

**Table S4.** Proteins of “*Ca. N. fabula*” with predicted functions in key metabolic pathways, and genes of “*Ca. N. fabula*” coding for rRNAs or tRNAs. Proteins with an amino acid identity  $\geq 35\%$  (over at least 80% of the sequence lengths) to characterized proteins in the SwissProt or TrEMBL databases were annotated as homologous to proteins with a known function. Proteins with an amino acid identity  $\geq 25\%$  (over at least 80% of the sequence lengths) to characterized proteins or signatures in the aforementioned databases were annotated as putative homologs of the respective database entries.

Central Carbon Metabolism						
Pathway	Identifier	Type	Begin	End	Gene	Product
C-fixation	NITFAB_0176	CDS	159745	160809	<i>fda</i>	Fructose-1,6-bisphosphate aldolase, class II
C-fixation	NITFAB_0177	CDS	160899	162338	<i>pykA</i>	Pyruvate kinase
C-fixation	NITFAB_0178	CDS	162355	163539	<i>pgk</i>	Phosphoglycerate kinase
C-fixation	NITFAB_0179	CDS	163617	164612	<i>gapA</i>	Glyceraldehyde-3-phosphate dehydrogenase A
C-fixation	NITFAB_0181	CDS	165202	167217	<i>tktA</i>	Transketolase 1, thiamin-binding
C-fixation	NITFAB_0347	CDS	350588	353368	<i>ppc</i>	Phosphoenolpyruvate carboxylase
C-fixation	NITFAB_0411	CDS	418433	419437	<i>fbp</i>	Fructose-1,6-bisphosphatase class I
C-fixation	NITFAB_0432	CDS	441142	442029	<i>cbbP</i>	Phosphoribulokinase
C-fixation	NITFAB_1072	CDS	1103461	1105800	<i>cbbO</i>	von Willebrand factor type A
C-fixation	NITFAB_1073	CDS	1105873	1106688	<i>cbbQ</i>	CbbQ
C-fixation	NITFAB_1074	CDS	1106824	1107180	<i>cbbS1</i>	Ribulose bisphosphate carboxylase/oxygenase small chain
C-fixation	NITFAB_1075	CDS	1107243	1108664	<i>cbbL1</i>	Ribulose bisphosphate carboxylase/oxygenase large chain
C-fixation	NITFAB_1105	CDS	1141097	1141852	<i>tpiA</i>	Triosephosphate isomerase
C-fixation	NITFAB_1227	CDS	1242715	1243149	<i>cbbS2</i>	Ribulose bisphosphate carboxylase/oxygenase small chain
C-fixation	NITFAB_1228	CDS	1243171	1244646	<i>cbbL2</i>	Ribulose bisphosphate carboxylase/oxygenase large chain
C-fixation	NITFAB_1234	CDS	1251630	1254005	<i>xpkA</i>	Xylulose-5-phosphate phosphoketolase
C-fixation	NITFAB_1933	CDS	1931517	1932245	<i>rpe</i>	Ribulose-phosphate 3-epimerase
C-fixation	NITFAB_2483	CDS	2497131	2497790	<i>rpiA</i>	Ribose 5-phosphate isomerase, constitutive
Glycogen formation/degradation	NITFAB_0535	CDS	533427	534872	<i>glgA</i>	Glycogen synthase
Glycogen formation/degradation	NITFAB_0599	CDS	592567	593943	<i>pgm</i>	Phosphoglucomutase
Glycogen formation/degradation	NITFAB_2047	CDS	2053431	2054711	<i>glgC</i>	glucose-1-phosphate adenylyltransferase
Glycogen formation/degradation	NITFAB_2048	CDS	2054819	2057017	<i>glgB</i>	1,4-alpha-glucan branching enzyme
Glycogen formation/degradation	NITFAB_2215	CDS	2227727	2229445		Putative Phosphorylase
Glycolysis/Gluconeogenesis	NITFAB_0176	CDS	159745	160809	<i>fda</i>	Fructose-1,6-bisphosphate aldolase, class II
Glycolysis/Gluconeogenesis	NITFAB_0177	CDS	160899	162338	<i>pykA</i>	Pyruvate kinase
Glycolysis/Gluconeogenesis	NITFAB_0178	CDS	162355	163539	<i>pgk</i>	Phosphoglycerate kinase
Glycolysis/Gluconeogenesis	NITFAB_0179	CDS	163617	164612	<i>gapA</i>	Glyceraldehyde-3-phosphate dehydrogenase A
Glycolysis/Gluconeogenesis	NITFAB_0411	CDS	418433	419437	<i>fbp</i>	Fructose-1,6-bisphosphatase class I
Glycolysis/Gluconeogenesis	NITFAB_0599	CDS	592567	593943	<i>pgm</i>	Phosphoglucomutase
Glycolysis/Gluconeogenesis	NITFAB_0652	CDS	652423	653409	<i>glk</i>	Glucokinase
Glycolysis/Gluconeogenesis	NITFAB_1105	CDS	1141097	1141852	<i>tpiA</i>	Triosephosphate isomerase
Glycolysis/Gluconeogenesis	NITFAB_1993	CDS	1995346	1996629	<i>eno</i>	enolase

Glycolysis/Gluconeogenesis	NITFAB_2049	CDS	2057251	2058894	<i>pgi</i>	glucosephosphate isomerase
Glycolysis/Gluconeogenesis	NITFAB_2281	CDS	2292994	2294520	<i>gpml</i>	phosphoglycerat mutase, cofactor-independent
Glycolysis/Gluconeogenesis	NITFAB_2363	CDS	2367922	2369181		putative Pyrophosphate--fructose 6-phosphate 1-phosphotransferase
Glyoxylate Shunt	NITFAB_0625	CDS	618890	619543	<i>gph2</i>	Phosphoglycolate phosphatase
Glyoxylate Shunt	NITFAB_0676	CDS	687556	689046	<i>glcD</i>	Glycolate oxidase GlcD subunit, FAD-linked
Glyoxylate Shunt	NITFAB_0677	CDS	689046	690110	<i>glcE</i>	Glycolate oxidase FAD binding GlcE subunit
Glyoxylate Shunt	NITFAB_0678	CDS	690118	691335	<i>glcF</i>	glycolate oxidase iron-sulfur GlcF subunit
Glyoxylate Shunt	NITFAB_2021	CDS	2026998	2027972	<i>mcl</i>	Malyl-CoA lyase
Glyoxylate Shunt	NITFAB_2022	CDS	2027982	2029160	<i>mka</i>	Probable Malate--CoA ligase, subunit beta
Glyoxylate Shunt	NITFAB_2023	CDS	2029182	2030054	<i>sucD</i>	Probable Malate--CoA ligase, alpha subunit
Glyoxylate Shunt	NITFAB_2118	CDS	2126338	2127354	<i>mdh</i>	Malate dehydrogenase
Pentose-phosphate pathway	NITFAB_0176	CDS	159745	160809	<i>fda</i>	Fructose-1,6-bisphosphate aldolase, class II
Pentose-phosphate pathway	NITFAB_0181	CDS	165202	167217	<i>tktA</i>	Transketolase, thiamin-binding
Pentose-phosphate pathway	NITFAB_0411	CDS	418433	419437	<i>fbp</i>	Fructose-1,6-bisphosphatase class I
Pentose-phosphate pathway	NITFAB_0549	CDS	549127	550080	<i>prs</i>	ribose-phosphate pyrophosphokinase (Phosphoribosyl pyrophosphate synthetase)
Pentose-phosphate pathway	NITFAB_0599	CDS	592567	593943	<i>pgm</i>	Phosphoglucomutase
Pentose-phosphate pathway	NITFAB_0788	CDS	813734	814645		putative 6-phosphogluconate dehydrogenase
Pentose-phosphate pathway	NITFAB_1234	CDS	1251630	1254005	<i>xpkA</i>	Xylulose-5-phosphate phosphoketolase
Pentose-phosphate pathway	NITFAB_2044	CDS	2048141	2048860		putative 6-phosphogluconolactonase
Pentose-phosphate pathway	NITFAB_2049	CDS	2057251	2058894	<i>pgi</i>	glucosephosphate isomerase
Pentose-phosphate pathway	NITFAB_2453	CDS	2465032	2465793	<i>rpe</i>	D-ribulose-5-phosphate 3-epimerase
Pentose-phosphate pathway	NITFAB_2473	CDS	2486672	2487757		putative Transaldolase
Pentose-phosphate pathway	NITFAB_2474	CDS	2487861	2489324	<i>zwf</i>	Glucose-6-phosphate 1-dehydrogenase
Pentose-phosphate pathway	NITFAB_2483	CDS	2497131	2497790	<i>rpiA</i>	Ribose 5-phosphate isomerase, constitutive
TCA Cycle	NITFAB_0684	CDS	698060	698434	<i>sdhC</i>	Succinate dehydrogenase, cytochrome b556 subunit
TCA Cycle	NITFAB_0685	CDS	698428	698802	<i>sdhD</i>	Succinate dehydrogenase, hydrophobic membrane anchor protein
TCA Cycle	NITFAB_0686	CDS	698802	700565	<i>sdhA</i>	Succinate dehydrogenase, flavoprotein subunit
TCA Cycle	NITFAB_0687	CDS	700925	701620	<i>sdhB</i>	Succinate dehydrogenase, iron-sulfur subunit
TCA Cycle	NITFAB_0689	CDS	701857	703200	<i>gltA</i>	Citrate synthase
TCA Cycle	NITFAB_0690	CDS	703316	706222	<i>sucA</i>	2-oxoglutarate dehydrogenase, E1 component
TCA Cycle	NITFAB_0691	CDS	706240	707400	<i>sucB</i>	2-oxoglutarate dehydrogenase, dihydrolipoyllysine-residue succinyltransferase (E2) component
TCA Cycle	NITFAB_0692	CDS	707529	708953	<i>lpdG</i>	2-oxo-acid dehydrogenase, dihydrolipoamide dehydrogenase (E3) component
TCA Cycle	NITFAB_1259	CDS	1283730	1284977	<i>icd</i>	isocitrate dehydrogenase
TCA Cycle	NITFAB_1443	CDS	1484837	1486219	<i>fumC</i>	fumarate hydratase (fumarase C), aerobic Class II
TCA Cycle	NITFAB_2118	CDS	2126338	2127354	<i>mdh</i>	Malate dehydrogenase
TCA Cycle	NITFAB_2202	CDS	2216587	2217468	<i>sucD</i>	Succinyl-CoA ligase [ADP-forming], subunit alpha
TCA Cycle	NITFAB_2203	CDS	2217456	2218634	<i>sucC</i>	Succinyl-CoA ligase [ADP-forming] subunit beta

TCA Cycle	NITFAB_2306	CDS	2313435	2316161	<i>acnA</i>	aconitate hydratase 1
TCA Cycle	NITFAB_2386	CDS	2393636	2395429	<i>lpdA</i>	2-oxo-acid dehydrogenase complex, Dihydrolipoamide dehydrogenase (E3) component
<b>Hydrogen Metabolism</b>						
<b>Pathway</b>	<b>Label</b>	<b>Type</b>	<b>Begin</b>	<b>End</b>	<b>Gene</b>	<b>Product</b>
Hydrogen Metabolism	NITFAB_0289	CDS	287290	287868	<i>hupE</i>	Hydrogenase/urease accessory protein HupE/UreJ
Hydrogen Metabolism	NITFAB_1062	CDS	1092550	1094052	<i>hoxH</i>	[NiFe] NAD-reducing hydrogenase, large subunit HoxH
Hydrogen Metabolism	NITFAB_1063	CDS	1094046	1094534	<i>hoxW</i>	Hydrogenase maturation protease
Hydrogen Metabolism	NITFAB_1064	CDS	1094558	1094899	<i>hypA</i>	Hydrogenase nickel incorporation protein HypA
Hydrogen Metabolism	NITFAB_1065	CDS	1094936	1095838	<i>hypB</i>	Hydrogenase nickel incorporation protein HypB
Hydrogen Metabolism	NITFAB_1066	CDS	1095810	1096946	<i>hypF</i>	Carbamoyltransferase HypF (fragment)
Hydrogen Metabolism	NITFAB_1067	CDS	1096960	1097202	<i>hypC</i>	Hydrogenase expression/formation protein HypC
Hydrogen Metabolism	NITFAB_1068	CDS	1097199	1098314	<i>hypD</i>	Hydrogenase expression/formation protein HypD
Hydrogen Metabolism	NITFAB_1069	CDS	1098311	1099360	<i>hypE</i>	Hydrogenase maturation protein HypE
Hydrogen Metabolism	NITFAB_1663	CDS	1683318	1683854	<i>hoxY</i>	[NiFe] NAD-reducing hydrogenase, small subunit HoxY
Hydrogen Metabolism	NITFAB_1664	CDS	1683851	1684696	<i>hoxU</i>	[NiFe] NAD-reducing hydrogenase, subunit HoxU
Hydrogen Metabolism	NITFAB_1665	CDS	1684672	1686498	<i>hoxF</i>	[NiFe] NAD-reducing hydrogenase, subunit HoxF
<b>Miscellaneous</b>						
<b>Pathway</b>	<b>Label</b>	<b>Type</b>	<b>Begin</b>	<b>End</b>	<b>Gene</b>	<b>Product</b>
Amino Acid Transport	NITFAB_1244	CDS	1265623	1268685		putative Amino acid ABC transporter, permease protein, 3-TM region, His/Glu/Gln/Arg/opine family
Amino Acid Transport	NITFAB_1245	CDS	1268682	1269785		putative ABC-type polar amino acid transport system, ATPase component
Arsenic Resistance	NITFAB_1123	CDS	1150900	1151916		Transcriptional regulator, ArsR family
Arsenic Resistance	NITFAB_1500	CDS	1547297	1547692	<i>arsC</i>	arsenate reductase
Arsenic Resistance	NITFAB_1579	CDS	1615184	1615585		Transcriptional regulator, ArsR family
Arsenic Resistance	NITFAB_2149	CDS	2162629	2162961		putative Transcriptional regulator, ArsR family
Arsenic Resistance	NITFAB_2150	CDS	2162958	2163725		putative NADPH-dependent FMN reductase, Arsenical resistance protein
Arsenic Resistance	NITFAB_2151	CDS	2163722	2164228		putative Arsenate reductase
Arsenic Resistance	NITFAB_2217	CDS	2230354	2230785		putative Transcriptional regulator, ArsR family
Branched AA Transport	NITFAB_0006	CDS	5844	7028	<i>livK</i>	leucine/isoleucine/valine transporter subunit; periplasmic-binding component of ABC superfamily
Branched AA Transport	NITFAB_0007	CDS	7088	8011	<i>livH</i>	leucine/isoleucine/valine transporter subunit; membrane component of ABC superfamily
Branched AA Transport	NITFAB_0008	CDS	7995	9107	<i>livM</i>	leucine/isoleucine/valine transporter subunit; membrane component of ABC superfamily
Branched AA Transport	NITFAB_0009	CDS	9113	9922	<i>livG</i>	leucine/isoleucine/valine transporter subunit; ATP-binding component of ABC superfamily
Branched AA Transport	NITFAB_0010	CDS	9962	10690	<i>livF</i>	leucine/isoleucine/valine transporter subunit; ATP-binding component of ABC superfamily
Calcium Transport	NITFAB_0651	CDS	649611	652247	<i>tcaB</i>	Calcium-transporting ATPase

Calcium Transport	NITFAB_1239	CDS	1260412	1261389		putative Sodium/potassium/calcium antiporter CaxA
Carbonic Anhydrases	NITFAB_0956	CDS	995979	996668	<i>cynT1</i>	Carbonic anhydrase
Carbonic Anhydrases	NITFAB_1300	CDS	1326582	1327205	<i>cynT2</i>	Carbonic anhydrase
Carbonic Anhydrases	NITFAB_1418	CDS	1463115	1463750		putative Carbonic anhydrase
Catalase	NITFAB_1016	CDS	1046232	1048457	<i>katG</i>	catalase/hydroperoxidase HPI(I)
Catalase	NITFAB_1541	CDS	1584179	1586377	<i>katG</i>	catalase/hydroperoxidase HPI(I)
Catalase	NITFAB_1652	CDS	1667427	1669601	<i>katG</i>	catalase/hydroperoxidase HPI(I)
Chlorite Dismutase	NITFAB_1630	CDS	1651185	1652057	<i>cld</i>	Chlorite dismutase
Chlorite Dismutase	NITFAB_2070	CDS	2082825	2083667	<i>cld</i>	Chlorite dismutase
Co/Zn/Cd Export	NITFAB_1397	CDS	1438159	1441356	<i>czcA</i>	Cobalt-zinc-cadmium resistance protein CzcA (Cation efflux system protein CzcA)
Co/Zn/Cd Export	NITFAB_1398	CDS	1441377	1442879	<i>czcB</i>	Cobalt-zinc-cadmium resistance protein CzcB
Co/Zn/Cd Export	NITFAB_1399	CDS	1442917	1444209	<i>czcC</i>	Cobalt-zinc-cadmium resistance protein CzcC
CRISPR/CAS	NITFAB_1828	CDS	1819684	1820550		putative CRISPR-associated RAMP protein, Cmr4 family
CRISPR/CAS	NITFAB_2256	CDS	2265092	2265397		putative CRISPR-associated endoribonuclease Cas2
CRISPR/CAS	NITFAB_2257	CDS	2265425	2266354		putative CRISPR-associated endonuclease Cas1
CRISPR/CAS	NITFAB_2258	CDS	2266360	2268777		putative CRISPR-associated endonuclease, cas9
Cytochrome c biogenesis	NITFAB_0081	CDS	70926	72869	<i>ccmF</i>	heme lyase, CcmF subunit
Cytochrome c biogenesis	NITFAB_0082	CDS	72881	73408	<i>ccmG</i>	periplasmic thioredoxin of cytochrome c-type biogenesis
Cytochrome c biogenesis	NITFAB_0083	CDS	73398	73892	<i>ccmH</i>	Cytochrome C biogenesis protein
Cytochrome c biogenesis	NITFAB_0084	CDS	73889	75145		putative Cytochrome c-type biogenesis protein
Cytochrome c biogenesis	NITFAB_0203	CDS	193708	194415		putative DsbA-like protein
Cytochrome c biogenesis	NITFAB_0437	CDS	447234	449078	<i>dsbD</i>	Thiol:disulfide interchange protein DsbD
Cytochrome c biogenesis	NITFAB_2312	CDS	2320186	2320662	<i>ccmE</i>	heme chaperone
Cytochrome c biogenesis	NITFAB_2313	CDS	2320786	2320950		putative Heme exporter protein CcmD (fragment)
Cytochrome c biogenesis	NITFAB_2314	CDS	2320947	2321624	<i>ccmC</i>	heme exporter subunit; membrane component of ABC superfamily
Cytochrome c biogenesis	NITFAB_2315	CDS	2321716	2322399	<i>ccmB</i>	heme exporter subunit; membrane component of ABC superfamily
Cytochrome c biogenesis	NITFAB_2316	CDS	2322396	2323010	<i>ccmA</i>	heme exporter subunit; ATP-binding component of ABC superfamily
Cytochrome c biogenesis	NITFAB_2519	CDS	2533438	2533950		putative Disulfide bond formation protein B DsbB
Cytochromes	NITFAB_0005	CDS	4899	5273		putative Cytochrome c class I
Cytochromes	NITFAB_0057	CDS	49810	50406		putative monohaem cytochrome c
Cytochromes	NITFAB_0058	CDS	50531	51310		Dihaem cytochrome c
Cytochromes	NITFAB_0187	CDS	175579	176259		Dihaem cytochrome c
Cytochromes	NITFAB_0188	CDS	176249	176599		Monohaem cytochrome c
Cytochromes	NITFAB_0192	CDS	178774	179205		putative Monohaem cytochrome c
Cytochromes	NITFAB_1009	CDS	1042294	1042614		putative Cytochrome c class I
Cytochromes	NITFAB_1049	CDS	1077880	1078497		putative Cytochrome b
Cytochromes	NITFAB_1656	CDS	1670809	1672320		putative Multahaem cytochrome c
Cytochromes	NITFAB_1911	CDS	1906967	1907455	<i>cybB</i>	Cytochrome b561

Cytochromes	NITFAB_2103	CDS	2111941	2112516		putative cytochrome c
Cytochromes	NITFAB_2210	CDS	2223161	2223841		putative Cytochrome c-551
Cytochromes	NITFAB_2356	CDS	2360153	2361046		putative Cytochrome c family protein
FeS Cluster Assembly	NITFAB_2525	CDS	2537721	2538206	<i>sufU</i>	FeS cluster assembly SUF system, sulfur-transfer protein SufU
FeS Cluster Assembly	NITFAB_2527	CDS	2539462	2540769	<i>sufD</i>	FeS cluster assembly SUF system , protein SufD
FeS Cluster Assembly	NITFAB_2528	CDS	2540766	2541557	<i>sufC</i>	FeS cluster assembly SUF system, ATPase SufC
FeS Cluster Assembly	NITFAB_2529	CDS	2541554	2542990	<i>sufB</i>	FeS cluster assembly SUF system, protein SufB
FeS Cluster Assembly	NITFAB_2530	CDS	2543076	2543435	<i>sufA</i>	FeS cluster assembly SUF system, protein SufA
Iron Metabolism	NITFAB_1367	CDS	1404069	1405892		putative siderophore biosynthesis protein
Iron Metabolism	NITFAB_1371	CDS	1408682	1410799		putative TonB-dependent siderophore receptor
Iron Metabolism	NITFAB_1391	CDS	1429456	1429860		putative ferric reductase (fragment)
Iron Metabolism	NITFAB_1392	CDS	1429820	1430251		putative ferric reductase (fragment)
Iron Metabolism	NITFAB_1393	CDS	1430369	1430788		putative Ferric reductase domain (fragment)
Iron Metabolism	NITFAB_1692	CDS	1708850	1709389		putative Bacterioferritin
Iron Metabolism	NITFAB_1876	CDS	1855863	1858343		putative TonB-dependent siderophore receptor
Iron Metabolism	NITFAB_1999	CDS	2005271	2006299		putative Ferric iron ABC transporter, iron-binding protein
Iron Metabolism	NITFAB_2000	CDS	2006309	2007955		putative Iron ABC transporter permease protein
Iron Metabolism	NITFAB_2001	CDS	2008056	2009126		putative Fe(3+)-transporting ATPase
Iron Metabolism	NITFAB_2003	CDS	2009256	2009681	<i>fur</i>	DNA-binding transcriptional dual regulator of siderophore biosynthesis and transport
Iron Metabolism	NITFAB_2056	CDS	2066098	2068296		putative TonB-dependent receptor
Iron Metabolism	NITFAB_2086	CDS	2098496	2098960	<i>bfr</i>	bacterioferritin, iron storage and detoxification protein
Magnesium Transport	NITFAB_0324	CDS	325549	326814		putative magnesium/nickel/cobalt transporter (fragment)
Magnesium Transport	NITFAB_0408	CDS	411945	414539	<i>mgfA</i>	Magnesium-transporting ATPase, P-type 1
Magnesium Transport	NITFAB_2346	CDS	2350309	2351763		putative Magnesium transporter
Mechanosensitive Channel	NITFAB_0994	CDS	1027439	1027843	<i>mscL</i>	mechanosensitive channel
Molybdenum Transport	NITFAB_2422	CDS	2430033	2431103	<i>modC</i>	Molybdenum import ATP-binding protein ModC
Molybdenum Transport	NITFAB_2423	CDS	2431100	2431804	<i>modB</i>	Molybdenum transport system permease protein ModB
Molybdenum Transport	NITFAB_2424	CDS	2431819	2432595		putative Molybdenum ABC transporter, periplasmic molybdenum-binding protein ModA
Monovalent Cation/Proton Antiporter	NITFAB_1283	CDS	1307823	1309199	<i>nhaA</i>	Na(+)/H(+) antiporter NhaA
Monovalent Cation/Proton Antiporter	NITFAB_2132	CDS	2146579	2149503	<i>mrpA</i> <i>B</i>	monovalent cation/H(+) antiporter subunit A/B
Monovalent Cation/Proton Antiporter	NITFAB_2133	CDS	2149503	2149850	<i>mrpC</i>	monovalent cation/H(+) antiporter subunit C
Monovalent Cation/Proton Antiporter	NITFAB_2134	CDS	2149906	2151522	<i>mrpD</i>	proton transporter component of monovalent cation/H+ antiporter subunit D
Monovalent Cation/Proton Antiporter	NITFAB_2135	CDS	2151474	2151716		protein of unknown function

Monovalent Cation/Proton Antiporter	NITFAB_2136	CDS	2151519	2152007		putative monovalent cation/H(+) antiporter subunit E
Monovalent Cation/Proton Antiporter	NITFAB_2137	CDS	2152004	2152285	<i>mrpF</i>	monovalent cation/H(+) antiporter subunit F
Monovalent Cation/Proton Antiporter	NITFAB_2138	CDS	2152282	2152593	<i>mrpG</i>	monovalent cation/H(+) antiporter subunit G
Peroxidase	NITFAB_1212	CDS	1229745	1230830		putative Cytochrome c peroxidase (ccp)
Peroxidase	NITFAB_1373	CDS	1412079	1413359		putative Di-heme cytochrome c peroxidase
Peroxidase	NITFAB_1903	CDS	1893290	1894333	<i>ccpA</i>	Cytochrome c551 peroxidase
Phosphate Transport	NITFAB_0743	CDS	765491	766264	<i>pstB1</i>	phosphate transporter subunit; ATP-binding component of ABC superfamily
Phosphate Transport	NITFAB_0744	CDS	766277	767122	<i>pstA1</i>	phosphate transporter subunit; membrane component of ABC superfamily
Phosphate Transport	NITFAB_0745	CDS	767125	768087	<i>pstC1</i>	phosphate transporter subunit; membrane component of ABC superfamily
Phosphate Transport	NITFAB_0746	CDS	768211	769260	<i>pstS1</i>	phosphate transporter subunit; periplasmic-binding component of ABC superfamily
Phosphate Transport	NITFAB_0967	CDS	1005708	1006757	<i>pstS2</i>	phosphate transporter subunit; periplasmic-binding component of ABC superfamily
Phosphate Transport	NITFAB_1051	CDS	1080264	1081037	<i>pstB2</i>	high-affinity phosphate transport protein (ABC superfamily, atp_bind)
Phosphate Transport	NITFAB_1052	CDS	1081050	1081895	<i>pstA2</i>	phosphate transporter subunit; membrane component of ABC superfamily
Phosphate Transport	NITFAB_1053	CDS	1081898	1082860	<i>pstC2</i>	phosphate transporter subunit; membrane component of ABC superfamily
Phosphate Transport	NITFAB_1054	CDS	1082984	1084033	<i>pstS3</i>	phosphate transporter subunit; periplasmic-binding component of ABC superfamily
Phosphate Transport	NITFAB_2482	CDS	2496355	2497062	<i>phoU</i>	negative regulator of PhoR/PhoB two-component regulator
Potassium Transport	NITFAB_1894	CDS	1881154	1883025	<i>kup</i>	potassium transporter
Quarternary Ammonium Compound resistance	NITFAB_1750	CDS	1754843	1755163	<i>sugE</i>	Quaternary ammonium compound-resistance protein SugE
Quarternary Ammonium Compound resistance	NITFAB_p0005	CDS	3780	4112	<i>emrE</i>	Quaternary ammonium compound-resistance protein EmrE
Quorum Sensing	NITFAB_1168	CDS	1181820	1182377	<i>anoI</i>	Acyl-homoserine-lactone synthase
Quorum Sensing	NITFAB_2191	CDS	2206256	2206843	<i>anoI</i>	Acyl-homoserine-lactone synthase
Quorum Sensing	NITFAB_2193	CDS	2207440	2208222	<i>anoR</i>	Transcriptional activator protein AnoR
RND family Heavy metal/cation/multidrug Efflux	NITFAB_0193	CDS	179386	180711		putative Cation efflux system, membrane fusion protein
RND family Heavy metal/cation/multidrug Efflux	NITFAB_0194	CDS	180708	183818	<i>cusA</i>	Cation efflux system protein CusA
RND family Heavy metal/cation/multidrug Efflux	NITFAB_0537	CDS	535178	536479		putative Outer membrane efflux protein, cusC-like
RND family Heavy metal/cation/multidrug Efflux	NITFAB_0538	CDS	536476	537627		putative Efflux transporter, RND family, MFP subunit
RND family Heavy metal/cation/multidrug Efflux	NITFAB_0539	CDS	537629	540727	<i>cusA2</i>	Cation efflux system protein
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1570	CDS	1604686	1607775		putative Cation efflux system protein CzcA

RND family Heavy metal/cation/multidrug Efflux	NITFAB_1571	CDS	1607785	1609026		putative Efflux transporter, RND family, MFP subunit
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1572	CDS	1609028	1610380		putative Outer membrane efflux protein
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1586	CDS	1618626	1621790	<i>cusA3</i>	copper/silver efflux system, membrane component
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1587	CDS	1621787	1623397		putative Cation efflux system protein CusB
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1588	CDS	1623394	1624737		putative outer membrane silver resistance, three components proton antiporter efflux system SilC
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1602	CDS	1631892	1633019		putative RND efflux pump, membrane fusion protein, similar to AcrA family
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1603	CDS	1633016	1636099		putative RND efflux pump, similar to multidrug efflux transporter AcrB
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1757	CDS	1760980	1764081		putative Heavy metal efflux pump
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1864	CDS	1847929	1848708		putative Zinc transporter
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1968	CDS	1964135	1965367	<i>mdtA</i>	multidrug efflux system, subunit A
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1969	CDS	1965364	1968453	<i>mdtB</i>	multidrug efflux system, subunit B
RND family Heavy metal/cation/multidrug Efflux	NITFAB_1970	CDS	1968476	1971583	<i>mdtC</i>	multidrug efflux system, subunit C
RND family Heavy metal/cation/multidrug Efflux	NITFAB_2005	CDS	2010740	2012266		putative RND efflux system, outer membrane lipoprotein, NodT family
RND family Heavy metal/cation/multidrug Efflux	NITFAB_2006	CDS	2012244	2015381	<i>acrB</i>	multidrug efflux system protein
RND family Heavy metal/cation/multidrug Efflux	NITFAB_2007	CDS	2015390	2016550	<i>acrE</i>	RND efflux pump, membrane fusion protein
Sec Pathway	NITFAB_0271	CDS	265750	268467	<i>secA</i>	Preprotein translocase subunit SecA, ATPase
Sec Pathway	NITFAB_0463	CDS	471358	471702	<i>secE</i>	Preprotein translocase, subunit SecE
Sec Pathway	NITFAB_0497	CDS	497006	498337	<i>secY</i>	Preprotein translocase, membrane subunit SecY
Sec Pathway	NITFAB_0943	CDS	984982	985785	<i>lepB</i>	leader peptidase (signal peptidase I)
Sec Pathway	NITFAB_1106	CDS	1141882	1142232	<i>secG</i>	Preprotein translocase, membrane subunit SecG
Sec Pathway	NITFAB_1253	CDS	1275506	1275961	<i>lspA</i>	prolipoprotein signal peptidase (signal peptidase II)
Sec Pathway	NITFAB_1761	CDS	1768203	1769132	<i>secF</i>	Protein-export membrane protein SecF
Sec Pathway	NITFAB_1762	CDS	1769168	1770979	<i>secD</i>	Protein-export membrane protein SecD
Sec Pathway	NITFAB_1763	CDS	1770989	1771312	<i>yajC</i>	Preprotein translocase, subunit YajC
Sec Pathway	NITFAB_2081	CDS	2093522	2094580	<i>ftsY</i>	Signal recognition particle receptor FtsY
Sec Pathway	NITFAB_2288	CDS	2300518	2300997	<i>secB</i>	protein export chaperone
Sec Pathway	NITFAB_2354	CDS	2356946	2358298	<i>ffh</i>	Signal Recognition Particle (SRP) component with 4.5S RNA (ffs)

Superoxide dismutase	NITFAB_0901	CDS	937741	938319	<i>sodB</i>	superoxide dismutase (Fe)
Superoxide dismutase	NITFAB_1655	CDS	1670177	1670785		putative superoxide dismutase (copper/zinc)
TAT secretion	NITFAB_2544	CDS	2555372	2556127	<i>tatC</i>	Sec-independent protein translocase protein TatC
TAT secretion	NITFAB_2545	CDS	2556127	2556855		putative Sec-independent protein translocase protein TatB
TAT secretion	NITFAB_2546	CDS	2556871	2557101	<i>tatA</i>	Sec-independent protein translocase protein TatA
Toluene transport (export)	NITFAB_0135	CDS	119077	119886	<i>yrbF</i>	toluene transporter subunit: ATP-binding component of ABC superfamily
Toluene transport (export)	NITFAB_0136	CDS	119877	120671	<i>yrbE</i>	toluene transporter subunit: membrane component of ABC superfamily
Toluene transport (export)	NITFAB_0137	CDS	120674	121135	<i>yrbD</i>	toluene transporter subunit: membrane component of ABC superfamily
Toluene transport (export)	NITFAB_0138	CDS	121167	121808		putative ABC-type toluene transporter, auxiliary component
Toluene transport (export)	NITFAB_0140	CDS	122124	123029	<i>yadG</i>	putative transporter subunit: ATP-binding component of ABC superfamily
Toluene transport (export)	NITFAB_0141	CDS	123037	123792		putative transporter subunit: membrane component of ABC superfamily
Ubiquinone Synthesis	NITFAB_0124	CDS	108342	109499	<i>ubiF</i>	Ubiquinone biosynthesis hydroxylase, UbiH/UbiF/VisC/COQ6 family
Ubiquinone Synthesis	NITFAB_0128	CDS	112688	114151	<i>ubiD</i>	3-octaprenyl-4-hydroxybenzoate decarboxylase
Ubiquinone Synthesis	NITFAB_0233	CDS	225742	226899	<i>ubiH</i>	2-octaprenyl-6-methoxyphenol hydroxylase, FAD/NAD(P)-binding
Ubiquinone Synthesis	NITFAB_0325	CDS	326861	327718	<i>ubiA</i>	p-hydroxybenzoate octaprenyltransferase
Ubiquinone Synthesis	NITFAB_0326	CDS	327715	328335	<i>ubiC</i>	putative chorismate pyruvate-lyase ubiC
Ubiquinone Synthesis	NITFAB_0412	CDS	419530	421050	<i>ubiB</i>	2-octaprenylphenol hydroxylase
Ubiquinone Synthesis	NITFAB_0415	CDS	422717	423451	<i>ubiE</i>	bifunctional 2-octaprenyl-6-methoxy-1,4-benzoquinone methylase and S-adenosylmethionine:2-DMK methyltransferase
Ubiquinone Synthesis	NITFAB_0626	CDS	619536	620231	<i>ubiG</i>	3-demethylubiquinone-9 3-O-methyltransferase and 2-octaprenyl-6-hydroxy phenol methylase
<b>Nitrogen Metabolism</b>						
<b>Pathway</b>	<b>Label</b>	<b>Type</b>	<b>Begin</b>	<b>End</b>	<b>Gene</b>	<b>Product</b>
Ammonium Transporter	NITFAB_1755	CDS	1758819	1760042		putative Ammonium transporter
Nitrite Assimilation	NITFAB_1038	CDS	1067122	1069557	<i>nasD</i>	Assimilatory Nitrite reductase, NAD(P)H dependent, large subunit
Nitrite Assimilation	NITFAB_1039	CDS	1069570	1069893	<i>nasE</i>	Assimilatory Nitrite reductase, NAD(P)H dependent, small subunit
Nitrite Oxidation	NITFAB_2341	CDS	2341774	2342514		putative nitrite oxidoreductase assembly chaperone protein
Nitrite Oxidation	NITFAB_2342	CDS	2342583	2343692		putative nitrite oxidoreductase, gamma subunit
Nitrite Oxidation	NITFAB_2343	CDS	2343703	2344860	<i>nxB1</i>	Nitrite oxidoreductase, beta subunit
Nitrite Oxidation	NITFAB_2344	CDS	2344941	2348450	<i>nxA1</i>	Nitrite oxidoreductase, alpha subunit
Nitrite Oxidation	NITFAB_2593	CDS	2594871	2595611		putative nitrite oxidoreductase assembly chaperone protein
Nitrite Oxidation	NITFAB_2594	CDS	2595680	2596789		putative nitrite oxidoreductase, gamma subunit
Nitrite Oxidation	NITFAB_2595	CDS	2596800	2597957	<i>nxB2</i>	Nitrite oxidoreductase, beta subunit
Nitrite Oxidation	NITFAB_2596	CDS	2598038	2601547	<i>nxA2</i>	Nitrite oxidoreductase, alpha subunit
Nitrite Reduction	NITFAB_0189	CDS	176679	177623	<i>nirK</i>	Copper-containing nitrite reductase (NO-forming)
Nitrite Transporter	NITFAB_1230	CDS	1246759	1247571		putative Formate/nitrite transporter
<b>Respiratory Chain</b>						
<b>Pathway</b>	<b>Label</b>	<b>Type</b>	<b>Begin</b>	<b>End</b>	<b>Gene</b>	<b>Product</b>

Alternative Complex III (ACIII)	NITFAB_0001	CDS	356	2566		putative Menaquinol oxidoreductase complex ACIII, molybdopterin-binding subunit ActB1
Alternative Complex III (ACIII)	NITFAB_0002	CDS	2610	3215		putative Menaquinol oxidoreductase complex ACIII, cytochrome c subunit ActA
Alternative Complex III (ACIII)	NITFAB_2604	CDS	2605395	2606408		putative Menaquinol oxidoreductase complex ACIII, membrane subunit ActF
Alternative Complex III (ACIII)	NITFAB_2605	CDS	2606422	2606961		putative Menaquinol oxidoreductase complex ACIII, monohaem cytochrome c subunit ActE
Alternative Complex III (ACIII)	NITFAB_2606	CDS	2606958	2607485		putative Menaquinol oxidoreductase complex ACIII, DUF3341 subunit ActD
Alternative Complex III (ACIII)	NITFAB_2607	CDS	2607485	2608849		putative Menaquinol oxidoreductase complex ACIII, menaquinol-binding membrane protein subunit ActC
Alternative Complex III (ACIII)	NITFAB_2608	CDS	2608924	2609424		putative Menaquinol oxidoreductase complex ACIII, iron-sulfur cluster-binding subunit ActB2 (C-terminal fragment)
Alternative Complex III (ACIII)	NITFAB_CDS2R	CDS	2	262		putative Menaquinol oxidoreductase complex ACIII, iron-sulfur cluster-binding subunit ActB2 (N-terminal fragment)
Complex I	NITFAB_1772	CDS	1777637	1779088	<i>nuoN</i>	NADH-quinone oxidoreductase subunit N
Complex I	NITFAB_1773	CDS	1779111	1780595	<i>nuoM</i>	NADH-quinone oxidoreductase subunit M
Complex I	NITFAB_1774	CDS	1780626	1782647	<i>nuoL</i>	NADH-quinone oxidoreductase subunit L
Complex I	NITFAB_1775	CDS	1782654	1782965	<i>nuoK</i>	NADH-quinone oxidoreductase subunit K
Complex I	NITFAB_1776	CDS	1783114	1783734	<i>nuoJ</i>	NADH-quinone oxidoreductase subunit J
Complex I	NITFAB_1777	CDS	1783902	1784390	<i>nuoI</i>	NADH-quinone oxidoreductase subunit I
Complex I	NITFAB_1778	CDS	1784410	1785450	<i>nuoH</i>	NADH:ubiquinone oxidoreductase, subunit H
Complex I	NITFAB_1779	CDS	1785447	1787825	<i>nuoG</i>	NADH-quinone oxidoreductase, subunit G
Complex I	NITFAB_1780	CDS	1787840	1789111	<i>nuoF</i>	NADH:ubiquinone oxidoreductase, subunit F
Complex I	NITFAB_1781	CDS	1789108	1789587	<i>nuoE</i>	NADH-quinone oxidoreductase, subunit E
Complex I	NITFAB_1782	CDS	1789695	1790948	<i>nuoD</i>	NADH-quinone oxidoreductase subunit D
Complex I	NITFAB_1783	CDS	1791054	1791695	<i>nuoC</i>	NADH-quinone oxidoreductase subunit C
Complex I	NITFAB_1784	CDS	1791751	1792227	<i>nuoB</i>	NADH-quinone oxidoreductase subunit B
Complex I	NITFAB_1785	CDS	1792218	1792574	<i>nuoA</i>	NADH-quinone oxidoreductase subunit A
Complex II	NITFAB_0684	CDS	698060	698434	<i>sdhC</i>	Succinate dehydrogenase, cytochrome b556 subunit
Complex II	NITFAB_0685	CDS	698428	698802	<i>sdhD</i>	Succinate dehydrogenase, hydrophobic membrane anchor protein
Complex II	NITFAB_0686	CDS	698802	700565	<i>sdhA</i>	Succinate dehydrogenase, flavoprotein subunit
Complex II	NITFAB_0687	CDS	700925	701620	<i>sdhB</i>	Succinate dehydrogenase, iron-sulfur subunit
Complex IV	NITFAB_0046	CDS	42673	43638	<i>ccoO</i>	Cbb3-type cytochrome oxidase, cytochrome c subunit
Complex IV	NITFAB_0047	CDS	43674	45083	<i>ccoN</i>	Cbb3-type cytochrome oxidase, subunit I
Complex IV	NITFAB_0056	CDS	49317	49829		putative Cbb3-type cytochrome oxidase-like protein
Complex V	NITFAB_0146	CDS	128827	129255	<i>atpC</i>	F1 sector of membrane-bound ATP synthase, epsilon subunit
Complex V	NITFAB_0147	CDS	129304	130725	<i>atpD</i>	F1 sector of membrane-bound ATP synthase, beta subunit
Complex V	NITFAB_0148	CDS	130927	131796	<i>atpG</i>	F1 sector of membrane-bound ATP synthase, gamma subunit
Complex V	NITFAB_0149	CDS	131812	133353	<i>atpA</i>	F1 sector of membrane-bound ATP synthase, alpha subunit
Complex V	NITFAB_0150	CDS	133385	133918	<i>atpH</i>	F1 sector of membrane-bound ATP synthase, delta subunit

Complex V	NITFAB_0151	CDS	133924	134394	<i>atpF</i>	F0 sector of membrane-bound ATP synthase, subunit b
Complex V	NITFAB_0152	CDS	134429	134671	<i>atpE</i>	F0 sector of membrane-bound ATP synthase, subunit c
Complex V	NITFAB_0153	CDS	134730	135590	<i>atpB</i>	F0 sector of membrane-bound ATP synthase, subunit a
Complex V	NITFAB_0154	CDS	135587	135952		putative ATP synthase, subunit I
<b>RNAs</b>						
<b>Pathway</b>	<b>Label</b>	<b>Type</b>	<b>Begin</b>	<b>End</b>	<b>Gene</b>	<b>Product</b>
rRNA	NITFAB_16s_rRNA_1	rRNA	2414812	2416339		ribosomal RNA, 16s rRNA
rRNA	NITFAB_16s_rRNA_2	rRNA	2002980	2004507		ribosomal RNA, 16s rRNA
rRNA	NITFAB_23s_rRNA_1	rRNA	2411340	2414224		ribosomal RNA, 23s rRNA
rRNA	NITFAB_23s_rRNA_2	rRNA	1999508	2002392		ribosomal RNA, 23s rRNA
rRNA	NITFAB_5s_rRNA_1	rRNA	2411105	2411216		ribosomal RNA, 5s rRNA
rRNA	NITFAB_5s_rRNA_2	rRNA	1999273	1999384		ribosomal RNA, 5s rRNA
tRNA	NITFAB_tmRNA6	tmRNA	1843652	1844020		tmRNA
tRNA	NITFAB_tRNA1	tRNA	51890	51966		Arg tRNA
tRNA	NITFAB_tRNA10	tRNA	602524	602600		Met tRNA
tRNA	NITFAB_tRNA11	tRNA	709368	709452		Leu tRNA
tRNA	NITFAB_tRNA12	tRNA	715552	715627		Val tRNA
tRNA	NITFAB_tRNA13	tRNA	715639	715715		Asp tRNA
tRNA	NITFAB_tRNA14	tRNA	791095	791170		Arg tRNA
tRNA	NITFAB_tRNA15	tRNA	946270	946359		Ser tRNA
tRNA	NITFAB_tRNA16	tRNA	1142253	1142337		Leu tRNA
tRNA	NITFAB_tRNA17	tRNA	1331693	1331785		Ser tRNA
tRNA	NITFAB_tRNA18	tRNA	1331812	1331888		Arg tRNA
tRNA	NITFAB_tRNA19	tRNA	1448189	1448264		Gly tRNA
tRNA	NITFAB_tRNA2	tRNA	375633	375708		Phe tRNA
tRNA	NITFAB_tRNA20	tRNA	1448322	1448395		Cys tRNA
tRNA	NITFAB_tRNA21	tRNA	1448457	1448533		Pro tRNA
tRNA	NITFAB_tRNA22	tRNA	1491971	1492046		Lys tRNA
tRNA	NITFAB_tRNA23	tRNA	1740015	1740103		Leu tRNA
tRNA	NITFAB_tRNA24	tRNA	1753309	1753393		Leu tRNA
tRNA	NITFAB_tRNA25	tRNA	1912389	1912464		Ala tRNA
tRNA	NITFAB_tRNA26	tRNA	1912488	1912563		Glu tRNA
tRNA	NITFAB_tRNA27	tRNA	2589815	2589890		Thr tRNA

tRNA	NITFAB tRNA28	tRNA	2414608	2414684		Ile tRNA
tRNA	NITFAB tRNA29	tRNA	2414527	2414602		Ala tRNA
tRNA	NITFAB tRNA3	tRNA	469563	469647		Tyr tRNA
tRNA	NITFAB tRNA30	tRNA	2410795	2410881		Leu tRNA
tRNA	NITFAB tRNA31	tRNA	2279241	2279332		Ser tRNA
tRNA	NITFAB tRNA32	tRNA	2119279	2119369		Ser tRNA
tRNA	NITFAB tRNA33	tRNA	2004741	2004817		Met tRNA
tRNA	NITFAB tRNA34	tRNA	2002776	2002852		Ile tRNA
tRNA	NITFAB tRNA35	tRNA	2002695	2002770		Ala tRNA
tRNA	NITFAB tRNA36	tRNA	1910664	1910740		Val tRNA
tRNA	NITFAB tRNA37	tRNA	1663771	1663847		Pro tRNA
tRNA	NITFAB tRNA38	tRNA	1578123	1578199		Arg tRNA
tRNA	NITFAB tRNA39	tRNA	1578018	1578093		His tRNA
tRNA	NITFAB tRNA4	tRNA	469756	469829		Gly tRNA
tRNA	NITFAB tRNA40	tRNA	1125124	1125199		Asn tRNA
tRNA	NITFAB tRNA41	tRNA	307277	307353		Met tRNA
tRNA	NITFAB tRNA42	tRNA	207082	207155		Gly tRNA
tRNA	NITFAB tRNA5	tRNA	469840	469914		Thr tRNA
tRNA	NITFAB tRNA6	tRNA	471249	471324		Trp tRNA
tRNA	NITFAB tRNA7	tRNA	548995	549069		Gln tRNA
tRNA	NITFAB tRNA8	tRNA	570123	570198		Lys tRNA
tRNA	NITFAB tRNA9	tRNA	570257	570332		Thr tRNA
<b>Sulfur Metabolism</b>						
<b>Pathway</b>	<b>Label</b>	<b>Type</b>	<b>Begin</b>	<b>End</b>	<b>Gene</b>	<b>Product</b>
Sulfate Import	NITFAB_1675	CDS	1693177	1694232	<i>cysA</i>	sulfate/thiosulfate import ATP-binding protein CysA
Sulfate Import	NITFAB_1676	CDS	1694229	1695110	<i>cysW</i>	sulfate import protein (ABC superfamily, membrane subunit)
Sulfate Import	NITFAB_1677	CDS	1695107	1695937	<i>cysT</i>	sulfate transport protein (ABC superfamily, membrane subunit)
Sulfate Import	NITFAB_1685	CDS	1699887	1700900	<i>sbp</i>	sulfate transporter subunit; periplasmic-binding component of ABC superfamily
Sulfur Assimilation	NITFAB_0850	CDS	880756	882501	<i>sir</i>	assimilatory sulfite reductase (ferredoxin)
Sulfur Assimilation	NITFAB_0852	CDS	883006	883731	<i>cysH</i>	adenylsulfate reductase, thioredoxin dependent
Sulfur Assimilation	NITFAB_0854	CDS	883841	884746	<i>cysD</i>	sulfate adenyltransferase, subunit 2
Sulfur Assimilation	NITFAB_0855	CDS	884749	886002	<i>cysN</i>	sulfate adenyltransferase, subunit 1
Sulfur Assimilation	NITFAB_2037	CDS	2042834	2043718	<i>cysK1</i>	cysteine synthase A, O-acetylserine sulfhydrylase A subunit
Sulfur Assimilation	NITFAB_2043	CDS	2047067	2047954	<i>cysM</i>	cysteine synthase B, O-acetylserine sulfhydrylase B subunit
Sulfur Assimilation	NITFAB_2345	CDS	2348995	2349924	<i>cysK2</i>	cysteine synthase A, O-acetylserine sulfhydrylase A subunit
Sulfite Oxidoreductase	NITFAB_0978	CDS	1012389	1013624	<i>sorA</i>	sulfite:cytochrome c oxidoreductase, subunit A
Sulfite Oxidoreductase	NITFAB_0979	CDS	1013634	1014266	<i>sorB</i>	sulfite:cytochrome c oxidoreductase, subunit B
<b>Prophage</b>						

Pathway	Label	Type	Begin	End	Gene	Product
Predicted functional Prophage	NITFAB_1795	CDS	1796778	1798265		protein of unknown function
Predicted functional Prophage	NITFAB_1796	CDS	1798344	1799444		protein of unknown function
Predicted functional Prophage	NITFAB_1799	CDS	1800230	1802245		membrane protein of unknown function
Predicted functional Prophage	NITFAB_1800	CDS	1802289	1802540		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1801	CDS	1802609	1802917		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1802	CDS	1803010	1803666		putative phage tail protein
Predicted functional Prophage	NITFAB_1806	CDS	1804599	1805543		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1807	CDS	1805555	1805893		putative Phage-related exported protein
Predicted functional Prophage	NITFAB_1808	CDS	1805895	1807187		ClpP class periplasmic serine protease
Predicted functional Prophage	NITFAB_1809	CDS	1807184	1808887		Phage portal protein, lambda family
Predicted functional Prophage	NITFAB_1810	CDS	1808841	1809068		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1811	CDS	1809206	1809511		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1812	CDS	1809504	1809791		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1817	CDS	1811974	1813905		Phage terminase GpA
Predicted functional Prophage	NITFAB_1818	CDS	1813871	1814251		protein of unknown function
Predicted functional Prophage	NITFAB_1820	CDS	1814617	1815180		protein of unknown function
Predicted functional Prophage	NITFAB_1824	CDS	1816266	1816547		conserved membrane protein of unknown function

Predicted functional Prophage	NITFAB_1825	CDS	1816544	1817140		protein of unknown function
Predicted functional Prophage	NITFAB_1827	CDS	1817688	1819391		exported protein of unknown function
Predicted functional Prophage	NITFAB_1832	CDS	1823121	1823621		Uncharacterized endonuclease
Predicted functional Prophage	NITFAB_1835	CDS	1824390	1825679		DNA modification methylase
Predicted functional Prophage	NITFAB_1838	CDS	1826613	1826876		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1840	CDS	1827241	1827798		protein of unknown function
Predicted functional Prophage	NITFAB_1843	CDS	1828936	1831212		DNA primase/helicase, phage-associated
Predicted functional Prophage	NITFAB_1845	CDS	1831477	1831788		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1846	CDS	1832045	1832278		conserved protein of unknown function
Predicted functional Prophage	NITFAB_1848	CDS	1832959	1833237		conserved protein of unknown function