderia phage phiE255	3E-33	29	51
RLPCCGM1_c2023	791048	791179	-	43	hypothetical protein					
RLPCCGM1_c2024	791179	791661	-	160	hypothetical protein					
RLPCCGM1_c2025	791658	792020	-	120	hypothetical protein					
RLPCCGM1_c2026	792035	793522	-	495	Mu tail sheath family protein	Tail sheath protein	Enterobacteria phage D108	1E-44	27	100
RLPCCGM1_c2027	793526	793831	-	101	hypothetical protein					
RLPCCGM1_c2028	793835	794416	-	193	hypothetical protein					
RLPCCGM1_c2029	794416	794850	-	144	hypothetical protein	Protein gp36	Enterobacteria phage Mu	2E-17	30	94
RLPCCGM1_c2030	794930	795256	-	108	hypothetical protein					
RLPCCGM1_c2031	795442	795879	-	145	hypothetical protein					
RLPCCGM1_c2032	796002	796895	-	297	Mu-like prophage FluMu major head subunit	Mu-like prophage major head subunit gpT	Pseudomonas phage JBD25	9E-88	42	99
RLPCCGM1_c2033	796906	797301	-	131	hypothetical protein	Uncharacterized protein	Pseudomonas phage JBD25	3E-06	27	98
RLPCCGM1_c2034	797303	798340	-	345	Mu-like prophage I protein-like protein	Putative uncharacterized protein	Pseudomonas phage F_HA0480sp/Pa1651	3E-23	29	100
RLPCCGM1_c2035	798425	798937	-	170	phage virion morphogenesis protein	Virion morphogenesis protein	Rhodobacter phage RcapMu	5E-24	35	99
RLPCCGM1_c2036	799048	800244	-	398	phage (Mu-like) virion morphogenesis protein	Phage Mu protein F-like protein	Pseudomonas phage JBD25	3E-65	44	57
RLPCCGM1_c2037	800271	801869	-	532	Mu-like prophage FluMu protein gp29	Portal protein	Pseudomonas phage PA1/KOR/2010	7E-62	33	79
RLPCCGM1_c2038	801869	803521	-	550	Mu-like prophage FluMu protein gp28	Gp2	Burkholderia phage phiE255	2E-127	46	87
RLPCCGM1_c2039	803518	804126	-	202	Mu-like prophage FluMu protein gp27	Putative uncharacterized protein 27	Enterobacteria phage D108	1E-08	27	98
RLPCCGM1_c2040	804129	804446	-	105	phage protein	Putative uncharacterized protein 26	Enterobacteria phage D108	2E-09	32	92
RLPCCGM1_c2041	804443	804790	-	115	hypothetical protein					

RLPCCGM1_c2042	805240	805602	-	120	hypothetical protein					
RLPCCGM1_c2043	805599	805805	-	68	hypothetical protein					
RLPCCGM1_c2044	805867	806349	-	160	hypothetical protein	Endolysin	Pseudomonas phage vB_Pae-Kakheti25	1E-21	34	97
RLPCCGM1_c2045	806697	807056	-	119	hypothetical protein					
RLPCCGM1_c2046	807334	807975	-	213	protein gp16	Gp02	Burkholderia phage BcepMu	2E-17	40	62
RLPCCGM1_c2047	808092	808772	+	226	hypothetical protein					
RLPCCGM1_c2048	808796	808993	-	65	hypothetical protein					
RLPCCGM1_c2049	809000	809665	-	221	hypothetical protein	Gp05	Burkholderia phage BcepMu	2E-50	42	90
RLPCCGM1_c2050	809679	809810	+	43	hypothetical protein					
RLPCCGM1_c2051	809864	810142	-	92	hypothetical protein					
RLPCCGM1_c2052	810139	810432	-	97	hypothetical protein					
RLPCCGM1_c2053	810429	811448	-	339	bacteriophage DNA transposition protein B	DNA transposition protein B	Enterobacteria phage D108	1E-33	29	85
RLPCCGM1_c2054	811570	813402	-	610	transposase	Transposase	Enterobacteria phage Mu	3E-103	36	94
RLPCCGM1_c2055	813531	813989	-	152	hypothetical protein	Conserved transposable prophage protein	Rhodobacter phage RcapMu	1E-07	34	75
RLPCCGM1_c2056	813982	814833	-	283	chromosome partitioning protein parB	ParB nuclease	Rhodobacter phage RcapMu	9E-19	30	85

Prophage 2 (Ph2)

Gene	Start	Stop	Code strd.	aa	Predicted product	Homologue (by function)	Best phage hit	E-value	Percentage	
									Identity	Coverage
RLPCCGM1_c1245	50	1114	+	354	glycosyl transferase family	GtrB	Salmonella phage ST160	5E-08	31	33
RLPCCGM1_c1246	1582	1929	+	115	hypothetical protein	Putative SOS response-associated peptidase yoqW	Bacillus phage SPbeta	1E-17	36	45
RLPCCGM1_c1247	2496	2801	-	101	hypothetical protein					
RLPCCGM1_c1248	2892	3197	-	101	hypothetical protein					
RLPCCGM1_c1249	3179	3634	-	151	hypothetical protein					
RLPCCGM1_c1250	3631	4422	-	263	phage endolysin	Glycoside hydrolase, family 19	Flavobacterium phage 11b	5E-41	52	52
RLPCCGM1_c1251	4456	5580	-	374	hypothetical protein	Baseplate wedge initiator	Prochlorococcus phage P-HM1	3E-17	36	53
RLPCCGM1_c1252	5587	6003	-	138	hypothetical protein					
RLPCCGM1_c1253	6017	6931	-	304	hypothetical protein	Collagen triple helix repeat domain protein	Synechococcus phage S-CRM01	3E-26	55	31
RLPCCGM1_c1254	6935	7765	-	276	hypothetical protein					
RLPCCGM1_c1255	7765	8181	-	138	hypothetical protein					
RLPCCGM1_c1256	8181	8471	-	96	hypothetical protein					
RLPCCGM1_c1257	8440	9936	-	498	hypothetical protein					
RLPCCGM1_c1258	9940	10371	-	143	hypothetical protein					
RLPCCGM1_c1259	10378	13416	-	1012	hypothetical protein	Tail tape measure protein	Synechococcus phage S-CBS1	5E-14	31	33
RLPCCGM1_c1260	13905	14567	-	220	hypothetical protein					
RLPCCGM1_c1261	14564	14743	-	59	hypothetical protein					
RLPCCGM1_c1262	14749	15168	-	139	hypothetical protein					
RLPCCGM1_c1263	15289	15813	-	174	hypothetical protein	Virion associated protein	Phage Sano	7E-13	29	52
RLPCCGM1_c1264	15858	16301	-	147	hypothetical protein					
RLPCCGM1_c1265	16294	16638	-	114	hypothetical protein					
RLPCCGM1_c1266	16613	17080	-	155	hypothetical protein	Uncharacterized protein	Caulobacter phage CcrColossus	2E-17	35	58

RLPCCGM1_c1267	17109	17402	-	97	hypothetical protein					
RLPCCGM1_c1268	17399	18043	-	214	SAM-dependent methyltransferase	Putative FkbM-like methyltransferase	Caulobacter phage CcrColossus	4E-18	33	66
RLPCCGM1_c1269	18040	18840	-	266	hypothetical protein					
RLPCCGM1_c1270	18828	19538	-	236	hypothetical protein	Putative nucleotide-diphospho-sugar transferase	Caulobacter phage CcrColossus	5E-46	38	92
RLPCCGM1_c1271	19535	20140	-	201	hypothetical protein	Putative alpha-2,3-sialyltransferase-like protein	Caulobacter phage CcrColossus	2E-22	33	97
RLPCCGM1_c1272	20146	21159	-	337	phage protein	Major capsid protein	Acidithiobacillus phage AcaML1	1E-34	29	97
RLPCCGM1_c1273	21258	21632	-	124	phage protein					
RLPCCGM1_c1274	21688	22203	-	171	hypothetical protein					
RLPCCGM1_c1275	22299	23210	-	303	peptidase S49	Putative prohead protease	Erwinia phage phiEa21-4	6E-27	32	64
RLPCCGM1_c1276	23200	24762	-	520	phage portal protein, lambda family	Portal protein	Acidithiobacillus phage AcaML1	3E-159	52	93
RLPCCGM1_c1277	24765	24986	-	73	hypothetical protein					
RLPCCGM1_c1278	24979	25494	-	171	hypothetical protein	Uncharacterized protein	Sinorhizobium phage phiM12	4E-41	67	51
RLPCCGM1_c1279	25499	27649	-	716	bacteriophage tail assembly protein	Terminus large subunit	Escherichia phage 1720a-02	9E-122	37	87
RLPCCGM1_c1280	27649	28296	-	215	hypothetical protein					
RLPCCGM1_c1281	28643	29326	-	227	hypothetical protein					
RLPCCGM1_c1282	29316	30656	-	446	hypothetical protein	Primosomal protein I	Escherichia phage 1720a-02	4E-11	33	30
RLPCCGM1_c1283	31451	31996	+	181	hypothetical protein					
RLPCCGM1_c1284	32165	32413	-	82	hypothetical protein					
RLPCCGM1_c1285	32410	32700	-	96	hypothetical protein					
RLPCCGM1_c1286	32697	32894	-	65	hypothetical protein					
RLPCCGM1_c1287	32891	33166	-	91	hypothetical protein					
RLPCCGM1_c1288	33156	33422	-	88	hypothetical protein					
RLPCCGM1_c1289	33436	33990	-	184	hypothetical protein					
RLPCCGM1_c1290	33990	35540	-	516	hypothetical protein	p096	Rhizobium phage 16-3	7E-34	40	39
RLPCCGM1_c1291	35537	35749	-	70	hypothetical protein					
RLPCCGM1_c1292	35746	36195	-	149	hypothetical protein					
RLPCCGM1_c1293	36266	36469	-	67	hypothetical protein					
RLPCCGM1_c1294	36469	36918	-	149	hypothetical protein					
RLPCCGM1_c1295	37327	37578	-	83	hypothetical protein					
RLPCCGM1_c1296	37667	38347	+	226	phage repressor	Repressor protein C	Rhizobium phage 16-3	2E-20	35	59

Prophage 3 (Ph3)

Gene	Start	Stop	Code strd.	aa	Predicted product	Homologue (by function)	Best phage hit	E-value	Percentage	
									Identity	Coverage
RLPCCGM1_c0840	389092	389457	+	121	phage protein	Putative terminase small subunit	Pseudomonas phage H66	5E-24	42	64
RLPCCGM1_c0841	389423	390994	+	523	terminase large subunit protein	Putative terminase large subunit	Erwinia phagep14	4E-120	40	91
RLPCCGM1_c0842	390994	393093	+	699	methyl-accepting chemotaxis protein	Putative portal protein	Brucella phage Tb	7E-115	33	89
RLPCCGM1_c0843	393113	393424	+	103	hypothetical protein					

RLPCCGM1_c0844	393460	394551	+	363	hypothetical protein	P47	Myxococcus phage Mx8	1E-07	28	77
RLPCCGM1_c0845	394567	395541	+	324	major virion structural protein	Major virion structural protein	Myxococcus phage Mx8	1E-110	52	100
RLPCCGM1_c0846	395563	396348	+	261	hypothetical protein					
RLPCCGM1_c0847	396417	396983	+	188	phage protein	P50	Myxococcus phage Mx8	2E-23	34	74
RLPCCGM1_c0848	396999	397697	+	232	hypothetical protein	P51	Myxococcus phage Mx8	2E-25	35	89
RLPCCGM1_c0849	397694	399517	+	607	hypothetical protein	Structural protein	Brucella phage Pr	7E-62	29	95
RLPCCGM1_c0850	399514	399921	+	135	hypothetical protein	Acetyltransferase	Burkholderia phage DC1	3E-12	34	90
RLPCCGM1_c0851	399968	400711	+	247	hypothetical protein	Structural protein	Brucella phage F1	1E-36	37	69
RLPCCGM1_c0852	400711	403077	+	788	flagellar protein FlgJ	Virion structural protein	Myxococcus phage Mx8	3E-18	34	47
RLPCCGM1_c0853	403171	405183	+	670	hypothetical protein					
RLPCCGM1_c0854	405426	406781	+	451	hypothetical protein	Uncharacterized protein	Rhizobium phage RHEph06	5E-102	56	60
RLPCCGM1_c0855	406781	406975	+	64	hypothetical protein					
RLPCCGM1_c0856	406988	407137	+	49	hypothetical protein	Uncharacterized protein	Sinorhizobium phage phiM12	3E-10	57	94
RLPCCGM1_c0857	407134	407562	+	142	hypothetical protein					
RLPCCGM1_c0858	407818	408405	+	195	phage antirepressor protein	Putative antirepressor	Enterobacteria phage CUS-3	2E-15	32	59
RLPCCGM1_c0859	408527	408691	+	54	hypothetical protein					
RLPCCGM1_c0860	408681	409145	+	154	lysozyme protein	Lysozyme	Xanthomonas phage Xop411	2E-36	44	83
RLPCCGM1_c0861	409145	409507	+	120	hypothetical protein					
RLPCCGM1_c0862	409464	409739	+	91	hypothetical protein					
RLPCCGM1_c0863	409736	411328	+	530	hypothetical protein	Uncharacterized protein	Rhizobium phage RHEph01	1E-96	39	98
RLPCCGM1_c0864	411525	411764	+	79	transmembrane protein					
RLPCCGM1_c0865	411932	412249	-	105	succinoglycan biosynthesis protein exoI					
RLPCCGM1_c0866	415553	415762	+	69	hypothetical protein					
RLPCCGM1_c0867	416077	416367	-	96	hypothetical protein					
RLPCCGM1_c0868	416395	416670	-	91	hypothetical protein					
RLPCCGM1_c0869	418376	419665	-	429	phage integrase family protein	Putative integrase	Salmonella phage SPN3UB	4E-29	29	92

Supplementary Table 5. Presence or absence of genes related to nitrogen fixation and nodule development in rhizobia and *K. pneumoniae*.

nif

	A	B	H	D	K	E	N	X	Q	R	S	U	W	Z	V	J	T	M	L	F	Y	<i>bacA</i>	
<i>Klebsiella pneumoniae</i> Kp342																							
<i>Bradyrhizobium</i> sp. ORS278			2								2	2		2									
<i>Bradyrhizobium</i> sp. BTAi1			2								2	3											
<i>Azorhizobium caulinodans</i> ORS571			2									3											
<i>Rhizobium etli</i> CFN42			3	2	2						2	2											
<i>Rhizobium leguminosarum</i> phaseoli CCGM1			2	2							2	2											
<i>Rhizobium leguminosarum</i> phaseoli CIAT652			3	3	2						2	2											
<i>Rhizobium leguminosarum</i> phaseoli CNPAF512									?		2	2	?										
<i>Rhizobium leguminosarum</i> viciae 3841																							
<i>Sinorhizobium americanum</i> CCGM7										?	2	2											
<i>Sinorhizobium fredii</i> NGR234			2	2	2							2											
<i>Sinorhizobium fredii</i> USDA257			2	2	2					?													
<i>Sinorhizobium meliloti</i> 1021																							

fix

	A	B	C	X	G	H	I	S	N	O	Q	P	L	J	T	K	U	R	M	F	
<i>Klebsiella pneumoniae</i> Kp342																					
<i>Bradyrhizobium</i> sp. ORS278					4													2			
<i>Bradyrhizobium</i> sp. BTAi1				3				?								4		2			
<i>Azorhizobium caulinodans</i> ORS571						?	?														
<i>Rhizobium etli</i> CFN42					2		2	2	2	2	2	2		*		2					
<i>Rhizobium leguminosarum</i> phaseoli CCGM1			?																		
<i>Rhizobium leguminosarum</i> phaseoli CIAT652																2					
<i>Rhizobium leguminosarum</i> phaseoli CNPAF512																2					
<i>Rhizobium leguminosarum</i> viciae 3841					2	2	3	3	3	3	3	3									
<i>Sinorhizobium americanum</i> CCGM7									2							2					
<i>Sinorhizobium fredii</i> NGR234							2	2	2	2	2	2	?	?	?						
<i>Sinorhizobium fredii</i> USDA257									3							2					
<i>Sinorhizobium meliloti</i> 1021						2	2	3	3	3	3	2		3	3						

