Supplemental material: figures S1 – S19 and table S1

Methanosaeta and *Candidatus* Velamenicoccus archaeovorus

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Fig S1 The fine structure of a sheath in a transmission electron micrograph (see Fig 1 for overview image). In this part of a resuspended cell pellet of the methanogenic limonene enrichment culture, we assigned the sheath to *Methanosaeta*, based on the spacer disc at the end of the filament and the presence and structure of the sheath. The cells inside the sheath may have been shrinked during the TEM preparation. The small black cells with a grey cape were assigned to the ultramicrobacterium OP3 LiM. Bar corresponds to 250 nm.

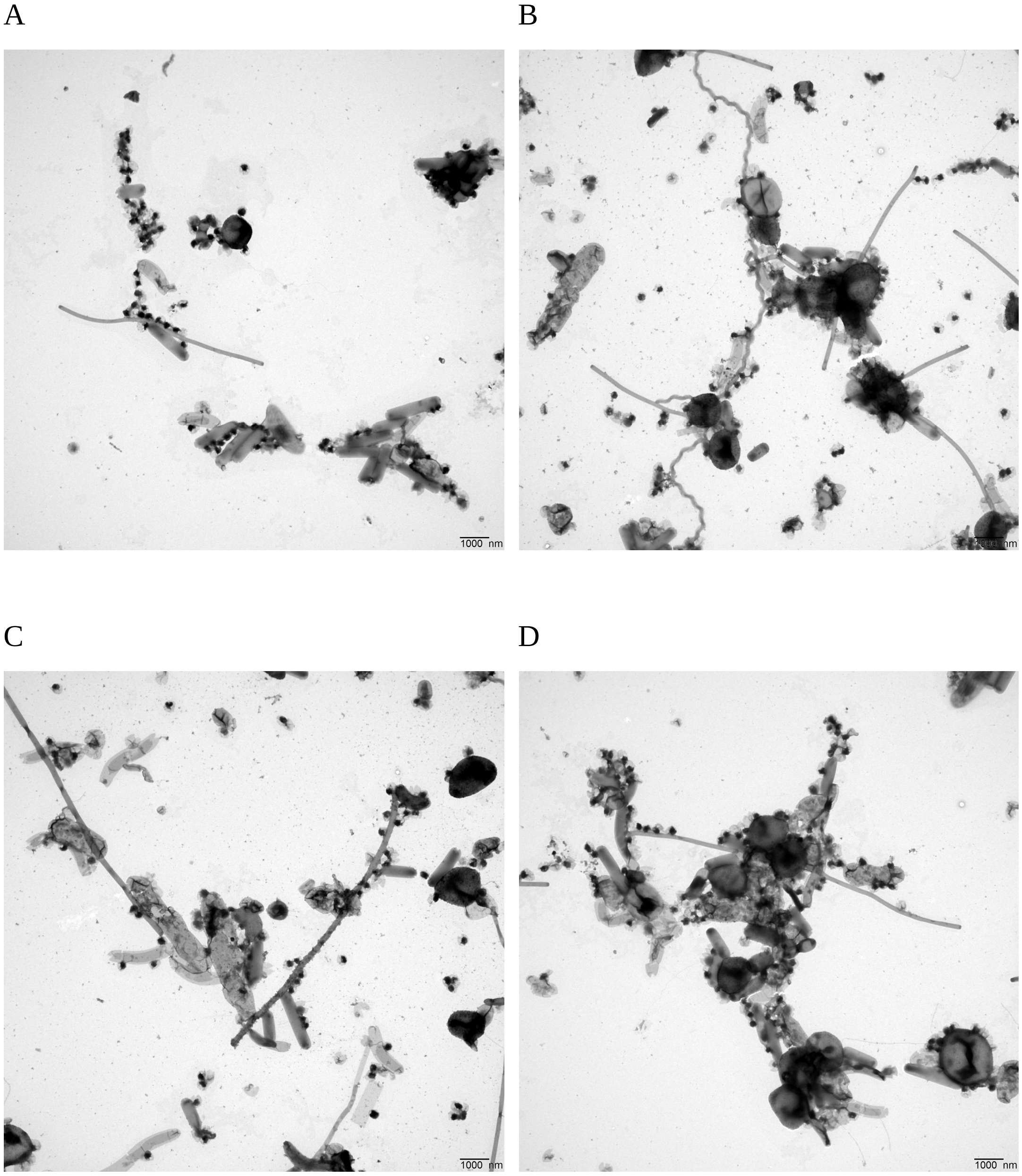


Fig S2 Morphological diversity in the methanogenic limonene enrichment culture as seen in transmission electron micrographs of a resuspended cell pellet. The cells may have been shrinked by the TEM preparation. The small black cells with a grey cape were assigned to the ultramicrobacterium OP3 LiM. Bar corresponds to 1 µm.

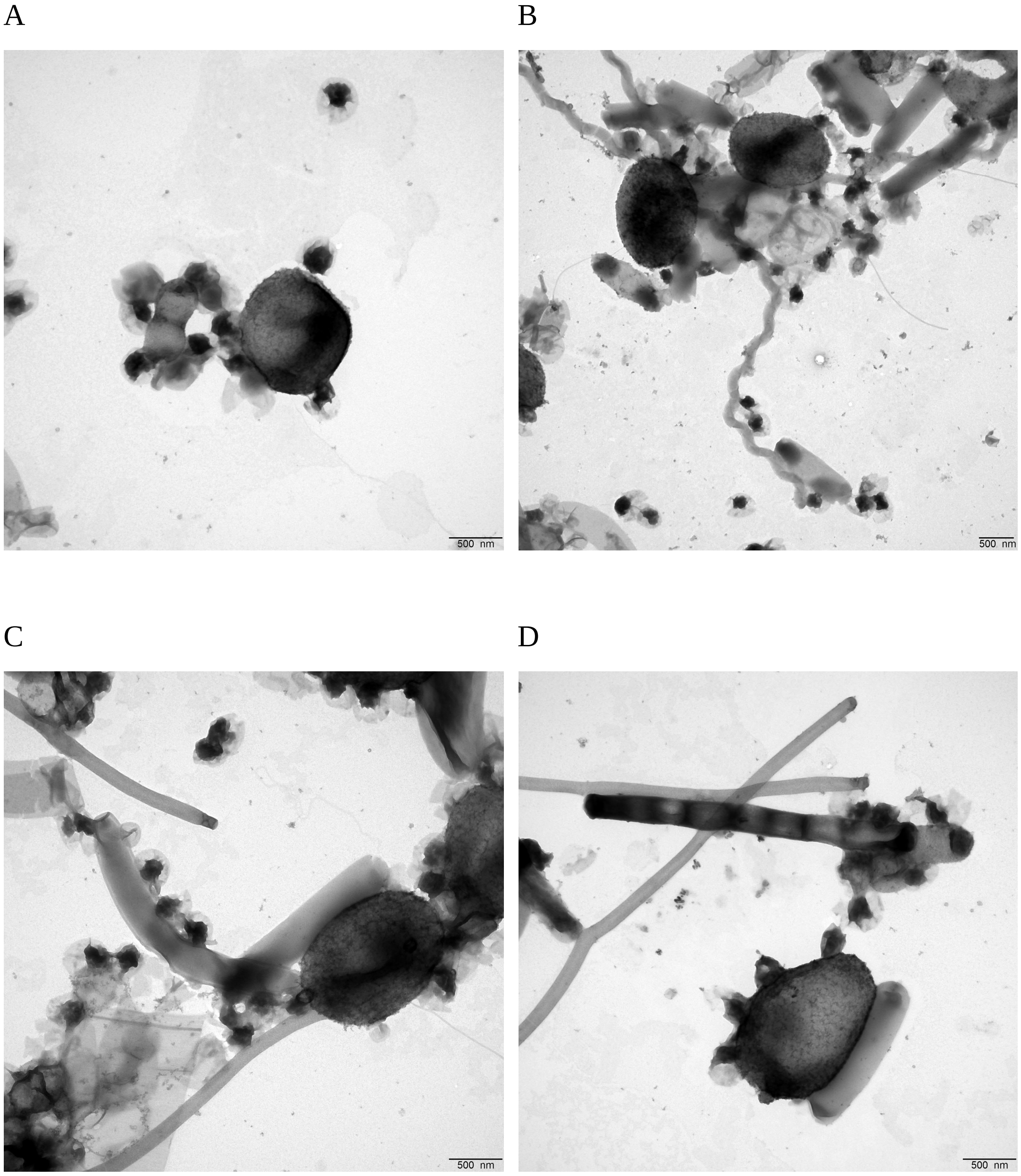


Fig S3 Morphological diversity in the methanogenic limonene enrichment culture as seen in transmission electron micrographs of a resuspended cell pellet. The cells may have been shrinked by the TEM preparation. The small black cells with a grey cape were assigned to the ultramicrobacterium OP3 LiM. Bar corresponds to 500 nm.

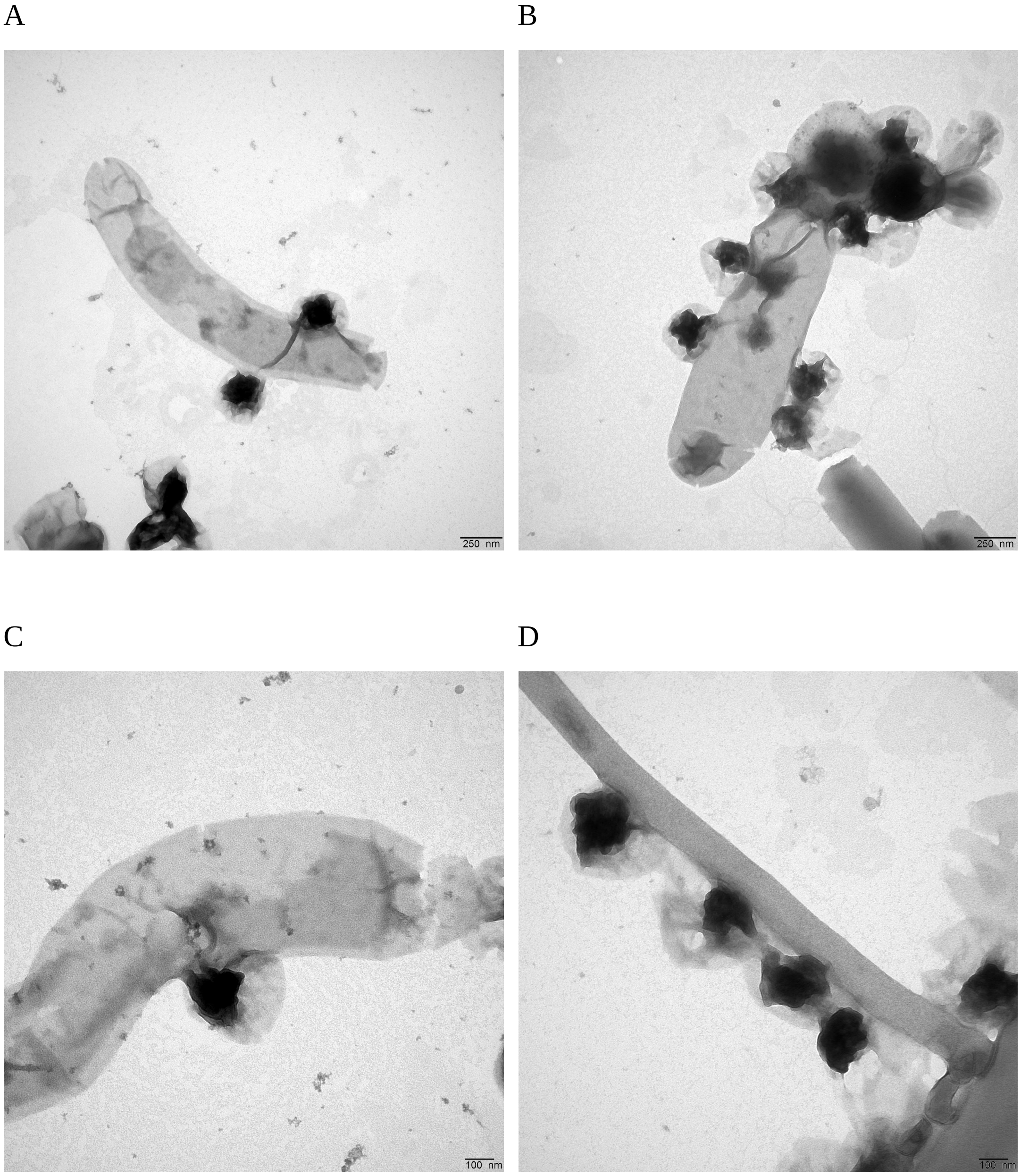


Fig S4 Morphological diversity in the methanogenic limonene enrichment culture as seen in transmission electron micrographs of a resuspended cell pellet. The cells may have been shrinked by the TEM preparation. The small black cells with a grey cape were assigned to the ultramicrobacterium OP3 LiM. Bar corresponds to 250 (A and B) and 100 nm (C and D).

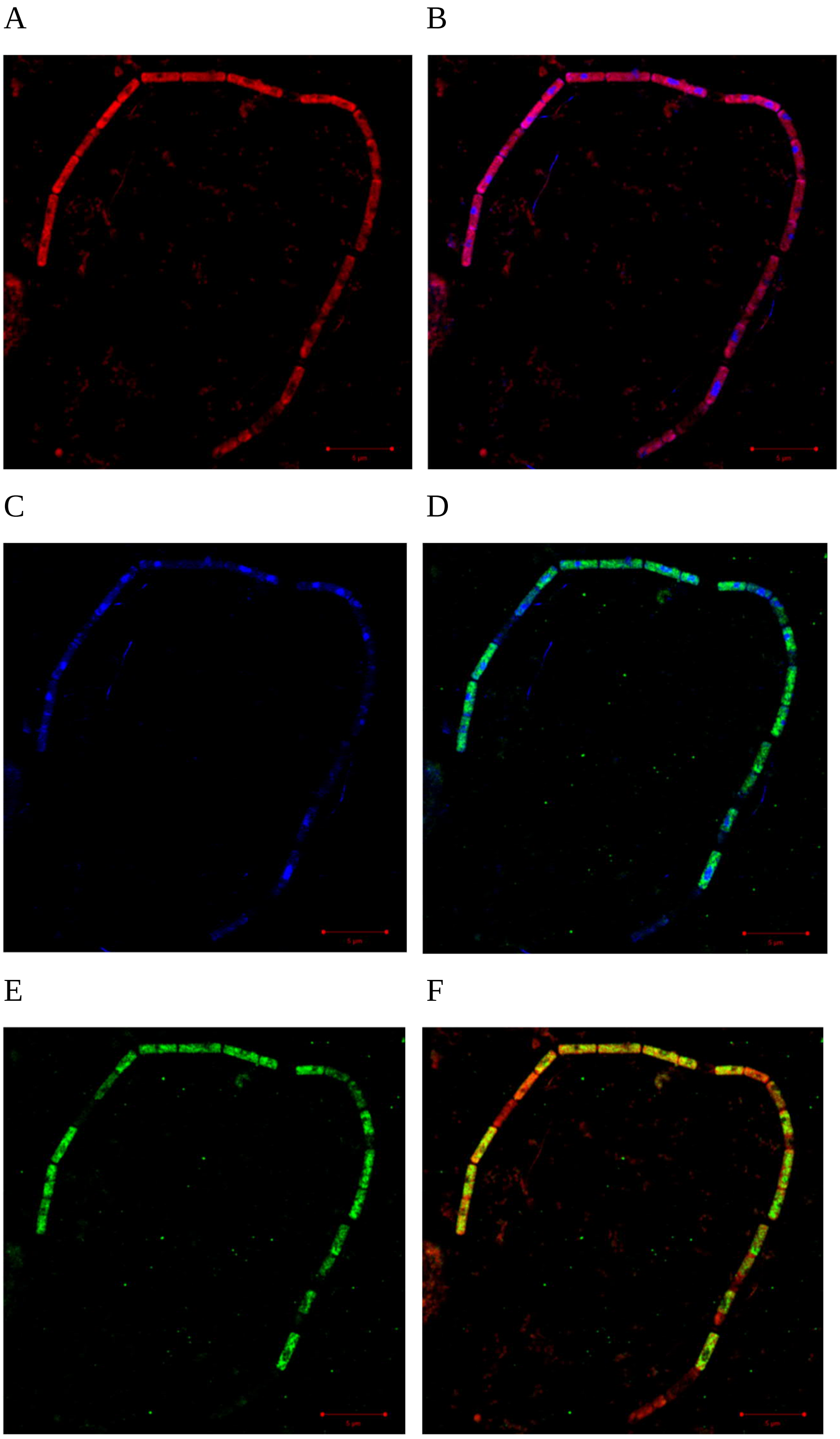


Fig S5 Structured illumination microscopy images of a filament assigned to *Methanosaeta*. Staining was achieved using Nile Red (red) for lipids (A, B, F), probe Arch915 labelled with four 6-carboxyfluorescein molecules (green) for rRNA (D, E, F), DAPI (blue) for DNA B, C, D). Bar corresponds to 5 µm. See Fig 3 for DIC image.

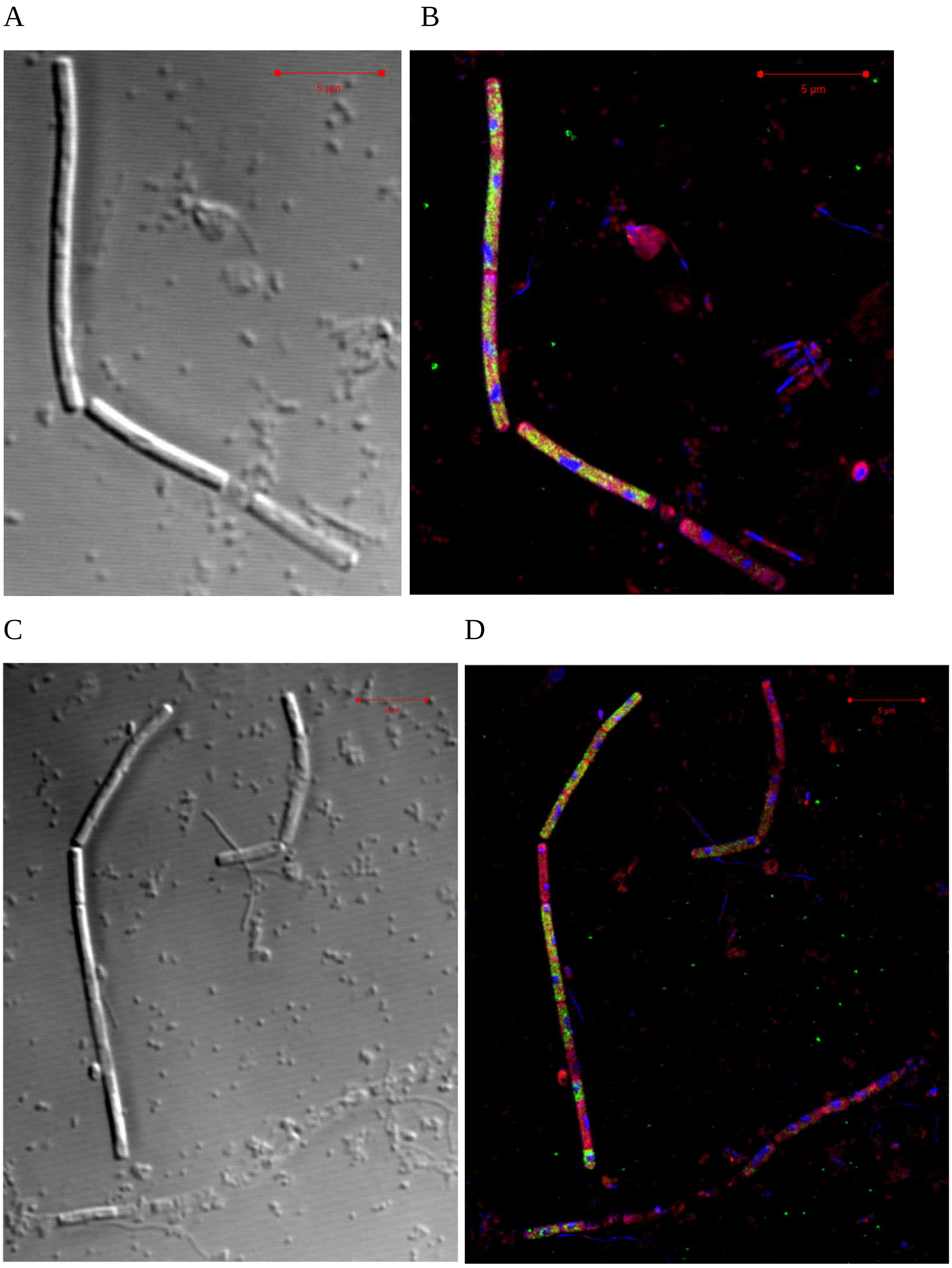


Fig S6 DIC (A, C) and SR-SIM images (B, D) of the limonene enrichment culture. Staining was achieved using Nile Red (red) for lipids, probe Arch915 labelled with four 6-carboxyfluorescein molecules (green) for rRNA, DAPI (blue) for DNA. Bar corresponds to 5 µm.

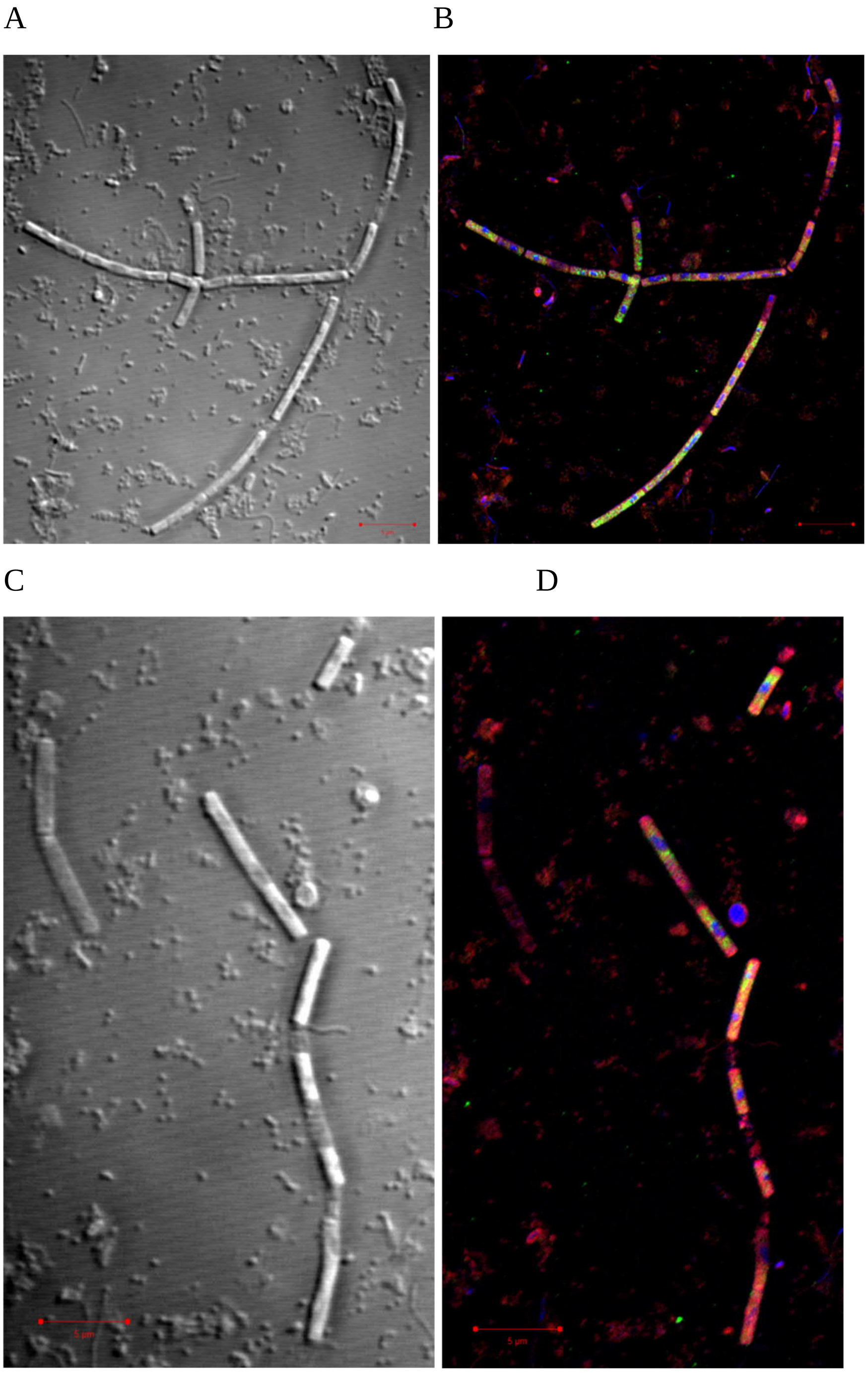


Fig S7 DIC and SR-SIM images (A, C and B, D, respectively) of the limonene enrichment culture. Staining was achieved using Nile Red (red) for lipids, probe Arch915 labelled with four 6-carboxyfluorescein molecules (green) for rRNA, DAPI (blue) for DNA. Bar corresponds to 5 µm.

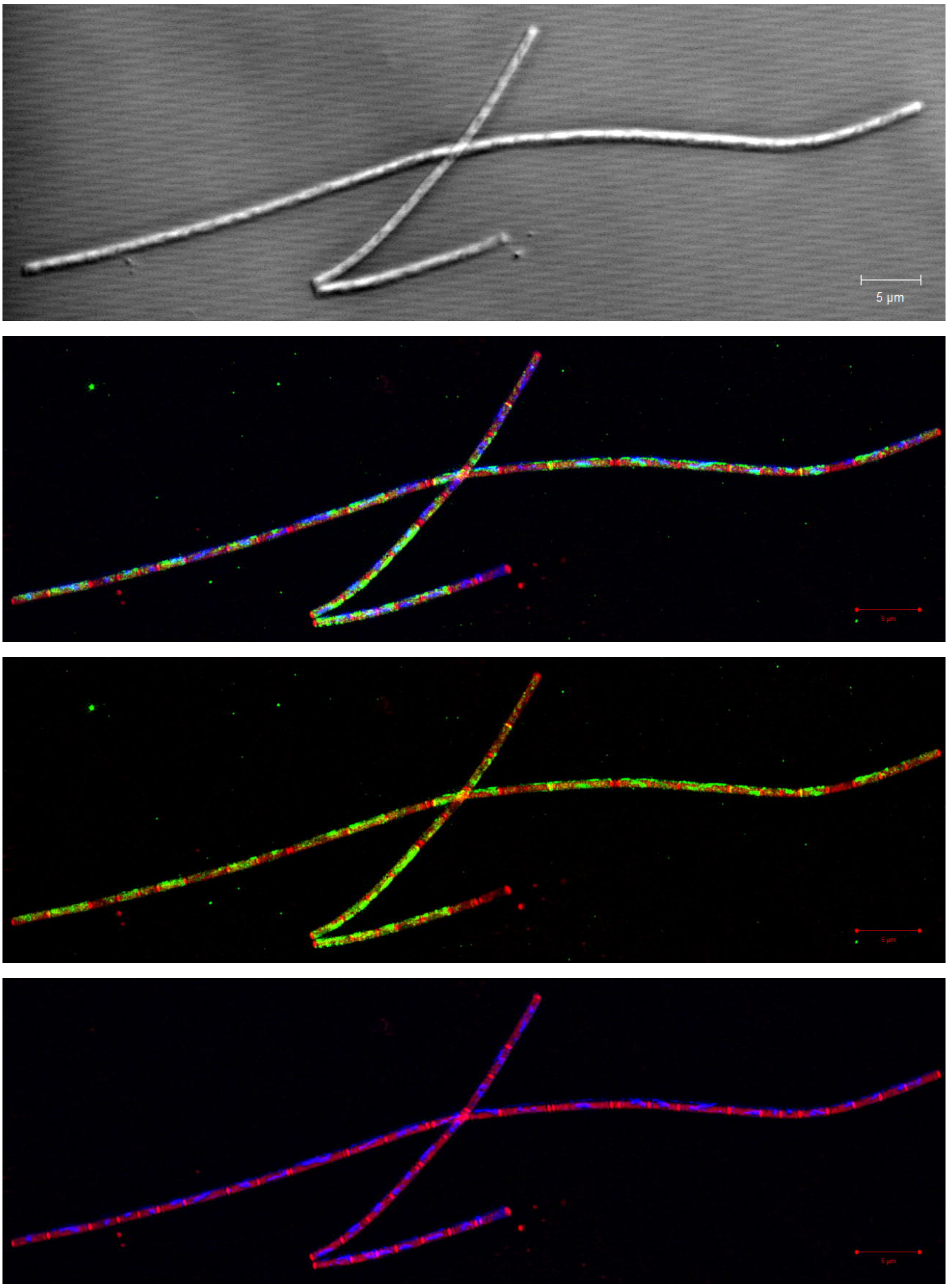


Fig S8 DIC and SR-SIM overlay images of a stationary culture of *Methanosaeta concilii* GP6^T (DSM3671). Staining was achieved using Nile Red (red) for lipids, probe Arch915 labelled with four 6-carboxyfluorescein molecules (green) for rRNA, DAPI (blue) for DNA. Bar corresponds to 5 µm. Overstaining by Nile Red resulted in the visibility of spacer plug-like structures. Pairs of these structures were annotated as future filament lysis locations, with a DNA-depleted microcell between them resulting from unequal cell division.

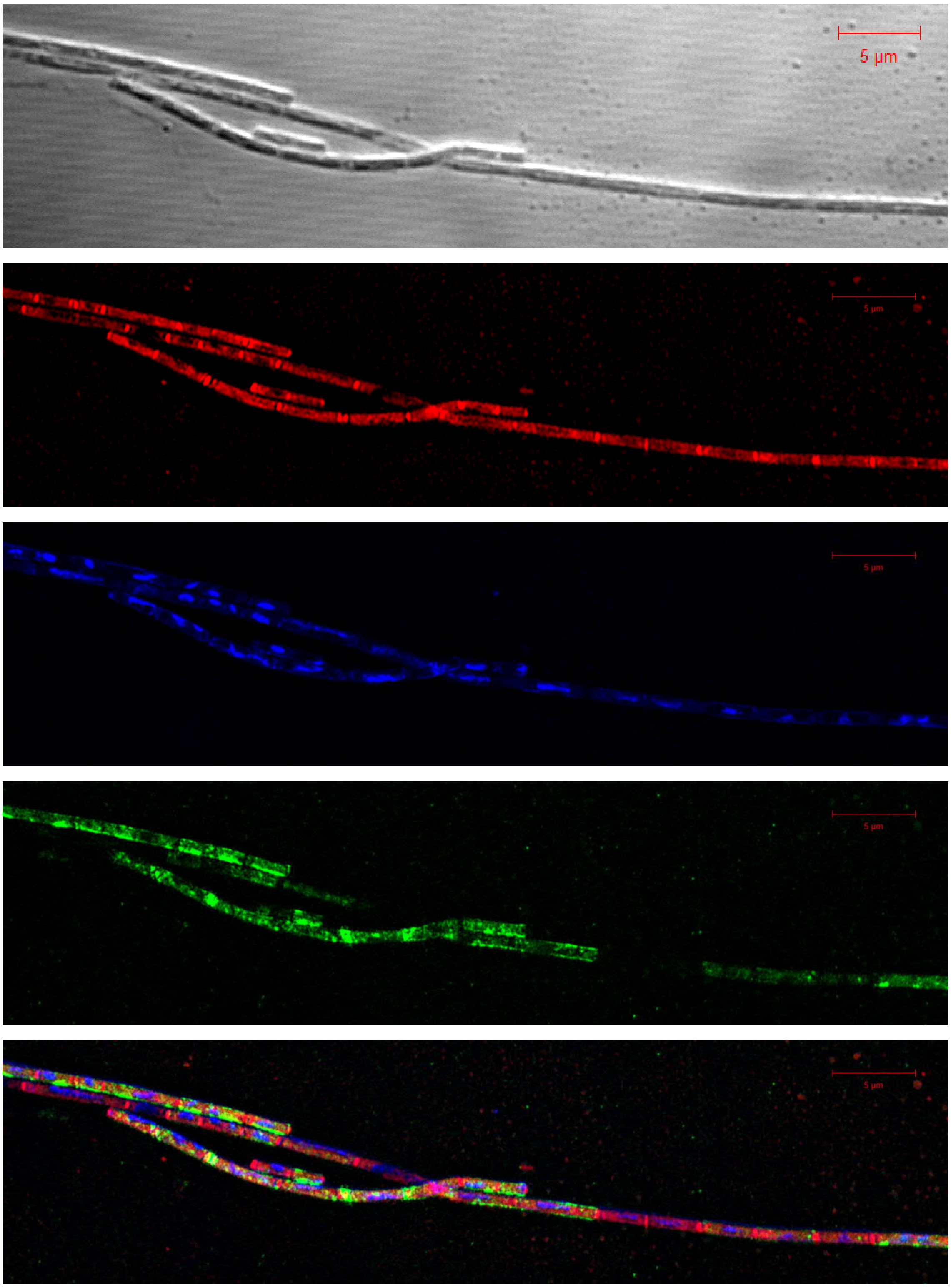


Fig S9 DIC and SR-SIM overlay images of a stationary culture of *Methanosaeta concilii* GP6^T (DSM3671). Staining was achieved using Nile Red (red) for lipids, probe Arch915 labelled with four 6-carboxyfluorescein molecules (green) for rRNA, DAPI (blue) for DNA. Bar corresponds to 5 µm. Nile Red overstaining made spacer plug-like structures visible.

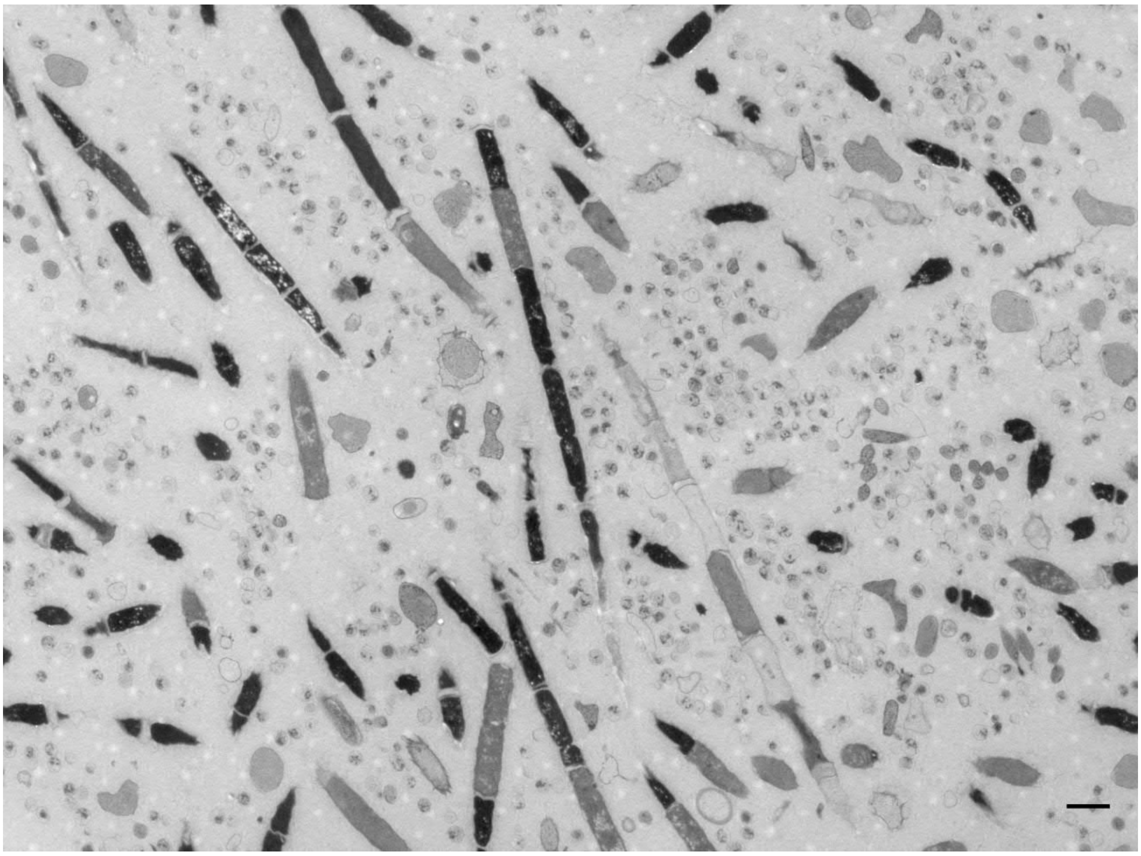


Fig S10 Thin section TEM image of methanogenic limonene enrichment culture. We assigned the longitudinal sectioned filaments to *Methanosaeta*. The intensity of the cell stain was expected to correlate with the availability of acidic groups inside the cell. *Methanosaeta* cells stained differently. The interpretation is not clear. Either healthy cells stain black, including that a grey stain or the absence of a stain represents sick or dead cell within the filament, or the staining of healthy cells was hampered by the cellular structures, including that black or unstained cells represent sick and dead cells. A subpopulation of *Methanosaeta* cells contained unstained structures of unknown origin which were present in grey and in black cells. Bar corresponds to 1 µm.

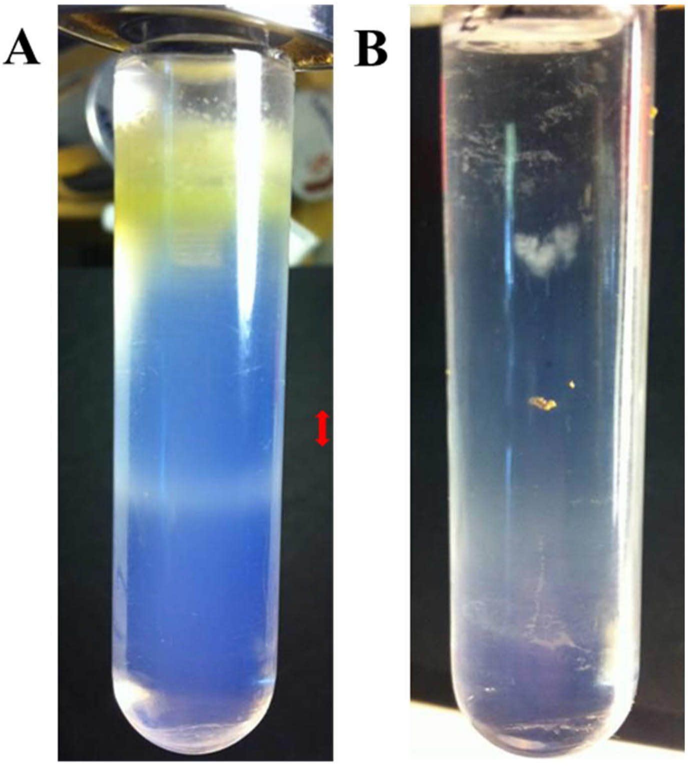


Fig S11 First (A) and second (B) Percoll gradient after cell separation by centrifugation. (A) OP3 LiM cells were most enriched above the clearly visible bottom band (marked by red range). (B) showed a diffusive layer in which 80% of all cells were OP3 LiM cells according to CARD-FISH analysis.

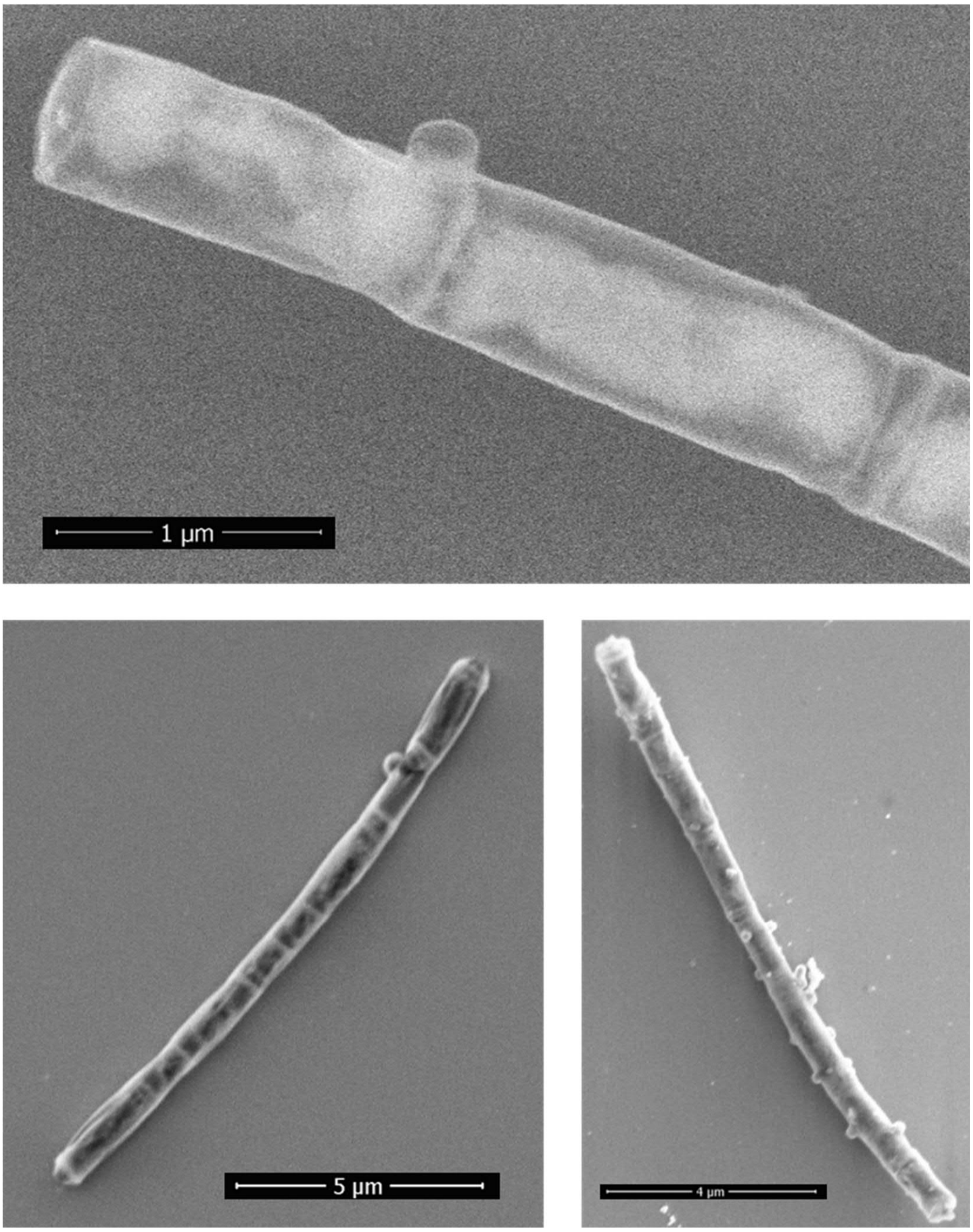


Fig S12 SEM micrographs of *Methanosaeta* filaments with attached ultramicrobial cells. Bar indicates 1, 5 and 4 µm, respectively.

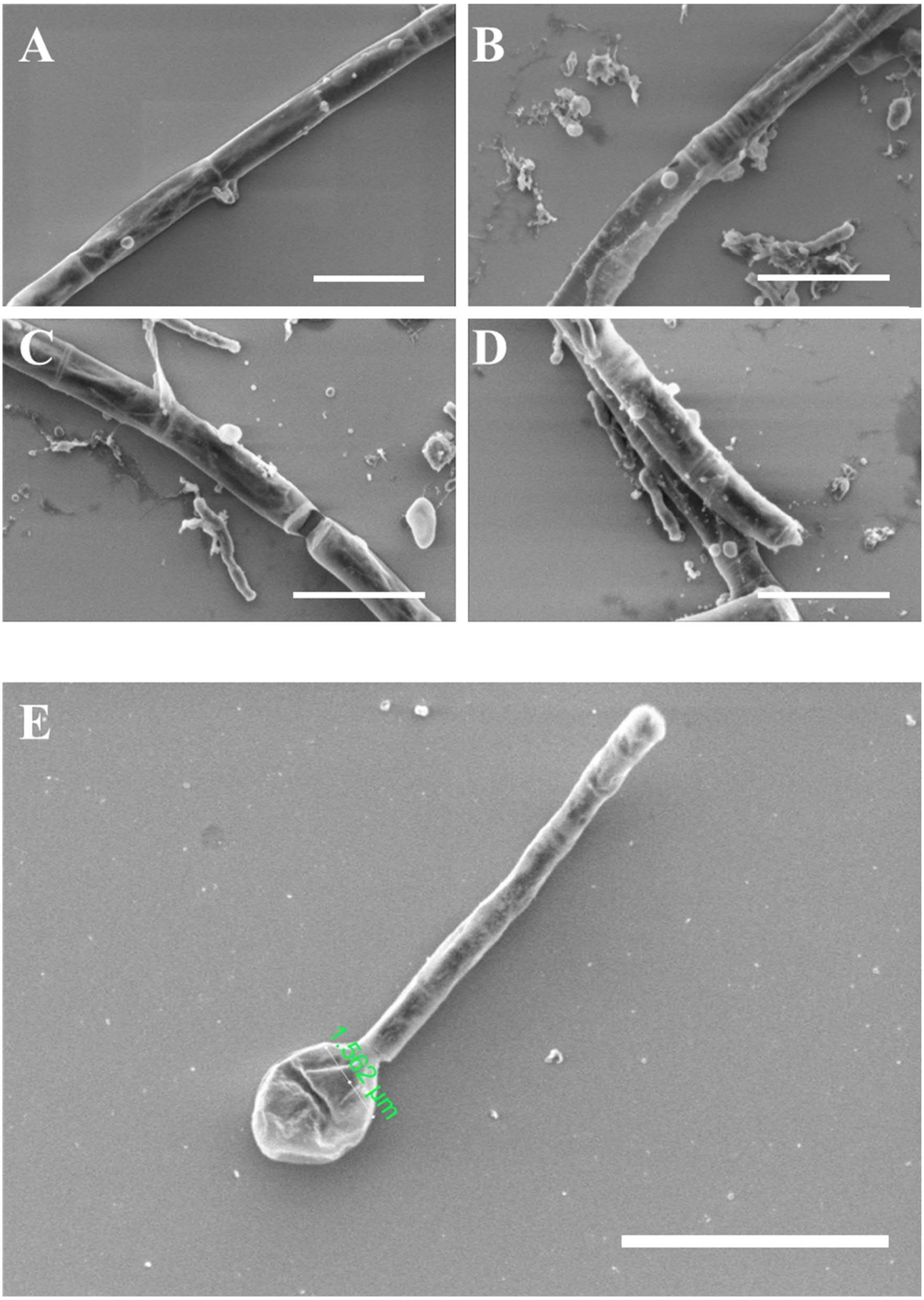
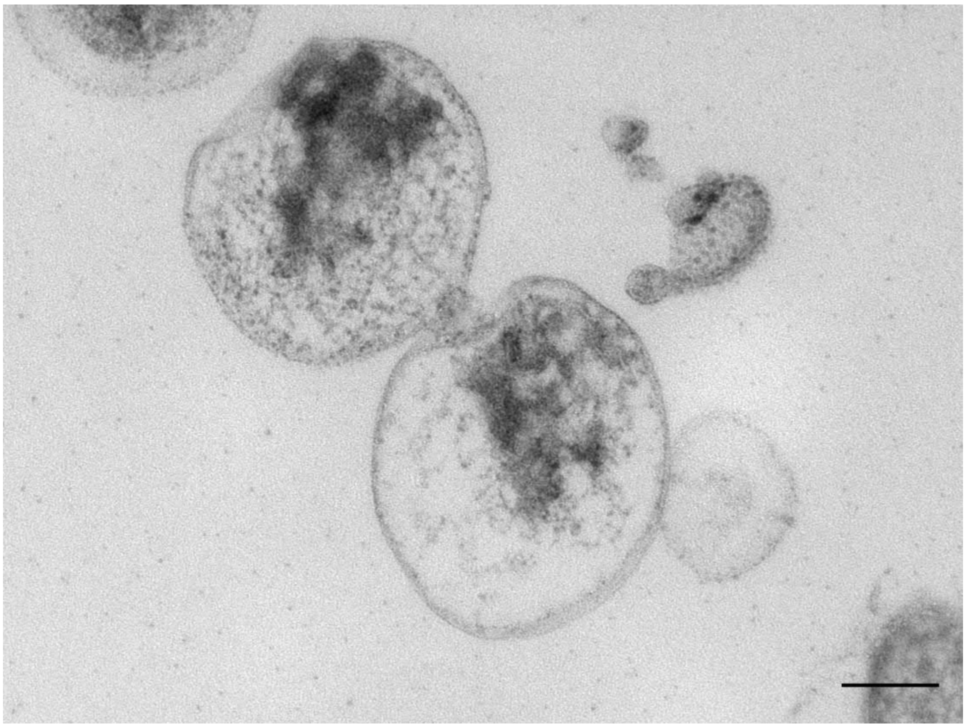


Fig S13 SEM micrographs of *Methanosaeta* and attached cells including a *Methanosaeta* filament with two visibly deformed cells. Scale bar: 2 µm (A-D) and 5 µm (E).

A



B

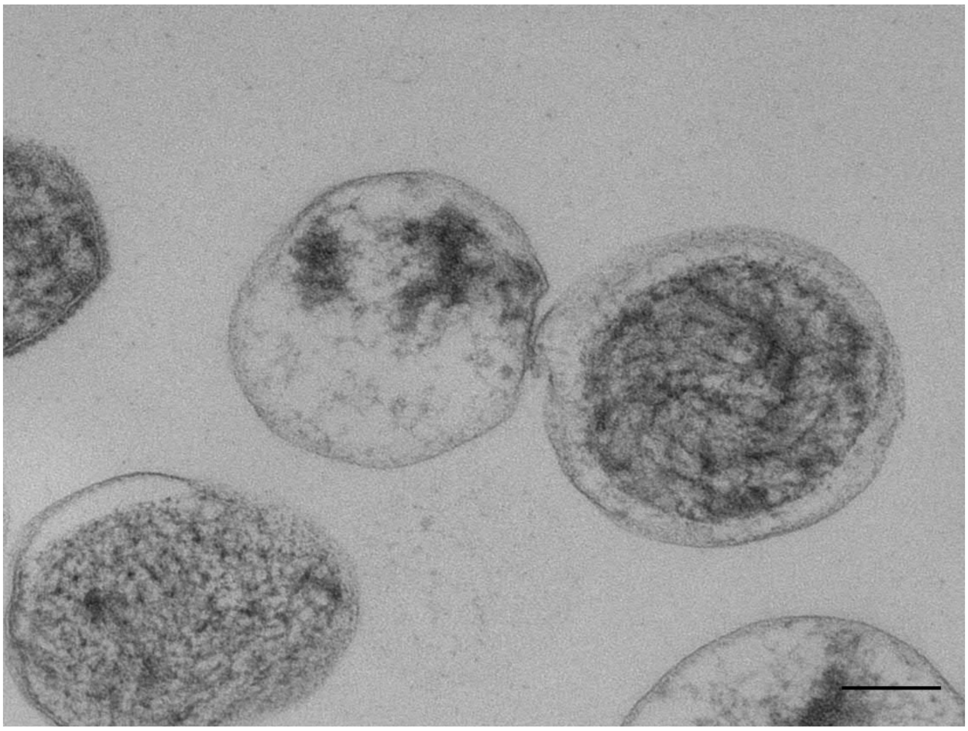


Fig S14 Thin section TEM images of the methanogenic limonene enrichment culture showing contacts between ultramicrobacteria. Bar corresponds to 200 nm.

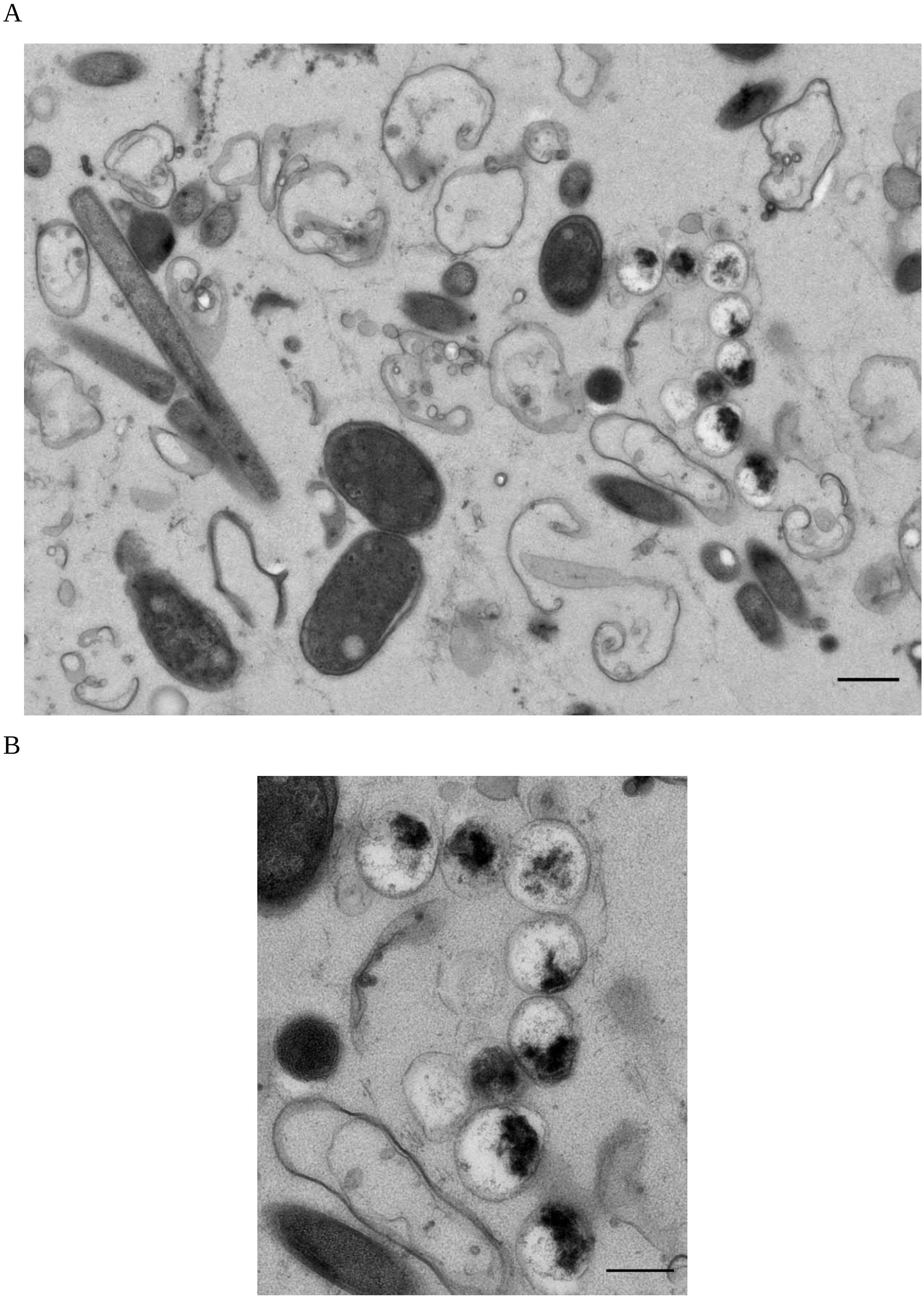


Fig S15 Aged enrichment cultures showed in thin section TEM images a large number of membrane remains of cells (A). The morphological type of ultramicrobacteria assigned to OP3 LiM cells was present as intact cells (A, enlarged in B). Bar corresponds to 500 nm (A) or 300 nm (B).

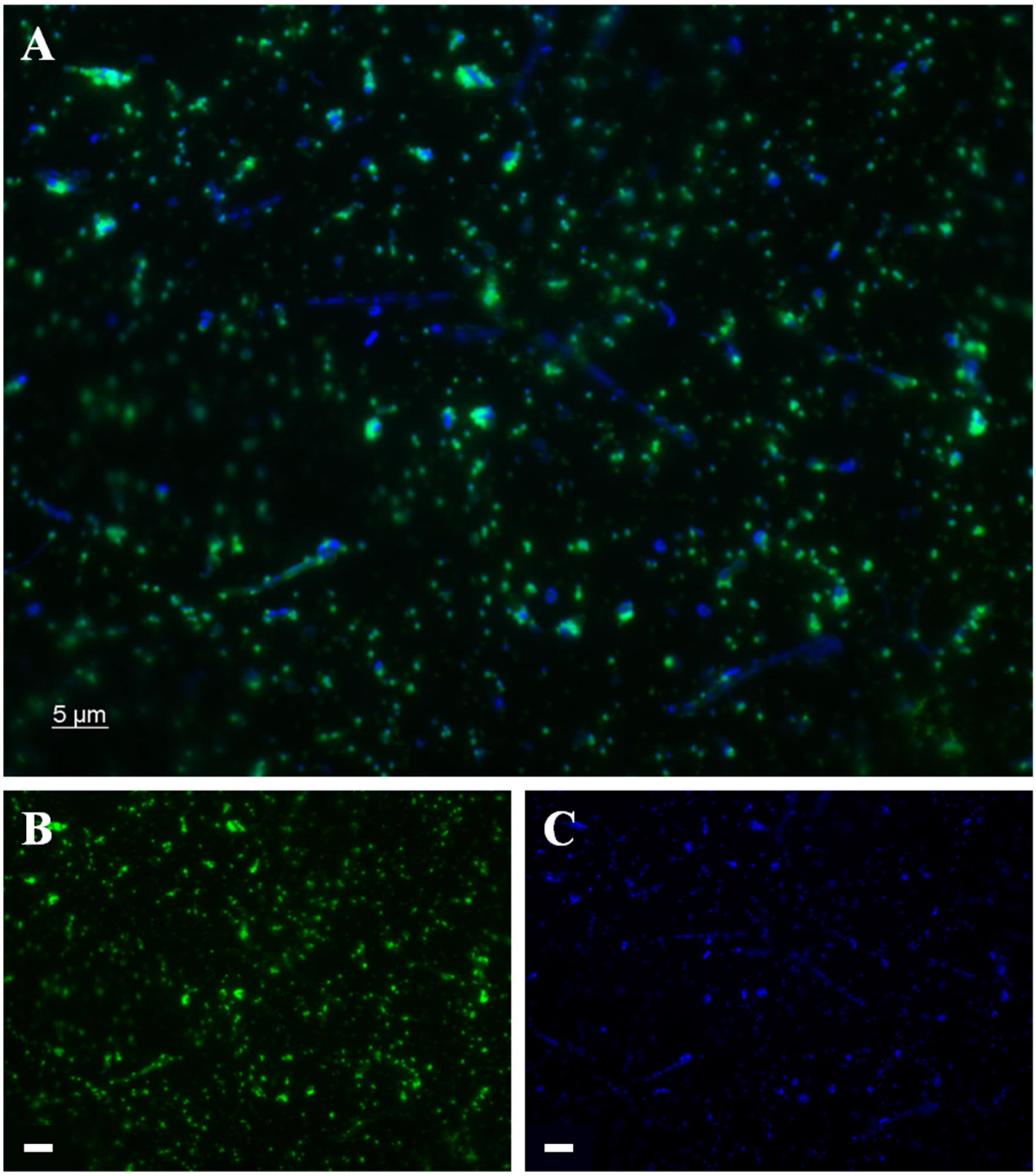


Fig S16 Detection of OP3 LiM cells by CARD-FISH. Cells were detected using the probe OP3-565 with helper oligonucleotides (green, A and B) and DAPI staining (blue, A and C). Scale bars, 5 µm.

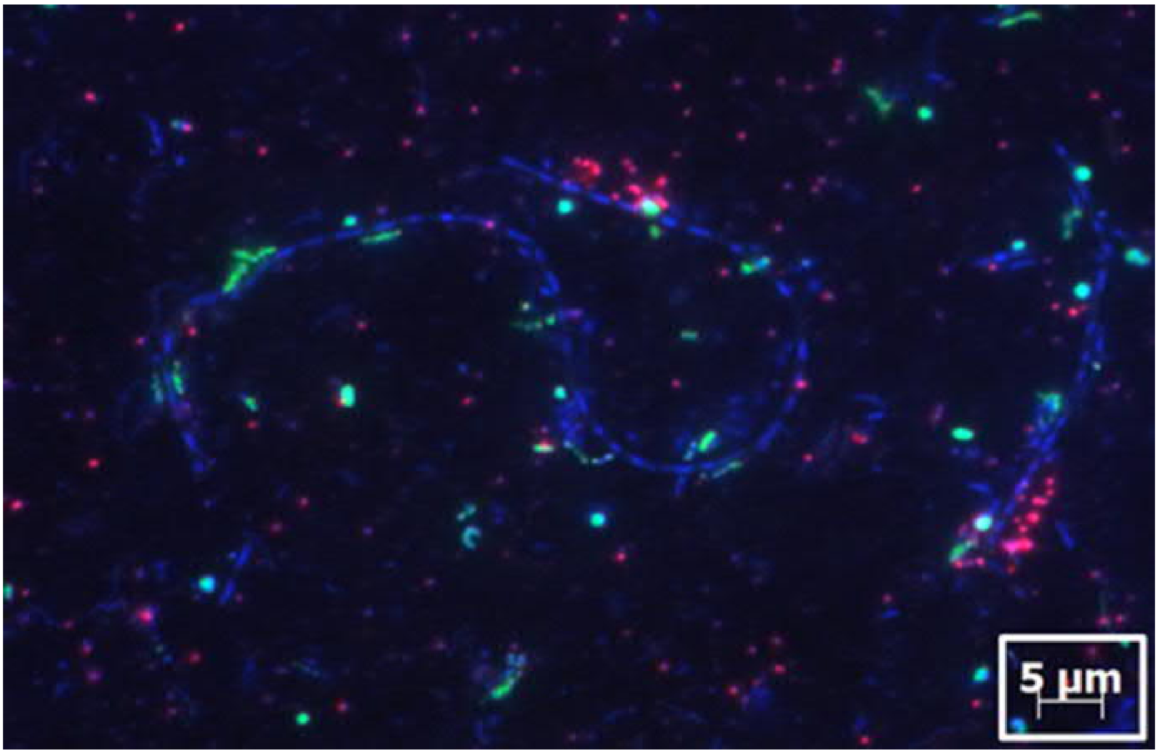


Fig S17 Detection of *Bacteria* in a methanogenic enrichment culture. DNA is stained with DAPI (blue), the 16S rRNA probe mix EUB338 I-III revealed bacterial cells without OP3 LiM (green) and the OP3 LiM-specific probe OP3-565 detected OP3 LiM cells (red) in CARD-FISH double hybridization experiments. Scale bar, 5 µm.

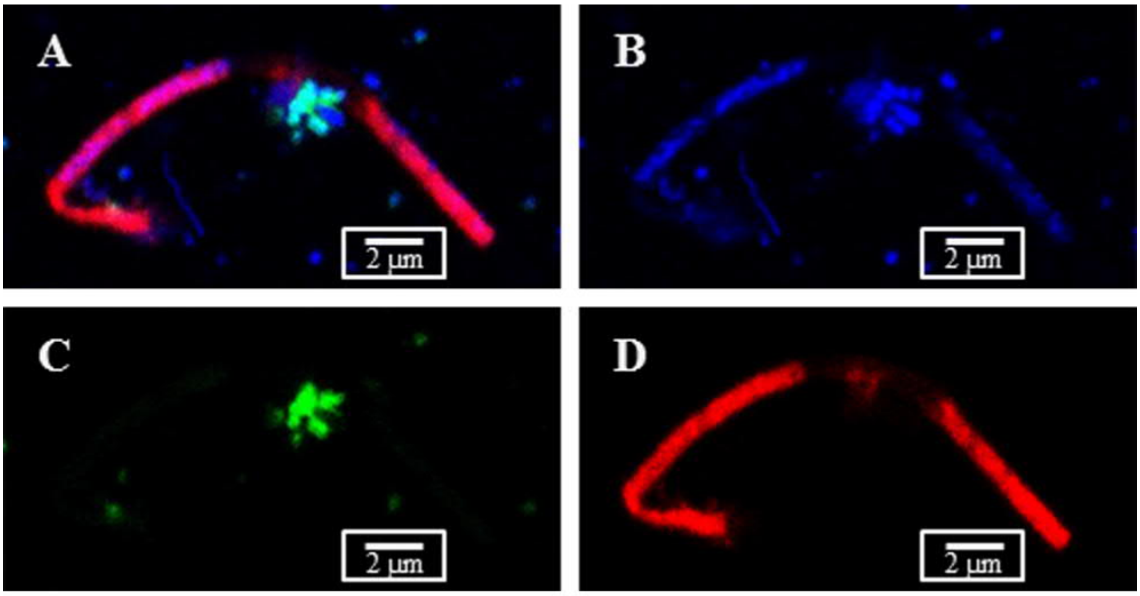


Fig S18 Detection of *Archaea* and OP3 LiM in a methanogenic enrichment culture in CLSM images. Overlay (A) and individual signals of DNA (B), OP3 LiM (C) and *Archaea* (D) were obtained by DAPI staining and double CARD-FISH with probes OP3-565 together with helper oligonucleotides and ARCH-915, respectively. Scale bar represents 2 µm.

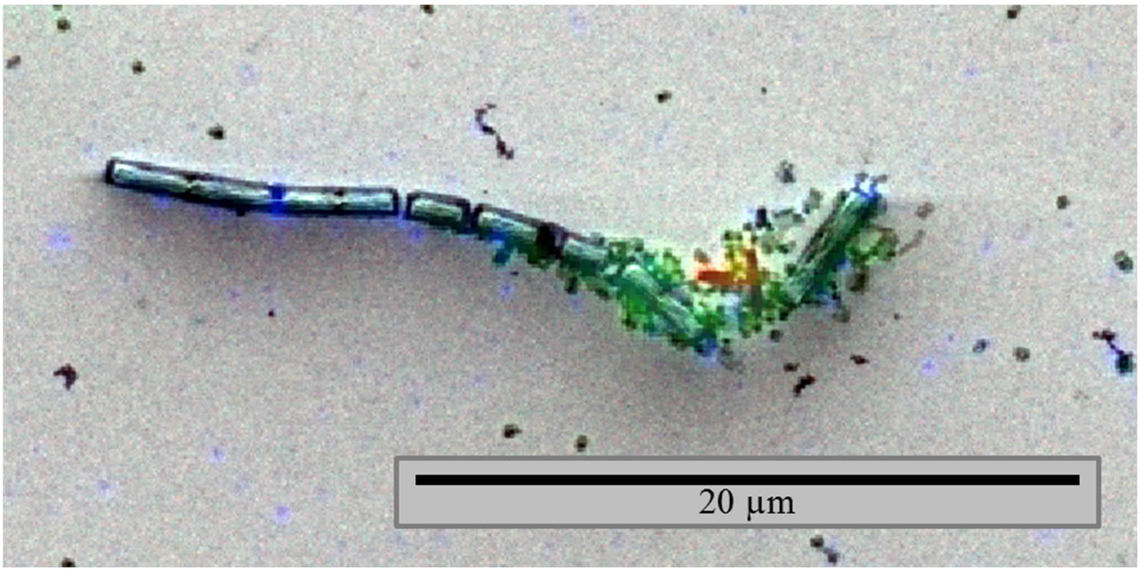


Fig. S19 Correlative fluorescence and electron microscopy image of the detection of OP3 LiM and *Archaea*. A Quanta FEG 250 equipped with the DELMIC SECOM platform was used to visualize a double CARD-FISH sample of the limonene methanogenic enrichment culture. OP3 LiM rRNA was detected with OP3-595 (red, Alexa-594 as label on the tyramide). Archaeal cells were detected with ARCH915 (green; Alexa-488). DNA was stained by DAPI (blue).

Formaldehyde-fixed cells (1.3% v/v for 1 h at RT) of the limonene methanogenic enrichment cultures were centrifuged at 13,000 rpm for 10 min. The pellet was washed twice in 500 µl 1 x PBS, twice in 200 µl MilliQ water and resuspended in 300 µl MilliQ water. The suspension was diluted with MilliQ water and 80 µl were placed on an indium oxide coated cover glass (DELMIC B.V., JA Delft, The Netherlands). After air drying CARD-FISH was performed.

Supplement table 1: Absolute detection level of individual proteins (total spectral counts (TSC)) of OP3 LiM in size-fractions of the microbial community. Two biological replicates were analysed. SD standard deviation. The mass spectrometry proteomics data are available via the PRIDE partner repository with the dataset identifier PXD025008 and 10.6019/PXD025008.

Protein annotation	NCBI locus_tag	Molecular Weight [kDa]	TSC (10kS-aggregates)	SD of TSC (10kS-aggregates)	TSC (100S-aggregates)	SD of TSC (100S-aggregates)	TSC (100S-cells)	SD of TSC (100S-cells)
18-strand beta-barrel outer membrane pore	BU251_04490	53	2718	384	1076	247	2133	443
co-chaperone GroES	BU251_04735	58	1019	151	546	14	1226	50
GPI-membrane anchored actin binding protein with KELCH repeats	BU251_08370	499	1132	448	503	286	940	197
translation elongation factor Tu	BU251_03080	44	760	6	543	34	961	24
pyruvate phosphate dikinase	BU251_04585	101	723	192	410	29	883	117
DNA-directed RNA polymerase subunit beta	BU251_03055	128	640	175	427	18	722	57
DNA-directed RNA polymerase subunit beta'	BU251_03060	152	507	212	401	11	638	9
hypothetical protein	BU251_02745	326	465	187	156	136	466	82
polyribonucleotide nucleotidyltransferase	BU251_05955	77	396	16	210	14	406	11
peptidyl-prolyl cis-trans isomerase	BU251_00050	35	339	14	200	25	356	75
Clp protease, ATP-binding subunit	BU251_06185	91	352	37	161	12	361	6
very large multi-enzyme surface protein	BU251_00165	4382	647	132	100	40	127	9
ATPase for pilus assembly/DNA-transfer CpaF	BU251_00065	82	320	57	174	8	358	11
flagellar motor protein MotD	BU251_01115	24	322	48	126	11	328	54
glutamine synthetase type III	BU251_06845	83	312	93	144	14	315	4
transmembrane receptor with multiple PAS sensor domains and histidine kinase domain	BU251_04855	170	271	81	204	8	292	6
outer membrane protein assembly factor BamA	BU251_00665	87	344	66	142	15	262	11
carbamoyl phosphate synthase large subunit	BU251_01710	118	258	118	139	1	334	17
phosphoglycerate dehydrogenase	BU251_01095	57	283	48	145	7	299	19
glyceraldehyde-3-phosphate dehydrogenase	BU251_04240	36	256	10	170	16	298	70

transcription termination factor Rho	BU251_01315	47	258	8	154	6	289	37
expressed DUF4139 protein, secreted	BU251_00900	63	329	71	87	17	229	11
porA	BU251_00535	43	220	41	128	16	291	27
chromosome segregation protein SMC, archaeal type	BU251_00240	45	254	15	133	17	246	25
bifunctional preprotein translocase subunit SecD/SecF	BU251_05045	80	230	74	146	42	235	11
molecular chaperone DnaK	BU251_02930	68	225	34	116	16	261	16
hypothetical protein	BU251_00210	43	128	11	155	8	310	4
DNA-directed RNA polymerase subunit alpha	BU251_03225	37	214	33	108	6	255	24
putative exosortase-affiliated protein	BU251_00715	13	241	21	79	1	251	61
chromosome segregation protein SMC, common bacterial type	BU251_04010	124	181	64	114	24	227	11
multidrug efflux pump subunit AcrB	BU251_07465	116	172	57	141	23	198	15
pyruvate:ferredoxin oxidoreductase, gamma subunit	BU251_00525	20	177	18	109	30	224	10
actin-like protein MreB	BU251_05665	39	197	15	91	6	218	34
expressed membrane protein	BU251_07630	28	217	3	88	8	181	10
phosphoribosylpyrophosphate synthetase	BU251_00625	35	187	31	89	18	199	43
translation initiation factor IF-2	BU251_01185	79	177	59	79	35	215	47
translation elongation factor EF-G, a GTPase	BU251_08040	71	172	46	93	16	204	22
ketol-acid reductoisomerase	BU251_00930	36	174	23	88	1	204	16
fructose-bisphosphate aldolase class-II	BU251_00910	49	170	38	85	9	204	52
DNA topoisomerase tpye II (gyrase) subunit B	BU251_00020	91	150	45	99	16	205	32
GMP synthase (glutamine amidotransferase II)	BU251_04725	62	156	76	89	31	205	27
glutamate dehydrogenase	BU251_01730	49	173	11	94	12	179	19
S-adenosylmethionine synthetase	BU251_00890	42	170	27	88	4	186	13
dihydroxy-acid dehydratase	BU251_00915	59	202	77	63	1	179	26
phosphoglycerate kinase	BU251_04065	43	159	11	69	1	192	4
periplasmatic-binding component of ABC transportsystem specific for sn-glycerol-3-phosphate	BU251_00190	51	161	0	82	6	177	13

gliding motility-associated ABC transporter substrate-binding protein GldG	BU251_08675	94	156	40	98	11	165	7
class V aminotransferase	BU251_01090	41	152	40	89	16	175	25
proton-translocating pyrophosphatase	BU251_00290	72	152	35	105	18	155	11
hypothetical protein	BU251_01495	124	145	65	90	16	170	41
carB	BU251_08275	120	148	39	78	6	170	10
secretion system protein with secretin and TonB domains	BU251_00060	58	177	30	62	2	156	8
bacterioferritin	BU251_00560	18	172	32	61	11	161	35
30S ribosomal protein S2	BU251_00830	33	155	11	63	1	175	14
DNA gyrase subunit A	BU251_00030	91	145	49	75	16	165	3
recombinase RecA	BU251_05105	39	143	1	64	15	175	11
expressed membrane protein	BU251_00135	78	153	32	78	13	140	18
secreted protein containing glycoside hydrolase family 2, TIM barrel domain	BU251_00205	94	169	46	42	18	158	8
ATP-dependent Zn proteases FtsH	BU251_04905	69	148	35	61	10	159	11
PilT, pilus retraction ATPase	BU251_03245	39	142	17	63	9	161	34
type I site-specific deoxyribonuclease, HsdR family	BU251_02610	117	132	41	68	11	157	16
alkaline phosphatase	BU251_06895	46	144	6	53	9	155	26
secretion system ATPase related to VirB11/CpaF	BU251_06755	52	130	31	65	3	155	40
short chain acyl-CoA dehydrogenase	BU251_04025	42	159	4	55	4	136	7
3-deoxy-7-phosphoheptulonate synthase	BU251_03910	37	140	27	70	7	137	13
phosphodiesterase with HD domain of ribonucleaseY	BU251_09405	59	140	39	59	5	145	8
LPS assembly outer membrane protein LptD	BU251_02985	80	186	65	45	11	112	21
phosphoenolpyruvate-protein kinase (PTS system EI component in bacteria)	BU251_00880	65	144	45	46	6	148	1
ATP-dependent protease/chaperone ClpB	BU251_02910	97	129	54	58	1	151	1
cellobiose phosphorylase	BU251_00185	93	134	68	63	20	138	19
alanyl-tRNA synthetase	BU251_05095	96	114	44	65	10	152	12
inosine 5-monophosphate dehydrogenase	BU251_04730	41	128	9	63	5	139	21

type II secretory pathway ATPase GspE/PulE or type IV pilus assembly pathway ATPase PilB	BU251_05920	43	123	27	60	14	146	4
protein with domain of unknown function (DUF4912)	BU251_01125	40	136	15	51	7	141	36
6-phosphofructokinase	BU251_03785	37	134	1	55	2	138	8
sensory signal transduction histidine kinase with PAS domain	BU251_02305	114	123	74	61	13	140	23
ribonuclease E or G	BU251_05565	57	133	71	52	9	136	14
transcription termination control protein NusA	BU251_01180	43	135	18	42	1	134	17
S-adenosyl-L-homocysteine hydrolase	BU251_00895	46	102	20	53	4	150	11
hypothetical protein	BU251_02695	93	141	47	42	15	121	11
GMP synthase [glutamine-hydrolyzing], ATP pyrophosphatase subunit B	BU251_01715	36	126	21	46	5	131	31
isoleucine--tRNA synthetase	BU251_05700	105	108	46	54	13	136	19
ATP phosphoribosyltransferase	BU251_00580	33	129	29	46	8	122	28
signal transducer with PAS sensor, GGDEF (diguanylate cyclase) and metal dependent phosphohydrolase domains	BU251_01490	82	116	37	55	12	118	10
pilin related to pseudopilin PulG	BU251_05600	15	138	25	39	9	113	8
bifunctional UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase/(3R)-hydroxymyristoyl-[acyl-carrier-protein] dehydratase	BU251_00680	48	111	10	57	4	120	18
2-isopropylmalate synthase	BU251_00935	56	112	33	50	6	124	5
hypothetical protein	BU251_01680	53	105	48	44	18	131	4
flagellar motor protein MotB	BU251_07995	23	127	1	43	2	108	16
signal transducer with HAMP signal, GAF transducer and GGDEF (diguanylate cyclase) domains	BU251_05635	51	106	17	52	1	113	35
ATP-dependent Zn-protease	BU251_07530	62	107	33	41	8	121	9
type II secretory pathway component GspD/PulD (secretin)	BU251_05575	57	174	111	31	23	63	5
type II secretory pathway component GspD/PulD (secretin) with additional STN domain	BU251_05205	56	131	41	40	9	96	20

phosphohexomutase superfamily	BU251_05530	54	100	1	56	0	110	13
phosphopyruvate hydratase	BU251_07525	46	58	11	61	8	144	24
30S ribosomal protein S4	BU251_03220	24	114	22	40	8	106	10
short-chain dehydrogenase/reductase (SDR)	BU251_07850	28	106	2	41	13	113	12
DNA polymerase I	BU251_01300	97	93	42	48	9	115	24
glycine--tRNA ligase	BU251_04590	59	104	30	42	4	109	7
LemA/RetS hybrid sensor kinase-response regulator protein	BU251_06830	21	101	12	50	9	104	23
hypothetical protein	BU251_08610	49	139	56	45	4	70	13
glycogen branching enzyme, GH-57-type, archaeal	BU251_01130	63	124	45	32	1	97	16
phenylalanyl-tRNA synthetase beta chain	BU251_09435	75	103	23	38	5	112	19
His-Xaa-Ser system radical SAM maturase HxsB	BU251_04195	55	95	30	47	16	109	21
carbohydrate-selective porin	BU251_08565	50	132	10	38	13	80	13
acetolactate synthase large subunit	BU251_00920	59	99	23	43	3	107	7
homocitrate synthase	BU251_01105	46	98	9	37	2	112	4
PilT-related nuclease/ATPase with N-terminal membrane domain	BU251_06155	37	114	21	37	8	93	12
cell division protein FtsK	BU251_05950	84	102	45	35	10	105	10
Lipid A export ATP-binding/permease protein MsbA	BU251_00825	68	95	45	53	15	94	0
outer membrane chaperone Skp (OmpH)	BU251_00670	21	88	15	34	11	119	1
hypothetical protein	BU251_08110	90	98	30	40	1	101	4
type II secretory protein GspE	BU251_08460	64	113	25	31	0	94	12
translation elongation factor G	BU251_03075	78	85	23	42	4	110	2
uptake hydrogenase large subunit	BU251_07790	52	100	28	39	9	98	13
rubrerythrin	BU251_08710	22	83	8	36	7	117	8
membrane-associated protein with peptidoglycan-binding domains OmpA and LysM	BU251_03585	37	94	5	38	0	100	25
homoserine dehydrogenase	BU251_04810	46	88	37	32	8	111	6
short-chain dehydrogenase/reductase (classical (c) SDR)	BU251_07470	28	98	0	36	10	96	4
pyruvate:ferredoxin oxidoreductae, beta subunit	BU251_00540	31	94	15	35	14	100	3

protein with TMH, SAF and Flp pilus assembly protein RcpC domains	BU251_00055	34	100	18	44	8	82	14
hypothetical protein	BU251_04665	51	93	28	25	1	108	18
preprotein translocase subunit SecA	BU251_07115	107	78	29	44	4	103	3
filamentation induced by cAMP protein Fic	BU251_02690	41	96	34	34	9	94	21
DNA-binding transcriptional regulator, LacI/PurRfamily	BU251_04575	32	95	8	34	8	95	5
citramalate synthase	BU251_04780	59	91	30	28	8	103	0
cation transporter	BU251_07400	121	85	26	45	8	91	3
phosphoribosylformylglycinamidine synthase II	BU251_07255	107	76	42	47	13	98	22
glyA	BU251_07210	46	92	5	40	3	88	1
lipoprotein-anchoring transpeptidase ErfK/SrfK	BU251_07955	30	88	8	46	4	85	1
replicative DNA helicase	BU251_00660	51	85	22	38	7	94	33
hypothetical protein	BU251_00140	19	91	13	43	4	81	7
type II/IV secretion system ATP hydrolase TadA/VirB11/CpaF, TadA subfamily	BU251_01160	48	75	10	34	0	106	26
acetyl-CoA carboxylase biotin carboxylase subunit	BU251_03800	51	86	12	30	6	99	24
sensor histidine kinase WalK	BU251_06285	84	69	30	33	0	113	18
hypothetical protein	BU251_00620	44	87	6	33	2	95	18
hypothetical protein	BU251_02750	32	89	1	41	7	81	15
DNA topoisomerase I	BU251_00965	76	80	24	31	4	100	6
hypothetical protein	BU251_03520	35	100	19	30	5	77	28
type II restriction endonuclease, TdeIII	BU251_09035	32	90	15	34	6	80	13
TonB-dependent receptor	BU251_03850	74	103	41	25	28	73	5
D-alanine/D-glutamate or branched-chain amino acid aminotransferase	BU251_06200	32	97	16	34	12	70	24
nicotinamidase/pyrazinamidase	BU251_09520	31	99	23	27	9	76	1
type II secretion system protein E	BU251_05620	63	78	25	29	3	93	0
ABC-type transporter Mla maintaining outer membrane lipid asymmetry, periplasmatic component MlaD	BU251_06165	23	90	4	31	1	76	23

type II and III secretion system protein	BU251_08410	58	101	11	26	1	70	12
valine--tRNA ligase	BU251_04775	106	67	30	34	1	95	15
dihydrodipicolinate synthase	BU251_05300	31	56	21	45	1	95	10
type II secretion system protein E	BU251_05625	64	79	29	28	3	88	6
adenylosuccinate lyase	BU251_07260	48	82	34	27	4	84	8
type II secretion system protein E	BU251_05200	63	73	28	27	1	91	11
glycogen synthase, ADP-glucose transglucosylase	BU251_01305	54	80	32	27	5	82	17
twitching motility protein PilT	BU251_07125	41	76	20	28	4	82	11
acetate kinase	BU251_02105	41	71	16	33	10	80	1
transcriptional regulator	BU251_00245	37	74	22	29	9	82	29
secreted protein containing molecular chaperone IbpA, HSP20 family	BU251_06465	23	72	14	21	6	90	6
xanthine dehydrogenase, molybdenum binding subunit	BU251_01525	84	65	16	36	4	80	6
membrane or secreted protein containing peptidoglycan-binding Lysin subgroup domain (LysM)	BU251_04695	19	72	12	30	7	79	12
hypothetical protein	BU251_03790	22	85	2	23	4	73	4
transcriptional regulator	BU251_03940	27	80	18	25	1	75	1
dolichyl-phosphooligosaccharide-protein glycotransferase	BU251_01235	99	73	39	32	2	75	6
peptidyl-prolyl cis-trans isomerase	BU251_00575	59	80	8	26	4	71	4
phosphoenolpyruvate carboxykinase	BU251_07675	65	73	25	28	1	75	7
serine--tRNA ligase	BU251_06770	48	73	15	23	3	79	20
putative chromosome-partitioning protein ParB	BU251_02435	38	78	17	21	0	75	1
periplasmatic solute-binding protein of ABC transporter	BU251_08595	28	23	0	33	13	117	6
glycerol-3-phosphate ABC transporter ATP-bindingprotein	BU251_02960	41	74	11	24	2	74	4
aspartate-semialdehyde dehydrogenase	BU251_05370	37	71	1	27	2	75	4
GDP-mannose 4,6-dehydratase	BU251_04420	44	64	8	28	1	77	24
phosphate regulon sensor protein PhoR (SphS)	BU251_08525	56	60	8	31	3	78	13

type II/IV secretion system ATP hydrolase TadA/VirB11/CpaF, TadA subfamily	BU251_01170	48	61	8	28	1	79	0
lysine--tRNA ligase	BU251_06215	56	71	19	25	3	72	6
macrolide export ATP-binding/permease protein MacB	BU251_01860	72	61	12	37	6	69	4
D,D-heptose 7-phosphate kinase	BU251_02245	37	73	26	21	5	73	16
chorismate mutase	BU251_03920	40	64	12	26	5	77	12
phosphoenolpyruvate synthase	BU251_02360	98	60	31	30	6	75	6
sugar dehydratase	BU251_04395	37	69	19	24	4	72	20
aspartyl-tRNA synthetase	BU251_04700	54	59	31	30	11	74	35
glutamine--fructose-6-phosphate transaminase (isomerizing)	BU251_08340	66	60	37	26	7	76	7
protein containing glucosylceramidase domain	BU251_00225	82	65	47	21	8	76	24
phosphoribosylformylglycinamidine cyclo-ligase	BU251_07235	36	72	16	19	6	70	16
50S ribosomal protein L5	BU251_03150	22	67	10	17	4	76	19
hypothetical protein	BU251_00220	61	71	12	22	0	65	8
threonine--tRNA ligase	BU251_09480	65	64	33	21	4	73	5
hypothetical protein	BU251_05255	95	71	19	23	5	64	13
D-beta-D-heptose 7-phosphate kinase	BU251_01045	37	59	18	27	6	71	13
excinuclease ABC subunit A	BU251_05260	106	53	13	33	4	70	2
cell division trigger factor	BU251_01080	34	59	1	23	1	74	5
aspartate kinase	BU251_04785	44	58	7	27	8	70	11
hypothetical protein	BU251_08365	31	69	4	28	4	58	12
pilus assembly protein PilC	BU251_05610	43	67	8	28	1	59	7
acetylglutamate kinase	BU251_05335	31	71	11	23	2	60	3
cell division protein FtsH	BU251_09340	57	55	15	27	2	67	28
UDP-glucose 6-dehydrogenase	BU251_02990	49	57	12	22	1	70	4
secreted protein containing Sulphatase-modifyingfactor domain	BU251_02725	55	55	29	30	2	61	32
type IV pili twitching motility protein PilT	BU251_08545	37	62	6	22	4	62	16
serine O-acetyltransferase	BU251_06140	25	61	16	18	3	65	8

signal transduction histidine kinase	BU251_02005	68	67	22	17	6	60	11
3-isopropylmalate dehydrogenase	BU251_05380	38	55	14	29	10	59	8
hypothetical protein	BU251_07160	37	67	10	23	7	53	0
argininosuccinate synthase	BU251_05320	44	57	11	18	0	68	9
DNA polymerase III beta subunit	BU251_00010	42	57	1	23	4	62	9
ATP-dependent Clp protease proteolytic subunit	BU251_01085	22	53	14	25	6	63	13
nucleoside-diphosphate sugar epimerase	BU251_04330	39	53	12	25	11	62	4
expressed secreted protein of unknown function	BU251_07650	18	61	9	14	2	65	4
30S ribosomal protein S7	BU251_03070	18	59	3	18	1	61	2
phosphate acetyltransferase	BU251_02100	34	55	3	23	3	59	1
hypothetical protein	BU251_05220	60	61	25	18	1	59	1
LL-diaminopimelate aminotransferase	BU251_05290	43	57	4	19	4	61	13
hypothetical protein	BU251_07480	59	83	37	10	8	45	6
hypothetical protein	BU251_07935	27	36	5	19	1	81	21
adenine phosphoribosyltransferase	BU251_04570	19	56	16	17	4	62	2
bifunctional phosphoribosylaminoimidazolecarboxamide formyltransferase/IMP cyclohydrolase	BU251_08030	55	58	34	15	0	61	4
hypothetical protein	BU251_08680	34	60	13	20	5	54	13
signal peptidase I	BU251_03890	23	59	18	17	4	58	8
hypothetical protein	BU251_08450	56	62	23	16	4	55	1
carboxyl-terminal protease	BU251_05005	48	59	28	20	1	54	18
hypothetical protein	BU251_07980	82	48	18	25	6	59	6
chorismate synthase	BU251_00950	37	57	12	21	3	54	6
50S ribosomal protein L1	BU251_03040	24	59	13	15	9	58	6
glucose-6-phosphate isomerase	BU251_06840	55	53	18	20	4	59	19
50S ribosomal protein L17	BU251_03230	21	61	17	16	4	53	2
isocitrate dehydrogenase	BU251_03255	39	54	6	21	1	55	1
3-oxoacyl-[acyl-carrier-protein] reductase	BU251_05405	26	54	11	17	0	59	15

secreted protein containing peptidoglycan binding-like domain	BU251_07685	14	60	9	24	5	46	1
protein with tandem amino-acid binding ACT domain	BU251_03865	14	31	4	21	5	77	18
V-type ATP synthase subunit A	BU251_08230	64	62	36	16	1	51	6
prolyl-tRNA synthetase, bacterial type	BU251_01165	47	50	8	20	4	57	4
ATP-dependent RNA helicase RhlE	BU251_03485	47	50	23	14	11	63	15
UDP-N-acetyl-D-glucosamine dehydrogenase	BU251_00395	47	56	10	16	1	54	4
nucleoside diphosphate kinase	BU251_09525	19	50	1	20	4	56	6
hypothetical protein	BU251_02845	85	52	24	15	6	58	7
hypothetical protein	BU251_09550	55	58	27	19	3	47	10
aspartate aminotransferase	BU251_03235	43	50	3	20	4	54	1
HlyD family secretion protein	BU251_00740	31	58	1	20	4	46	1
lipid A deacylase PagL	BU251_06260	22	63	3	15	1	45	4
hypothetical protein	BU251_04295	64	51	24	18	9	53	3
LSU ribosomal protein L25	BU251_00630	25	51	11	22	4	49	12
glycogen phosphorylase	BU251_02170	76	50	23	15	7	56	18
histidinol-phosphate transaminase	BU251_03915	41	47	6	19	4	55	11
aminotransferase	BU251_04305	41	50	21	17	6	54	3
glutamyl-tRNA synthetase and Glutamyl-tRNA(Gln) synthetase	BU251_09360	49	48	8	20	1	53	11
rubredoxin-oxygen (nitric oxide) oxidoreductase	BU251_00555	44	42	10	22	6	56	7
50S ribosomal protein L4	BU251_03095	24	53	9	18	3	49	3
hypothetical protein	BU251_04285	64	51	25	17	6	53	5
hypothetical protein	BU251_07835	57	51	16	22	9	47	18
50S ribosomal protein L10	BU251_03045	20	54	7	12	4	53	10
AAA family ATPase	BU251_08745	67	47	21	15	2	58	19
PTS fructose/mannitol-specific subunit IIA [OP3 merged]	BU251_00865	17	52	8	17	3	49	13
hypothetical protein	BU251_05915	22	47	1	19	1	52	14
glutamate racemase	BU251_01600	29	52	10	14	4	51	2

triose-phosphate isomerase	BU251_04060	28	14	0	30	6	73	8
hypothetical protein	BU251_08385	85	50	13	18	9	50	2
UDP-2,3-diacylglucosamine pyrophosphatase	BU251_00690	31	53	6	17	4	47	8
30S ribosomal protein S5	BU251_03175	18	50	2	17	1	50	3
histidyl-tRNA synthetase	BU251_04705	41	42	12	21	2	54	6
hypothetical protein	BU251_08735	39	53	8	14	0	48	9
arabinose 5-phosphate isomerase	BU251_01060	34	50	16	14	6	50	14
RND multidrug efflux transporter	BU251_02070	112	37	19	24	6	54	4
two-component sensor histidine kinase	BU251_02800	40	48	20	15	1	51	23
hypothetical protein	BU251_08750	46	46	8	19	0	48	9
30S ribosomal protein S1	BU251_05515	58	49	30	14	8	50	8
tRNA nucleotidyltransferase, CC-adding	BU251_07185	56	38	29	18	7	56	1
50S ribosomal protein L6	BU251_03165	20	48	11	13	4	50	3
lipid hydroperoxide peroxidase	BU251_03560	30	49	1	19	6	44	11
hypothetical protein	BU251_04365	44	45	16	14	8	53	6
asnC family transcriptional regulator	BU251_06855	19	53	4	14	2	45	8
phosphate regulon transcriptional regulatory protein PhoB (SphR)	BU251_08530	28	42	4	15	6	55	1
histidine kinase	BU251_06870	26	48	1	15	6	48	8
transmembrane and TPR repeat-containing protein	BU251_04045	88	51	29	15	4	44	1
DNA polymerase III	BU251_04620	64	45	28	10	4	54	18
aminopeptidase	BU251_05970	42	43	4	16	2	51	1
hypothetical protein	BU251_07155	20	56	4	13	0	40	8
ADP-glyceromanno-heptose 6-epimerase	BU251_00975	37	48	17	17	3	44	8
response regulator receiver modulated metal dependent phosphohydrolase	BU251_05615	42	46	7	16	2	47	4
mannosylglucosyl-3-phosphoglycerate phosphatase	BU251_01100	67	57	36	14	1	38	1
3-isopropylmalate dehydratase large subunit	BU251_05390	46	47	6	17	1	44	3
glycosyltransferase	BU251_01000	77	38	25	14	8	56	5
50S ribosomal protein L2	BU251_03105	31	41	7	16	8	50	6

argininosuccinate lyase	BU251_05315	50	45	9	14	1	48	11
gpsA	BU251_04830	36	49	21	13	9	45	8
O-acetylhomoserine aminocarboxypropyltransferase	BU251_06620	47	37	14	21	1	48	6
hypothetical protein	BU251_09455	24	43	6	19	3	45	11
hypothetical protein	BU251_05595	40	50	6	16	6	41	2
type I restriction-modification system subunit M	BU251_02600	59	42	10	17	1	47	4
NAD-dependent dehydratase	BU251_02995	35	48	16	15	1	42	1
UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase	BU251_00675	37	41	8	13	4	52	18
response regulator PleD	BU251_04005	45	34	2	16	1	56	1
imidazoleglycerol-phosphate dehydratase	BU251_05085	23	46	6	15	3	44	4
hypothetical protein	BU251_01645	98	42	16	14	2	49	6
Single-stranded DNA-binding protein	BU251_00645	17	39	9	16	1	49	25
adenylosuccinate synthetase	BU251_01110	47	41	21	18	2	45	6
hypothetical protein	BU251_01430	16	52	12	12	2	41	12
transcription termination/antitermination protein NusG	BU251_03030	20	42	3	17	1	45	0
phosphoribosylamine--glycine ligase	BU251_07230	45	39	5	15	5	51	2
30S ribosomal protein S3	BU251_03120	27	49	11	13	1	42	15
phosphate starvation-inducible protein PhoH, predicted ATPase	BU251_04690	36	38	4	20	4	46	21
hypothetical protein	BU251_07005	17	47	0	12	1	44	6
sensory box histidine kinase/response regulator	BU251_00720	72	44	23	15	5	44	6
UMP kinase	BU251_00840	26	41	4	13	4	49	21
hypothetical protein	BU251_01400	30	47	7	12	8	44	11
histidinol dehydrogenase	BU251_05090	45	39	18	20	1	43	11
threonine synthase	BU251_04805	38	38	11	20	7	44	2
methylthioadenosine phosphorylase	BU251_05705	31	48	15	15	2	39	4
trehalose-6-phosphate synthase	BU251_03545	57	45	25	13	4	43	12
NGG1p interacting factor NIF3	BU251_03995	37	49	6	14	1	38	7

galactose-1-phosphate uridylyltransferase	BU251_04250	39	41	13	17	0	42	11
transcriptional regulator	BU251_05945	31	47	12	14	3	39	11
hypothetical protein	BU251_03445	38	46	5	16	1	38	1
phosphoheptose isomerase	BU251_03780	21	47	1	14	4	39	0
leucine--tRNA ligase	BU251_07605	93	43	26	12	0	45	2
DNA ligase	BU251_05855	74	40	28	13	6	47	11
hypothetical protein	BU251_07920	37	35	6	17	4	47	13
RNA polymerase sigma factor RpoD	BU251_03985	60	36	24	15	4	48	15
hypothetical protein	BU251_05850	20	41	13	12	4	45	7
hypothetical protein	BU251_05190	15	41	6	17	0	40	8
electron transfer flavoprotein subunit alpha	BU251_04015	43	37	7	15	3	45	4
3-dehydroquinate synthase	BU251_03705	39	38	13	14	8	45	10
hypothetical protein	BU251_08615	22	49	8	9	1	39	6
hypothetical protein	BU251_00870	46	41	4	17	4	38	1
6-phosphofructokinase	BU251_00905	35	41	11	16	1	40	15
2-dehydropantoate 2-reductase	BU251_04670	33	45	11	11	7	40	4
UDP-N-acetylglucosamine 1-carboxyvinyltransferase	BU251_01335	46	38	11	13	1	45	1
excinuclease ABC subunit B	BU251_04755	84	33	4	19	1	43	1
phosphate transport system regulatory protein PhoU	BU251_06640	26	43	9	13	6	40	1
hypothetical protein	BU251_08670	39	43	6	14	4	39	10
rubrerythrin-2	BU251_08345	20	38	9	14	4	43	13
bifunctional ornithine acetyltransferase/N-acetylglutamate synthase	BU251_05340	42	48	1	7	0	39	7
tyrosine--tRNA ligase	BU251_05510	47	42	10	12	1	41	4
hypothetical protein	BU251_09505	20	36	2	16	3	43	2
LPS export ABC transporter ATP-binding protein	BU251_01075	27	40	3	16	5	38	1
anthranilate synthase component I	BU251_05060	55	39	23	12	1	43	1
tryptophan synthase subunit beta	BU251_06020	41	39	20	12	3	42	4

saccharopine dehydrogenase	BU251_06225	46	31	11	17	4	45	11
thymidylate synthase (FAD)	BU251_07300	28	42	8	13	4	39	2
hypothetical protein	BU251_02705	57	38	53	15	21	41	57
expressed secreted protein of unknown function	BU251_01035	12	39	9	15	6	39	12
hypothetical protein	BU251_01295	30	42	5	8	2	43	10
glutamate-5-semialdehyde dehydrogenase	BU251_05545	45	43	18	16	5	34	5
acetyl-CoA synthase corrinoid activation protein	BU251_04960	69	33	7	13	5	46	13
ornithine carbamoyltransferase	BU251_05325	36	37	10	17	4	38	1
N-acetyl-gamma-glutamyl-phosphate reductase	BU251_05345	38	37	13	12	2	43	4
type II secretion system protein F	BU251_08455	45	39	13	15	1	37	8
hypothetical protein	BU251_09530	34	40	10	13	7	38	11
GDP-mannose 4,6-dehydratase	BU251_02255	37	39	12	15	3	37	1
peptide deformylase	BU251_05075	29	37	2	14	8	40	8
hypothetical protein	BU251_07885	46	39	11	12	1	40	2
hypothetical protein	BU251_07455	23	38	4	16	4	36	4
1-deoxy-D-xylulose-5-phosphate synthase	BU251_09385	68	39	20	11	5	40	1
hypothetical protein	BU251_06370	61	47	24	2	2	41	6
F0F1 ATP synthase subunit beta	BU251_08470	53	34	8	11	1	45	11
amidophosphoribosyltransferase	BU251_03495	54	35	10	18	1	36	4
ribose 1,5-bisphosphate isomerase	BU251_06360	27	36	0	12	2	41	10
hypothetical protein	BU251_00285	44	40	11	15	1	34	13
thioredoxin	BU251_00490	31	35	8	16	0	38	2
aspartate aminotransferase family protein	BU251_05330	44	39	5	12	5	38	13
CTP synthetase	BU251_02160	59	40	20	10	6	38	5
hypothetical protein	BU251_04495	23	35	4	19	2	34	4
NAD+ synthase	BU251_06865	61	39	22	10	1	39	5
hypothetical protein	BU251_08605	55	35	25	12	6	41	18
phenylalanine--tRNA ligase subunit alpha	BU251_09440	39	32	5	14	1	41	0
4-alpha-glucanotransferase	BU251_04235	70	38	19	14	0	34	0

ATP synthase F0 sector subunit b	BU251_08485	28	37	1	16	4	33	2
outer membrane efflux protein	BU251_00735	62	41	16	13	1	31	5
hypothetical protein	BU251_05585	23	38	2	11	6	36	5
deoxyguanosinetriphosphate triphosphohydrolase	BU251_03730	47	34	1	11	4	39	2
DNA recombination protein RmuC-like protein	BU251_00475	45	35	9	13	0	35	11
electron transfer flavoprotein subunit beta	BU251_04020	28	33	3	17	6	33	3
pantothenate kinase type III, CoaX-like	BU251_04745	28	40	11	14	9	30	1
diadenylate cyclase spyDAC	BU251_04895	29	34	6	13	3	36	3
arginine--tRNA ligase	BU251_06000	63	35	23	8	4	40	1
hypothetical protein	BU251_08420	32	42	18	9	5	32	14
translation initiation factor IF-3	BU251_09475	18	35	4	10	2	38	4
[Fe] hydrogenase large subunit	BU251_02020	68	36	23	10	0	36	14
hypothetical protein	BU251_04835	76	32	25	12	7	38	1
DNA-binding protein similar to integration host factor beta subunit	BU251_04715	10	32	2	17	6	33	6
orotate phosphoribosyltransferase	BU251_06055	21	33	6	15	5	34	6
protein arginine kinase	BU251_06190	40	32	8	10	3	39	3
50S ribosomal protein L3	BU251_03090	22	30	6	10	8	41	3
cysteine synthase A	BU251_06615	33	25	10	15	6	41	13
type II secretion system protein GspG	BU251_08440	14	36	13	8	1	36	4
glycosyl transferase	BU251_04300	31	38	9	11	1	31	7
hypothetical protein	BU251_06665	30	14	0	20	7	46	1
hypothetical protein	BU251_07475	34	36	1	9	2	36	2
hypothetical protein	BU251_08095	73	34	19	10	1	36	10
hypothetical protein	BU251_08400	53	33	1	14	0	33	5
hypothetical protein	BU251_03725	41	30	18	12	4	38	1
mannose-1-phosphate guanylyltransferase/mannose-6-phosphate isomerase	BU251_04425	55	36	26	8	1	36	14
hypothetical protein	BU251_07910	55	31	17	14	3	34	18

ATP-dependent RNA helicase DBP9	BU251_05130	56	40	23	8	4	31	1
hypothetical protein	BU251_00550	39	35	16	13	1	30	4
ribosome recycling factor	BU251_00845	21	35	5	11	4	33	11
hypothetical protein	BU251_05215	22	32	4	14	1	32	13
hypothetical protein	BU251_07965	26	30	1	12	0	36	4
nucleoside-diphosphate-sugar pyrophosphorylase	BU251_00885	30	30	11	15	5	33	10
preprotein translocase subunit SecG	BU251_04055	15	37	10	9	3	32	1
SMC-Scp complex subunit ScpB	BU251_03925	27	31	8	11	4	36	6
transaldolase	BU251_06585	42	35	0	14	2	29	5
UDP-N-acetylglucosamine 3-dehydrogenase	BU251_00820	36	34	18	11	7	32	16
lipid A biosynthesis lauroyl acyltransferase	BU251_00995	71	33	25	10	4	34	4
hypothetical protein	BU251_01120	13	36	4	10	1	31	12
ribokinase	BU251_01555	33	33	4	9	2	36	1
chemotaxis protein MotB	BU251_01565	25	31	6	12	2	35	9
nicotinate-nucleotide diphosphorylase (carboxylating)	BU251_04770	33	37	16	9	6	31	6
hypothetical protein	BU251_07105	45	34	4	9	1	34	1
transketolase, C-terminal section	BU251_00595	33	31	11	13	1	32	7
ATP-dependent DNA helicase UvrD/PcrA	BU251_06335	124	24	26	12	4	41	2
NADH-cytochrome b5 reductase 1	BU251_04630	27	30	7	16	3	29	1
hypothetical protein	BU251_05125	26	24	0	25	16	27	1
threonylcarbamoyl-AMP synthase	BU251_07220	38	29	2	13	1	34	13
transketolase, N-terminal section	BU251_00590	31	36	6	7	4	32	1
Type III restriction-modification system methylation subunit	BU251_02840	65	37	23	6	1	31	1
adenylate kinase	BU251_03190	24	30	4	13	1	32	4
malate dehydrogenase	BU251_03260	31	29	7	13	4	33	1
hypothetical protein	BU251_03645	23	13	3	20	3	41	4
hypothetical protein	BU251_07410	51	34	1	13	3	27	1

acetyl-CoA carboxylase carboxyltransferase subunit alpha	BU251_07950	36	36	6	8	1	31	11
hypothetical protein	BU251_01505	77	34	18	5	2	35	1
efflux transporter, RND family, MFP subunit	BU251_01855	35	35	5	8	4	31	3
Holliday junction DNA helicase RuvA	BU251_03930	25	35	3	10	1	29	5
hypothetical protein	BU251_06910	40	30	6	13	0	31	2
V-type ATP synthase subunit E	BU251_08240	22	34	2	11	4	30	4
hypothetical protein	BU251_08395	25	30	3	11	4	33	8
ribonucleoside-diphosphate reductase, adenosylcobalamin-dependent	BU251_07050	85	27	16	11	1	35	4
hypothetical protein	BU251_01740	32	34	4	13	4	26	3
glucose-1-phosphate adenylyltransferase	BU251_04035	46	31	11	12	1	31	1
hypothetical protein	BU251_04985	19	31	25	6	0	36	15
6,7-dimethyl-8-ribityllumazine synthase	BU251_05895	17	29	1	10	3	34	2
glycosyl transferase family 2	BU251_00420	42	37	21	10	1	26	1
hypothetical protein	BU251_06255	17	32	4	10	4	31	1
magnesium-translocating P-type ATPase	BU251_06040	95	28	6	9	4	35	10
1D-myo-inositol 2-acetamido-2-deoxy-alpha-D-glucopyranoside deacetylase	BU251_06345	54	43	23	10	1	19	3
hypothetical protein	BU251_07940	58	19	7	23	2	30	0
bifunctional homocysteine S-methyltransferase/methylenetetrahydrofolate reductase	BU251_00970	67	30	10	9	6	32	2
DNA repair protein RadA	BU251_06160	51	23	11	13	6	36	4
hypothetical protein	BU251_05150	59	32	6	7	5	32	1
crotonobetainyl-CoA--carnitine CoA-transferase	BU251_02215	28	32	9	9	5	30	5
galactose-1-phosphate uridylyltransferase	BU251_04245	39	28	6	6	1	36	4
primosomal protein N'	BU251_04260	72	30	28	6	4	33	3
phosphoribosylaminoimidazolesuccinocarboxamide synthase	BU251_07670	33	31	4	11	0	27	4
hypothetical protein	BU251_08070	36	30	9	11	5	29	6

acetyl-CoA synthase corrinoid iron-sulfur protein, large subunit	BU251_04965	49	31	10	8	1	30	7
diaminopimelate decarboxylase	BU251_05310	47	32	12	10	1	27	10
cell division/cell wall cluster transcriptional repressor MraZ	BU251_05800	17	25	7	11	5	33	0
cysteine--tRNA ligase	BU251_06135	54	32	23	5	7	32	21
hypothetical protein	BU251_02950	48	22	1	11	0	35	1
hypothetical protein	BU251_03535	26	34	4	11	0	24	6
RNA polymerase sigma factor RpoD	BU251_04580	32	27	8	11	2	31	2
hypothetical protein	BU251_07625	53	30	1	10	7	28	3
hypothetical protein	BU251_07845	25	16	4	6	1	47	9
hypothetical protein	BU251_04220	16	32	1	8	2	29	6
ATP-dependent DNA helicase RecG	BU251_05470	79	26	23	8	6	35	4
3-phosphoshikimate 1-carboxyvinyltransferase	BU251_05670	47	27	8	12	6	29	4
hypothetical protein	BU251_06560	38	31	8	8	2	30	9
hypothetical protein	BU251_05265	9	23	10	14	3	30	11
3-isopropylmalate dehydratase	BU251_03250	19	33	7	7	0	27	1
cochaperone GroES (HSP10)	BU251_04740	11	19	1	12	4	37	2
hypothetical protein	BU251_07840	34	26	0	11	1	30	1
translation elongation factor Ts	BU251_00835	20	34	1	5	1	28	6
NADP-reducing hydrogenase HdnC	BU251_02015	65	34	14	7	6	25	1
hypothetical protein	BU251_06400	14	29	4	10	2	28	6
hypothetical protein	BU251_04430	25	28	4	9	1	30	8
pantoate--beta-alanine ligase	BU251_05275	32	31	4	9	1	26	0
ribulose-phosphate 3-epimerase	BU251_05535	24	27	7	7	1	32	2
V-type ATP synthase subunit B	BU251_08225	48	28	7	12	5	26	3
hypothetical protein	BU251_07860	18	26	1	11	2	29	0
formate--tetrahydrofolate ligase	BU251_01265	60	25	9	13	2	28	4
ribonuclease TTHA0252	BU251_01455	55	25	21	8	4	32	0
hypothetical protein	BU251_04485	61	29	11	10	1	26	5

16S rRNA (cytidine(1402)-2'-O)-methyltransferase	BU251_08335	24	26	1	11	3	28	0
phosphate--acyl-ACP acyltransferase	BU251_05420	36	25	3	8	1	31	3
transporter, putative	BU251_01905	94	27	6	11	5	26	4
elongation factor 4	BU251_03895	67	24	16	8	7	32	15
UDP-N-acetylmuramoylalanyl-D-glutamyl-2, 6-diaminopimelate--D-alanyl-D-alanine ligase	BU251_05770	51	24	11	7	3	33	8
GTP cyclohydrolase I FolE	BU251_08015	21	31	1	2	2	31	14
lipopolysaccharide heptosyltransferase II	BU251_01020	77	19	9	10	4	35	5
nicotinate phosphoribosyltransferase	BU251_03565	60	25	11	12	4	27	8
4-hydroxy-tetrahydrodipicolinate reductase	BU251_05295	30	26	3	11	4	27	13
magnesium and cobalt transport protein CorA	BU251_06405	37	31	4	11	1	22	4
phosphopantothenoylcysteine decarboxylase / Phosphopantothenoylcysteine synthetase	BU251_04800	24	25	4	13	6	26	4
elongation factor P	BU251_03810	21	24	4	11	0	27	7
NADH-ubiquinone oxidoreductase chain 49kDa	BU251_04515	47	22	6	11	6	29	9
hypothetical protein	BU251_05820	35	30	17	8	3	24	8
acetolactate synthase small subunit	BU251_00925	18	31	3	9	1	22	4
thioredoxin-disulfide reductase	BU251_02120	34	29	4	7	3	25	13
cytidylate kinase	BU251_03900	25	23	5	10	3	29	6
hypothetical protein	BU251_07040	29	28	5	9	0	25	1
3-methyl-2-oxobutanoate dehydrogenase subunit VorB	BU251_09375	39	25	11	11	3	25	7
outer membrane vitamin B12 receptor BtuB	BU251_00360	68	38	21	5	0	18	1
expressed secreted protein of unknown function	BU251_01030	9	29	7	11	1	21	0
4-hydroxy-3-methylbut-2-en-1-yl diphosphate synthase	BU251_01155	39	23	8	9	2	30	1
glucose-1-phosphate adenylyltransferase	BU251_06835	47	22	8	11	3	28	6
3-deoxy-8-phosphooctulonate synthase	BU251_01055	30	28	8	8	4	25	2
acetyl-CoA carboxylase subunit beta	BU251_02955	31	28	3	5	3	27	3
hypothetical protein	BU251_04445	28	28	4	8	0	25	1
hypothetical protein	BU251_04685	51	27	7	8	1	26	2

glutaminyl-tRNA synthase (glutamine-hydrolyzing)subunit B	BU251_05010	53	28	16	7	0	25	4
hypothetical protein	BU251_08805	23	28	1	7	1	26	4
hypothetical protein	BU251_01790	25	26	2	8	2	27	6
serine phosphatase RsbU, regulator of sigma subunit	BU251_02685	29	23	6	10	4	27	6
transcriptional regulator	BU251_03330	20	32	2	2	3	26	2
hypothetical protein	BU251_01365	33	29	4	9	1	21	0
chromosomal replication initiator protein DnaA	BU251_00005	50	23	16	8	5	28	18
hypothetical protein	BU251_01690	39	14	0	11	6	34	8
hypothetical protein	BU251_02370	30	31	0	7	1	21	4
hypothetical protein	BU251_03955	27	31	11	3	1	25	2
2-oxoglutarate oxidoreductase, alpha subunit	BU251_06595	63	25	11	5	2	29	10
amidophosphoribosyltransferase	BU251_07240	53	22	8	8	1	28	10
hypothetical protein	BU251_08375	19	30	3	5	1	24	6
aminoacyl-tRNA hydrolase	BU251_00635	21	24	1	6	0	28	6
50S ribosomal protein L19	BU251_01250	13	23	1	9	1	26	3
lipoprotein-releasing system transmembrane protein LolC	BU251_06210	43	24	12	8	1	27	13
mechanosensitive ion channel protein MscS	BU251_03550	39	27	8	10	3	20	13
3-oxoacyl-ACP synthase	BU251_05415	36	27	6	9	3	22	1
metallophosphoesterase	BU251_09400	30	26	6	6	0	26	1
ABC transporter ATP-binding protein	BU251_02290	27	26	3	6	4	25	1
homoserine O-acetyltransferase	BU251_06610	43	26	8	5	0	26	0
30S ribosomal protein S11	BU251_03215	13	25	5	6	4	26	9
acetyl-CoA decarbonylase/synthase complex subunit delta	BU251_04950	35	24	5	6	3	27	9
hypothetical protein	BU251_07715	19	29	4	0	0	28	2
3-hydroxyacyl-[acyl-carrier-protein] dehydratase, FabZ form	BU251_03300	16	28	0	8	5	20	1
L-Aspartate dehydrogenase	BU251_05270	28	26	7	6	3	24	1

hypothetical protein	BU251_06705	43	21	5	9	0	26	2
glutamate 5-kinase	BU251_05550	38	18	6	9	1	28	8
electron transport complex protein RnfG	BU251_07565	21	24	8	4	6	27	7
polysaccharide biosynthesis protein vipB/tviC	BU251_00400	35	27	8	5	3	22	4
hypothetical protein	BU251_01540	15	21	1	8	1	26	5
outer membrane lipoprotein-sorting protein	BU251_01910	30	25	4	8	2	22	5
ADP-heptose--lipooligosaccharide heptosyltransferase II	BU251_04280	42	24	7	7	1	23	7
redox-sensing transcriptional repressor Rex	BU251_02000	24	23	8	9	4	23	2
hypothetical protein	BU251_03905	30	24	7	9	0	21	2
cell division protein FtsA	BU251_05720	46	20	4	7	6	27	1
hypothetical protein	BU251_09120	24	17	6	9	0	28	6
acyl-[acyl-carrier-protein]--UDP-N-acetylglucosamine O-acyltransferase	BU251_00685	27	22	12	8	1	24	8
type II secretion system protein F	BU251_05195	46	23	8	5	3	25	10
beta-ketoacyl-[acyl-carrier-protein] synthase II	BU251_05395	44	1	1	10	0	42	6
DNA-binding response regulator	BU251_06710	26	23	0	7	4	24	4
aromatic amino acid aminotransferase	BU251_06850	43	22	4	6	1	26	8
hydroxyacid dehydrogenase	BU251_07285	39	26	8	7	4	21	1
preprotein translocase subunit YajC	BU251_05050	10	27	5	6	1	20	1
lipid-A-disaccharide synthase	BU251_00815	43	25	16	5	1	23	2
ABC transporter ATP-binding protein	BU251_06175	28	20	1	12	1	21	3
hypothetical protein	BU251_06330	108	19	18	6	2	28	2
hypothetical protein	BU251_07075	16	27	3	7	1	18	4
hypothetical protein	BU251_07945	21	24	6	6	1	23	8
putative ABC transporter ATP-binding protein YdiF	BU251_01950	73	19	15	4	5	30	4
molecular chaperone DnaJ	BU251_02935	42	21	8	6	0	25	2
50S ribosomal protein L22	BU251_03115	15	21	6	9	4	23	5
phosphomethylpyrimidine synthase	BU251_03760	48	19	6	8	1	25	8
hypothetical protein	BU251_00385	23	23	7	8	2	21	1

carbon monoxide dehydrogenase medium chain	BU251_01515	30	22	4	6	4	24	4
type II 3-dehydroquinate dehydratase	BU251_03820	16	22	1	9	2	21	3
leuD	BU251_05385	19	18	1	9	1	24	0
cell division protein FtsI [Peptidoglycan synthetase]	BU251_05780	63	20	6	6	0	25	4
hypothetical protein	BU251_08405	28	26	1	7	4	19	4
hypothetical protein	BU251_00275	46	17	11	14	8	20	4
3-deoxy-D-manno-octulosonate cytidylyltransferase	BU251_01050	28	23	7	5	0	23	2
N-acetylmuramoyl-L-alanine amidase	BU251_01595	39	22	4	8	2	21	0
GDP-L-fucose synthetase	BU251_02230	36	22	7	8	2	21	3
transcriptional regulatory protein	BU251_03600	15	20	1	7	6	24	1
F0F1 ATP synthase subunit alpha	BU251_08480	55	19	8	11	1	21	8
sensory box/GGDEF family protein	BU251_08500	33	22	7	9	2	20	0
gatA	BU251_05015	52	22	11	9	4	20	8
lipoprotein-releasing system ATP-binding proteinLolD	BU251_06205	25	21	3	6	1	23	6
hypothetical protein	BU251_05000	33	27	13	4	2	20	1
hypothetical protein	BU251_06025	29	21	4	10	1	19	1
monogalactosyldiacylglycerol synthase	BU251_04265	41	22	9	6	3	22	1
glycine dehydrogenase (aminomethyl-transferring)	BU251_07320	49	20	7	6	2	24	5
hypothetical protein	BU251_07895	36	23	8	5	1	22	8
methylenetetrahydrofolate dehydrogenase (NADP+) / methenyltetrahydrofolate cyclohydrolase	BU251_01275	32	22	10	7	3	20	8
hypothetical protein	BU251_01500	21	20	1	5	3	24	1
superoxide reductase	BU251_01930	15	24	1	6	1	20	1
hypothetical protein	BU251_02385	26	17	2	9	5	24	1
50S ribosomal protein L7/L12	BU251_03050	13	17	1	10	1	22	4
DNA-binding response regulator	BU251_08535	36	17	1	8	1	25	6
hypothetical protein	BU251_01390	11	20	3	9	1	19	4
Na(+)/H(+) antiporter NhaA 2	BU251_01820	27	21	11	4	0	24	1

30S ribosomal protein S8	BU251_03160	15	21	1	8	2	20	1
acetyl-CoA carboxylase, biotin carboxyl carrier protein	BU251_03805	18	20	3	7	2	22	4
diaminopimelate epimerase	BU251_05305	30	23	4	8	6	18	0
[acyl-carrier-protein] S-malonyltransferase	BU251_05410	32	25	1	4	0	20	1
3-oxoacyl-[acyl-carrier-protein] reductase	BU251_03290	28	21	6	5	3	22	2
glutamate synthase (NADPH), homotetrameric	BU251_01725	51	15	2	6	1	27	2
Holliday junction branch migration DNA helicase RuvB	BU251_01200	38	19	2	6	1	23	8
YggS family pyridoxal phosphate enzyme	BU251_05715	26	15	3	11	2	21	6
hypothetical protein	BU251_07930	36	21	6	4	6	22	4
anthranilate/aminodeoxychorismate synthase component II	BU251_01340	21	20	6	5	0	21	4
hypothetical protein	BU251_03625	12	17	4	8	4	22	3
dihydropteroate synthase	BU251_04900	43	19	10	3	0	24	16
nickel responsive regulator	BU251_07710	16	20	0	9	2	18	2
hypothetical protein	BU251_07915	53	6	1	9	3	31	0
hypothetical protein	BU251_02485	26	19	4	7	1	20	4
5-methyltetrahydrofolate:corrinoid iron-sulfur protein methyltransferase	BU251_04945	29	21	4	6	3	19	6
2'-5' RNA ligase	BU251_05910	21	23	4	3	0	20	7
tryptophan synthase subunit alpha	BU251_06015	29	21	4	8	2	18	4
S-methyl-5-thioribose-1-phosphate isomerase	BU251_06100	39	21	8	6	4	19	1
hydroxylamine reductase	BU251_06240	47	16	1	9	3	21	6
hypothetical protein	BU251_08715	12	23	0	5	1	18	2
cell division protein FtsQ	BU251_05725	32	21	2	7	3	18	2
methionine--tRNA ligase	BU251_06115	57	21	9	4	6	21	8
DNA polymerase III subunits gamma and tau	BU251_06525	61	14	9	3	1	29	4
Phosphoenolpyruvate carboxykinase (ATP)	BU251_07535	29	22	1	8	0	16	2
hypothetical protein	BU251_00250	39	21	8	4	2	20	4
outer membrane efflux protein	BU251_01850	46	21	4	4	1	20	7

hypothetical protein	BU251_06010	49	21	8	6	4	18	7
hypothetical protein	BU251_08415	23	19	12	3	4	23	6
hypothetical protein	BU251_08725	39	17	8	8	2	20	6
hypothetical protein	BU251_00695	10	12	7	10	4	23	13
glycosyl transferase	BU251_01005	40	17	8	7	3	20	3
3-isopropylmalate dehydratase large subunit	BU251_03240	45	18	7	8	1	18	3
DNA polymerase	BU251_04655	26	17	1	7	5	21	8
peptide chain release factor 1	BU251_01325	40	14	2	4	3	26	0
30S ribosomal protein S13	BU251_03210	15	19	0	7	2	18	1
hypothetical protein	BU251_06290	42	20	1	6	2	18	3
hypothetical protein	BU251_07430	25	19	4	7	4	19	1
RIP metalloprotease RseP	BU251_01150	40	19	5	7	4	18	5
hypothetical protein	BU251_01840	28	19	5	6	1	19	0
radical SAM domain heme biosynthesis protein	BU251_05185	37	16	6	8	4	19	1
hypothetical protein	BU251_07190	16	19	1	6	1	18	3
glycine cleavage system protein T	BU251_07310	40	20	4	4	1	20	1
methionine biosynthesis protein MetW	BU251_06605	23	19	3	6	1	18	6
hypothetical protein	BU251_08360	30	21	1	4	0	18	1
undecaprenyl-diphosphatase	BU251_03640	28	22	8	6	5	15	7
lipopolysaccharide biosynthesis protein RfbH	BU251_04390	50	21	15	4	2	18	0
4-hydroxythreonine-4-phosphate dehydrogenase PdxA	BU251_05030	34	19	8	4	1	20	1
imidazole glycerol phosphate synthase subunit HisH	BU251_05080	23	20	1	6	5	17	4
response regulator MprA	BU251_06275	34	26	2	2	2	15	8
tryptophanyl-tRNA synthetase	BU251_01190	37	19	1	7	1	16	1
thioredoxin	BU251_02095	12	16	4	9	1	17	1
hypothetical protein	BU251_03355	36	18	4	5	4	20	8
NAD(P)H-hydrate dehydratase	BU251_04880	30	17	2	9	2	17	4
tRNA lysidine(34) synthetase TilS	BU251_04910	38	18	12	6	2	19	4

hypothetical protein	BU251_07085	37	18	6	5	1	19	1
50S ribosomal protein L9	BU251_00655	17	17	1	7	1	18	1
endo-1,4-beta-xylanase C	BU251_02260	49	16	6	4	3	22	2
DNA-binding response regulator	BU251_02795	26	18	1	7	3	16	3
hypothetical protein	BU251_02890	30	17	0	7	1	18	5
hypothetical protein	BU251_04230	18	19	6	7	3	15	1
hypothetical protein	BU251_05590	21	19	3	5	0	17	1
hypothetical protein	BU251_06725	34	19	1	5	2	18	3
glycine dehydrogenase (aminomethyl-transferring)	BU251_07325	53	19	10	5	1	18	5
phosphoribosylglycinamide formyltransferase	BU251_07540	23	20	6	6	3	16	8
hypothetical protein	BU251_04440	41	14	3	6	2	21	6
16S rRNA (cytosine(1402)-N(4))-methyltransferase	BU251_05790	34	17	8	4	1	20	5
bifunctional pyr operon transcriptional regulator/uracil phosphoribosyltransferase	BU251_08320	20	19	1	2	0	20	13
thiol:disulfide oxidoreductase related to ResA	BU251_00515	19	18	1	7	1	16	5
peptidoglycan D,D-transpeptidase MrdA	BU251_05650	62	20	8	4	2	17	1
ribosome-binding factor A	BU251_05825	16	17	1	5	2	19	1
hypothetical protein	BU251_08425	32	20	5	7	1	14	2
hypothetical protein	BU251_00605	16	20	2	4	0	16	3
UDP-glucose 4-epimerase	BU251_02205	37	17	4	8	2	15	6
hypothetical protein	BU251_03480	18	17	7	3	4	20	4
rod shape-determining protein MreC	BU251_05660	29	17	2	6	1	18	2
hypothetical protein	BU251_01285	31	17	1	6	1	17	2
hypothetical protein	BU251_02980	37	18	10	3	4	19	1
type IV fimbrial assembly, ATPase PilB	BU251_03970	34	19	8	6	2	15	8
hypothetical protein	BU251_05965	26	18	3	4	1	17	7
hypothetical protein	BU251_06425	20	18	0	0	0	21	7
ADP-ribose pyrophosphatase	BU251_07180	30	19	8	6	2	15	5
hypothetical protein	BU251_07880	44	14	3	1	1	24	7

hypothetical protein	BU251_08585	27	17	4	4	3	19	6
hypothetical protein	BU251_09055	18	18	1	3	4	19	6
iron-sulfur cluster-binding protein	BU251_02155	42	17	11	6	0	16	1
50S ribosomal protein L15	BU251_03180	17	16	1	7	0	16	4
peptidoglycan-N-acetylglucosamine deacetylase	BU251_06355	29	18	11	6	1	15	7
peptidylprolyl isomerase	BU251_00430	20	14	2	8	1	17	5
hypothetical protein	BU251_03395	105	20	2	0	0	19	1
Rossman fold protein, TIGR00730 family	BU251_07250	24	15	4	8	2	16	1
glycosyl transferase family 1	BU251_03530	45	15	5	7	4	17	5
hypothetical protein	BU251_03815	39	19	4	2	3	17	2
glucose-1-phosphate cytidylyltransferase	BU251_04380	32	18	7	4	1	16	4
GDP-fucose synthetase	BU251_04415	37	15	4	6	1	17	10
DNA polymerase III subunit alpha	BU251_04720	129	12	17	6	8	20	10
dTMP kinase	BU251_06130	25	15	4	7	0	16	5
orotidine 5'-phosphate decarboxylase	BU251_08245	26	16	1	5	1	17	3
ferrous iron transporter B	BU251_00305	64	14	13	9	1	15	2
hypothetical protein	BU251_05035	35	17	1	6	1	15	0
hypothetical protein	BU251_05120	30	7	1	6	1	24	3
dihydroorotate dehydrogenase B catalytic subunit	BU251_08250	33	15	6	5	6	18	8
pyruvate kinase	BU251_01215	38	17	6	4	2	17	4
HIT family hydrolase	BU251_03735	18	15	4	4	2	19	1
hypothetical protein	BU251_04435	32	20	5	3	4	15	6
putative nickel insertion protein	BU251_04970	42	17	3	0	0	20	1
50S ribosomal protein L13	BU251_05355	19	16	4	6	0	15	1
protein containing Prepilin-type cleavage/methylation	BU251_05475	14	16	2	6	1	15	4
carboxynorspermidine decarboxylase	BU251_06230	41	14	11	6	0	16	6
phosphopantetheine adenylyltransferase	BU251_06265	21	18	4	5	1	14	1
hypothetical protein	BU251_07405	47	11	8	4	0	21	4
hypothetical protein	BU251_01025	8	15	1	8	1	13	1

ferredoxin-NADP reductase	BU251_01720	30	15	6	5	1	17	1
tRNA (adenosine(37)-N6)-dimethylallyltransferaseMiaA	BU251_02895	39	19	8	4	1	13	3
hypothetical protein	BU251_07095	51	20	1	2	3	14	13
Type IV pilin PilA	BU251_03450	15	19	1	4	1	13	3
hypothetical protein	BU251_04225	16	18	4	4	1	14	2
nicotinate-nucleotide adenylyltransferase	BU251_05540	22	17	2	3	1	16	0
hypothetical protein	BU251_01915	50	20	1	1	1	14	1
hypothetical protein	BU251_04315	53	16	7	3	4	16	3
response regulator	BU251_04845	14	17	4	3	4	15	1
GTPase Era	BU251_08080	33	15	4	5	2	16	5
hypothetical protein	BU251_08290	48	19	8	4	2	12	0
AAA family ATPase	BU251_09425	55	12	7	4	1	19	8
hypothetical protein	BU251_00440	29	15	1	4	1	16	1
hypothetical protein	BU251_01475	22	14	6	5	0	15	7
glycosyltransferase	BU251_04385	37	13	6	6	0	15	4
protein containing Prepilin-type cleavage/methylation	BU251_06380	24	19	3	3	0	12	0
apolipoprotein N-acyltransferase	BU251_07110	56	17	5	5	7	13	1
hypothetical protein	BU251_07700	26	17	2	4	5	14	0
dihydrolipoamide dehydrogenase of 2-oxoglutaratedehydrogenase	BU251_03265	46	14	4	4	2	17	1
undecaprenyl-phosphate glucose phosphotransferase	BU251_04400	55	17	10	6	1	11	6
LPS export ABC transporter permease LptG	BU251_06070	42	16	3	5	1	13	1
stage 0 sporulation protein	BU251_06120	29	17	5	4	1	14	1
hypothetical protein	BU251_01665	40	14	2	4	1	16	2
hypothetical protein	BU251_02325	12	14	1	7	2	13	3
cofactor-independent phosphoglycerate mutase	BU251_04795	44	10	3	3	4	20	6
pyridoxine 5'-phosphate synthase	BU251_04890	27	16	5	2	2	16	4
transcription-repair coupling factor	BU251_05040	71	12	17	0	0	21	3

sulfur reduction protein DsrE	BU251_08695	12	15	1	6	5	13	0
3-deoxy-D-manno-octulosonate 8-phosphate phosphatase	BU251_01065	21	17	4	4	0	12	6
hypothetical protein	BU251_04635	37	15	6	4	2	14	8
30S ribosomal protein S9	BU251_05350	15	13	2	6	3	14	0
pyrroline-5-carboxylate reductase	BU251_05710	30	14	1	6	5	14	4
thiamine-phosphate kinase	BU251_06095	33	16	4	3	1	14	1
2-C-methyl-D-erythritol 2,4-cyclodiphosphate synthase	BU251_06145	18	15	1	6	2	13	2
hypothetical protein	BU251_07060	24	14	4	8	2	12	1
hypothetical protein	BU251_07485	24	11	2	6	3	16	1
hypothetical protein	BU251_00260	29	4	1	4	1	24	3
glycosyltransferase	BU251_02200	25	14	4	4	1	15	6
2-oxoacid ferredoxin oxidoreductase beta subunit	BU251_06590	31	13	2	5	1	15	1
hypothetical protein	BU251_07035	32	19	9	3	0	11	1
hypothetical protein	BU251_09100	28	13	5	1	1	19	16
hypothetical protein	BU251_01445	19	15	1	5	0	12	2
cation-binding protein	BU251_01940	21	16	8	3	1	13	10
two-component hybrid sensor and regulator	BU251_02040	14	8	1	5	4	20	4
glycosyl transferase	BU251_04405	47	14	5	4	1	15	6
hypothetical protein	BU251_07680	17	13	2	6	2	14	1
hypothetical protein	BU251_08185	52	18	7	0	0	14	2
carbamoyl phosphate synthase small subunit	BU251_08280	41	10	0	5	0	17	6
hypothetical protein	BU251_02180	13	13	18	4	6	15	4
hypothetical protein	BU251_03795	13	16	4	1	1	15	2
thiamine biosynthesis lipoprotein ApbE	BU251_04615	35	14	4	4	3	14	2
V-type ATP synthase subunit I	BU251_08210	65	12	10	6	8	14	1
quinolinate synthase	BU251_00375	34	12	1	4	1	15	3
tetraacyldisaccharide 4'-kinase	BU251_00990	39	16	8	4	3	11	7
indole-3-glycerol phosphate synthase	BU251_01350	29	13	4	4	2	15	1

adenosine monophosphate-protein transferase SoFic	BU251_01735	43	15	10	3	1	13	0
hypothetical protein	BU251_06935	29	14	1	4	1	13	0
radical SAM protein	BU251_00570	32	13	1	2	2	16	0
shikimate dehydrogenase	BU251_00940	28	15	4	3	1	13	1
geranylgeranyl diphosphate synthase	BU251_01585	40	16	8	1	1	13	6
hypothetical protein	BU251_02330	28	13	4	4	0	13	6
rRNA small subunit methyltransferase E	BU251_05140	27	13	2	4	1	13	7
50S ribosomal protein L21	BU251_05560	11	13	0	6	4	11	3
hypothetical protein	BU251_08010	15	16	1	5	1	9	0
4-(cytidine 5'-diphospho)-2-C-methyl-D-erythritol kinase	BU251_00600	34	13	6	4	1	12	1
thiamin-phosphate pyrophosphorylase	BU251_03770	17	13	1	4	1	12	3
hypothetical protein	BU251_05165	18	13	5	4	2	13	1
methylenetetrahydrofolate dehydrogenase	BU251_00215	51	15	0	2	2	12	1
hypothetical protein	BU251_02700	14	14	5	3	1	13	2
hypothetical protein	BU251_08520	44	11	3	4	1	14	1
site-specific tyrosine recombinase XerD	BU251_05840	34	15	8	3	1	11	6
transketolase, C-terminal section	BU251_02225	33	9	3	6	1	13	3
3-oxoacyl-[acyl-carrier-protein] synthase, KASII	BU251_03305	45	11	2	3	4	15	1
30S ribosomal protein S16	BU251_05055	9	10	1	7	0	11	4
ATP-dependent permease AUS1	BU251_06085	20	12	3	3	1	13	1
hypothetical protein	BU251_08555	10	15	4	3	1	10	2
2-oxoglutarate ferredoxin oxidoreductase subunitgamma	BU251_09365	18	16	1	0	0	12	1
hypothetical protein	BU251_00280	36	12	1	4	1	12	1
anthranilate phosphoribosyltransferase	BU251_01345	36	12	4	1	1	14	4
30S ribosomal protein S12	BU251_03065	14	10	1	4	2	14	4
hypothetical protein	BU251_04925	26	12	6	2	2	14	9
type IV pilin PilA	BU251_06880	19	12	1	3	0	12	3

5-(carboxyamino)imidazole ribonucleotide mutase	BU251_07225	17	13	1	5	1	10	0
electron transport complex protein RnfC	BU251_07570	47	9	1	0	0	18	1
molybdopterin biosynthesis protein MoeA	BU251_07780	39	13	11	2	2	13	6
guanylate kinase	BU251_09515	23	12	7	3	1	12	1
ABC transporter	BU251_00455	35	10	2	4	5	14	2
NADP-reducing hydrogenase HdnA	BU251_02025	18	10	3	4	2	13	0
riboflavin biosynthesis protein RibF	BU251_05810	36	12	5	4	1	12	2
pstB	BU251_06650	28	12	1	3	1	12	1
hypothetical protein	BU251_07865	30	9	1	4	1	14	4
hypothetical protein	BU251_07975	14	10	1	6	1	11	1
hypothetical protein	BU251_09135	21	14	0	2	2	11	0
2-oxoglutarate oxidoreductase	BU251_09370	26	14	4	2	2	12	4
peptidase	BU251_01945	37	14	1	2	3	11	6
hypothetical protein	BU251_04185	29	9	6	5	2	13	1
alanine racemase	BU251_06075	42	12	8	2	3	13	1
2-C-methyl-D-erythritol 4-phosphate cytidylyltransferase	BU251_06150	26	11	1	4	3	12	6
sporulation initiation inhibitor Soj	BU251_09535	30	10	5	5	3	12	5
undecaprenyl pyrophosphate phosphatase	BU251_06960	17	9	13	0	0	17	1
hypothetical protein	BU251_08445	20	13	1	3	1	10	0
hypothetical protein	BU251_09460	24	13	2	0	0	13	1
xanthine and CO dehydrogenases maturation factor, XdhC/CoxF family	BU251_01535	27	12	1	2	3	12	1
hypothetical protein	BU251_03000	25	11	0	5	1	10	1
30S ribosomal protein S17	BU251_03135	11	9	1	4	1	12	4
protein containing Type IV pilus assembly PilZ domain	BU251_03685	15	12	2	4	1	10	3
hypothetical protein	BU251_08035	26	9	1	2	3	14	8
protein containing Prepilin-type cleavage/methylation	BU251_08430	21	14	3	3	1	8	1

UDP-N-acetylmuramoyl-L-alanyl-D-glutamate--2, 6-diaminopimelate ligase	BU251_05775	53	9	8	3	1	13	4
tRNA (adenosine(37)-N6)-threonylcarbamoyltransferase complex dimerization subunit type 1 TsaB	BU251_06080	25	9	3	5	4	11	1
hypothetical protein	BU251_08075	40	12	8	1	1	12	1
hypothetical protein	BU251_09020	18	13	4	2	2	11	2
ribonuclease PH	BU251_01635	26	12	1	2	3	11	2
hypothetical protein	BU251_02190	45	14	2	0	0	11	8
CO dehydrogenase accessory protein CooC (nickel insertion)	BU251_04955	27	11	1	1	1	13	6
lipopolysaccharide export system permease protein LptF	BU251_06065	41	10	5	6	8	9	1
nitroreductase	BU251_06940	24	3	1	5	0	17	6
23S rRNA (adenine(2503)-C(2))-methyltransferase	BU251_07760	39	11	4	4	1	10	1
transmembrane and TPR repeat-containing protein	BU251_07990	80	12	4	1	1	12	4
V-type ATP synthase subunit D	BU251_08220	24	9	3	3	4	13	5
tRNA (guanosine(37)-N1)-methyltransferase TrmD	BU251_01245	27	9	4	3	1	12	1
dephospho-CoA kinase	BU251_01310	26	9	1	3	1	12	0
hypothetical protein	BU251_01560	18	12	1	2	2	11	1
NADPH-dependent 7-cyano-7-deazaguanine reductaseQueF	BU251_01620	15	11	1	3	1	11	2
NAD(P)H-hydrate epimerase	BU251_02315	23	11	2	3	4	11	1
acetoacetyl-CoA synthetase / long-chain-fatty-acid--CoA ligase	BU251_03635	58	9	7	4	6	11	2
hypothetical protein	BU251_04470	18	8	2	3	1	13	3
[NiFe] hydrogenase metallocenter assembly protein HypE	BU251_07815	36	13	5	2	2	10	2
hypothetical protein	BU251_08140	11	8	3	4	1	12	0
DNA helicase UvrD	BU251_08300	46	8	3	3	0	13	2
hypothetical protein	BU251_08380	11	10	1	4	0	10	1
lipase family protein	BU251_09030	31	12	1	4	1	8	1

hypothetical protein	BU251_09105	38	14	4	0	0	10	2
non-canonical purine NTP pyrophosphatase, RdgB/HAM1 family	BU251_01640	22	11	1	3	1	10	1
alpha-D-GlcNAc alpha-1,2-L-rhamnosyltransferase	BU251_01875	42	10	4	2	2	12	2
hypothetical protein	BU251_02850	24	10	1	3	1	11	1
ADP-heptose synthase / D-glycero-beta-D-manno-heptose 7-phosphate kinase	BU251_03775	17	9	4	4	1	10	1
GTP-binding protein Obg	BU251_05555	35	10	5	3	1	11	1
hypothetical protein	BU251_01225	42	11	9	3	1	9	4
hypothetical protein	BU251_01920	17	9	1	4	2	11	1
30S ribosomal protein S10	BU251_03085	11	13	3	0	0	10	2
trehalose-phosphatase	BU251_03540	30	9	6	2	3	12	2
D-glycero-D-manno-heptose 1-phosphate guanosyltransferase	BU251_04270	26	10	0	2	0	11	4
hypothetical protein	BU251_06250	27	9	6	4	1	10	0
hypothetical protein	BU251_07055	81	10	5	3	4	11	4
hypothetical protein	BU251_08265	28	12	4	2	3	9	3
CO dehydrogenase/acetyl-CoA synthase, acetyl-CoAsynthase subunit	BU251_01290	79	7	10	1	1	14	8
hypothetical protein	BU251_02055	26	10	2	4	3	9	4
GNAT family N-acetyltransferase	BU251_04030	17	11	1	3	4	9	2
imidazole glycerol phosphate synthase subunit HisF	BU251_05070	31	9	3	1	1	12	1
16S rRNA (guanine(966)-N(2))-methyltransferase RsmD	BU251_05440	20	11	2	2	2	10	1
ribosomal large subunit pseudouridine synthase D	BU251_05675	34	10	4	3	0	10	2
fumarate hydratase	BU251_01625	30	12	3	1	1	9	2
UDP-glucose 4-epimerase	BU251_02235	37	10	5	3	1	10	1
hypothetical protein	BU251_03005	41	10	8	2	3	10	3
hypothetical protein	BU251_07870	15	11	2	6	2	6	1
phosphate transport system regulatory protein PhoU	BU251_09090	23	12	1	0	0	10	8

FAD-dependent pyridine nucleotide-disulfide oxidoreductase	BU251_01590	42	7	4	1	1	13	1
hypothetical protein	BU251_02165	14	9	2	4	1	9	1
crossover junction endodeoxyribonuclease RuvC	BU251_03935	18	12	1	2	2	8	1
RNA-binding transcriptional accessory protein	BU251_05975	81	8	11	2	2	12	3
hypothetical protein	BU251_06995	35	10	1	2	3	9	0
N-acetylmuramoyl-L-alanine amidase	BU251_07290	29	9	1	2	2	11	1
thiol:disulfide oxidoreductase related to ResA	BU251_07350	18	9	1	3	1	9	0
shikimate kinase I	BU251_00955	19	12	1	0	0	9	1
50S ribosomal protein L16	BU251_03125	16	9	1	3	0	9	1
hypothetical protein	BU251_05455	26	9	1	3	1	9	1
hypothetical protein	BU251_05640	64	9	9	1	1	11	3
hypothetical protein	BU251_06775	21	11	4	2	3	8	1
hypothetical protein	BU251_08705	13	10	3	2	3	9	1
iron-sulfur cluster assembly protein SufB	BU251_02295	40	8	0	3	0	9	0
ribosome-recycling factor	BU251_02440	60	13	11	0	0	7	3
50S ribosomal protein L18	BU251_03170	10	8	1	6	1	7	1
hypothetical protein	BU251_04345	39	11	4	1	1	9	8
hypothetical protein	BU251_05445	45	12	2	0	0	9	2
protein containing General secretory system II	BU251_05630	17	9	0	2	3	9	1
ATP-dependent RNA helicase DOB1	BU251_06270	73	10	6	2	2	9	0
DNA repair protein	BU251_06990	21	9	0	1	1	10	3
site-specific DNA-methyltransferase	BU251_08755	38	11	8	0	0	10	8
hypothetical protein	BU251_00985	49	8	2	2	2	11	2
phosphoribosylanthranilate isomerase	BU251_01355	23	11	4	1	1	8	0
endonuclease III	BU251_01440	25	8	3	2	3	10	1
gamma-D-glutamyl-L-lysine dipeptidyl-peptidase	BU251_01700	36	9	0	1	1	10	2
3-oxoadipate enol-lactonase	BU251_02420	33	11	1	2	0	7	1
NADH-ubiquinone oxidoreductase chain C	BU251_04520	18	10	2	5	1	6	2
hypothetical protein	BU251_05250	26	7	2	0	0	13	6

rubrerythrin family protein	BU251_06435	32	12	1	1	1	7	1
thioredoxin reductase	BU251_00500	32	10	1	1	1	9	2
lipopolysaccharide heptosyltransferase II	BU251_01015	40	10	4	3	1	7	2
transcription elongation factor GreA	BU251_01570	18	9	2	2	2	9	4
TPR Domain containing protein	BU251_02415	21	10	1	0	0	9	4
hypothetical protein	BU251_04080	81	6	8	2	2	12	2
biotin--[acetyl-CoA-carboxylase] ligase	BU251_04750	29	10	1	2	2	8	1
UDP-N-acetylmuramoylalanine--D-glutamate ligase	BU251_05760	46	6	4	2	0	11	1
hypothetical protein	BU251_07000	18	8	3	2	2	10	1
exodeoxyribonuclease VII large subunit	BU251_09395	43	10	1	0	0	9	4
50S ribosomal protein L20	BU251_09465	14	8	1	2	3	9	6
hypothetical protein	BU251_02065	26	10	6	2	2	7	3
hypothetical protein	BU251_07495	33	11	4	0	0	8	1
cysteine desulfurase NifS	BU251_00355	43	9	3	0	0	9	4
nucleotide exchange factor GrpE	BU251_02925	23	6	0	3	4	10	5
3-oxoacyl-[acyl-carrier-protein] synthase, KASII	BU251_03285	46	9	2	2	0	8	2
hypothetical protein	BU251_05480	14	6	8	5	1	8	3
[NiFe] hydrogenase metallocenter assembly protein HypD	BU251_07820	40	6	3	0	0	12	1
hypothetical protein	BU251_02425	46	7	1	1	1	10	3
hypothetical protein	BU251_04000	21	10	2	3	4	5	7
hypothetical protein	BU251_04375	37	7	4	3	4	8	3
hypothetical protein	BU251_08175	27	9	1	0	0	9	1
hypothetical protein	BU251_00080	59	10	8	0	0	7	3
protease	BU251_00340	19	7	3	3	0	7	1
polysaccharide deacetylase	BU251_01010	30	9	1	1	1	7	0
1-deoxy-D-xylulose-5-phosphate reductoisomerase	BU251_01145	42	8	1	0	0	9	1
formiminotetrahydrofolate cyclodeaminase	BU251_01270	18	9	1	0	0	9	1
hypothetical protein	BU251_01425	42	9	5	3	1	6	3
type I methionyl aminopeptidase	BU251_03195	27	7	3	1	1	9	3

hypothetical protein	BU251_03630	15	8	0	3	1	6	0
general secretion pathway protein B	BU251_03700	16	9	1	0	0	8	0
pantetheine-phosphate adenylyltransferase	BU251_05435	18	7	1	3	4	8	1
UDP-N-acetylglucosamine--N-acetylmuramyl-(pentapeptide) pyrophosphoryl-undecaprenol N-acetylglucosamine transferase	BU251_05750	39	7	2	3	1	8	4
phosphate ABC transporter ATP-binding protein	BU251_06645	28	5	3	0	0	12	4
ADP-ribose pyrophosphatase	BU251_07270	20	7	3	2	0	8	1
glycine cleavage system protein H	BU251_07315	14	6	1	3	1	8	0
hypothetical protein	BU251_08435	15	8	3	1	1	8	3
diguanylate cyclase/phosphodiesterase (GGDEF & EAL domains) with PAS/PAC sensor(s)	BU251_02970	39	8	3	1	1	8	6
50S ribosomal protein L14	BU251_03140	13	8	2	3	1	6	3
hypothetical protein	BU251_03595	27	8	0	2	2	7	4
TPR domain protein	BU251_05745	31	6	4	3	1	9	4
hypothetical protein	BU251_05845	21	8	1	2	3	7	2
hypothetical protein	BU251_06110	28	9	2	0	0	8	0
glycoside hydrolase	BU251_06450	43	7	6	2	0	8	2
hypothetical protein	BU251_07345	28	9	5	3	0	5	1
electron transport complex protein RnfD	BU251_07560	34	8	6	1	1	8	1
DNA-binding response regulator	BU251_09110	26	10	3	0	0	7	2
hypothetical protein	BU251_01755	17	8	1	0	0	9	4
GGDEF/response regulator receiver domain protein	BU251_02965	49	8	4	0	0	9	6
hypothetical protein	BU251_03750	25	8	3	3	1	5	1
hypothetical protein	BU251_04360	46	7	4	0	0	9	1
hypothetical protein	BU251_06485	44	6	0	1	1	9	1
hypothetical protein	BU251_02740	10	6	0	2	2	8	4
GTPase HflX	BU251_02900	47	10	1	0	0	6	1
50S ribosomal protein L11	BU251_03035	15	9	4	0	0	7	1
septum formation protein Maf	BU251_06045	49	9	4	0	0	7	1

ferric siderophore transport system, biopolymer transport protein ExbB	BU251_07595	22	9	1	0	0	7	2
6-carboxytetrahydropterin synthase QueD	BU251_01605	15	7	4	2	2	7	1
heavy metal translocating P-type ATPase	BU251_01785	82	4	5	3	4	9	8
GNAT family N-acetyltransferase	BU251_02570	18	7	4	4	1	5	0
hypothetical protein	BU251_03570	36	8	0	0	0	7	0
thymidylate synthase	BU251_04840	29	6	1	3	1	7	2
hypothetical protein	BU251_04850	15	9	3	0	0	6	1
hypothetical protein	BU251_06950	22	8	0	0	0	7	0
hypothetical protein	BU251_06980	26	6	0	0	0	9	0
hypothetical protein	BU251_07175	22	6	2	0	0	10	5
hypothetical protein	BU251_09355	32	8	1	2	0	5	1
response regulator	BU251_01435	15	6	1	1	1	8	1
hypothetical protein	BU251_02250	30	8	4	0	0	7	0
putative metallophosphoesterase	BU251_03740	18	5	1	4	1	7	1
nucleotidyl transferase	BU251_04325	27	9	1	0	0	6	0
pyridoxamine 5'-phosphate oxidase	BU251_05460	16	7	2	0	0	8	1
ribosome silencing factor	BU251_06005	13	6	3	2	0	7	2
hypothetical protein	BU251_07010	35	7	3	1	1	7	1
hypothetical protein	BU251_08180	24	8	6	3	1	4	6
cupin	BU251_09130	12	8	1	1	1	6	2
sugar ABC transporter permease	BU251_00195	40	9	5	2	3	4	5
hypothetical protein	BU251_00450	18	7	2	0	0	8	2
outer membrane efflux protein precursor	BU251_02060	50	8	2	1	1	6	2
metal-dependent hydrolase of the beta-lactamase superfamily	BU251_02140	29	8	4	1	1	6	1
hypothetical protein	BU251_04165	42	7	5	2	2	6	4
hypothetical protein	BU251_04465	14	5	0	1	1	8	6
secreted protein containing Prepilin-type cleavage/methylation	BU251_05170	15	6	3	3	1	6	1

hypothetical protein	BU251_05690	15	6	2	0	0	9	1
transmembrane and TPR repeat-containing protein	BU251_06315	32	7	1	2	2	6	1
cupin	BU251_07280	11	6	1	1	1	8	1
hypothetical protein	BU251_07890	24	7	3	0	0	7	1
phosphate regulon transcriptional regulatory protein PhoB (SphR)	BU251_02310	14	5	1	3	0	6	0
hypothetical protein	BU251_03610	26	8	2	0	0	6	1
ATP-dependent DNA helicase UvrD/PcrA, proteobacterial protein	BU251_04660	78	6	8	0	0	8	0
biopolymer transport protein ExbD	BU251_05245	14	8	1	1	1	5	1
hypothetical protein	BU251_06220	14	8	0	0	0	6	1
hypothetical protein	BU251_07415	55	6	5	0	0	8	0
RNA polymerase sigma factor RpoE	BU251_07660	21	6	3	0	0	8	2
hypothetical protein	BU251_07765	17	8	1	1	1	5	1
TrpB-like pyridoxal-phosphate dependent enzyme	BU251_08145	50	8	2	0	0	6	4
tRNA (N6-threonylcarbamoyladenosine(37)-N6)-methyltransferase TrmO	BU251_08690	19	7	2	1	1	6	1
30S ribosomal protein S6	BU251_00640	12	7	1	1	1	5	4
hypothetical protein	BU251_00700	27	5	3	0	0	8	4
preprotein translocase subunit SecY	BU251_03185	50	7	4	0	0	6	1
hypothetical protein	BU251_04320	74	5	1	2	3	7	2
RNA-splicing ligase RtcB	BU251_06780	53	4	5	0	0	10	2
secondary thiamine-phosphate synthase enzyme	BU251_08135	16	7	0	0	0	6	0
5,10-methylenetetrahydrofolate reductase	BU251_01280	28	7	2	2	0	4	0
hypothetical protein	BU251_01480	9	6	1	3	1	5	1
phosphatidylethanolamine-binding protein	BU251_02175	22	1	1	3	0	9	1
sigma-54 dependent transcriptional regulator/response regulator	BU251_02755	23	7	3	0	0	6	1
hypothetical protein	BU251_03365	31	5	3	0	0	8	2
D-alanyl-D-alanine carboxypeptidase	BU251_04605	30	7	3	1	1	5	2
hypothetical protein	BU251_04650	17	5	1	3	1	6	1

transmembrane and TPR repeat-containing protein CG5038	BU251_04940	75	6	4	3	4	5	4
protein containing Prepilin-type cleavage/methylation	BU251_05175	19	9	1	0	0	4	5
polyphosphoinositide phosphatase	BU251_05210	18	7	1	0	0	6	1
hypothetical protein	BU251_05450	8	6	1	1	1	6	0
hypothetical protein	BU251_07090	19	7	1	1	1	5	0
tRNA uridine-5-carboxymethylaminomethyl(34) synthesis GTPase MnmE	BU251_08020	52	7	4	0	0	6	1
hypothetical protein	BU251_01205	22	6	4	2	2	5	0
50S ribosomal protein L23	BU251_03100	11	6	2	1	1	6	1
50S ribosomal protein L24	BU251_03145	12	5	1	0	0	7	1
hypothetical protein	BU251_03580	40	6	1	0	0	6	1
hypothetical protein	BU251_03590	16	5	2	0	0	8	2
hypothetical protein	BU251_04340	38	5	4	1	1	7	6
riboflavin synthase bacterial/eukaryotic	BU251_05875	21	8	5	0	0	5	2
30S ribosomal protein S15	BU251_05960	10	5	0	2	3	5	0
UDP-3-O-acyl-N-acetylglucosamine deacetylase	BU251_06375	23	6	1	0	0	7	5
archease	BU251_06785	13	7	1	2	2	4	0
hypothetical protein	BU251_07015	17	5	1	3	1	5	1
cold-shock protein	BU251_01795	7	3	0	5	6	4	6
hypothetical protein	BU251_01885	63	7	9	1	1	4	3
hypothetical protein	BU251_04140	43	6	1	0	0	6	1
methionyl-tRNA formyltransferase	BU251_04255	34	4	6	1	1	7	2
rRNA small subunit methyltransferase A	BU251_05025	31	5	1	0	0	7	1
transcription antitermination factor NusB	BU251_05890	16	6	1	0	0	6	3
hypothetical protein	BU251_06765	23	6	1	0	0	6	1
hypothetical protein	BU251_08685	34	4	1	1	1	7	1
tyrosine recombinase XerC	BU251_00980	33	6	4	0	0	5	1
hypothetical protein	BU251_03310	43	7	6	0	0	4	0

nitroreductase family protein	BU251_03980	19	6	0	1	1	4	1
hypothetical protein	BU251_04150	46	6	4	0	0	6	4
hypothetical protein	BU251_04160	41	5	4	1	1	5	1
hypothetical protein	BU251_04480	22	6	1	0	0	6	4
tRNA (adenosine(37)-N6)-threonylcarbamoyltransferase complex ATPase subunit type 1 TsaE	BU251_06090	17	5	1	2	0	5	1
TPR repeat	BU251_00710	74	5	1	3	1	3	0
fumarate hydratase	BU251_01630	20	6	1	0	0	5	1
dTDP-4-dehydrorhamnose 3,5-epimerase	BU251_02240	20	2	3	1	1	8	1
phosphoribosyl transferase domain protein	BU251_02270	25	6	0	0	0	5	1
hypothetical protein	BU251_02400	40	5	2	0	0	6	4
hypothetical protein	BU251_03835	35	6	5	0	0	5	1
excinuclease ABC subunit C	BU251_07135	48	6	4	0	0	5	3
transcriptional regulator NrdR	BU251_07195	18	6	1	0	0	5	2
peptide deformylase	BU251_02115	16	4	1	2	3	5	1
hypothetical protein	BU251_02395	26	5	0	0	0	5	1
AmmeMemoRadiSam system protein B	BU251_03830	29	7	5	0	0	4	1
cytidine deaminase	BU251_07205	17	5	1	1	1	4	0
ribose 5-phosphate isomerase B	BU251_07215	17	4	5	0	0	7	2
hypothetical protein	BU251_08060	28	5	4	0	0	6	2
hypothetical protein	BU251_00145	8	3	4	2	3	5	3
multidrug ABC transporter ATP-binding protein	BU251_00750	35	5	1	0	0	5	0
hypothetical protein	BU251_01890	56	6	3	0	0	4	1
purine nucleoside phosphorylase	BU251_02135	17	6	1	0	0	4	1
hypothetical protein	BU251_03845	28	4	1	0	0	6	5
protein-arginine kinase activator protein	BU251_06195	20	6	2	0	0	4	6
hypothetical protein	BU251_06530	15	7	1	0	0	3	0
hypothetical protein	BU251_07900	20	5	0	0	0	5	1
flavin reductase	BU251_08165	20	5	1	0	0	5	1

Fe-S cluster assembly scaffold protein NifU	BU251_09415	14	6	1	0	0	4	0
pyruvate:ferredoxin oxidoreductase, delta subunit	BU251_00530	9	2	3	0	0	7	3
hypothetical protein	BU251_00785	68	7	2	0	0	3	1
NADP-reducing hydrogenase HdnB	BU251_02010	13	4	1	1	1	5	1
transketolase, N-terminal section	BU251_02220	31	4	3	0	0	5	0
SAM-dependent methyltransferase	BU251_02375	31	5	1	1	1	4	1
K+/H+ antiporter	BU251_02790	53	4	1	0	0	6	2
hypothetical protein	BU251_04110	40	4	3	2	2	4	5
hypothetical protein	BU251_04355	60	5	7	1	1	3	4
hypothetical protein	BU251_07725	22	0	0	9	4	0	0
hypothetical protein	BU251_09450	55	6	8	0	0	3	4
phosphoglycolate phosphatase	BU251_00265	26	2	3	1	1	6	4
tRNA preQ1(34) S-adenosylmethionine ribosyltransferase-isomerase QueA	BU251_01230	39	4	5	0	0	5	3
CTP:molybdopterin cytidylyltransferase	BU251_01530	22	5	0	0	0	4	1
cold-shock protein	BU251_03490	7	0	0	0	0	9	12
hypothetical protein	BU251_03665	9	3	1	1	1	5	1
hypothetical protein	BU251_03680	22	5	1	0	0	4	1
hypothetical protein	BU251_04990	17	6	0	0	0	3	4
phosphoribosyl-AMP cyclohydrolase	BU251_05065	14	5	1	0	0	4	0
ribosomal protein S12p methylthiotransferase	BU251_05940	50	4	2	2	3	3	1
4-hydroxy-3-methylbut-2-enyl diphosphate reductase	BU251_06320	31	4	5	0	0	5	7
RNA pseudouridine synthase	BU251_06490	28	4	0	0	0	5	6
recombination protein RecR	BU251_06520	22	3	1	0	0	6	1
hypothetical protein	BU251_06695	47	9	1	0	0	0	0
A/G-specific adenine glycosylase	BU251_06715	40	7	7	0	0	2	2
phosphoribosylformylglycinamidine synthase I	BU251_07245	29	6	2	0	0	3	4
V-type ATP synthase subunit K	BU251_08205	15	7	3	0	0	2	2
tRNA guanosine(34) transglycosylase Tgt	BU251_01240	42	3	0	0	0	5	1

membrane fusion component of tripartite multidrug resistance system	BU251_01770	32	4	1	1	1	4	1
MBL fold metallo-hydrolase	BU251_02285	32	4	2	0	0	5	1
hypothetical protein	BU251_04290	37	5	7	0	0	3	0
hypothetical protein	BU251_04980	12	5	1	0	0	3	1
hypothetical protein	BU251_06050	44	3	0	1	1	4	0
hypothetical protein	BU251_07985	58	7	1	0	0	1	1
5-formyltetrahydrofolate cyclo-ligase	BU251_09410	22	4	1	1	1	4	1
hypothetical protein	BU251_00115	14	3	4	0	0	5	1
glycosyl transferase, family 2	BU251_00790	27	4	1	0	0	4	0
undecaprenyl diphosphate synthase	BU251_01135	28	3	0	1	1	4	1
hypothetical protein	BU251_01575	18	3	4	0	0	5	1
hypothetical protein	BU251_02735	8	3	1	1	1	4	1
hypothetical protein	BU251_03745	64	6	8	0	0	2	3
secondary thiamine-phosphate synthase enzyme	BU251_04640	17	5	2	0	0	3	0
hypothetical protein	BU251_06885	26	4	5	0	0	4	0
[NiFe] hydrogenase metallocenter assembly protein HypF	BU251_07830	43	5	6	0	0	3	4
hypothetical protein	BU251_08160	20	4	1	0	0	4	1
O-acetyl-ADP-ribose deacetylase	BU251_00810	18	4	1	0	0	3	0
ribosome maturation factor RimP	BU251_01175	18	4	1	0	0	4	1
hypothetical protein	BU251_02365	26	2	0	1	1	4	1
proline iminopeptidase	BU251_03505	32	4	6	0	0	3	1
hypothetical protein	BU251_03870	24	4	1	0	0	4	1
hypothetical protein	BU251_03875	13	3	4	2	2	3	1
DNA polymerase III subunit delta'	BU251_06125	35	4	5	0	0	4	5
3-oxoacyl-[acyl-carrier protein] reductase	BU251_06470	28	4	2	0	0	4	1
hypothetical protein	BU251_06720	37	4	1	0	0	4	2
hypothetical protein	BU251_06900	34	4	0	0	0	3	4
hypothetical protein	BU251_06915	18	4	1	0	0	3	0

peptide chain release factor 2	BU251_07120	41	4	2	1	1	3	4
magnesium transporter	BU251_09075	51	3	1	0	0	5	6
TPR domain protein	BU251_00585	36	4	0	0	0	3	1
ABC-type multidrug transport system, permease component	BU251_00755	43	4	1	0	0	3	4
RNA polymerase sigma factor RpoE	BU251_01465	23	5	1	0	0	2	0
hypothetical protein	BU251_01825	15	4	1	0	0	3	1
K+/H+ antiporter	BU251_02335	53	3	4	0	0	4	1
3-methyl-2-oxobutanoate hydroxymethyltransferase	BU251_04595	29	3	0	0	0	4	1
undecaprenyl phosphate-alpha-4-amino-4-deoxy-L-arabinose arabinosyl transferase	BU251_06350	64	4	5	1	1	2	3
hypothetical protein	BU251_06955	21	2	2	0	0	5	0
hypothetical protein	BU251_07730	49	4	1	0	0	3	1
hypothetical protein	BU251_08270	30	1	1	0	0	6	1
hypothetical protein	BU251_08655	46	4	2	1	1	2	3
ferrous iron transport protein A	BU251_00300	9	3	1	0	0	3	0
hypothetical protein	BU251_02630	9	0	0	0	0	6	3
hypothetical protein	BU251_02825	10	3	0	0	0	3	1
hypothetical protein	BU251_04175	48	3	4	0	0	4	1
regulatory protein RecX	BU251_05100	18	3	1	0	0	3	1
hypothetical protein	BU251_05835	50	2	3	0	0	4	0
hypothetical protein	BU251_06325	47	2	3	0	0	4	0
hypothetical protein	BU251_06625	31	5	3	0	0	1	1
hypothetical protein	BU251_07150	26	4	1	0	0	3	1
hypothetical protein	BU251_08085	57	3	4	0	0	4	2
dihydroorotase	BU251_08310	46	2	3	0	0	4	0
ATP synthase gamma chain	BU251_08475	36	3	1	0	0	3	1
hypothetical protein	BU251_09050	27	5	2	0	0	2	2
hypothetical protein	BU251_09095	20	3	1	0	0	4	5

hypothetical protein	BU251_01040	34	2	2	0	0	4	1
molybdenum ABC transporter ATP-binding protein	BU251_01695	31	2	2	0	0	4	3
MFS transporter	BU251_01995	43	2	3	3	4	1	1
retron-type RNA-directed DNA polymerase	BU251_02720	45	3	4	0	0	3	4
hypothetical protein	BU251_03605	26	3	4	0	0	3	1
tRNA pseudouridine(55) synthase TruB	BU251_05815	26	2	0	0	0	4	2
metal-dependent phosphoesterases (PHP family)	BU251_05885	31	3	4	0	0	3	1
phosphate ABC transporter permease subunit PstC	BU251_06660	32	2	2	1	1	4	1
hypothetical protein	BU251_07755	15	2	2	0	0	4	1
hypothetical protein	BU251_08350	20	2	2	0	0	4	1
hypothetical protein	BU251_09420	23	2	0	0	0	4	1
transcriptional regulator	BU251_00335	17	2	2	0	0	4	1
1-acyl-sn-glycerol-3-phosphate acyltransferase	BU251_00445	29	2	2	0	0	4	1
hypothetical protein	BU251_00725	14	3	0	0	0	2	0
DipZ protein	BU251_01450	24	4	2	0	0	2	2
hypothetical protein	BU251_01750	20	2	2	0	0	4	1
hypothetical protein	BU251_02090	43	4	1	0	0	2	2
DNA-binding response regulator KdpE	BU251_02300	14	3	1	0	0	2	3
hypothetical protein	BU251_02575	10	3	0	0	0	2	0
transcription elongation factor GreAB	BU251_02830	16	2	2	0	0	4	2
hypothetical protein	BU251_02905	10	2	3	0	0	3	0
hypothetical protein	BU251_04040	22	4	5	0	0	2	2
phenylacetate-coenzyme A ligase	BU251_04100	36	3	4	0	0	2	3
D-erythrose-4-phosphate dehydrogenase	BU251_05230	18	3	4	0	0	3	1
tRNA pseudouridine(38-40) synthase TruA	BU251_05365	30	3	0	0	0	2	0
hypothetical protein	BU251_05375	18	4	2	0	0	2	2
50S ribosomal protein L32	BU251_05425	9	4	1	0	0	2	2
UDP-N-acetylenolpyruvoylglucosamine reductase	BU251_05735	33	3	4	0	0	3	1
cold-shock protein	BU251_06340	7	0	0	0	0	5	1

tRNA-specific adenosine deaminase	BU251_06905	18	2	3	0	0	3	0
hypothetical protein	BU251_06925	14	3	1	0	0	3	1
tRNA dihydrouridine synthase DusB	BU251_07165	36	3	4	0	0	3	1
hypothetical protein	BU251_07460	11	3	1	0	0	2	0
hypothetical protein	BU251_08050	37	3	4	0	0	2	3
polysaccharide deacetylase	BU251_00415	32	1	1	1	1	3	1
aspartate 1-decarboxylase	BU251_02110	13	1	1	0	0	4	1
hypothetical protein	BU251_04205	13	2	2	0	0	3	0
hypothetical protein	BU251_06930	25	0	0	0	0	5	2
hypothetical protein	BU251_06965	18	2	3	0	0	3	1
hypothetical protein	BU251_07505	21	4	2	0	0	1	1
hypothetical protein	BU251_07925	17	2	3	0	0	3	1
permease	BU251_08260	29	3	1	0	0	2	3
Type II/IV secretion system protein TadC, associated with Flp pilus assembly	BU251_00155	34	2	2	0	0	3	4
hypothetical protein	BU251_00470	14	4	0	0	0	0	0
SsrA-binding protein	BU251_01410	18	3	1	0	0	1	1
acetyltransferase	BU251_02355	26	2	0	0	0	2	0
hypothetical protein	BU251_03825	13	2	2	0	0	3	4
CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase	BU251_05935	22	0	0	0	0	4	0
beta-phosphoglucomutase	BU251_06790	24	1	1	0	0	3	0
biopolymer transport protein ExbD/TolR	BU251_07590	16	4	1	0	0	0	0
formate hydrogenlyase subunit 5	BU251_08625	59	2	2	0	0	3	4
hypothetical protein	BU251_09350	25	1	1	0	0	3	1
hypothetical protein	BU251_09445	18	4	6	0	0	0	0
ABC transporter permease	BU251_00760	43	1	1	3	4	0	0
protein containing Type IV pilus assembly PilZ domain	BU251_00795	15	2	2	0	0	2	3
putative deoxyribonuclease YjjV	BU251_02265	28	2	2	0	0	2	0

phosphate transport system regulatory protein PhoU	BU251_02805	23	1	1	0	0	3	1
heat-inducible transcription repressor HrcA	BU251_02920	29	2	2	0	0	2	3
tRNA pseudouridine 13 synthase	BU251_03670	44	2	2	0	0	2	3
AmmeMemoRadiSam system radical SAM enzyme	BU251_05155	43	2	2	0	0	2	3
hypothetical protein	BU251_05360	59	2	2	0	0	2	3
riboflavin biosynthesis protein RibD	BU251_05880	40	3	4	0	0	1	1
damage-inducible protein CinA	BU251_05905	16	1	1	0	0	3	1
large-conductance mechanosensitive channel	BU251_06495	10	3	1	0	0	1	1
phosphoribosyltransferase	BU251_06820	23	2	3	0	0	2	2
hypothetical protein	BU251_07740	28	3	1	0	0	1	1
hypothetical protein	BU251_00025	30	2	2	0	0	2	2
hypothetical protein	BU251_00075	14	2	0	0	0	1	1
hypothetical protein	BU251_00410	41	2	3	0	0	1	1
HesA/MoeB/ThiF family protein	BU251_02275	27	1	1	0	0	2	3
30S ribosomal protein S19	BU251_03110	11	2	0	0	0	1	1
hypothetical protein	BU251_04600	31	2	2	0	0	2	2
hypothetical protein	BU251_05115	110	2	2	0	0	2	2
1-acyl-sn-glycerol-3-phosphate acyltransferase	BU251_05525	22	2	0	0	0	1	1
cation efflux protein	BU251_06300	34	2	3	0	0	1	1
glutamate synthase large subunit	BU251_06815	167	0	0	0	0	3	4
hypothetical protein	BU251_06970	26	3	0	0	0	0	0
hypothetical protein	BU251_07065	51	2	3	0	0	1	1
electron transport complex protein RnfB	BU251_07545	29	2	3	0	0	1	1
hypothetical protein	BU251_07960	16	2	3	1	1	0	0
hypothetical protein	BU251_08000	10	1	1	0	0	2	0
hypothetical protein	BU251_08125	28	1	1	0	0	2	0
hypothetical protein	BU251_09060	7	2	2	0	0	2	2
hypothetical protein	BU251_00040	10	1	1	0	0	2	2
sugar ABC transporter permease	BU251_00200	35	0	0	0	0	3	4

tRNA (5-methylaminomethyl-2-thiouridylate)-methyltransferase	BU251_00310	40	1	1	0	0	2	2
30S ribosomal protein S18	BU251_00650	13	1	1	0	0	2	2
hypothetical protein	BU251_03575	18	3	1	0	0	0	0
thiamine-phosphate diphosphorylase	BU251_03765	21	0	0	0	0	3	1
acyl-phosphate glycerol 3-phosphate acyltransferase	BU251_03880	24	3	4	0	0	0	0
hypothetical protein	BU251_04155	43	1	1	0	0	2	2
Na(+) H(+) antiporter subunit A	BU251_04550	67	2	2	0	0	1	1
phosphate ABC transporter, permease protein PstA	BU251_06655	31	2	2	0	0	1	1
hypothetical protein	BU251_06975	27	2	2	0	0	1	1
hypothetical protein	BU251_08130	20	2	2	0	0	1	1
hypothetical protein	BU251_08760	55	1	1	0	0	2	2
catabolite repression HPr-like protein Crh	BU251_00875	11	0	0	0	0	2	0
tRNA(Cytosine32)-2-thiocytidine synthetase	BU251_01485	29	2	3	0	0	0	0
[FeFe]-hydrogenase maturation protein HydF	BU251_02050	45	1	1	0	0	1	1
four helix bundle protein	BU251_02730	15	1	1	0	0	1	1
CDP-diacylglycerol--glycerol-3-phosphate 3-phosphatidyltransferase	BU251_03885	22	1	1	0	0	1	1
hypothetical protein	BU251_04075	38	1	1	0	0	1	1
hypothetical protein	BU251_04190	10	0	0	0	0	2	3
hypothetical protein	BU251_04310	48	2	3	0	0	0	0
hypothetical protein	BU251_05580	14	2	0	0	0	0	0
hypothetical protein	BU251_06245	27	2	3	0	0	0	0
hypothetical protein	BU251_06430	18	1	1	0	0	1	1
hypothetical protein	BU251_06455	17	2	0	0	0	0	0
UDP-N-acetylmuramate--L-alanine ligase	BU251_06500	11	1	1	0	0	1	1
hypothetical protein	BU251_06985	17	1	1	0	0	1	1
hypothetical protein	BU251_08330	59	1	1	1	1	0	0
hypothetical protein	BU251_08795	26	2	0	0	0	0	0

DNA-directed RNA polymerase subunit omega	BU251_09510	8	1	1	0	0	1	1
type II secretion system protein F	BU251_00150	31	2	2	0	0	0	0
hypothetical protein	BU251_01360	11	2	2	0	0	0	0
RND family efflux transporter MFP subunit	BU251_03420	32	0	0	0	0	2	2
ATP phosphoribosyltransferase regulatory subunit	BU251_03500	7	2	2	0	0	0	0
hypothetical protein	BU251_03715	10	0	0	0	0	2	2
hypothetical protein	BU251_04085	38	0	0	0	0	2	2
hypothetical protein	BU251_04120	42	2	2	0	0	0	0
hypothetical protein	BU251_04135	38	0	0	0	0	2	2
hypothetical protein	BU251_04460	21	0	0	0	0	2	2
NADH-ubiquinone oxidoreductase chain H	BU251_04510	35	0	0	0	0	2	2
hypothetical protein	BU251_05235	7	2	2	0	0	0	0
nicotinamidase	BU251_06795	24	2	2	0	0	0	0
hypothetical protein	BU251_08025	52	0	0	0	0	2	2
endonuclease	BU251_08090	25	0	0	0	0	2	2
hypothetical protein	BU251_08790	114	0	0	0	0	2	2
hypothetical protein	BU251_00435	20	0	0	0	0	1	1
periplasmic divalent cation tolerance protein CutA	BU251_00505	12	0	0	0	0	1	1
anti-sigma-W factor RsiW	BU251_01470	20	0	0	0	0	1	1
xanthine dehydrogenase iron-sulfur subunit	BU251_01520	17	0	0	0	0	1	1
hypothetical protein	BU251_01895	12	1	1	0	0	0	0
transcriptional regulator	BU251_01900	9	0	0	0	0	1	1
hypothetical protein	BU251_02280	11	1	1	0	0	0	0
hypothetical protein	BU251_02390	13	0	0	0	0	1	1
gamma-glutamylcyclotransferase	BU251_02450	17	1	1	0	0	0	0
hypothetical protein	BU251_03345	25	0	0	0	0	1	1
hypothetical protein	BU251_03720	22	0	0	0	0	1	1
hypothetical protein	BU251_04200	13	1	1	0	0	0	0
hypothetical protein	BU251_04410	45	1	1	0	0	0	0

hydrogenase-4 component B / Formate hydrogenlyase subunit 3	BU251_04545	51	1	1	0	0	0	0
tRNA (adenosine(37)-N6)-threonylcarbamoyltransferase complex transferase subunit TsaD	BU251_04995	35	0	0	0	0	1	1
hypothetical protein	BU251_05240	22	1	1	0	0	0	0
diadenosine tetraphosphatase	BU251_05860	27	0	0	0	0	1	1
hypothetical protein	BU251_05980	10	0	0	0	0	1	1
hypothetical protein	BU251_05985	13	1	1	0	0	0	0
ABC-type transport system involved in resistanceto organic solvents, permease component	BU251_06180	28	0	0	0	0	1	1
gltD	BU251_06810	51	0	0	0	0	1	1
hypothetical protein	BU251_07425	17	0	0	0	0	1	1
hypothetical protein	BU251_08100	44	0	0	0	0	1	1
hypothetical protein	BU251_08235	20	1	1	0	0	0	0
formate hydrogenlyase subunit 7	BU251_08620	19	0	0	0	0	1	1
hypothetical protein	BU251_08770	29	0	0	0	0	1	1
K+/H+ antiporter	BU251_09115	53	0	0	1	1	0	0
hypothetical protein	BU251_09125	14	1	1	0	0	0	0