

Comparing polysaccharide decomposition among the type strains *Gramella echinicola* KMM 6050^T (DSM 19838^T) and *Gramella portivictoriae* UST040801-001^T (DSM 23547^T), and emended description of *Gramella echinicola* Nedashkovskaya et al. 2005 emend. Shahina et al. 2014 and *Gramella portivictoriae* Lau et al. 2005

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Additional file 1 – Supporting Information – Tables

Table S1: Peptidases or homologues in the genome of *Gramella echinicola* DSM 19838^T.

Accession No.	family	Peptidase or homologue
WP_026932724.1	M28X	family M28 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932733.1	M43B	ulilysin (<i>Gramella forsetii</i>)
WP_026932742.1	S33	SCO7095-type peptidase (<i>Gramella forsetii</i>)
WP_026932743.1	M24B	subfamily M24B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932773.1	M14X	family M14 non-peptidase homologues (<i>Croceibacter atlanticus</i>)
WP_026932777.1	A08	signal peptidase II (<i>Gramella forsetii</i>)
WP_026932804.1	M50B	subfamily M50B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932839.1	S12	family S12 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026932851.1	U32	family U32 unassigned peptidases (<i>Elizabethkingia anophelis</i>)
WP_026932891.1	M23B	subfamily M23B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932916.1	S41A	CtpC peptidase (<i>Zobellia galactanivorans</i>)
WP_026932918.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932919.1	S08A	subfamily S8A unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026932932.1	C40	family C40 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932938.1	S12	family S12 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026932956.1	S09A	prolyl oligopeptidase (<i>Gramella forsetii</i>)
WP_026932972.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932975.1	U32	family U32 unassigned peptidases (<i>Chthonomonas calidirosea</i>)
WP_026932978.1	C44	family C44 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026932996.1	T02	family T2 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933028.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933039.1	S09B	subfamily S9B unassigned peptidases (<i>Algoriphagus</i> sp. PR1)
WP_026933040.1	M28D	subfamily M28D unassigned peptidases (<i>Cellulophaga algicola</i>)
WP_026933047.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Pedobacter heparinus</i>)
WP_026933078.1	S12	family S12 unassigned peptidases
WP_026933102.1	S41A	CtpC peptidase (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026933117.1	S12	family S12 unassigned peptidases (<i>Marivirga tractuosa</i>)
WP_026933119.1	C56	family C56 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933125.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933171.1	M23B	Mername-AA292 peptidase (<i>Gramella forsetii</i>)
WP_026933172.1	S16	DNA repair protein RadA (<i>Escherichia coli</i>) (<i>Croceibacter atlanticus</i>)
WP_026933179.1	C44	glucosamine-fructose-6-phosphate aminotransferase
WP_026933183.1	M61	family M61 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933214.1	M16B	subfamily M16B non-peptidase homologues (<i>Robiginitalea biformata</i>)
WP_026933278.1	S09X	family S9 non-peptidase homologues
WP_026933290.1	S33	family S33 unassigned peptidases (<i>Carnobacterium</i> sp. WN1359)
WP_026933294.1	M79	family M79 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933298.1	S12	family S12 unassigned peptidases (<i>Cellulophaga lytica</i>)
WP_026933306.1	M24B	aminopeptidase P (bacteria) (<i>Gramella forsetii</i>)
WP_026933311.1	S33	family S33 non-peptidase homologues (<i>Microscilla marina</i>)
WP_026933312.1	M20A	subfamily M20A unassigned peptidases (<i>Fulvirga imtechensis</i>)

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Table S1: (continued)

Accession No.	family	Peptidase or homologue
WP_026933317.1	M20F	subfamily M20F unassigned peptidases (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026933337.1	M56	family M56 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933365.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933394.1	T02	Chryseobacterium meningosepticum-type N4-(beta-N-acetylglucosaminy1)-L-asparaginase (<i>Gramella forsetii</i>)
WP_026933400.1	S33	family S33 unassigned peptidases (<i>Pseudomonas mendocina</i>)
WP_026933464.1	S33	family S33 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933469.1	S14	peptidase Clp (type 1) (<i>Gramella forsetii</i>)
WP_026933476.1	M23B	Mername-AA292 peptidase (<i>Gramella forsetii</i>)
WP_026933502.1	M28E	subfamily M28E unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933517.1	M03A	subfamily M3A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933566.1	C26	family C26 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933597.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933616.1	S66	family S66 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933621.1	C44	AsnB protein (<i>Gramella forsetii</i>)
WP_026933639.1	S51	alpha-aspartyl dipeptidase (eukaryote) (<i>Gramella forsetii</i>)
WP_026933644.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933677.1	M41	Afg3-like protein 2 (<i>Gramella forsetii</i>)
WP_026933683.1	M14X	family M14 non-peptidase homologues (<i>Polaribacter</i> sp. MED152)
WP_026933697.1	C26	TRP3 protein
WP_026933711.1	C56	family C56 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026933763.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933764.1	M38	family M38 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026933770.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933778.1	M20B	peptidase T (<i>Gillisia limnaea</i>)
WP_026933868.1	S33	family S33 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933879.1	S09D	glutamyl endopeptidase C (<i>Gramella forsetii</i>)
WP_026933895.1	M20D	carboxypeptidase Ss1 (<i>Gillisia limnaea</i>)
WP_026933899.1	S33	CPO-A2 (<i>Streptomyces aureofaciens</i>)-type chloroperoxidase (<i>Gramella forsetii</i>)
WP_026933908.1	M79	family M79 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933911.1	M24X	family M24 non-peptidase homologues (<i>Leeuwenhoekia blandensis</i>)
WP_026933913.1	M01	family M1 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026933973.1	M16B	subfamily M16B non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933974.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026933979.1	C26	GMP synthase (<i>Gillisia limnaea</i>)
WP_026933980.1	C40	spr peptidase (<i>Thermodesulfobacterium</i> sp. OPB45)
WP_026933984.1	S08A	subfamily S8A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026933990.1	C26	CTP synthetase (<i>Zunongwangia profunda</i>)
WP_026934002.1	S09C	dpf-6 g.p. (<i>Caenorhabditis elegans</i>) (<i>Gramella forsetii</i>)
WP_026934004.1	S09X	family S9 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026934005.1	S09C	subfamily S9C unassigned peptidases
WP_026934014.1	C82	family C82 unassigned peptidases (<i>Chlorobium phaeobacteroides</i>)
WP_026934037.1	S41A	subfamily S41A non-peptidase homologues
WP_026934046.1	S15	family S15 unassigned peptidases (<i>Croceibacter atlanticus</i>)

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Table S1: (continued)

Accession No.	family	Peptidase or homologue
WP_026934070.1	S16	family S16 non-peptidase homologues (<i>Croceibacter atlanticus</i>)
WP_026934094.1	M20A	BT3549 putative peptidase (<i>Zobellia galactanivorans</i>)
WP_026934129.1	M12A	vertebrate tolloid-like 1 protein (<i>Gramella forsetii</i>)
WP_026934130.1	M12A	blastula protease 10 (<i>Paracentrotus</i>) (<i>Gramella forsetii</i>)
WP_026934134.1	S54	family S54 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934195.1	S10	family S10 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934198.1	M61	family M61 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934208.1	M03A	subfamily M3A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934216.1	M49	family M49 unassigned peptidases (<i>Pseudoalteromonas atlantica</i>)
WP_026934316.1	C45	family C45 unassigned peptidases (<i>Flavobacterium johnsoniae</i>)
WP_026934334.1	S12	family S12 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934379.1	M16B	subfamily M16B non-peptidase homologues (<i>Bacteroides</i> sp. CF50)
WP_026934415.1	M19	family M19 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934444.1	C40	family C40 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934459.1	C56	PfpI peptidase (<i>Gramella forsetii</i>)
WP_026934464.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026934494.1	M38	family M38 non-peptidase homologues (<i>Zunongwangia profunda</i>)
WP_026934520.1	M16X	family M16 unassigned peptidases (<i>Imtechella halotolerans</i>)
WP_026934596.1	S41A	subfamily S41A unassigned peptidases (<i>Croceibacter atlanticus</i>)
WP_026934606.1	C26	dihydro-orotase (N-terminal unit) (<i>Homo sapiens</i> -type) (<i>Ailuropoda melanoleuca</i>)
WP_026934627.1	C56	KIAA0361 protein (<i>Homo sapiens</i> -type) (<i>Gramella forsetii</i>)
WP_026934634.1	M43B	ulilysin (<i>Gramella forsetii</i>)
WP_026934639.1	M28E	subfamily M28E non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026934655.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934725.1	S01C	DegQ peptidase (<i>Krokinobacter</i> sp. 4H-3-7-5)
WP_026934743.1	M15D	vanX D-Ala-D-Ala dipeptidase (<i>Gramella forsetii</i>)
WP_026934770.1	M28A	subfamily M28A unassigned peptidases (<i>Psychroflexus torquis</i>)
WP_026934811.1	M38	1300019j08rik protein (<i>Gramella forsetii</i>)
WP_026934830.1	M48A	zmpste24 g.p. (<i>Dictyostelium discoideum</i> -type) (<i>Gramella forsetii</i>)
WP_026934832.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026934833.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026934835.1	M20C	Pep581 peptidase (<i>Gillisia</i> sp. CBA3202)
WP_026934849.1	S54	RhoII peptidase (<i>Haloferax volcanii</i>) and similar (<i>Gramella forsetii</i>)
WP_026934850.1	S54	family S54 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934853.1	S26A	subfamily S26A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026934867.1	S33	family S33 unassigned peptidases (<i>Stigmatella aurantiaca</i>)
WP_026934903.1	M38	family M38 unassigned peptidases (<i>Dyadobacter fermentans</i>)
WP_026934944.1	M97	family M97 unassigned peptidases (<i>Pontibacter</i> sp. BAB1700)
WP_026934948.1	S09A	oligopeptidase B (<i>Gramella forsetii</i>)
WP_026934981.1	C26	imidazole glycerol phosphate synthase subunit HisH (<i>Gramella forsetii</i>)

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Table S1: (continued)

Accession No.	family	Peptidase or homologue
WP_026934993.1	S09B	subfamily S9B unassigned peptidases (<i>Haliscomenobacter hydrossis</i>)
WP_026935027.1	S09X	family S9 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026935033.1	M38	family M38 non-peptidase homologues (<i>Sphingomonas wittichii</i>)
WP_026935038.1	S12	family S12 unassigned peptidases (<i>Chryseobacterium meningosepticum</i>)
WP_026935041.1	M01	family M1 unassigned peptidases (<i>Psychroflexus torquis</i>)
WP_026935046.1	S09X	family S9 non-peptidase homologues (<i>Bacteroides</i> sp. 3 1 33FAA)
WP_026935048.1	S12	family S12 unassigned peptidases (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026935051.1	S09X	family S9 non-peptidase homologues (<i>Kordia algicida</i>)
WP_026935056.1	S09X	family S9 non-peptidase homologues (<i>Cellulophaga algicola</i>)
WP_026935060.1	S09B	subfamily S9B unassigned peptidases (<i>Muricauda ruestringensis</i>)
WP_026935101.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935145.1	S24	family S24 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026935178.1	S09X	family S9 unassigned peptidases (<i>Muricauda ruestringensis</i>)
WP_026935263.1	S09B	dipeptidyl-peptidase 4 (bacteria-type 2) (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026935295.1	M97	family M97 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935316.1	S09X	family S9 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026935321.1	S16	Lon-A peptidase (<i>Gramella forsetii</i>)
WP_026935327.1	M48C	subfamily M48C unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935328.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935339.1	M23B	subfamily M23B unassigned peptidases (<i>Polaribacter</i> sp. MED152)
WP_026935342.1	M23B	subfamily M23B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935394.1	M24A	methionyl aminopeptidase 1 (<i>Escherichia</i> -type) (<i>Gramella forsetii</i>)
WP_026935400.1	S14	peptidase Clp (type 1) (<i>Gramella forsetii</i>)
WP_026935415.1	M57	prtB g.p. (<i>Myxococcus xanthus</i>) (<i>Gillisia limnaea</i>)
WP_026935424.1	M56	family M56 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935473.1	M23B	subfamily M23B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026935510.1	C44	AsnB protein (<i>Gramella forsetii</i>)
WP_035715687.1	M23B	subfamily M23B non-peptidase homologues (<i>Psychroflexus torquis</i>)
WP_035715739.1	M16B	YMXG peptidase (<i>Croceibacter atlanticus</i>)
WP_035715761.1	M49	dipeptidyl-peptidase IIIB (<i>Gramella forsetii</i>)
WP_035715858.1	M38	family M38 non-peptidase homologues (<i>Kangiella koreensis</i>)
WP_035715973.1	M75	family M75 unassigned peptidases (<i>Spirosoma linguale</i>)
WP_035715996.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_035716074.1	S54	family S54 unassigned peptidases (<i>Gramella forsetii</i>)
WP_035716082.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_035716228.1	S09X	family S9 unassigned peptidases (<i>Flavobacterium johnsoniae</i>)
WP_035716241.1	S33	family S33 unassigned peptidases (<i>Flavobacterium johnsoniae</i>)
WP_035716376.1	M16B	subfamily M16B non-peptidase homologues (<i>Robiginitalea biformata</i>)
WP_035716379.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)

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Table S1: (continued)

Accession No.	family	Peptidase or homologue
WP_035716450.1	M79	microcystinase MlrA (<i>Robiginitalea biformata</i>)
WP_035716494.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_035716571.1	C40	spr peptidase (<i>Gramella forsetii</i>)
WP_035716572.1	S41A	C-terminal processing peptidase-1 (<i>Gramella forsetii</i>)
WP_035716608.1	S41A	subfamily S41A unassigned peptidases (<i>Gramella forsetii</i>)
WP_035716636.1	M28D	carboxypeptidase Q (<i>Gramella forsetii</i>)
WP_051199619.1	C01A	subfamily C1A unassigned peptidases (<i>Plesiocystis pacifica</i>)
WP_051199635.1	M23B	Mername-AA292 peptidase (<i>Psychroflexus torquis</i>)
WP_051199679.1	S33	family S33 unassigned peptidases (<i>Haliscomenobacter hydrossis</i>)
WP_051199699.1	S11	family S11 unassigned peptidases
WP_051199702.1	S13	family S13 unassigned peptidases (<i>Gramella forsetii</i>)
WP_051199761.1	S09A	prolyl endopeptidase (<i>Myxococcus xanthus</i>) (<i>Chlorobium tepidum</i>)
WP_051199789.1	M56	family M56 unassigned peptidases (<i>Gramella forsetii</i>)
WP_051199795.1	S12	family S12 unassigned peptidases
WP_051199799.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)

Table S2: Simple peptidases inhibitors in the genome of *Gramella echinicola* DSM 19838^T.

Accession No.	family	Simple peptidase inhibitors
WP_026932781.1	I39	family I39 unassigned peptidase inhibitors (<i>Spirosoma linguale</i>)
WP_026932904.1	I87	family I87 unassigned peptidase inhibitors (<i>Cucumis melo</i>)
WP_026932927.1	I39	family I39 unassigned peptidase inhibitors (<i>Capnocytophaga ochracea</i>)
WP_026933047.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Pedobacter heparinus</i>)
WP_026933083.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Pedobacter heparinus</i>)
WP_026933211.1	I39	family I39 unassigned peptidase inhibitors (<i>Spirosoma linguale</i>)
WP_026933535.1	I39	family I39 unassigned peptidase inhibitors (<i>Spirosoma linguale</i>)
WP_026933538.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Spirosoma linguale</i>)
WP_026933541.1	I39	family I39 unassigned peptidase inhibitors (<i>Chitinophaga pinensis</i>)
WP_026933779.1	I39	family I39 unassigned peptidase inhibitors (<i>Spirosoma linguale</i>)
WP_026934059.1	I39	family I39 unassigned peptidase inhibitors (<i>Capnocytophaga ochracea</i>)
WP_026934120.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Chitinophaga pinensis</i>)
WP_026934472.1	I39	family I39 unassigned peptidase inhibitors (<i>Spirosoma linguale</i>)
WP_026934518.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Pedobacter heparinus</i>)
WP_026934636.1	I04	family I4 unassigned peptidase inhibitors (<i>Sulfolobus acidocaldarius</i>)
WP_026934647.1	I39	family I39 unassigned peptidase inhibitors (<i>Spirosoma linguale</i>)

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Table S2: (continued)

Accession No.	family	Simple peptidase inhibitors
WP_026934775.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_026935065.1	I39	family I39 unassigned peptidase inhibitor homologues (Spirosoma linguale)
WP_026935302.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_035716629.1	I43	family I43 unassigned peptidase inhibitors (Pedosphaera parvula)
WP_051199809.1	I39	family I39 unassigned peptidase inhibitors (Salinibacter ruber)
WP_026932904.1	I87	family I87 unassigned peptidase inhibitors (Cucumis melo)
WP_026932927.1	I39	family I39 unassigned peptidase inhibitors (Capnocytophaga ochracea)
WP_026933047.1	I39	family I39 unassigned peptidase inhibitor homologues (Pedobacter heparinus)
WP_026933083.1	I39	family I39 unassigned peptidase inhibitor homologues (Pedobacter heparinus)
WP_026933211.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026933535.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026933538.1	I39	family I39 unassigned peptidase inhibitor homologues (Spirosoma linguale)
WP_026933541.1	I39	family I39 unassigned peptidase inhibitors (Chitinophaga pinensis)
WP_026933779.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026934059.1	I39	family I39 unassigned peptidase inhibitors (Capnocytophaga ochracea)
WP_026934120.1	I39	family I39 unassigned peptidase inhibitor homologues (Chitinophaga pinensis)
WP_026934472.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026934518.1	I39	family I39 unassigned peptidase inhibitor homologues (Pedobacter heparinus)
WP_026934636.1	I04	family I4 unassigned peptidase inhibitors (Sulfolobus acidocaldarius)
WP_026934647.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026934775.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_026935065.1	I39	family I39 unassigned peptidase inhibitor homologues (Spirosoma linguale)
WP_026935302.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_035716629.1	I43	family I43 unassigned peptidase inhibitors (Pedosphaera parvula)
WP_051199809.1	I39	family I39 unassigned peptidase inhibitors (Salinibacter ruber)

Table S3: Peptidases or homologues in the genome of *Gramella portivictoriae* DSM 23547^T.

Accession No.	family	Peptidase or homologue
WP_026913590.1	S12	family S12 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026913596.1	U32	family U32 unassigned peptidases (<i>Elizabethkingia anophelis</i>)
WP_026913608.1	M23B	subfamily M23B non-peptidase homologues (<i>Psychroflexus torquis</i>)
WP_026913639.1	M23B	subfamily M23B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913642.1	M23B	subfamily M23B non-peptidase homologues (<i>Bacillus subtilis</i>)
WP_026913664.1	S41A	CtpC peptidase (<i>Kordia algicida</i>)
WP_026913666.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913667.1	S08A	subfamily S8A unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026913674.1	C40	NlpC protein (<i>Escherichia coli</i>) (<i>Cellulophaga lytica</i>)
WP_026913761.1	S09A	prolyl oligopeptidase (<i>Gramella forsetii</i>)
WP_026913778.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913781.1	U32	family U32 unassigned peptidases (<i>Chthonomonas calidirosea</i>)
WP_026913784.1	C44	family C44 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913804.1	T02	At3g16150 (<i>Arabidopsis thaliana</i>) (<i>Gramella forsetii</i>)
WP_026913837.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913846.1	S09B	subfamily S9B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913847.1	M28D	subfamily M28D unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026913874.1	S41A	C-terminal processing peptidase-3 (<i>Zunongwangia profunda</i>)
WP_026913929.1	M23B	Mername-AA292 peptidase (<i>Gramella forsetii</i>)
WP_026913930.1	S16	DNA repair protein RadA (<i>Escherichia coli</i>) (<i>Gramella forsetii</i>)
WP_026913937.1	C44	glucosamine-fructose-6-phosphate aminotransferase
WP_026913940.1	M61	family M61 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026913970.1	M16B	subfamily M16B non-peptidase homologues (<i>Cellulophaga algicola</i>)
WP_026913971.1	M16B	subfamily M16B non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026914029.1	M20F	subfamily M20F unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914044.1	M56	family M56 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914072.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026914078.1	S06	family S6 unassigned peptidases (<i>Flavobacterium johnsoniae</i>)
WP_026914098.1	T02	isoaspartyl dipeptidase (threonine type) (<i>Gramella forsetii</i>)
WP_026914101.1	S33	family S33 unassigned peptidases (<i>Ignavibacterium album</i>)
WP_026914104.1	S33	family S33 unassigned peptidases (<i>Pseudomonas mendocina</i>)
WP_026914178.1	S33	family S33 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026914183.1	S14	peptidase Clp (type 1) (<i>Gramella forsetii</i>)
WP_026914190.1	M23B	Mername-AA292 peptidase (<i>Gramella forsetii</i>)
WP_026914243.1	S24	family S24 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026914248.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026914288.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914331.1	S09B	subfamily S9B unassigned peptidases (<i>Muricauda ruestringensis</i>)

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Table S3: (continued)

Accession No.	family	Peptidase or homologue
WP_026914335.1	S09X	family S9 non-peptidase homologues (<i>Cellulophaga algicola</i>)
WP_026914373.1	M24A	methionyl aminopeptidase 1 (<i>Escherichia</i> -type) (<i>Gramella forsetii</i>)
WP_026914377.1	M48C	subfamily M48C unassigned peptidases
WP_026914381.1	S14	peptidase Clp (type 5) (<i>Gramella forsetii</i>)
WP_026914396.1	M57	prtB g.p. (<i>Myxococcus xanthus</i>) (<i>Gillisia limnaea</i>)
WP_026914447.1	M23B	subfamily M23B unassigned peptidases (<i>Gillisia limnaea</i>)
WP_026914457.1	C44	family C44 unassigned peptidases (<i>Zunongwangia profunda</i>)
WP_026914522.1	M97	family M97 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914542.1	S41A	C-terminal processing peptidase-1 (<i>Gramella forsetii</i>)
WP_026914546.1	C40	spr peptidase (<i>Gramella forsetii</i>)
WP_026914551.1	S09B	dipeptidyl-peptidase 4 (bacteria-type 2) (<i>Zunongwangia profunda</i>)
WP_026914690.1	A28	family A28 unassigned peptidases
WP_026914706.1	M13	Zmp1 peptidase (<i>Mycobacterium</i> -type) (<i>Gramella forsetii</i>)
WP_026914719.1	M28X	family M28 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914737.1	S33	SCO7095-type peptidase (<i>Gramella forsetii</i>)
WP_026914738.1	M24B	subfamily M24B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914759.1	U69	family U69 unassigned peptidases (<i>Vibrio furnissii</i>)
WP_026914763.1	M23B	Mername-AA292 peptidase
WP_026914772.1	M14X	family M14 non-peptidase homologues (<i>Croceibacter atlanticus</i>)
WP_026914776.1	A08	signal peptidase II (<i>Gramella forsetii</i>)
WP_026914790.1	M50B	subfamily M50B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914807.1	S33	family S33 unassigned peptidases (<i>Stigmatella aurantiaca</i>)
WP_026914815.1	M16B	At5g56730 (<i>Arabidopsis thaliana</i>)-like peptidase (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026914820.1	S26A	subfamily S26A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914823.1	S54	family S54 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026914824.1	S54	RhoII peptidase (<i>Haloferax volcanii</i>) and similar (<i>Gramella forsetii</i>)
WP_026914838.1	M20C	Pep581 peptidase (<i>Gramella forsetii</i>)
WP_026914840.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026914841.1	M38	family M38 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026914843.1	M48A	zmpste24 g.p. (<i>Dictyostelium discoideum</i> -type) (<i>Gramella forsetii</i>)
WP_026914898.1	S01B	At5g27660 (<i>Arabidopsis thaliana</i>) (<i>Gramella forsetii</i>)
WP_026914943.1	M24B	subfamily M24B unassigned peptidases (<i>Bizionia argentinensis</i>)
WP_026914959.1	S24	UmuD protein (<i>Flavobacterium johnsoniae</i>)
WP_026914961.1	M28A	subfamily M28A non-peptidase homologues (<i>Gillisia limnaea</i>)
WP_026914987.1	M15D	vanX D-Ala-D-Ala dipeptidase (<i>Gramella forsetii</i>)
WP_026915005.1	S01C	DegQ peptidase (<i>Gramella forsetii</i>)
WP_026915010.1	S08A	subtilisin NAT
WP_026915014.1	M14B	subfamily M14B non-peptidase homologues (<i>Dokdonia donghaensis</i>)
WP_026915039.1	M23B	subfamily M23B unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915042.1	M23B	subfamily M23B unassigned peptidases (<i>Polaribacter</i> sp. MED152)
WP_026915054.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915056.1	M48C	subfamily M48C unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915061.1	S16	Lon peptidase (type 4) (<i>Gramella forsetii</i>)
WP_026915067.1	S09X	family S9 non-peptidase homologues (<i>Gramella forsetii</i>)

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Table S3: (continued)

Accession No.	family	Peptidase or homologue
WP_026915073.1	S41A	subfamily S41A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915074.1	S09X	family S9 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026915090.1	C44	glutamate synthase (alpha chain) precursor (<i>Gramella forsetii</i>)
WP_026915107.1	M28E	subfamily M28E unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915122.1	M03A	subfamily M3A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915138.1	S54	family S54 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915170.1	C26	family C26 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915199.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915217.1	S66	family S66 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915218.1	S13	family S13 unassigned peptidases (<i>Gillisia</i> sp. CBA3202)
WP_026915221.1	C44	AsnB protein (<i>Gramella forsetii</i>)
WP_026915235.1	S51	alpha-aspartyl dipeptidase (eukaryote) (<i>Gramella forsetii</i>)
WP_026915239.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915271.1	M41	Afg3-like protein 2 (<i>Gramella forsetii</i>)
WP_026915277.1	M14X	family M14 non-peptidase homologues (<i>Polaribacter</i> sp. MED152)
WP_026915326.1	S09C	subfamily S9C unassigned peptidases (<i>Teredinibacter turnerae</i>)
WP_026915348.1	M38	family M38 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026915356.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915364.1	M20B	peptidase T (<i>Gramella forsetii</i>)
WP_026915369.1	M75	family M75 unassigned peptidases (<i>Spirosoma linguale</i>)
WP_026915418.1	N11	family N11 unassigned peptide lyases
WP_026915432.1	S33	family S33 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915443.1	S09D	glutamyl endopeptidase C (<i>Gramella forsetii</i>)
WP_026915453.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915458.1	M20D	carboxypeptidase Ss1 (<i>Gramella forsetii</i>)
WP_026915463.1	S33	CPO-A2 (<i>Streptomyces aureofaciens</i>)-type chloroperoxidase (<i>Gramella forsetii</i>)
WP_026915472.1	M79	family M79 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915475.1	M24X	family M24 non-peptidase homologues (<i>Leeuwenhoekia blandensis</i>)
WP_026915476.1	M01	family M1 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915506.1	M14B	subfamily M14B non-peptidase homologues (<i>Dyadobacter fermentans</i>)
WP_026915540.1	M16B	subfamily M16B non-peptidase homologues (<i>Polaribacter</i> sp. MED152)
WP_026915541.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915545.1	C26	GMP synthase (<i>Gramella forsetii</i>)
WP_026915546.1	C40	spr peptidase (<i>Thermodesulfobacterium</i> sp. OPB45)
WP_026915550.1	S08A	subfamily S8A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915555.1	C26	CTP synthetase (<i>Zunongwangia profunda</i>)
WP_026915565.1	S09C	dpf-6 g.p. (<i>Caenorhabditis elegans</i>) (<i>Gramella forsetii</i>)
WP_026915567.1	S09X	family S9 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915573.1	C82	family C82 unassigned peptidases (<i>Chlorobium phaeobacteroides</i>)
WP_026915585.1	S33	family S33 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915602.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915624.1	S16	family S16 non-peptidase homologues (<i>Zunongwangia profunda</i>)
WP_026915647.1	M20A	BT3549 putative peptidase (<i>Gramella forsetii</i>)
WP_026915684.1	M12A	vertebrate tolloid-like 1 protein (<i>Gramella forsetii</i>)
WP_026915685.1	M12A	blastula protease 10 (<i>Paracentrotus</i>) (<i>Gramella forsetii</i>)
WP_026915689.1	S54	family S54 unassigned peptidases (<i>Gramella forsetii</i>)

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Table S3: (continued)

Accession No.	family	Peptidase or homologue
WP_026915748.1	S10	family S10 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915750.1	M61	family M61 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915758.1	T03	gamma-glutamyltransferase 1 (bacterial-type) (<i>Gramella forsetii</i>)
WP_026915761.1	M03A	subfamily M3A unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915768.1	C56	family C56 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026915813.1	C56	family C56 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026915847.1	M42	family M42 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915869.1	S33	family S33 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026915881.1	S12	family S12 unassigned peptidases (<i>Psychroflexus torquis</i>)
WP_026915913.1	M23B	subfamily M23B non-peptidase homologues (<i>Zunongwangia profunda</i>)
WP_026915983.1	S09X	family S9 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026916002.1	M28E	subfamily M28E non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026916007.1	M43B	ulilysin (<i>Gramella forsetii</i>)
WP_026916013.1	C56	KIAA0361 protein (<i>Homo sapiens</i> -type) (<i>Gramella forsetii</i>)
WP_026916028.1	S33	family S33 unassigned peptidases (<i>Flavobacterium johnsoniae</i>)
WP_026916032.1	C26	dihydro-oroate (N-terminal unit) (<i>Homo sapiens</i> -type) (<i>Ailuropoda melanoleuca</i>)
WP_026916037.1	S12	family S12 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026916085.1	S09X	family S9 unassigned peptidases (<i>Capnocytophaga ochracea</i>)
WP_026916087.1	M38	family M38 non-peptidase homologues (<i>Zunongwangia profunda</i>)
WP_026916116.1	M14X	family M14 non-peptidase homologues (<i>Gramella forsetii</i>)
WP_026916121.1	C56	PfpI peptidase (<i>Gramella forsetii</i>)
WP_026916135.1	C40	family C40 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026916163.1	M19	family M19 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026916194.1	M16B	subfamily M16B non-peptidase homologues (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026916234.1	S12	family S12 unassigned peptidases (<i>Gramella forsetii</i>)
WP_026916252.1	C45	family C45 unassigned peptidases (<i>Flavobacterium johnsoniae</i>)
WP_026916279.1	S09X	family S9 non-peptidase homologues (<i>Spirosoma linguale</i>)
WP_026916283.1	S09B	subfamily S9B unassigned peptidases (<i>Haliscomenobacter hydrossis</i>)
WP_026916291.1	C26	imidazole glycerol phosphate synthase subunit HisH (<i>Prochlorococcus marinus</i>)
WP_026916293.1	C26	imidazole glycerol phosphate synthase subunit HisH (<i>Gramella forsetii</i>)

Table S4: Simple peptidases inhibitors in the genome of *Gramella portivictoriae* DSM 23547^T.

Accession No.	family	Simple peptidase inhibitors
WP_026913652.1	I87	family I87 unassigned peptidase inhibitors (<i>Thiorhodospira sibirica</i>)
WP_026913697.1	I39	family I39 unassigned peptidase inhibitor homologues (<i>Dyadobacter fermentans</i>)

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Table S4: (continued)

Accession No.	family	Simple peptidase inhibitors
WP_026913703.1	I39	family I39 unassigned peptidase inhibitor homologues (Capnocytophaga ochracea)
WP_026913735.1	I39	family I39 unassigned peptidase inhibitor homologues (Pedobacter heparinus)
WP_026913855.1	I39	family I39 unassigned peptidase inhibitors (Capnocytophaga ochracea)
WP_026913967.1	I39	family I39 unassigned peptidase inhibitors (Chitinophaga pinensis)
WP_026914327.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_026914517.1	I39	family I39 unassigned peptidase inhibitors (Capnocytophaga ochracea)
WP_026914780.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026914910.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026914937.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_026915140.1	I39	family I39 unassigned peptidase inhibitors (Chitinophaga pinensis)
WP_026915143.1	I39	family I39 unassigned peptidase inhibitor homologues (Dyadobacter fermentans)
WP_026915301.1	I39	family I39 unassigned peptidase inhibitor homologues (Flavobacterium johnsoniae)
WP_026915614.1	I39	family I39 unassigned peptidase inhibitors (Chitinophaga pinensis)
WP_026915991.1	I39	family I39 unassigned peptidase inhibitors (Spirosoma linguale)
WP_026916005.1	I04	family I4 unassigned peptidase inhibitors (Sulfolobus acidocaldarius)

Table S5: Carbohydrate active enzymes (CAZymes) in the genome of *Gramella echinicola* DSM 19838^T. *genes attributed to an enzyme class, but not to a family.

Accession No.	family	Annotation
WP_026932676.1	GT2	two-component system sensor histidine kinase/response regulator (Bacteroides thetaiotaomicron VPI-5482)
WP_026932677.1	CE11	UDP-3-O-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase (Brachyspira pilosicoli 95/1000)
WP_026932743.1	GH84	aminopeptidase P homologue(M24 family) (Schistosoma mansoni)
WP_026932746.1	GH13-8	hypothetical protein Csp3 JD02.017 (Caenorhabditis angaria)
WP_026932826.1	CBM6	Carbohydrate binding family 6 (Emticia oligotrophica DSM 17448)
WP_026932838.1	GT19	hypothetical protein BRDCF 04625 (Bacteroides sp. CF50)
WP_026932848.1	GT51	bifunctional transglycosylase/transpeptidase penicillin-binding protein (Gramella forsetii KT0803)
WP_026932879.1	GT9	RfaQ-like lipopolysaccharide core biosynthesis glycosyl transferase (Gramella forsetii KT0803)
WP_026932880.1	GT2	conserved hypothetical protein (Azoarcus sp. BH72)
WP_026932884.1	GT4	glycosyl transferases group 1 family protein (Janthinobacterium agaricidamnorum NBRC 102515 = DSM 9628)
WP_026932885.1	GT2	TuaG-like glycosyl transferase (Gramella forsetii KT0803)
WP_026932886.1	GH*	nucleoside diphosphate epimerase (Celeribacter indicus)
WP_026932887.1	GT2	dTDP-4-dehydrorhamnose reductase (Pseudomonas sp. MT-1)
WP_026932891.1	CBM50	metalloendopeptidase-like membrane protein (Desulfotomaculum gibsoniae DSM 7213)
WP_026932894.1	CBM50	membrane-bound lytic murein transglycosylase (Gramella forsetii KT0803)
WP_026932919.1	CBM5	SptC (Natrinema sp. J7-2)
WP_026932926.1	CE9	N-acetylglucosamine-6-phosphate deacetylase/N-acetylmuramic acid 6-phosphate etherase (Acidiphilium multivorum AIU301)
WP_026932929.1	GH*	hypothetical protein AMK43 02675 (Leptotrichia sp. oral taxon 212)
WP_026932932.1	GT2	cell wall-associated hydrolase, invasion-associated protein (Kytococcus sedentarius DSM 20547)
WP_026932937.1	GH89	putative alpha-N-acetylglucosaminidase (Xanthomonas fuscans subsp. fuscans)
WP_026932938.1	GH3	Beta-N-acetylhexosaminidase (Cellulophaga lytica DSM 7489)
WP_026932953.1	GT51	monofunctional biosynthetic peptidoglycan transglycosylase (Gramella forsetii KT0803)
WP_026932955.1	GT4	ABC transporter related (Desulfovibrio desulfuricans subsp. desulfuricans str. ATCC 27774)
WP_026932974.1	CBM6	agarase, partial (Gilvimarinus polysaccharolyticus)
WP_026933024.1	CBM50	LysM domain/BON superfamily protein (Gramella forsetii KT0803)
WP_026933026.1	GH99	mannosidase, endo-alpha, putative (Schistosoma mansoni)
WP_026933035.1	GH97	alpha-glucosidase SusB (Psychroflexus torquis ATCC 700755)
WP_026933050.1	CE8	Pectinesterase (Flavobacteriaceae bacterium 3519-10)
WP_026933065.1	GH28	Glycoside hydrolase precursor, family 28 (Flavobacterium branchiophilum FL-15)

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Table S5: (continued)

Accession No.	family	Annotation
WP_026933066.1	GH105	unsaturated rhamnogalacturonyl hydrolase, putative, urh105A (<i>Cellvibrio japonicus</i> Ueda107)
WP_026933067.1	GH105	Rhamnogalacturonides degradation protein RhiN (<i>Flavobacteriaceae</i> bacterium 3519-10)
WP_026933068.1	GH43	glycoside hydrolase (<i>Pontibacter korensis</i>)
WP_026933069.1	CE12	GDSL family lipase (<i>Pontibacter korensis</i>)
WP_026933071.1	GH28	Glycoside hydrolase family 28 (<i>Flavobacterium johnsoniae</i> UW101)
WP_026933072.1	GH35	mannonate dehydratase (<i>Chitinophaga pinensis</i> DSM 2588)
WP_026933085.1	GH16	beta-glucanase (<i>Glaciecola nitratreducens</i> FR1064)
WP_026933086.1	GH16	beta-glucanase precursor (<i>Maribacter</i> sp. HTCC2170)
WP_026933087.1	GH16	Endo-1,4-beta-xylanase A precursor (<i>Altererythrobacter epoxidivorans</i>)
WP_026933088.1	GH3	beta-glucosidase (<i>Gramella forsetii</i> KT0803)
WP_026933089.1	GH16	glycosyl hydrolase, family 16 (<i>Gramella forsetii</i> KT0803)
WP_026933091.1	GH13	alpha amylase catalytic region (<i>Eubacterium limosum</i> KIST612)
WP_026933108.1	PL1-5	pectin methylsterase (<i>Alteromonas australica</i>)
WP_026933110.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid(one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)
WP_026933112.1	GH130	glycosidase related protein (<i>Pseudopedobacter saltans</i> DSM 12145)
WP_026933123.1	AA2	peroxidase (<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi)
WP_026933134.1	CE14	LmbE family protein (<i>Sphingobacterium</i> sp. PM2-P1-29)
WP_026933135.1	GT2	glycosyl transferase (<i>Chamaesiphon minutus</i> PCC 6605)
WP_026933139.1	GT2	riboflavin biosynthesis protein RibF (<i>Haliscomenobacter hydrossis</i> DSM 1100)
WP_026933141.1	GH95	hypothetical protein AN3106.2 (<i>Aspergillus nidulans</i> FGSC A4)
WP_026933171.1	CBM50	peptidase (<i>Brevibacillus laterosporus</i>)
WP_026933177.1	GT5	glycogen synthase N-terminal domain-like protein (<i>Gramella forsetii</i> KT0803)
WP_026933207.1	GH16	putative A/G-specific adenine glycosylase (<i>Bifidobacterium bifidum</i> ATCC 29521 = JCM 1255 = DSM 20456)
WP_026933233.1	GT2	glycosyl transferase family 2 (<i>Chlorobium limicola</i> DSM 245)
WP_026933236.1	GH15	glycoside hydrolase 15-related (<i>Chlorobaculum parvum</i> NCIB 8327)
WP_026933237.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026933238.1	GH113	conserved hypothetical protein, secreted (<i>Gramella forsetii</i> KT0803)
WP_026933241.1	GT2	RfbJ-like lipopolysaccharide biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026933256.1	GH92	alpha-1,2-mannosidase, putative (<i>Prevotella dentalis</i> DSM 3688)
WP_026933278.1	CE*	Probable esterase precursor (<i>Flavobacterium branchiophilum</i> FL-15)
WP_026933300.1	GT32	glycosyltransferase sugar-binding region containing DXD motif (<i>Beijerinckia indica</i> subsp. <i>indica</i> ATCC 9039)
WP_026933301.1	GH43	fibronectin type III repeat domain containing secreted glycoside hydrolase, family 43 (<i>Gramella forsetii</i> KT0803)
WP_026933307.1	CBM12	dioxygenase (<i>Streptomyces collinus</i> Tu 365)

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Table S5: (continued)

Accession No.	family	Annotation
WP_026933364.1	GT2	dolichol-phosphate mannosyltransferase family protein (Gramella forsetii KT0803)
WP_026933373.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid(one component system) (Bacteroides thetaiotaomicron VPI-5482)
WP_026933374.1	GT*	hypothetical protein CA2559 01800 (Croceibacter atlanticus HTCC2559)
WP_026933375.1	GT30	3-deoxy-D-manno-octulosonic-acid transferase (Fusobacterium nucleatum subsp. polymorphum)
WP_026933403.1	CE4	protein containing polysaccharide deacetylase domain (Gramella forsetii KT0803)
WP_026933408.1	PL4-3	hypothetical protein AN4139.2 (Aspergillus nidulans FGSC A4)
WP_026933443.1	GT4	ABC transporter related (Desulfovibrio desulfuricans subsp. desulfuricans str. ATCC 27774)
WP_026933476.1	CBM50	peptigoglycan-binding protein LysM (Treponema sp. OMZ 838)
WP_026933485.1	CBM50	mannosyl-glycoprotein endo-beta-N-acetylglucosamidase family protein (Gramella forsetii KT0803)
WP_026933486.1	GT2	amino acid adenylation enzyme/thioester reductase family protein (Chamaesiphon minutus PCC 6605)
WP_026933505.1	GT4	Mannose-1-phosphate guanylyltransferase(GDP)(plasmid) (Burkholderia phymatum STM815)
WP_026933507.1	GT4	ABC transporter related (Desulfovibrio desulfuricans subsp. desulfuricans str. ATCC 27774)
WP_026933510.1	GT2	glycosyl transferase family 2 (Siansivirga zeaxanthinifaciens CC-SAMT-1)
WP_026933569.1	GT5	glycogen synthase (Gramella forsetii KT0803)
WP_026933571.1	GH*	putative secreted protein (Chitinophaga pinensis DSM 2588)
WP_026933574.1	CBM16	hypothetical protein PBOR 19105 (Paenibacillus borealis)
WP_026933605.1	GT28	cell division protein FtsW (Kribbella flavida DSM 17836)
WP_026933606.1	GT28	undecaprenyldiphospho-muramoylpentapeptide beta-N-acetylglucosaminyltransferase (Gramella forsetii KT0803)
WP_026933607.1	GT28	UDP-N-acetylmuramate/alanine ligase (Cellulomonas flavigena DSM 20109)
WP_026933618.1	GH3	glycoside hydrolase family 3 domain protein (Sulfurimonas autotrophica DSM 16294)
WP_026933621.1	GT4	asparagine synthase(glutamine-hydrolyzing) (Pseudonocardia dioxanivorans CB1190)
WP_026933629.1	GT2	cysteinyl-tRNA synthetase (Thermobaculum terrenum ATCC BAA-798)
WP_026933660.1	GT30	tetraacyldisaccharide 4'-kinase (Acidaminococcus fermentans DSM 20731)
WP_026933661.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid(one component system) (Bacteroides thetaiotaomicron VPI-5482)
WP_026933665.1	GT2	transmembrane family-2 glycosyl transferase (Gramella forsetii KT0803)
WP_026933672.1	GH18	chitinase I, partial (Pantoea dispersa)
WP_026933684.1	AA12	Putative L-sorbose dehydrogenase(sndh) protein (Sinorhizobium meliloti 1021)
WP_026933706.1	CE11	DDX20 HUMAN Probable ATP-dependent RNA helicase DDX20(ISS) (Ostreococcus tauri)

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Table S5: (continued)

Accession No.	family	Annotation
WP_026933716.1	CE11	UDP-3-O-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase (<i>Desulfomonile tiedjei</i> DSM 6799)
WP_026933723.1	GT2	glycosyl transferase, family 2 (<i>Zunongwangia profunda</i> SM-A87)
WP_026933727.1	GT4	glycosyltransferase (<i>Zunongwangia profunda</i> SM-A87)
WP_026933733.1	GT4	mannose-1-phosphate guanylyltransferase (<i>Escherichia coli</i>)
WP_026933748.1	CBM32	hypothetical protein R50912 26740 (<i>Paenibacillus</i> sp. FSL R5-0912)
WP_026933765.1	GT66	dolichyl-diphosphooligosaccharide-protein glycotransferase (<i>Candidatus Nitrososphaera gargensis</i> Ga9.2)
WP_026933767.1	GH18	putative bifunctional protein:peroxiredoxin/chitinase ((<i>Clostridium</i>) <i>sordellii</i>)
WP_026933772.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026933808.1	GH3	O-glycosyl hydrolase family protein(homolog to N-acetylglucosaminidase) (<i>Halobacillus halophilus</i> DSM 2266)
WP_026933823.1	CBM13	elongation factor Tu (<i>Streptomyces albulus</i>)
WP_026933895.1	GH2	hypothetical protein AN2824.2 (<i>Aspergillus nidulans</i> FGSC A4)
WP_026933902.1	GT2	WbbL-like lipopolysaccharide biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026933910.1	GT51	peptidoglycan transglycosylase (<i>Halorhodospira halochloris</i> str. A)
WP_026933918.1	GT2	ABC transporter-like protein (<i>Streptomyces</i> sp. 769)
WP_026933926.1	GT2	ABC transporter-like protein (<i>Streptomyces</i> sp. 769)
WP_026933936.1	GT4	putative transferase (<i>Streptomyces griseus</i> subsp. <i>griseus</i> NBRC 13350)
WP_026933937.1	GT2	CDP-glycerol:glycerophosphate glycerophosphotransferase (<i>Cellulophaga lytica</i>)
WP_026933953.1	GH13-11	glycogen debranching protein (<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Enteritidis</i> str. EC20121179)
WP_026933980.1	CBM50	secreted protein containing LysM domains (<i>Gramella forsetii</i> KT0803)
WP_026934004.1	CE*	conserved hypothetical protein, secreted (<i>Gramella forsetii</i> KT0803)
WP_026934048.1	GH43	aldose 1-epimerase (<i>Prevotella denticola</i> F0289)
WP_026934054.1	GH*	hypothetical protein GFO 2143 (<i>Gramella forsetii</i> KT0803)
WP_026934062.1	GH65	HAD family hydrolase (<i>Anabaena</i> sp. wa102)
WP_026934063.1	GH65	glycoside hydrolase, family 65 (<i>Gramella forsetii</i> KT0803)
WP_026934064.1	GH13	alpha amylase (<i>Gramella forsetii</i> KT0803)
WP_026934065.1	GH13	alpha amylase (<i>Gramella forsetii</i> KT0803)
WP_026934110.1	GH19	Chaperone protein DnaK (<i>Janthinobacterium</i> sp. CG23 2)
WP_026934129.1	CBM13	flavastacin (<i>Corallocooccus coralloides</i> DSM 2259)
WP_026934130.1	CBM13	flavastacin (<i>Corallocooccus coralloides</i> DSM 2259)
WP_026934162.1	GT2	Glycosyl transferase, group 2 family protein (<i>Flavobacterium branchiophilum</i> FL-15)
WP_026934163.1	GT4	capsular polysaccharide biosynthesis glycosyl transferase (<i>Flammeovirgaceae</i> bacterium 311)
WP_026934164.1	CE4	Predicted xylanase/chitin deacetylase (<i>Clostridium novyi</i> NT)
WP_026934167.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026934170.1	GT2	glycosyl transferase (<i>Echinicola vietnamensis</i> DSM 17526)
WP_026934171.1	GT4	glycosyltransferase (<i>Belliella baltica</i> DSM 15883)

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Table S5: (continued)

Accession No.	family	Annotation
WP_026934172.1	GT2	glycosyl transferase family 2 (<i>Marivirga tractuosa</i> DSM 4126)
WP_026934177.1	GT4	capsular polysaccharide biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026934178.1	GT4	Undecaprenyl-phosphate galactose phosphotransferase (<i>Paenibacillus</i> sp. JDR-2)
WP_026934204.1	GT5	phytochrome b, partial (<i>Mnesithea selloana</i>)
WP_026934211.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026934220.1	GT2	hyaluronan synthase (<i>Gramella forsetii</i> KT0803)
WP_026934237.1	GT28	conserved hypothetical protein (<i>Methylobacterium extorquens</i> CM4)
WP_026934238.1	GT4	hypothetical protein AOC03 12205(plasmid) (<i>Psychrobacter urativorans</i>)
WP_026934239.1	GH17	glycosyltransferase (<i>Azospirillum</i> sp. B510)
WP_026934287.1	GT83	ArnT-like undecaprenyl-phosphate alpha-4-amino-4-deoxy-L-arabinose arabinosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026934288.1	GH1	mannose-6-phosphate isomerase, class I/beta-galactosidase (<i>Roseburia intestinalis</i> M50/1)
WP_026934314.1	GT2	transmembrane family-2 glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026934317.1	GT2	capsular polysaccharide biosynthesis protein (<i>Sorangium cellulosum</i> So ce56)
WP_026934329.1	GH25	hypothetical protein SALIVB 1060 (<i>Streptococcus salivarius</i> CCHSS3)
WP_026934334.1	GH3	glycoside hydrolase (<i>Nonlabens dokdonensis</i> DSW-6)
WP_026934335.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026934341.1	GT49	predicted protein (<i>Phaeodactylum tricornutum</i> CCAP 1055/1)
WP_026934348.1	GH31	hypothetical protein AN8217.2 (<i>Aspergillus nidulans</i> FGSC A4)
WP_026934403.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026934416.1	GT51	bifunctional transglycosylase/transpeptidase penicillin-binding protein (<i>Zunongwangia profunda</i> SM-A87)
WP_026934430.1	GT2	UDP-glucose 4-epimerase(plasmid) (<i>Cyanothece</i> sp. PCC 7822)
WP_026934444.1	GT2	cell wall-associated hydrolase, invasion-associated protein (<i>Kytococcus sedentarius</i> DSM 20547)
WP_026934446.1	GT51	penicillin-binding protein, partial (uncultured <i>Parcubacteria bacterium</i> Rifle 16ft 4 minimus 37658)
WP_026934471.1	GH72	Rab1 family GTPase(PiYpt1) putative (<i>Albugo laibachii</i> Nc14)
WP_026934473.1	GH13-16	trehalose synthase (<i>Robiginitalea biformata</i> HTCC2501)
WP_026934488.1	CBM*	hypothetical protein GFO 1460 (<i>Gramella forsetii</i> KT0803)
WP_026934489.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026934566.1	AA1	copper oxidase (<i>Mycobacterium abscessus</i> UC22)
WP_026934583.1	GT4	nicotinate-nucleotide pyrophosphorylase(carboxylating) (<i>Flexibacter litoralis</i> DSM 6794)
WP_026934586.1	CE11	DDX20 HUMAN Probable ATP-dependent RNA helicase DDX20(ISS) (<i>Ostreococcus tauri</i>)
WP_026934617.1	GT2	undecaprenyl-phosphate 4-deoxy-4-formamido-L-arabinose transferase (<i>Gramella forsetii</i> KT0803)

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Table S5: (continued)

Accession No.	family	Annotation
WP_026934636.1	GH15	glycosyl hydrolase, family 15 (Gramella forsetii KT0803)
WP_026934637.1	GT20	trehalose 6-phosphate synthase/phosphatase (Gramella forsetii KT0803)
WP_026934668.1	GT66	dolichyl-diphosphooligosaccharide-protein glycotransferase (Candidatus Nitrososphaera gargensis Ga9.2)
WP_026934685.1	GT4	thioredoxin reductase (Inonotus obliquus)
WP_026934744.1	CBM50	trifunctional nucleotide phosphoesterase protein YfkN (Sinorhizobium fredii USDA 257)
WP_026934754.1	GT2	membrane glycosyl transferase, family 2 (Gramella forsetii KT0803)
WP_026934771.1	GH29	Alpha-L-fucosidase, family GH29 / Acetylerase (Zobellia galactanivorans)
WP_026934774.1	GH32	glycosyl hydrolase, family 32 (Gramella forsetii KT0803)
WP_026934783.1	GT2	predicted sensory transduction regulatory protein (Methanothermobacter marburgensis str. Marburg)
WP_026934802.1	GT51	Multimodular transpeptidase-transglycosylase (Castellaniella defragrans 65Phen)
WP_026934815.1	CE14	conserved hypothetical protein (Gramella forsetii KT0803)
WP_026934827.1	GT47	hypothetical protein VITISV 016911 (Vitis vinifera)
WP_026934833.1	CE*	amidohydrolase (Caulobacter segnis ATCC 21756)
WP_026934836.1	GT66	peptidyl-prolyl cis-trans isomerase(rotamase) - cyclophilin family (Candidatus Nitrososphaera evergladensis SR1)
WP_026934864.1	CBM13	hypothetical protein MFUL124B02 36260 (Myxococcus fulvus 124B02)
WP_026934869.1	GT2	transcriptional regulator (Cellulophaga lytica)
WP_026934873.1	CBM50	5'-Nucleotidase domain protein (Paenibacillus sp. JDR-2)
WP_026934879.1	GT2	sulfatase (Leadbetterella byssophila DSM 17132)
WP_026934884.1	GT2	transmembrane family-2 glycosyl transferase-possibly involved in biofilm formation (Gramella forsetii KT0803)
WP_026934917.1	GH16	glycosyl hydrolase, family 16 (Gramella forsetii KT0803)
WP_026934930.1	CE14	hypothetical protein GFO 1816 (Gramella forsetii KT0803)
WP_026934954.1	GT4	glycosyl transferase, group 1 (Gramella forsetii KT0803)
WP_026934967.1	CE11	LpxC/FabZ bifunctional enzyme (Gramella forsetii KT0803)
WP_026934993.1	GH43	Dipeptidyl aminopeptidase/acylaminoacyl-peptidase (Xanthomonas citri subsp. citri UI6)
WP_026935002.1	GT2	undecaprenyl-phosphate 4-deoxy-4-formamido-L-arabinose transferase-like protein (Gramella forsetii KT0803)
WP_026935031.1	GH*	AraC family transcriptional regulator (Clostridium sporogenes)
WP_026935038.1	GH3	glycoside hydrolase family 3 domain protein (Leadbetterella byssophila DSM 17132)
WP_026935046.1	CE1	hypothetical protein plpp0079(plasmid) (Legionella pneumophila str. Paris)
WP_026935058.1	GH2	glycoside hydrolase, family 2 (Gramella forsetii KT0803)
WP_026935060.1	CE*	secreted alpha/beta fold hydrolase-possibly a phospholipase/carboxylesterase (Gramella forsetii KT0803)
WP_026935067.1	GH3	unnamed protein product (Aspergillus oryzae RIB40)
WP_026935085.1	GT2	ABC transporter-like protein (Streptomyces sp. 769)
WP_026935105.1	GT9	glycosyl transferase, family 9 (Burkholderia glumae PG1)
WP_026935134.1	CBM48	hypothetical protein GFO 0282 (Gramella forsetii KT0803)
WP_026935142.1	GT30	3-deoxy-D-manno-octulosonic-acid transferase (Gramella forsetii KT0803)

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Table S5: (continued)

Accession No.	family	Annotation
WP_026935173.1	GT2	ABC transporter-like protein (<i>Streptomyces</i> sp. 769)
WP_026935187.1	GT2	glycosyl transferase (<i>Zunongwangia profunda</i> SM-A87)
WP_026935188.1	GT2	putative intercellular adhesion protein A (<i>Azorhizobium caulinodans</i> ORS 571)
WP_026935225.1	GT2	response regulator receiver modulated diguanylate cyclase (<i>Geodermatophilus obscurus</i> DSM 43160)
WP_026935241.1	GH31	Alpha-glucosidase, family 31 of glycosyl hydrolase (<i>Maribacter</i> sp. HTCC2170)
WP_026935242.1	GH13-9	1,4-alpha-glucan branching enzyme (<i>Gramella forsetii</i> KT0803)
WP_026935243.1	GH13-16	trehalose synthase (<i>Flammeovirgaceae</i> bacterium 311)
WP_026935244.1	GH13-3	alpha-amylase (<i>Winogradskyella</i> sp. PG-2)
WP_026935268.1	GT19	lipid-A-disaccharide synthase (<i>Gramella forsetii</i> KT0803)
WP_026935272.1	GT28	cell division protein FtsW (<i>Kribbella flavida</i> DSM 17836)
WP_026935308.1	CBM13	hypothetical protein N008 02650 (<i>Hymenobacter</i> sp. APR13)
WP_026935362.1	CBM48	glycoside hydrolase family 13 domain protein (<i>Desulfatibacillum alkenivorans</i> AK-01)
WP_026935392.1	GT4	putative glycosyltransferase (<i>Desulfovibrio magneticus</i> RS-1)
WP_026935398.1	GH108	hypothetical protein Z042 16435 (<i>Serratia fonticola</i> RB-25)
WP_026935415.1	CBM13	alpha-L-arabinofuranosidase (<i>Corallocooccus coralloides</i> DSM 2259)
WP_026935430.1	GT8	Glycosyl transferase, family 8-glycogenin (<i>Xanthophyllomyces dendrorhous</i>)
WP_026935460.1	CE11	UDP-3-O-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase (<i>Desulfomonile tiedjei</i> DSM 6799)
WP_026935484.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026935487.1	CBM50	teichoic acid ABC transporter ATP-binding protein (<i>Lactococcus lactis</i> subsp. <i>lactis</i>)
WP_026935497.1	GT2	colanic acid biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026935501.1	GT2	glycosyl transferase family 2 (<i>Melioribacter roseus</i> P3M-2)
WP_026935503.1	GT10	glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026935505.1	GT*	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026935509.1	GT*	conserved hypothetical protein, cytidylyltransferase family (uncultured archaeon)
WP_026935510.1	GT4	asparagine synthase(glutamine-hydrolyzing) (<i>Pseudonocardia dioxanivorans</i> CB1190)
WP_026935512.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026935513.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026935514.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026935515.1	GT64	hypothetical protein (<i>Zea mays</i>)
WP_026935517.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026935520.1	GT4	glycosyl transferases group 1 (<i>Gramella forsetii</i> KT0803)
WP_026935521.1	GT4	glycosyl transferases group 1 (<i>Gramella forsetii</i> KT0803)
WP_026935522.1	GT2	putative glycosyltransferase (<i>Moritella viscosa</i>)
WP_026935543.1	GH28	hypothetical protein VITISV 002009 (<i>Vitis vinifera</i>)
WP_035715612.1	CBM6	Carbohydrate binding family 6 (<i>Niastella koreensis</i> GR20-10)
WP_035715653.1	GT2	hypothetical protein SYNPCCN 0346 (<i>Synechocystis</i> sp. PCC 6803 substr. PCC-N)
WP_035715744.1	GT2	transmembrane family-2 glycosyl transferase-possibly involved in biofilm formation (<i>Gramella forsetii</i> KT0803)

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Table S5: (continued)

Accession No.	family	Annotation
WP_035715765.1	GT2	transmembrane family-2 glycosyl transferase-possibly involved in biofilm formation (<i>Gramella forsetii</i> KT0803)
WP_035715773.1	CBM*	hypothetical protein GFO 0138 (<i>Gramella forsetii</i> KT0803)
WP_035715963.1	GH5-42	glycosidase (<i>Zunongwangia profunda</i> SM-A87)
WP_035716021.1	GH13	alpha-amylase (<i>Cellulophaga baltica</i> 18)
WP_035716058.1	GH23	putative soluble lytic transglycosylase fused to an ABC-type amino acid-binding protein (<i>Owenweeksia hongkongensis</i> DSM 17368)
WP_035716203.1	CE4	membrane protein containing polysaccharide deacetylase domain (<i>Gramella forsetii</i> KT0803)
WP_035716456.1	CBM20	helix-turn-helix domain-containing protein AraC type (<i>Emticicia oligotrophica</i> DSM 17448)
WP_035716516.1	GH3	Beta-glucosidase (<i>Cellulophaga algicola</i> DSM 14237)
WP_035716571.1	CBM50	Putative peptidoglycan binding domain protein (<i>Flavobacterium psychrophilum</i>)
WP_035716629.1	GH8, CBM9	candidate b-glycosidase, CBM9 module, Glycoside Hydrolase Family 8 protein (<i>Cytophaga hutchinsonii</i> ATCC 33406)
WP_035716644.1	CBM50	Teichoic acid ABC transporter (<i>Lactococcus lactis</i> subsp. <i>lactis</i> NCDO 2118)
WP_051199619.1	CBM13	secreted protein (<i>Achlya hypogyna</i>)
WP_051199624.1	CBM57	Fibronectin type III domain protein (<i>Cyclobacterium marinum</i> DSM 745)
WP_051199635.1	CBM50	peptidase M23 (<i>Pseudomonas syringae</i> pv. <i>actinidiae</i> ICMP 18884)
WP_051199650.1	GH20	hypothetical protein WQ53 10285 (<i>Pseudoxanthomonas suwonensis</i>)
WP_051199652.1	GH3	O-glycosyl hydrolase family protein(homolog to N-acetylglucosaminidase) (<i>Halobacillus halophilus</i> DSM 2266)
WP_051199662.1	PL9-1	hypothetical Protein YC6258 05515 (<i>Gynuella sunshinyii</i> YC6258)
WP_051199664.1	PL9-1	hypothetical Protein YC6258 05515 (<i>Gynuella sunshinyii</i> YC6258)
WP_051199666.1	GH*	hypothetical protein Deipr 2087(plasmid) (<i>Deinococcus proteolyticus</i> MRP)
WP_051199683.1	CBM57	putative secreted protein (<i>Maribacter</i> sp. HTCC2170)
WP_051199688.1	CE8	pectin esterase (<i>Pontibacter korlensis</i>)
WP_051199697.1	GH26	putative glycosyltransferase(GT2) (<i>Formosa agariphila</i> KMM 3901)
WP_051199730.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_051199731.1	GT9	LPS heptosyltransferase II (<i>Winogradskyella</i> sp. PG-2)
WP_051199735.1	GH74	hypothetical protein VC82 851 (<i>Muricauda lutaonensis</i>)
WP_051199736.1	GH74	hypothetical protein VC82 851 (<i>Muricauda lutaonensis</i>)
WP_051199737.1	GH74	hypothetical protein VC82 851 (<i>Muricauda lutaonensis</i>)
WP_051199738.1	GT10	alpha-1,3-fucosyltransferase (<i>Coraliomargarita akajimensis</i> DSM 45221)
WP_051199739.1	GT2	putative glycosyl transferase family 2 protein (<i>Pyrococcus</i> sp. ST04)
WP_051199744.1	GT2	glycosyl transferase family 2 (<i>Methylobacterium extorquens</i> PA1)
WP_051199780.1	GH37	trehalase (<i>Gramella forsetii</i> KT0803)
WP_051199782.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid(one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)

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Table S5: (continued)

Accession No.	family	Annotation
WP_051199787.1	GT8	Glycosyl transferase, family 8-glycogenin (Xanthophyllomyces dendrorhous)
WP_051199824.1	GT2	glycosyl transferase family 2 (Nonlabens dokdonensis DSW-6)
WP_051199825.1	GT*	glycosyl transferase family 2 (Methylothera mobilis JLW8)
WP_051199826.1	GT4	glycosyl transferase, family 2 (Trichodesmium erythraeum IMS101)
WP_051199827.1	GT4	exopolysaccharide biosynthesis glycosyltransferase EpsF (Nonlabens marinus S1-08)
WP_051199828.1	GT4	glycosyl transferase, group 1 (Gramella forsetii KT0803)

Table S6: Carbohydrate active enzymes (CAZymes) in the genome of *Gramella portivictoriae* DSM 23547^T.

Accession No.	family	Annotation
WP_026913576.1	GH*	glycosyl hydrolase BNR repeat-containing protein (<i>Spirosoma linguale</i> DSM 74)
WP_026913589.1	GT19	hypothetical protein BRDCF_04625 (<i>Bacteroides</i> sp. CF50)
WP_026913593.1	GT51	penicillin-binding protein 1A (<i>Croceibacter atlanticus</i> HTCC2559)
WP_026913628.1	GT2	glycosyl transferase family 2 (<i>Burkholderia multivorans</i> ATCC 17616)
WP_026913632.1	GT4	glycosyl transferases group 1 family protein (<i>Janthinobacterium agaricidamnosum</i> NBRC 102515, DSM 9628)
WP_026913633.1	GT2	TuaG-like glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026913635.1	GT2	dTDP-4-dehydrorhamnose reductase (<i>Pseudomonas stutzeri</i> DSM 10701)
WP_026913639.1	CBM50	peptidoglycan-binding protein LysM (<i>Desulfitobacterium metallireducens</i> DSM 15288)
WP_026913642.1	GH23, CBM50	membrane-bound lytic murein transglycosylase (<i>Gramella forsetii</i> KT0803)
WP_026913667.1	CBM5	SptC (<i>Natrinema</i> sp. J7-2)
WP_026913672.1	CE9	N-acetylglucosamine-6-phosphate deacetylase/N-acetylmuramic acid 6-phosphate etherase (<i>Acidiphilium multivorum</i> AIU301)
WP_026913674.1	CBM50	NLP/P60 (<i>Moorella thermoacetica</i> ATCC 39073)
WP_026913687.1	GT2	transmembrane family-2 glycosyl transferase-possibly involved in biofilm formation (<i>Gramella forsetii</i> KT0803)
WP_026913689.1	GT2	Dolichol-phosphate mannose synthase, family GT2 (<i>Zobellia galactanivorans</i>)
WP_026913691.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid (one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)
WP_026913696.1	GH32	sucrose-6-phosphate hydrolase (<i>Halalkalicoccus jeotgali</i> B3)
WP_026913701.1	GT2	response regulator receiver modulated diguanylate cyclase (<i>Geodermatophilus obscurus</i> DSM 43160)
WP_026913702.1	GH32	glycosyl hydrolase, family 32 (<i>Gramella forsetii</i> KT0803)
WP_026913705.1	GH32, CBM38	putative levanase (<i>Streptomyces scabiei</i> 87.22)
WP_026913715.1	GT2	response regulator receiver modulated diguanylate cyclase (<i>Geodermatophilus obscurus</i> DSM 43160)
WP_026913731.1	PL6- subfamily_1	secreted alginate lyase-like protein (<i>Gramella forsetii</i> KT0803)
WP_026913732.1	PL12	Heparinase II/III family protein (<i>Cellulophaga algicola</i> DSM 14237)
WP_026913733.1	PL17- subfamily_2	heparinase II/III-like protein (<i>Alteromonas</i> sp. SN2)
WP_026913737.1	PL7	secreted alginate lyase-like protein (<i>Gramella forsetii</i> KT0803)
WP_026913738.1	PL7	secreted alginate lyase-like protein (<i>Gramella forsetii</i> KT0803)
WP_026913741.1	GT51	penicillin-binding , 1A family protein (<i>Mesorhizobium huakuii</i> 7653R)
WP_026913757.1	GT51	monofunctional biosynthetic peptidoglycan transglycosylase (<i>Gramella forsetii</i> KT0803)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026913759.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026913780.1	GH86, CBM6	agarase, partial (<i>Gilvimarinus</i> sp. YN3)
WP_026913801.1	GT35	multidrug transporter (<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Enteritidis</i> str. EC20121177)
WP_026913833.1	CBM50	LysM domain/BON superfamily protein (<i>Gramella forsetii</i> KT0803)
WP_026913835.1	GH99	mannosidase, endo-alpha, putative (<i>Schistosoma mansoni</i>)
WP_026913843.1	GH97	Candidate alpha-glucosidase; Glycoside hydrolase family 97 (<i>Flavobacterium johnsoniae</i> UW101)
WP_026913857.1	GH16	glycoside hydrolase family 16 (<i>Emticicia oligotrophica</i> DSM 17448)
WP_026913858.1	GH16	glycosyl hydrolase, family 16 (<i>Gramella forsetii</i> KT0803)
WP_026913859.1	GH3	beta-glucosidase (<i>Gramella forsetii</i> KT0803)
WP_026913860.1	GH16	glycosyl hydrolase, family 16 (<i>Gramella forsetii</i> KT0803)
WP_026913861.1	GH13	alpha amylase catalytic region (<i>Eubacterium limosum</i> KIST612)
WP_026913888.1	GH130	glycosidase related protein (<i>Pedobacter saltans</i> DSM 12145)
WP_026913891.1	AA0	bifunctional heme catalase-peroxidase (<i>Zunongwangia profunda</i> SM-A87)
WP_026913900.1	GT2	riboflavin biosynthesis protein RibF (<i>Haliscomenobacter hydrossis</i> DSM 1100)
WP_026913902.1	GH95, GH1	hypothetical protein AN3106.2 (<i>Aspergillus nidulans</i> FGSC A4)
WP_026913929.1	CBM50	L-Ala-D-Glu endopeptidase precursor (<i>Brevibacillus laterosporus</i> LMG 15441)
WP_026913935.1	GT5	glycogen synthase N-terminal domain-like protein (<i>Gramella forsetii</i> KT0803)
WP_026913989.1	GT2	glycosyl transferase family 2 (<i>Chlorobium limicola</i> DSM 245)
WP_026913992.1	GH15	glycoside hydrolase 15-related (<i>Chlorobium phaeobacteroides</i> BS1)
WP_026913993.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026913994.1	GH113	conserved hypothetical protein, secreted (<i>Gramella forsetii</i> KT0803)
WP_026913997.1	GT2	RfbJ-like lipopolysaccharide biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026913998.1	GT2	transmembrane family-2 glycosyl transferase-possibly involved in biofilm formation (<i>Gramella forsetii</i> KT0803)
WP_026914018.1	GH32	glycosyl hydrolase, family 32 (<i>Gramella forsetii</i> KT0803)
WP_026914021.1	GT2	hyaluronan synthase (<i>Gramella forsetii</i> KT0803)
WP_026914040.1	GT2	transmembrane family-2 glycosyl transferase (<i>Zunongwangia profunda</i> SM-A87)
WP_026914071.1	GT2	dolichol-phosphate mannosyltransferase family protein (<i>Gramella forsetii</i> KT0803)
WP_026914076.1	PL6	alginate lyase precursor (<i>Formosa agariphila</i> KMM 3901)
WP_026914080.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid (one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)
WP_026914081.1	GT*	putative glycosyl transferase (<i>Aequorivita sublithicola</i> DSM 14238)
WP_026914082.1	GT30	bifunctional glycosyltransferase/methyltransferase (<i>Fusobacterium nucleatum</i> subsp. <i>vincentii</i> 3_1_36A2)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026914108.1	CE4	protein containing polysaccharide deacetylase domain (Gramella forsetii KT0803)
WP_026914118.1	PL4-subfamily_5	hypothetical protein AN4139.2 (Aspergillus nidulans FGSC A4)
WP_026914157.1	GT4	ABC transporter related (Desulfovibrio desulfuricans subsp. desulfuricans str. ATCC 27774)
WP_026914190.1	CBM50	Peptidoglycan-specific endopeptidase, M23 family protein (Borrelia parkeri SLO)
WP_026914198.1	GH73, CBM50	mannosyl-glycoprotein endo-beta-N-acetylglucosamidase family protein (Gramella forsetii KT0803)
WP_026914199.1	GT2	amino acid adenylation enzyme/thioester reductase family protein (Chamaesiphon minutus PCC 6605)
WP_026914246.1	GT30	3-deoxy-D-manno-octulosonic-acid transferase (Gramella forsetii KT0803)
WP_026914250.1	GT2	amino acid adenylation enzyme/thioester reductase family protein (Chamaesiphon minutus PCC 6605)
WP_026914256.1	CBM48	hypothetical protein GFO_0282 (Gramella forsetii KT0803)
WP_026914325.1	GH3	unnamed protein product (Aspergillus oryzae RIB40)
WP_026914331.1	CE*	secreted alpha/beta fold hydrolase-possibly a phospholipase/carboxylesterase (Gramella forsetii KT0803)
WP_026914332.1	GH43	fibronectin type III repeat domain containing secreted glycoside hydrolase, family 43 (Gramella forsetii KT0803)
WP_026914333.1	CE15, GH78	hypothetical protein (uncultured bacterium pUR16A2)
WP_026914334.1	GH2, CBM57	glycoside hydrolase, family 2 (Gramella forsetii KT0803)
WP_026914356.1	CBM57	putative secreted protein (Maribacter sp. HTCC2170)
WP_026914357.1	GH8, CBM9	CHU large protein, candidate b-glycosidase, CBM9 module, Glycoside Hydrolase Family 8 protein (Cytophaga hutchinsonii ATCC 33406)
WP_026914371.1	GT4	putative glycosyltransferase (Desulfovibrio magneticus RS-1)
WP_026914378.1	GH108	hypothetical protein Z042_16435 (Serratia fonticola RB-25)
WP_026914396.1	CBM13	alpha-L-arabinofuranosidase (Coralloccoccus coralloides DSM 2259)
WP_026914436.1	CE11	UDP-3-O-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase (Desulfomonile tiedjei DSM 6799)
WP_026914451.1	GT4	ABC transporter related (Desulfovibrio desulfuricans subsp. desulfuricans str. ATCC 27774)
WP_026914454.1	CBM50	Teichoic acid ABC transporter (Lactococcus lactis subsp. lactis NCDO 2118)
WP_026914458.1	GT82	bifunctional beta-1,4-N-acetylgalactosaminyltransferase/CMP-Neu5Ac synthase (Campylobacter jejuni subsp. jejuni 00-2426)
WP_026914460.1	GT4	glycosyltransferase (Nonlabens marinus S1-08)
WP_026914463.1	GT2	glycosyltransferase (Zunongwangia profunda SM-A87)
WP_026914466.1	GT2	DegT/DnrJ/EryC1/StrS aminotransferase (Pectobacterium carotovorum subsp. carotovorum PC1)
WP_026914469.1	GT4	glycosyl transferase group 1 (Methanohalobium evestigatum Z-7303)
WP_026914471.1	GT8	animal glycogenin, Glycosyltransferase Family 8-like protein (Ramlibacter tataouinensis TTB310)
WP_026914472.1	GT2	glycosyl transferase (Croceibacter atlanticus HTCC2559)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026914473.1	GT4	hypothetical protein IA05_06040 (<i>Flavobacterium psychrophilum</i>)
WP_026914476.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026914477.1	GT2	glycosyltransferase (<i>Zunongwangia profunda</i> SM-A87)
WP_026914480.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026914481.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026914483.1	GT*	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026914486.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026914489.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026914490.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026914492.1	GT4	glycosyl transferases group 1 (<i>Gramella forsetii</i> KT0803)
WP_026914493.1	GT4	glycosyl transferases group 1 (<i>Gramella forsetii</i> KT0803)
WP_026914494.1	GT2	hypothetical intercellular adhesion protein A (<i>Photobacterium profundum</i> SS9)
WP_026914514.1	GH28	hypothetical protein VITISV_002009 (<i>Vitis vinifera</i>)
WP_026914524.1	AA1	Multicopper oxidase (<i>Elizabethkingia anophelis</i> NUHP1)
WP_026914541.1	GT28	cell division protein FtsW (<i>Kribbella flavida</i> DSM 17836)
WP_026914545.1	GT19	lipid-A-disaccharide synthase (<i>Gramella forsetii</i> KT0803)
WP_026914546.1	CBM50	NLP/P60 protein (<i>Flavobacterium johnsoniae</i> UW101)
WP_026914569.1	GH13-9, CBM48	1,4-alpha-glucan branching enzyme (<i>Gramella forsetii</i> KT0803)
WP_026914570.1	GH31	alpha-glucosidase (<i>Gramella forsetii</i> KT0803)
WP_026914602.1	CBM50	cell wall hydrolase/autolysin (<i>Marinomonas posidonica</i> IVIA-Po-181)
WP_026914671.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid (one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)
WP_026914672.1	CE11	response regulator receiver protein (<i>Brachyspira murdochii</i> DSM 12563)
WP_026914738.1	GH84	aminopeptidase P homologue (M24 family) (<i>Schistosoma mansoni</i>)
WP_026914739.1	GH*	hypothetical protein Celal_1602 (<i>Cellulophaga algicola</i> DSM 14237)
WP_026914742.1	GH13-8, CBM48	hypothetical protein Csp3_JD02.017 (<i>Caenorhabditis angaria</i>)
WP_026914759.1	CE3	hypothetical protein Riv7116_6589 (<i>Rivularia</i> sp. PCC 7116)
WP_026914763.1	CBM50	peptidase M23B (<i>Shewanella pealeana</i> ATCC 700345)
WP_026914808.1	CBM9	CHU large protein (<i>Cytophaga hutchinsonii</i> ATCC 33406)
WP_026914815.1	GH12	insulinase family protein (<i>Mesorhizobium huakuii</i> 7653R)
WP_026914837.1	GT66	peptidyl-prolyl cis-trans isomerase (rotamase) - cyclophilin family (<i>Candidatus Nitrososphaera evergladensis</i> SR1)
WP_026914846.1	GT47	hypothetical protein VITISV_016911 (<i>Vitis vinifera</i>)
WP_026914858.1	CE14	conserved hypothetical protein (<i>Gramella forsetii</i> KT0803)
WP_026914867.1	GT51	Multimodular transpeptidase-transglycosylase (<i>Castellaniella defragrans</i> 65Phen)
WP_026914879.1	GH13, CBM48	maltooligosyl trehalose hydrolase (<i>Cellulophaga algicola</i> DSM 14237)
WP_026914902.1	GH1	beta-galactosidase (<i>Roseburia hominis</i> A2-183)
WP_026914904.1	GH9	glycoside hydrolase family 9 (<i>Opitutus terrae</i> PB90-1)
WP_026914906.1	GH27	alpha-galactosidase (<i>Melioribacter roseus</i> P3M-2)
WP_026914911.1	GH5- subfamily_2	Endo-beta-1,4-glucanase, family GH5 (<i>Zobellia galactanivorans</i>)
WP_026914912.1	GH39	transcriptional regulator, AraC family (<i>Alkaliphilus oremlandii</i> OhILAs)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026914913.1	GH26	Mannan endo-1,4-beta-mannosidase (<i>Cellulophaga algicola</i> DSM 14237)
WP_026914915.1	GH130	glycosidase, PH1107-related protein (<i>Zunongwangia profunda</i> SM-A87)
WP_026914916.1	GH130	hypothetical protein CCDG5_2018 (<i>Clostridium cellulosi</i>)
WP_026914917.1	GH26	Candidate beta-mannanase; Glycoside hydrolase family 26 (<i>Flavobacterium johnsoniae</i> UW101)
WP_026914918.1	GH5-7	Candidate beta-glycosidase; Glycoside hydrolase family 5 (<i>Flavobacterium johnsoniae</i> UW101)
WP_026914919.1	GH3	Candidate beta-glucosidase; Glycoside hydrolase family 3 (<i>Flavobacterium johnsoniae</i> UW101)
WP_026914920.1	CBM35	protein of unknown function (DUF303) (<i>Thermobacillus composti</i> KWC4)
WP_026914939.1	GH63	periplasmic trehalase-like protein (<i>Gramella forsetii</i> KT0803)
WP_026914940.1	GH2	beta-galactosidase (<i>Gramella forsetii</i> KT0803)
WP_026914942.1	GH39	beta-xylosidase XynB (<i>Clostridium saccharoperbutylacetonicum</i> N1-4(HMT))
WP_026914949.1	CE11	UDP-3-O-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase (<i>Desulfomonile tiedjei</i> DSM 6799)
WP_026914971.1	GH16	beta-porphyranease B (GH16) (<i>Formosa agariphila</i> KMM 3901)
WP_026914976.1	GT2	membrane glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026914986.1	CBM50	5'-nucleotidase (<i>Paenibacillus mucilaginosus</i> K02)
WP_026915010.1	CBM50	peptidase S8 and S53 subtilisin kexin sedolisin (<i>Halotheothrix orenii</i> H 168)
WP_026915074.1	GH3	OmpA/MotB domain protein (<i>Pedobacter saltans</i> DSM 12145)
WP_026915112.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026915115.1	GT2	glycosyl transferase (<i>Aequorivita sublithicola</i> DSM 14238)
WP_026915131.1	GT28	UDP-N-acetylmuramate/alanine ligase (<i>Cellulomonas flavigena</i> DSM 20109)
WP_026915207.1	GT28	cell division protein FtsW (<i>Kribbella flavida</i> DSM 17836)
WP_026915208.1	GT28	undecaprenyldiphospho-muramoylpentapeptide beta-N-acetylglucosaminyltransferase (<i>Gramella forsetii</i> KT0803)
WP_026915209.1	GT28	UDP-N-acetylmuramate/alanine ligase (<i>Cellvibrio gilvus</i> ATCC 13127)
WP_026915228.1	GT2	cysteinyl-tRNA synthetase (<i>Thermobaculum terrenum</i> ATCC BAA-798)
WP_026915255.1	GT30	tetraacyldisaccharide 4'-kinase (<i>Acidaminococcus intestini</i> RyC-MR95)
WP_026915256.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid (one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)
WP_026915260.1	GT2	transmembrane family-2 glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026915266.1	GH18	chitinase I, partial (<i>Pantoea dispersa</i>)
WP_026915320.1	CE11	UDP-3-O-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase (<i>Desulfomonile tiedjei</i> DSM 6799)
WP_026915349.1	GT66	peptidyl-prolyl cis-trans isomerase (rotamase) - cyclophilin family (<i>Candidatus Nitrososphaera evergladensis</i> SR1)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026915351.1	GH18	putative peroxiredoxin (<i>Peptoclostridium difficile</i>)
WP_026915358.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026915394.1	GH3	O-glycosyl hydrolase family protein (homolog to N-acetylglucosaminidase) (<i>Halobacillus halophilus</i> DSM 2266)
WP_026915411.1	CBM13	elongation factor Tu (<i>Streptomyces albulus</i>)
WP_026915438.1	GT2	two-component system sensor histidine kinase/response regulator, hybrid (one component system) (<i>Bacteroides thetaiotaomicron</i> VPI-5482)
WP_026915458.1	GH2	hypothetical protein AN2824.2 (<i>Aspergillus nidulans</i> FGSC A4)
WP_026915466.1	GT2	WbbL-like lipopolysaccharide biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026915496.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026915497.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026915498.1	GT2	glycosyl transferase, family 2 (<i>Gramella forsetii</i> KT0803)
WP_026915500.1	GT2	glycosyl transferase (<i>Aequorivita sublithicola</i> DSM 14238)
WP_026915501.1	GT9	glycosyl transferase family 9 (<i>Lacinutrix</i> sp. 5H-3-7-4)
WP_026915515.1	GH13-11	glycogen debranching protein (<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Enteritidis</i> str. EC20121179)
WP_026915546.1	CBM50	LysM domain-containing protein (<i>Zunongwangia profunda</i> SM-A87)
WP_026915567.1	CE*	conserved hypothetical protein, secreted (<i>Gramella forsetii</i> KT0803)
WP_026915604.1	GH43	aldose 1-epimerase (<i>Prevotella denticola</i> F0289)
WP_026915611.1	GH13-7	alpha-amylase (<i>Gramella forsetii</i> KT0803)
WP_026915615.1	GH32	Sucrose-6-phosphate hydrolase (<i>Klebsiella pneumoniae</i> JM45)
WP_026915617.1	GH65	beta-phosphoglucomutase (<i>Anabaena</i> sp. 90)
WP_026915618.1	GH65	trehalose/maltose phosphorylase (GH65) (<i>Formosa agariphila</i> KMM 3901)
WP_026915619.1	GH13	alpha amylase (<i>Gramella forsetii</i> KT0803)
WP_026915620.1	GH13	alpha amylase (<i>Gramella forsetii</i> KT0803)
WP_026915663.1	CBM13	hypothetical protein; putative Ricin B lectin and Actin-like ATPase domains (<i>Frankia alni</i> ACN14a)
WP_026915682.1	GH96, CBM6	agarase (<i>Thalassotalea agarivorans</i>)
WP_026915683.1	CBM5, GH5-2	CelA8 (<i>Pseudoalteromonas haloplanktis</i>)
WP_026915684.1	CBM13	flavastacin (<i>Corallocooccus coralloides</i> DSM 2259)
WP_026915685.1	CBM13	flavastacin (<i>Corallocooccus coralloides</i> DSM 2259)
WP_026915698.1	GT2	NAD-dependent epimerase/dehydratase (<i>Agrobacterium</i> sp. H13-3)
WP_026915702.1	GT2	glycosyl transferase (<i>Belliella baltica</i> DSM 15883)
WP_026915703.1	GT2	DegT/DnrJ/EryC1/StrS aminotransferase (<i>Pectobacterium carotovorum</i> subsp. <i>carotovorum</i> PC1)
WP_026915712.1	GT2	acetyltransferase (isoleucine patch superfamily) (<i>Rivularia</i> sp. PCC 7116)
WP_026915716.1	GT82	bifunctional beta-1,4-N-acetylgalactosaminyltransferase/CMP-Neu5Ac synthase (<i>Campylobacter jejuni</i> subsp. <i>jejuni</i> 00-2426)
WP_026915723.1	GT2	Glycosyltransferase (<i>Idiomarina loihiensis</i> L2TR)
WP_026915724.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026915728.1	CE4	polysaccharide deacetylase (<i>Bacteroides helcogenes</i> P 36-108)
WP_026915729.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026915731.1	GT4	capsular polysaccharide biosynthesis glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026915732.1	GT4	glycosyl transferase possibly involved in lipopolysaccharide synthesis (<i>Rivularia</i> sp. PCC 7116)
WP_026915755.1	GT5	phytochrome b, partial (<i>Mnesithea seloana</i>)
WP_026915760.1	AA6	TrpR binding protein WrbA (<i>Exiguobacterium</i> sp. MH3)
WP_026915764.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026915801.1	GT2, GH17	glycosyl transferase family 2 (<i>Starkeya novella</i> DSM 506)
WP_026915802.1	GT4	probable galactosyltransferase (<i>Zunongwangia profunda</i> SM-A87)
WP_026915848.1	GT2	glycosyl transferase, family 2 (<i>Zunongwangia profunda</i> SM-A87)
WP_026915850.1	GH5-42	glycosidase (<i>Zunongwangia profunda</i> SM-A87)
WP_026915851.1	GT4	glycosyltransferase (<i>Zunongwangia profunda</i> SM-A87)
WP_026915857.1	GT4	Mannose-1-phosphate guanylyltransferase (GDP) (<i>Burkholderia phymatum</i> STM815)
WP_026915867.1	GT2	transmembrane family-2 glycosyl transferase-possibly involved in biofilm formation (<i>Gramella forsetii</i> KT0803)
WP_026915871.1	GT2	undecaprenyl-phosphate 4-deoxy-4-formamido-L-arabinose transferase-like protein (<i>Gramella forsetii</i> KT0803)
WP_026915876.1	CBM14	CG33173 (<i>Drosophila melanogaster</i>)
WP_026915971.1	GT66	dolichyl-diphosphooligosaccharide-protein glycotransferase (<i>Candidatus Nitrososphaera gargensis</i> Ga9.2)
WP_026915989.1	AA*	glucoside 3-dehydrogenase (<i>Gramella forsetii</i> KT0803)
WP_026916000.1	GH0	hypothetical protein Celal_0179 (<i>Cellulophaga algicola</i> DSM 14237)
WP_026916004.1	GT20	trehalose 6-phosphate synthase/phosphatase (<i>Gramella forsetii</i> KT0803)
WP_026916005.1	GH15	glycosyl hydrolase, family 15 (<i>Gramella forsetii</i> KT0803)
WP_026916021.1	GT2	undecaprenyl-phosphate 4-deoxy-4-formamido-L-arabinose transferase (<i>Gramella forsetii</i> KT0803)
WP_026916029.1	GH23	membrane-bound lytic murein transglycosylase (<i>Gramella forsetii</i> KT0803)
WP_026916053.1	CE11	DDX20_HUMAN Probable ATP-dependent RNA helicase DDX20 (ISS) (<i>Ostreococcus tauri</i>)
WP_026916056.1	GT4	nicotinate-nucleotide pyrophosphorylase (carboxylating) (<i>Flexibacter litoralis</i> DSM 6794)
WP_026916092.1	GT4	ABC transporter related (<i>Desulfovibrio desulfuricans</i> subsp. <i>desulfuricans</i> str. ATCC 27774)
WP_026916093.1	CBM0	hypothetical protein GFO_1460 (<i>Gramella forsetii</i> KT0803)
WP_026916105.1	GH39	beta-xylosidase XynB (<i>Clostridium saccharoperbutylacetonicum</i> N1-4(HMT))
WP_026916109.1	GH72	Rab1 family GTPase (PiYpt1) putative (<i>Albugo laibachii</i> Nc14)
WP_026916149.1	GT2	UDP-glucose 4-epimerase (<i>Cyanothece</i> sp. PCC 7822)
WP_026916161.1	GT51	bifunctional transglycosylase/transpeptidase penicillin-binding protein (<i>Zunongwangia profunda</i> SM-A87)
WP_026916174.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)

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Table S6: (continued)

Accession No.	family	Annotation
WP_026916224.1	GH18, GH31	hypothetical protein AN8217.2 (<i>Aspergillus nidulans</i> FGSC A4)
WP_026916228.1	GT49	predicted protein (<i>Phaeodactylum tricornutum</i> CCAP 1055/1)
WP_026916233.1	GT4	glycosyl transferase, group 1 (<i>Gramella forsetii</i> KT0803)
WP_026916234.1	GH3	family 3 glycosyl hydrolase/beta-lactamase fusion protein (<i>Gramella forsetii</i> KT0803)
WP_026916239.1	GH25	hypothetical protein SALIVB_1060 (<i>Streptococcus salivarius</i> CCHSS3)
WP_026916251.1	GT2	hypothetical protein SCE1572_45215 (<i>Sorangium cellulosum</i> So0157-2)
WP_026916254.1	GT2	transmembrane family-2 glycosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026916257.1	CE4	membrane protein containing polysaccharide deacetylase domain (<i>Gramella forsetii</i> KT0803)
WP_026916272.1	GH1	mannose-6-phosphate isomerase, class I/beta-galactosidase (<i>Roseburia intestinalis</i> XB6B4)
WP_026916273.1	GT83	ArnT-like undecaprenyl-phosphate alpha-4-amino-4-deoxy-L-arabinose arabinosyl transferase (<i>Gramella forsetii</i> KT0803)
WP_026916307.1	CE11	LpxC/FabZ bifunctional enzyme (<i>Gramella forsetii</i> KT0803)
WP_026916321.1	GT4	glycosyl transferase, group 1 (<i>Zunongwangia profunda</i> SM-A87)
WP_026916344.1	CE14	hypothetical protein GFO_1816 (<i>Gramella forsetii</i> KT0803)
WP_026916357.1	GH16	glycosyl hydrolase, family 16 (<i>Gramella forsetii</i> KT0803)
WP_026916364.1	CE3	hypothetical protein Riv_71166589 (<i>Rivularia</i> sp. PCC 7116)