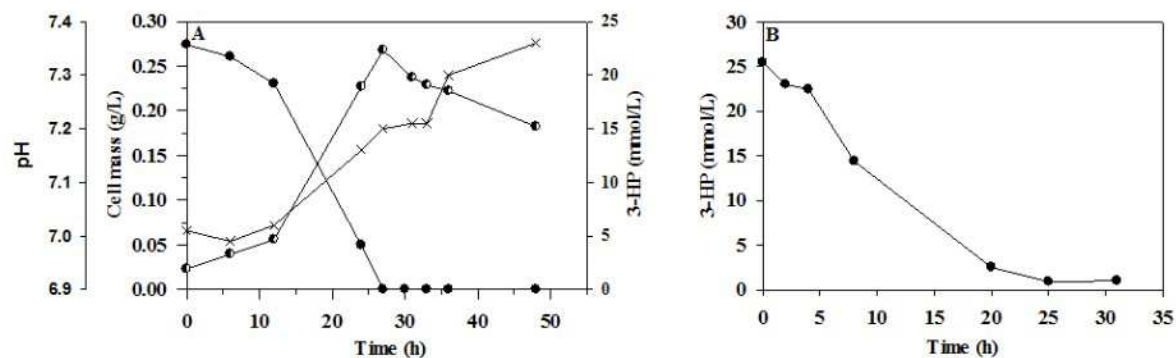
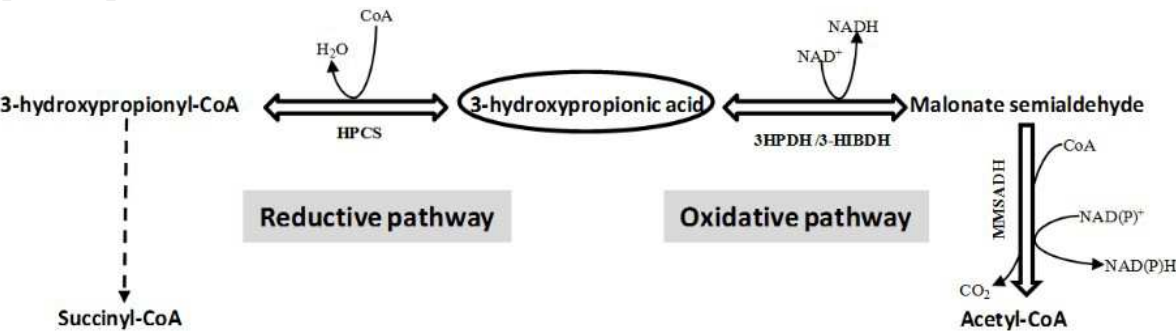


DRAWINGS

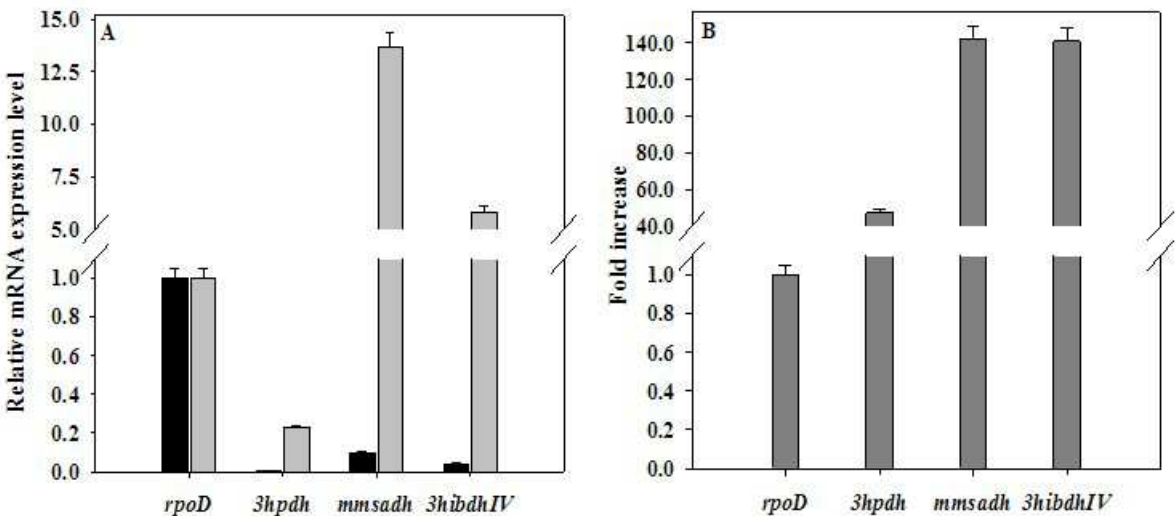
【FIG. 1】



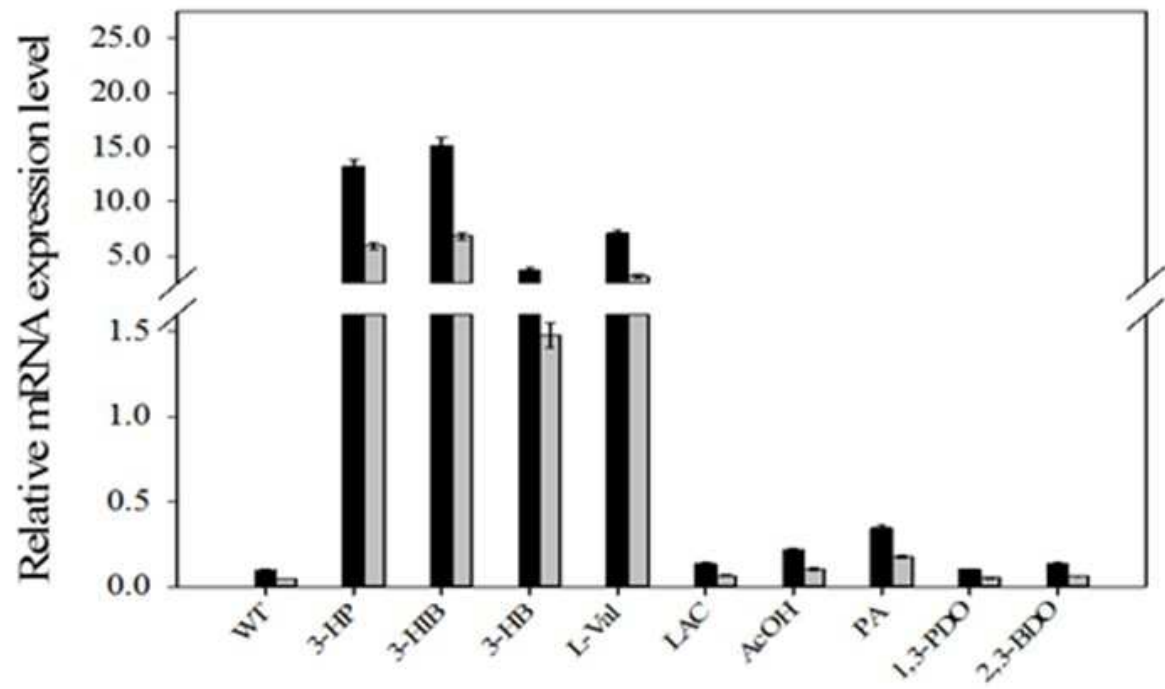
【FIG. 2】



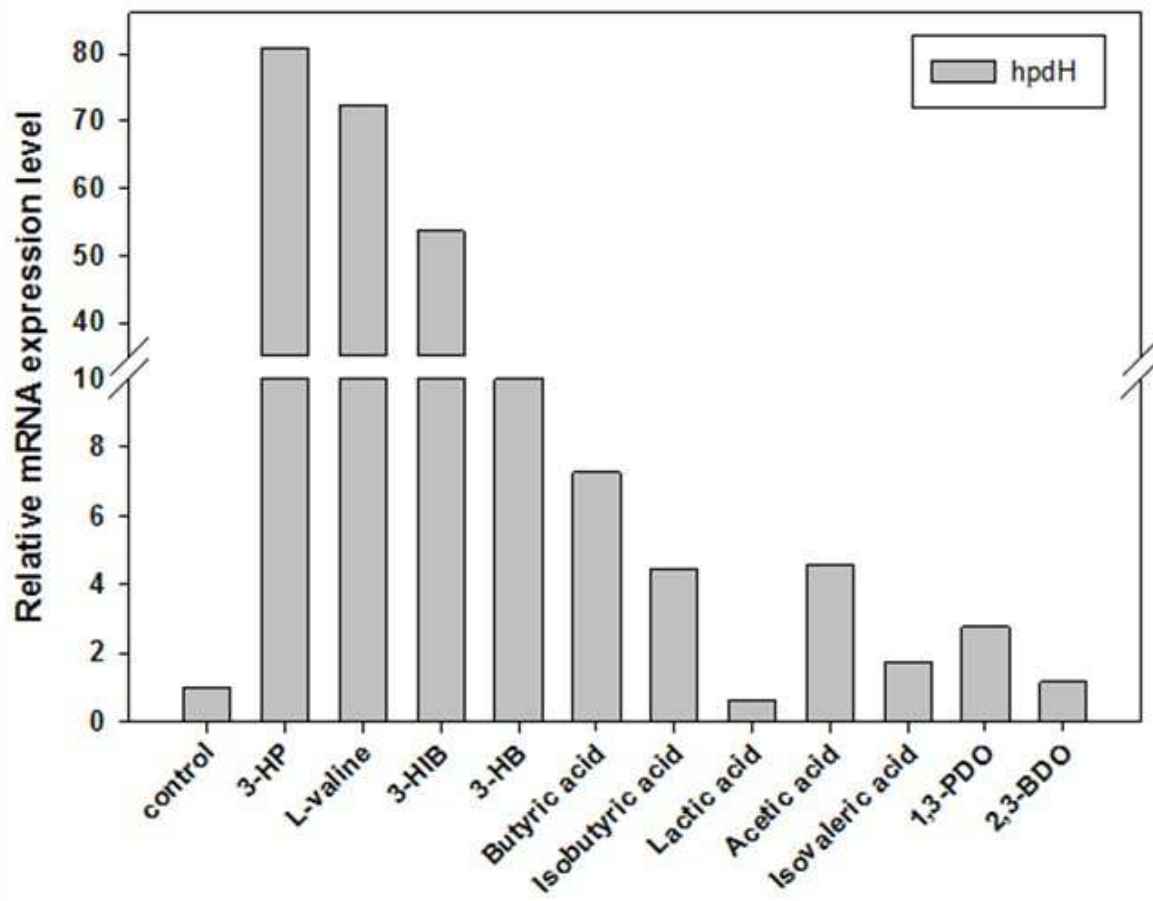
【FIG. 3】



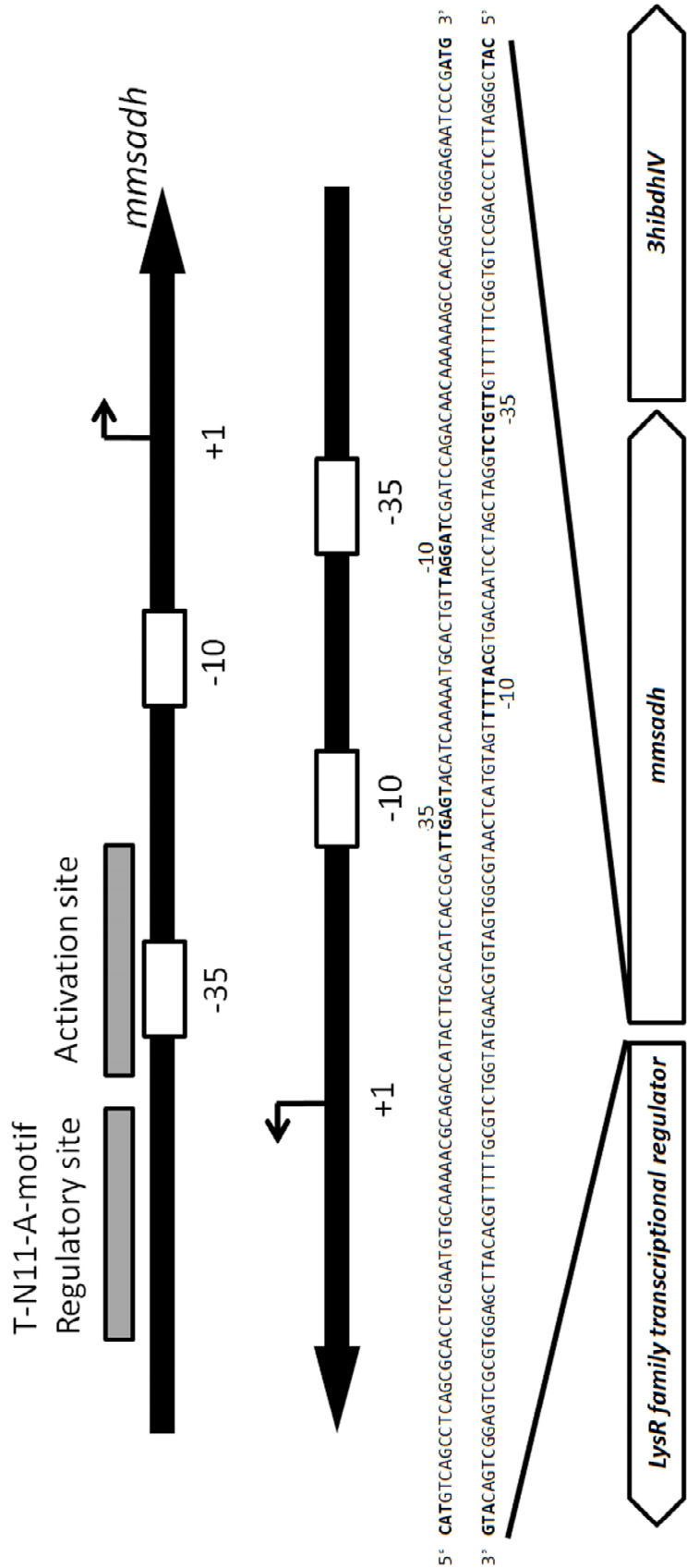
【FIG. 4】



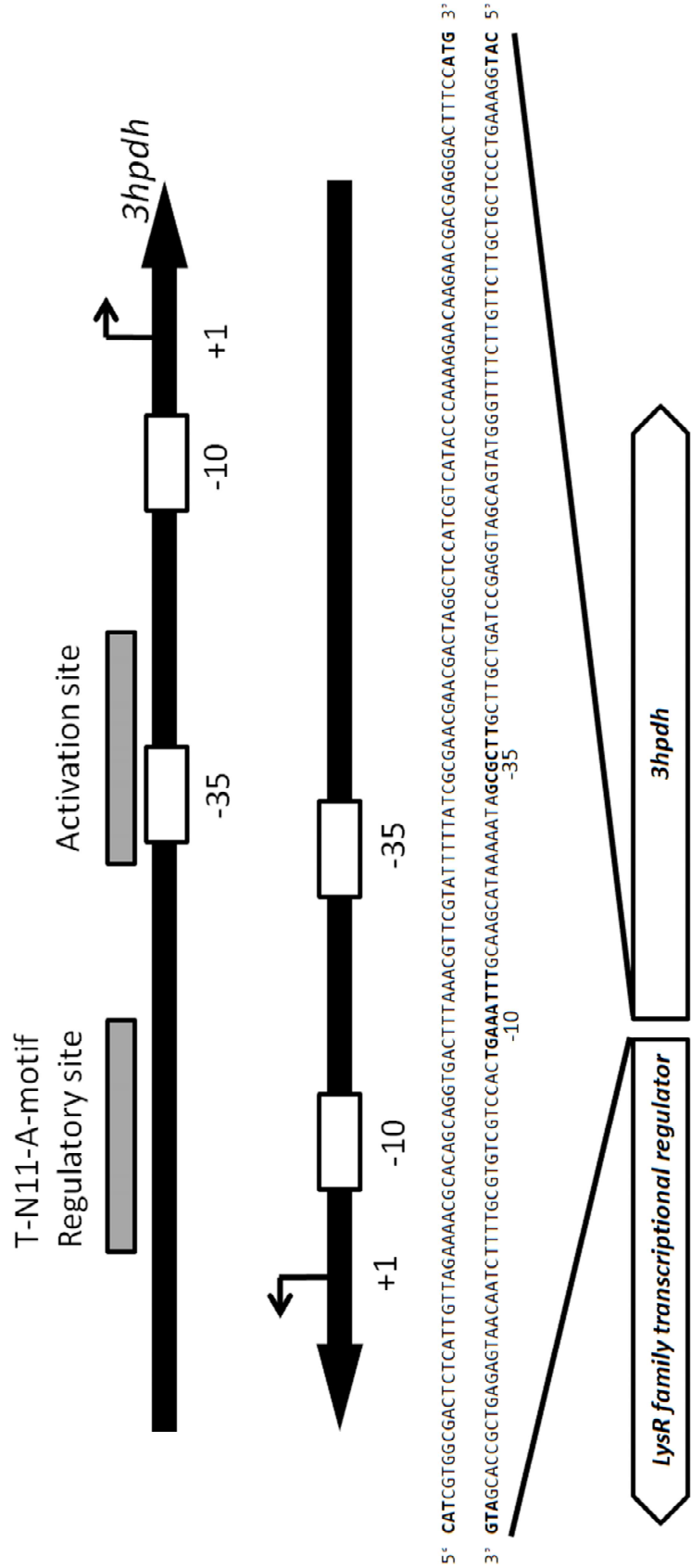
【FIG. 5】



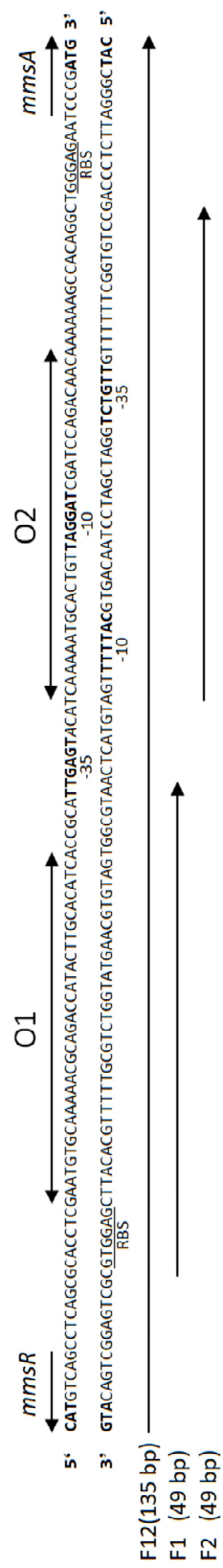
【FIG. 6a】



【FIG. 6b】

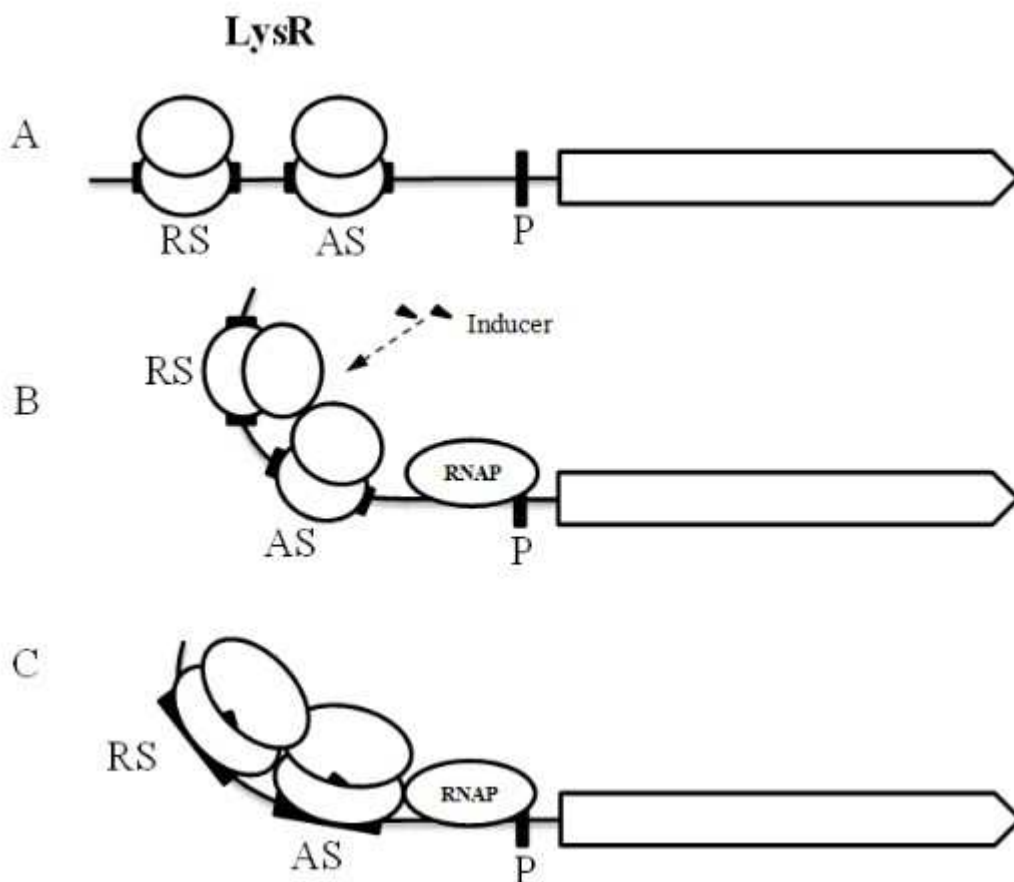


【FIG. 7】

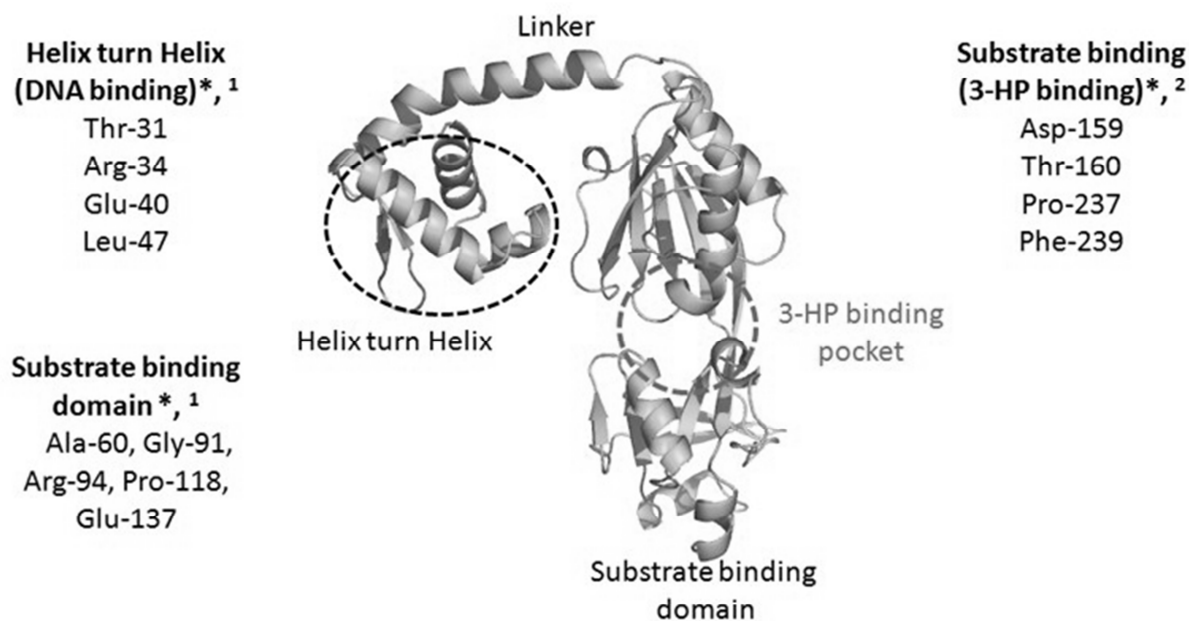


O ₁	A	A	C	G	T	G	T	A	A	-	9/9
O ₂	A	A	C	G	T	G	T	A	g	-	8/9
	c	A	C	G	T	a	a	A	A	-	6/9
	t	A	g	G	T	c	T	g	t	-	4/9
Consensus	A	A	C	G	T	G	T	A	A		

【FIG. 8】



【FIG. 9】

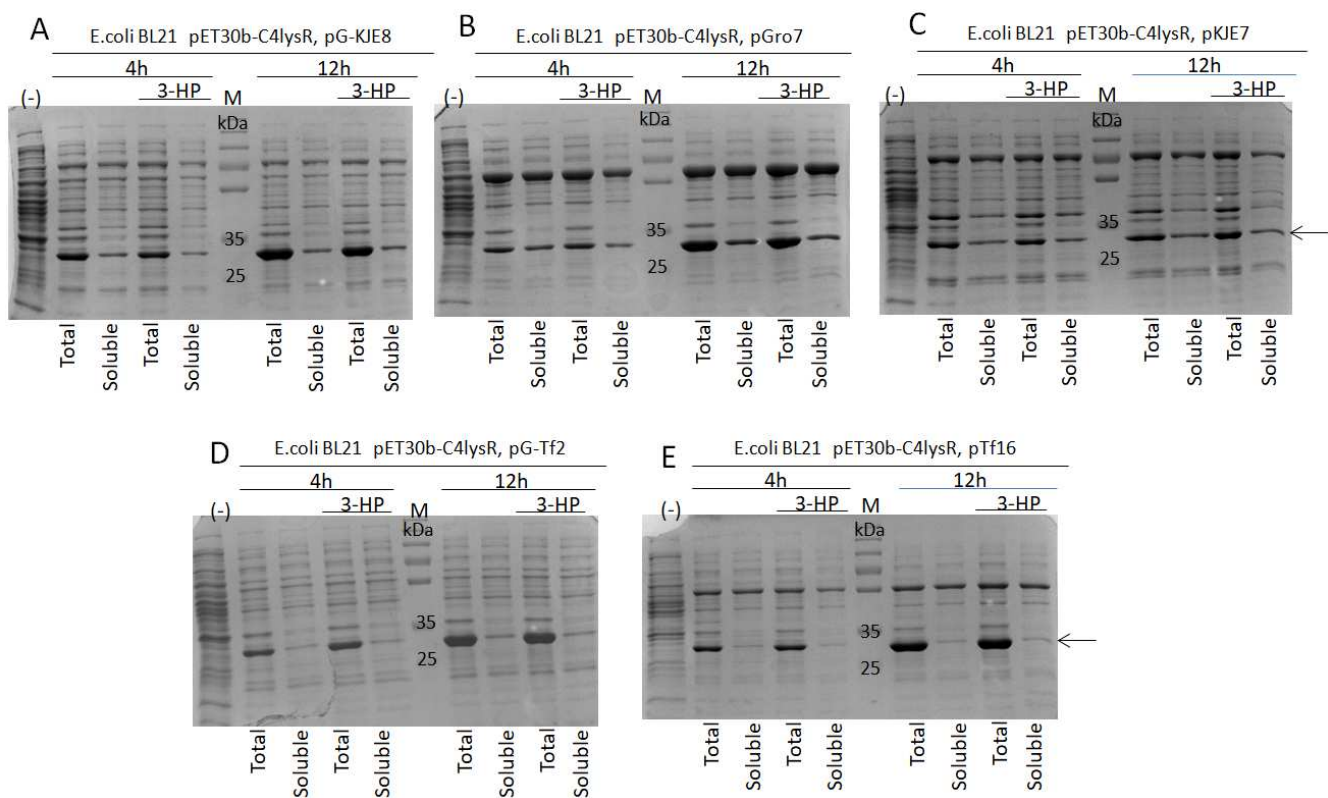


* Highly conserved residues with reference to C4-LysR in *P. denitrificans*.

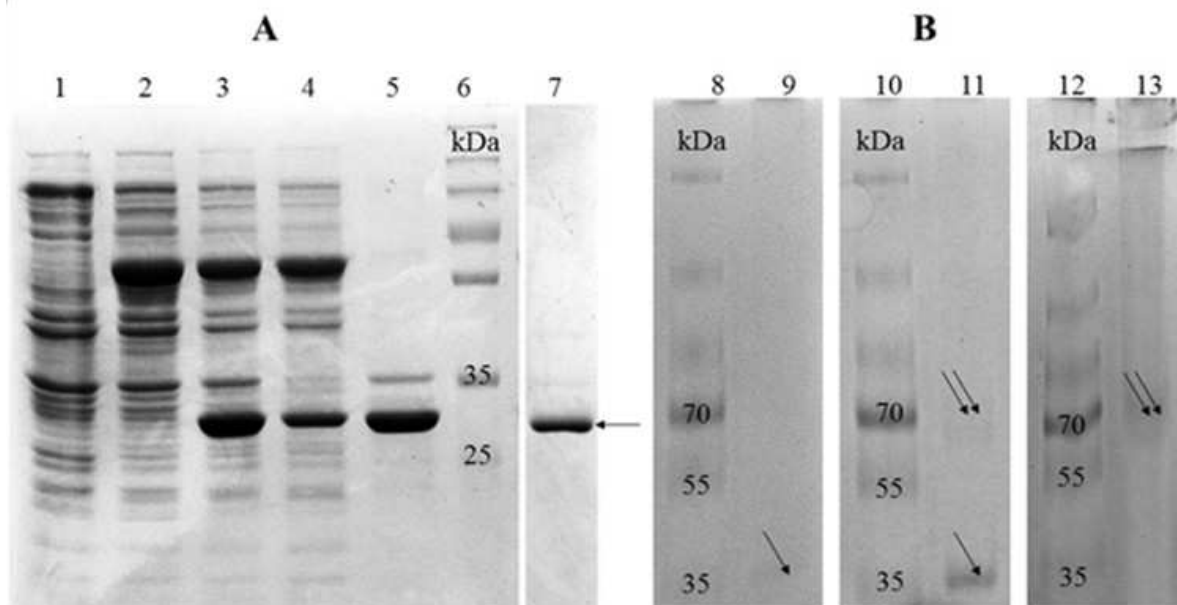
¹ Proposed based on Multiple Sequence Alignment of LysR from 62 different genus; and

² based on molecular modeling, docking and MSA.

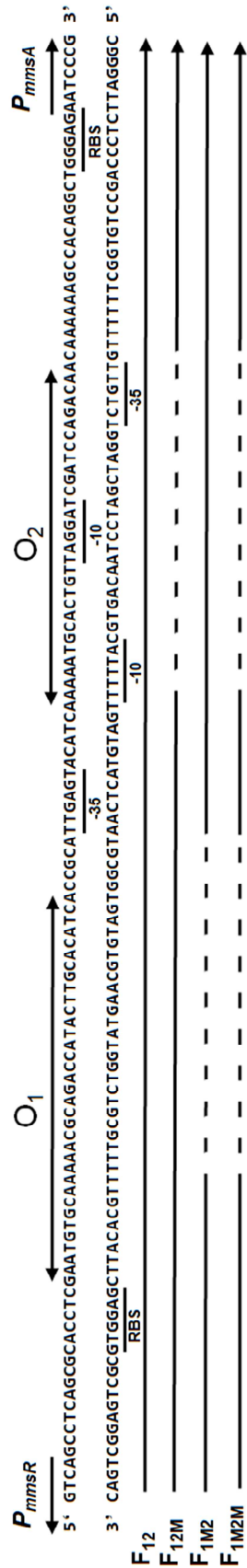
【FIG. 10】



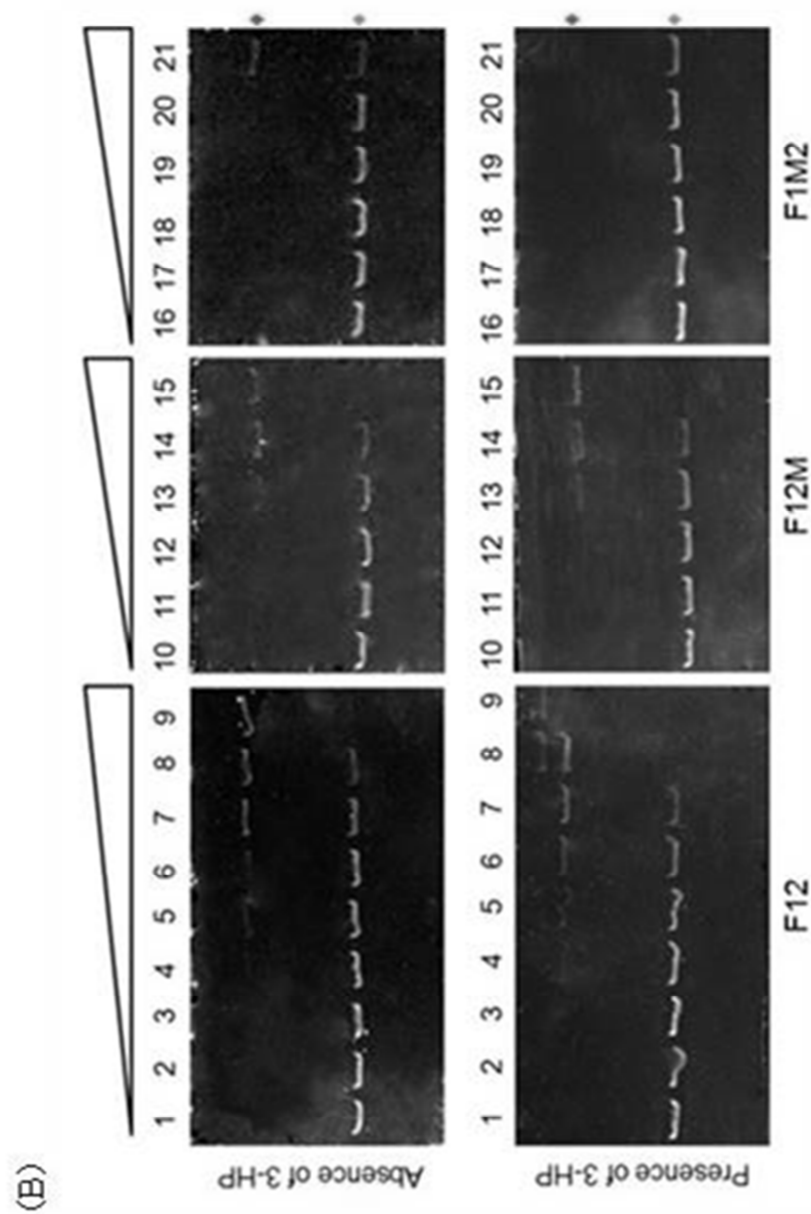
【FIG. 11】



【FIG. 12a】



【FIG. 12b】

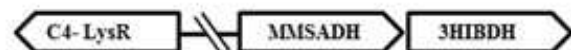
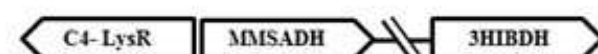


【FIG. 12c】

(C)

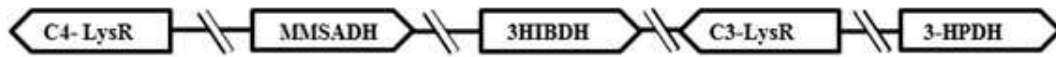
K_0 (nM)	F12	F12M	F1M2	F1M2M
- 3-HP	10.7	18.6	79.8	N/A
+ 3-HP	5.4	19.8	316	N/A

【FIG. 13a】

Group 1: *Pseudomonas***Group 2:** *Acinetobacter*, *Cupriavidus***Group 3:** *Collimonas***Group 4:** *Alcanivorax*, *Burkholderia***Group 5:** *Corynebacterium*, *Segniliparus***Group 6:** *Methylocystis*, *Tatlockia*, *Curvibacter***Group 7:** *Sphingobium*, *Polynucleobacter*, *Bradyrhizobium*, *Xanthobacter*, *Catenulispora*, *Agrobacterium*, *Methylobacterium*, *Novosphingobium*, *Sphingomonas*, *Thalassospira***Group 8:** *Alicyclophilus*, *Alteromonas*, *Kitasatospora*, *Paracoccus*, *Simiduia*, *Sphingopyxis***Group 9:** *Sinorhizobium*, *Beijerinckia*, *Aeromonas*, *Castellaniella*, *Amycolatopsis*

【FIG. 13b】

Group 10: *Verminephrobacter*, *Janthinobacterium*, *Idiomarina*, *Glaciecola*, *Gordonia*



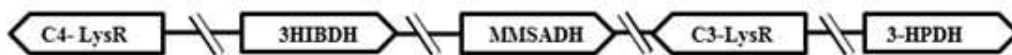
Group 11: *Achromobacter*, *Acidovorax*, *Alcaligenes*, *Halomonas*, *Azospirillum*, *Chromobacterium*, *Comamonas*



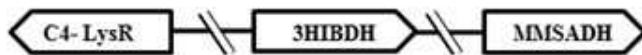
Group 12: *Oceanimonas*, *Rastolnia*, *Pseudoalteromonas*, *Ferrimonas*, *Delftia*, *Pseudogulbenkiania*, *Anaeromyxobacter*, *Bordetella*



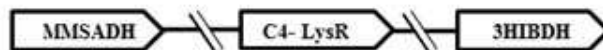
Group 13: *Phenylobacterium*, *Psychrobacter*, *Shewanella*, *Vibrio*, *Xanthomonas*, *Stenotrophomonas*, *Caulobacter*, *Hahella*, *Kutzneria*, *Rhodomicrobium*,



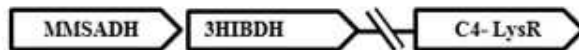
Group 14: *Pseudoxanthomonas*, *Azotobacter*



Group 15: *Parvibaculum*, *Hirschia*



Group 16: *Photobacterium*



【FIG. 14a】

	(1)	1	10	20	30	40	50	60	77		
Achromobacter_arsenitoxydans	(1)	-----	MLDWSLR	YFLEVART	QVSAAR	KLGVEHT	TVSRRIR	ALETET	LDLTLFEKSR	SAGFVL	DDG--
Achromobacter_piechaudii	(1)	-----	MLDWSLR	YFLEVART	QVSAAR	KLGVEHT	TVSRRIR	ALETET	LDLTLFEKSR	SAGFVL	DDG--
Achromobacter_xylooxidans	(1)	-----	MLDWSLR	YFLEVART	QVSAAR	KLGVEHT	TVSRRIR	ALETET	LDLTLFEKSR	SAGFVL	DDG--
Acidovorax_avenae	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acidovorax_citrulli	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acidovorax_delfieldii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acidovorax_ebreus	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGAPL	FAEAGG	HRLTEAGR
Acidovorax_radiis	(1)	-----	MDWDHFR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGAPL	FAEAGG	HRLTEAGR
Acidovorax_sp.	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_beijeirinkii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_bohemius	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_calcoaceticus	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_gemeri	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_gyllenbergii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_johnsonii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_junii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_nosocomialis	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_rudis	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Acinetobacter_tandolii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Advenella_kashmirensis	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Alcaligenes_faecalis	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Allicyclophilus_denitrificans	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Azospirillum_lipoferum	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Azotobacter_chroococcum	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Azotobacter_vinelandii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Beijeirackia_indica	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Beijeirackia_mobilis	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Bordetella_avium	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Bordetella_bronchiseptica	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Bordetella_hinzii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Bordetella_petrii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Bosea_sp.	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Bradyrhizobium_elkanii	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Burkholderia_ambifaria	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Burkholderia_ferrariae	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR
Burkholderia_lata	(1)	-----	MDWENLR	YFELART	GTAAARR	TGVEHT	TVARRI	QALEK	MGESL	FAEAGG	HRLTEAGR

[FIG. 14b]

Burkholderia_oxypila	(1)	---MQKSTTRPMETLWDDLRFLFLEVARTQASGAARRLGVDDHTTVARRVRELEAALGTVLFDKSR-----
Burkholderia_uboneensis	(1)	---MRHHPVPVSGNLWDDLRFLFLEVARTQASGAARRLGVDDHTTVARRIRALEEAMGTLLFDKSR-----
Chelatococcus_sp.	(1)	---MNRFDWDDLRFLFVARAGRLTVAARRLGADHATVSRRTIALEDALKAKLFERRPQGYALTEH---
Collimonas_arenae	(1)	---MLDWDNLRVLELTRSQGLVEAAKKGIDHSTVSRMRMRRFEEQVGSQLFERNQGYTLTAEGH---
Collimonas_fungivorans	(1)	MQNKEQVKSTKAMLDWDLNLRVLELTRSQGLVETAKKLGIDHSTVSRMRMRRFEEQVGSQLFEE-----
Comamonas_aquatica	(1)	---MDWDHLRFFWALVQAGTLVGAAKALGVHETTVSRRIQALEKQLGATLFTREGSGYKLTDAGRQ---
Comamonas_badia	(1)	---MTKPAGNDWDLNLRVLELARTGTAAARRTGVEHTTVARRILOLEKSMVPLFAEAAGHRL-----
Comamonas_composti	(1)	---MDWDHLRFFAELARSMSMAARRLGVHETTVSRRIQALEKQLGAVLFAREVQWRLTEGGRQ---
Comamonas_granuli	(1)	---MDWDNLRFFELARAGTLVGAARRLGVDDHTTVARRIOGLEKQVDAALFAREALGHLTEAGRA---
Comamonas_testosteroni	(1)	---MDWDHLRFFELARSMSMAARRMVGVEHTTVSRRIQALEKQLGAVLFAREGGQWRLTEAGRQ---
Curvibacter_gracilis	(1)	---MDWNNLRVLELARTGTILVNAARRLEVDHTTVARRLOALEKEVGTPLFAEAAGHRLTEAGRQ---
Curvibacter_lanceolatus	(1)	---MDWNNLRVLELARTGTILVNAARRLEVDHTTVARRLOALEKEVGTPLFAEAAGHRLTEAGRQ---
Derrxia_gummosa	(1)	---MDWDNLRVLELSRSGRLVAAARRLGVDDHTTVSRVQALETAVGOPLFVREAGGHVLTTEAGRR---
Halomonas_elongata	(1)	---MLDWQDIQIFLEVARSQRLADAARRLGDHSTLSRRTTRFEQRLNTQLFERSTHGYHLTEAGH---
Halomonas_habocynthiae	(1)	---MLDWQDIQIFLEVARSERLTDAAARRLGDHSTLSRRTTRFEHKLNTQLFERSTHGYHLTEAGQ---
Halomonas_sp.	(1)	---MLDWQDIQIFLEVARSQRLTDAAARRLGDHSTLSRRTTRFEQKLTQLFERSTHGYHLTEAGQ---
Herbaspirillum_huttienae	(1)	---MLDWDNLRVLELTRSQGLVDAKKGIDHSTVSRMRMRRFEEQVGSQLFDRNNHGYKLTADGY---
Herbaspirillum_lusitanum	(1)	---MMDWDNLRVLELTRSQGLVDAKKGIDHSTVSRMRMRRFEEQVGSQLFDRNNHGYSLTADGY---
Herbaspirillum_seropedicae	(1)	---MLDWDNLRVLELTRSQGLVDAKKGIDHSTVSRMRMRRFEEQVGSQLFDRNNHGYKLTADGY---
Herbaspirillum_sp.	(1)	---MLDWDNLRVLELTRSQGLVDAKKGIDHSTVSRMRMRRFEEQVGSQLFDRNNHGYKLTADGY---
Janthinobacterium_lividum	(1)	---MLDWDNLRVLELTRSQGLVDAKKGIDHSTVSRMRMRRFEEQVGSQLFDRNNHGYKLTADGY---
Janthinobacterium_sp.	(1)	---MLDWDNVRVLELTRSAGLVDAKKGIDHSTVSRMRMRRFEEQVGTQLFDRNIVGYQLTPEGH---
Kiloniella_laminariae	(1)	---MLDWDNVRVLELTRSAGLVDAKKGIDHSTVSRMRMRRFEEQVGTQLFDRNIVGYQLTPEGH---
Magnetospirillum_gryphiswaldeense	(1)	---MNPTFDWDLRPLAVARTGKLTIAAKRLKVDHTTVSRRIQALENALNATLTFERPQGYALTE-----
Marinobacterium_stanieri	(1)	---MDWDNLRVLELARGRRLMDAAERLGDYSTVSRRIIRFEQELGTQLFDRNNQGYTLTAQGLH---
Microvirgula_aerodenitrificans	(1)	---MLNWQDMQIFLEVARANRLTDAARRLNDHSTVSRRIIRFEASLNAQLFERSTHGYELAPAGK---
Mumia_flava	(1)	---MSAFDWDLRFLFVARAGRLTAAAROLEADHTTVSRRIISALEASLKAKLFERSPQGYTLTEP---
Niveospirillum_irakense	(1)	---MDWDNLRVLELARTSETLVQAARRLGMDSVSRRLRFEQQLGSQLFERNQGAALTTPQGYQ---
Oligella_urethralis	(1)	---MRHATEPVSGLNWDDLRFLFLEVARTQASGAARRLGVDDHTTVARRIRALEAAMGTLLFDKSR-----
Ottowia_thiooxydans	(1)	---MAERFDWDDLRFLFVARAGRLTIAARRMGVDHTTLGRRLTGLERALGTNLFERHATGYSLTQ---
Pandoraea_apista	(1)	---MMDWDGLRVFLAVARTSKISEAGRRLGVHETTVARRIROLEQAMGTVLFDKSRRYGYLLTEAG---
Pandoraea_sp.	(1)	---MDWDLRVFLAVARTGKLTAAARRLDVHTTVSRVQVLEKLGSTLFTVTSSTSGMELTEEGR---
Pannonibacter_phragmitetus	(1)	---MAGASSTPRPDWDLRVFLAVARTQVSAACRLGVDDHTTVSRVRALEQALGTLLFDKSRN-----
Perluclibaca_piscinae	(1)	---MRYFLEVARTQVSAACRLGVDDHTTVSRVRALEQSLGTLLFDKSRNAGFALTPEGQ---
Polynucleobacter_nece ssarius	(1)	---MNWDDLRIFLAVARAGMLGAARRLGVNHTVARRLTALDLSNTRLVERGTGCSLTEAGER---
Pseudogulbenkiania_ferroxidans	(1)	---MCKSTSLTSNMWDDLRLVFLAVLRHGSACAAARLGNHTTVARRIRLLEALGTLLFERSRS-----
Pseudomonas_aeruginosa	(1)	---MNSMNDHLQYFLALAKDRLVVAARS LGVHTTVSRRIQALEREMGVQLFSRNNLGFELTEA---
Pseudomonas_alkylphenolia	(1)	---MCKNPIPVDRLNWDDIKFFLEVARTHTASAAARRLGVDDHTTVSRRIQALGALLFEKRS-----
Pseudomonas_alkylphenolia	(1)	---MDWDLNLRVFLVARSRTLSAAARRLEVDYTTVSRRIQTLKLNKLGALQFSRQANGYALSEAGRS---
Pseudomonas_amygdali	(1)	---MCKNITSGLNWNWDDIKFFLEVARTKVSAAARRLAVDYTTVSRRIINSLETSLGTLLFEKSRN-----

[FIG. 14c]

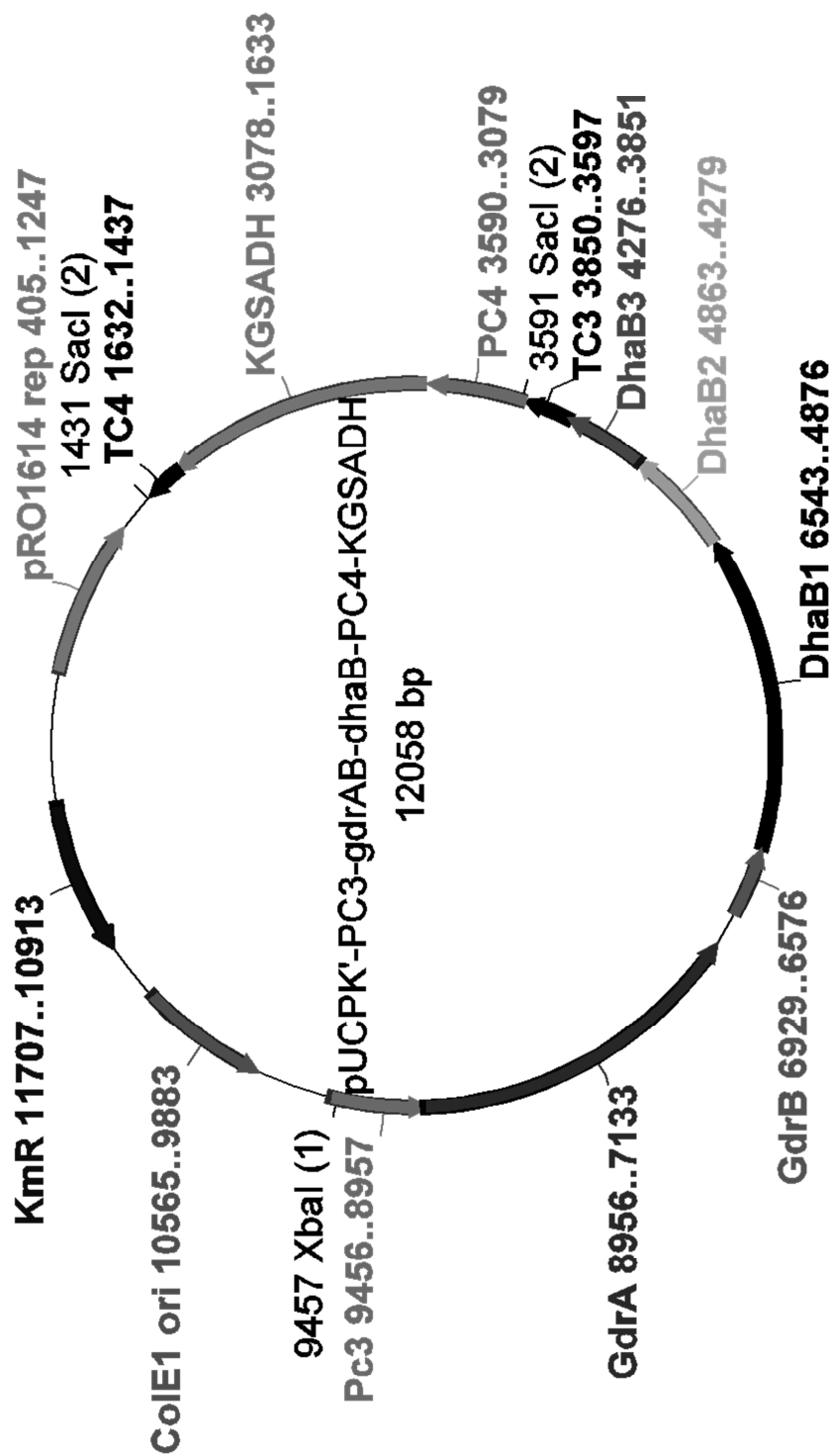
Pseudomonas_azotifigens (1)	-----MDWNLRFLEVARAGRLTTAARRLGVHTTVSRRLQAEKSTGLQLEPFGGYRLTEAGRG
Pseudomonas_balearia (1)	-----MDWNLRFLEVARAGRLTTAARRLNVHTTVSRRLQAEKSMQLEFVEPFGGYRLTEAGRN
Pseudomonas_bauzanensis (1)	-----MDWNLRFLEVARAGRLTTAARRLGVHTTVSRRLQAEKSLGVALFIDTSGYLTAEAGRS
Pseudomonas_chloridismutans (1)	-----MDWNLRFLEVARAGRLTTAARRLAVHTTVSRRLQAEKSMGLQLEPFGGYLTAEAGCN
Pseudomonas_chlororaphis (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASTAAKRLAVDVTTSRRISSEAAAGTLLFERSRT
Pseudomonas_corrugata (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASTAAKRLGVDTTVSRRISSIEASLGTLFERSRT
Pseudomonas_cremoricolorata (1)	-----MQKIPTSLSALNWDILKFFLEVARTRKASSAAKRLGVDTTVSRRIASIESALGTLFERSRS
Pseudomonas_dentrificans (1)	-----MDWNLRFLEVARAGRLTTAARRLGVHTTVSRRLQAEKSIQALVPEPFGGYRLTEAGHG
Pseudomonas_fluorescens (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASAAKRLSVDTTVSRRISSIEGSLGTLFERSRT
Pseudomonas_frederiksbergensis (1)	-----MFWDNLRFLEVARAGRLTTAARRLNTTHATVARHIEAEKSLGTLFVCHAQGYLTAEAG-
Pseudomonas_fulva (1)	-----MQKSMMSAGCNWDILKFFLEVARTRTASSAARRLGVDTTVSRRIQAEKALGTLFERSRA
Pseudomonas_japonica (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASSAAKRLGVDTTVSRRISSIEQALGTLFERSRT
Pseudomonas_knackmussii (1)	-----MDWNLRFLEVARAGRLTTAARRLGVHTTVSRRLQAEKSIQALVPEPFGGYRLTEAGHG
Pseudomonas_lutea (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASSAAKRLAVDVTTSRRISSEAAAGTLLFERSRN
Pseudomonas_mandellii (1)	-----MQKR-TTQSHVANWDIMRFFLEVARAHATASGAARRLGVDTTVSRRIQAEQSLGALLFERSAS
Pseudomonas_mediterranea (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASTAAKRLGVDTTVSRRISSIEASLGTLFERSRT
Pseudomonas_mendocina (1)	-----MQKN-MVLGRINWDILKFFLEVARTRTASAAARRLGVDTTVSRRISSIEQSLGALLFERSSA
Pseudomonas_montellii (1)	-----MQKILTSLSALNWDILKFFLEVARTRKASSAAKRLSVDTTVSRRISSIEGALGTLFERSRT
Pseudomonas_nitroreducens (1)	-----MDWNLRFLEVARAGRLTTAARRLGVHTTVSRRLQAEKSIQALVPEPFGGYRLTEAGHG
Pseudomonas_parafulva (1)	-----MQKILTSLSALNWDILKFFLEVARTRKASSAAKRLGVDTTVSRRISSIEGALGTLFERSRT
Pseudomonas_plecoglossicida (1)	-----MQKILTSLSALNWDILKFFLEVARTRKASSAAKRLSVDTTVSRRISSIEGALGTLFERSRT
Pseudomonas_protegens (1)	-----MFWDNLRFLEVARAGRLTTAARRLNTTHATVARHIEAEKALGTLFVCHAQGYLTAEAG-
Pseudomonas_pseudoalcaligenes (1)	-----MHKS-SNLDQLKWDILKFFLEVARTRTATGAARRLGVDTTVSRRIQAEQALGALLFERSAA
Pseudomonas_psychrotolerans (1)	-----MQKSNNPAARDWDILKFFLEVARTRCKSAAARRLGVDTTVSRRIQAEKALGALLFERSRS
Pseudomonas_putida (1)	-----MNMQR-TTQSHVANWDIMRFFLEVARAHATASGAARRLGVDTTVSRRIQAEQSLGALLFERSR
Pseudomonas_resinovorans (1)	-----MQKTPNSVGRINWDILKFFLEVARTRTASTAARRLGVDTTVSRRIQAEQMGALFERSRN
Pseudomonas_rhodesiae (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASAAKRLAVDVTTVSRRISSIEVSLGTLFERSRT
Pseudomonas_savastanoi (1)	-----MQKNITSLGILNWDILKFFLEVARTRKVSAAARRLAVDVTTVSRRISSIEVSLGTLFERSRN
Pseudomonas_simiae (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASAAKRLAVDVTTVSRRISSIEVSLGTLFERSRT
Pseudomonas_sp. (1)	-----MDWNLRFLEVARAGRLTTAARRLGVHTTVSRRLQAEKSIQALVPEPFGGYRLTEAGHG
Pseudomonas_stutzeri (1)	-----MDWNLRFLEVARAGRLTTAARRLAVHTTVSRRIQAEKSLRQLFTRAKAGYRLSEAGRE
Pseudomonas_syringae (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKVSAAARRLAVDVTTVSRRISSIEVSLGTLFERSRN
Pseudomonas_taiwanensis (1)	-----MQKILTSLSALNWDILKFFLEVARTRKASSAAKRLSVDTTVSRRISSIEGALGTLFERSRT
Pseudomonas_thermotolerans (1)	-----MHQ-TALERLNWDILKFFLEVARSCASGAARRLGVDTTVSRRIQAEQALGALLFERSRSAG
Pseudomonas_tobaasi (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASAAKRLAVDVTTVSRRISSIEVSLGTLFERSRT
Pseudomonas_umsongensis (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASTAAKRLAVDVTTVSRRISSIEVSLGTLFERSRT
Pseudomonas_viridiflava (1)	-----MQKNITSLGILNWDILKFFLEVARTRKVSAAARRLAVDVTTVSRRISSIEVSLGTLFERSRN
Pseudomonas_vranovensis (1)	-----MQKNITSLGSLNWDILKFFLEVARTRKASAAKRLGVDTTVSRRISSIEVSLGTLFERSRT
Pseudomonas_xanthomarina (1)	-----MDWNLRFLEVARAGRLTTAARRLAVHTTVSRRLQAEKSMGLQLEPFGGYLTAEAGRN
Pseudomonas_sp. (1)	-----MLDWDGLRFLEVARTRCVSAAARRLGVHSTVSRRIHAIELELGLLFDKSKSTGTLTEEG-



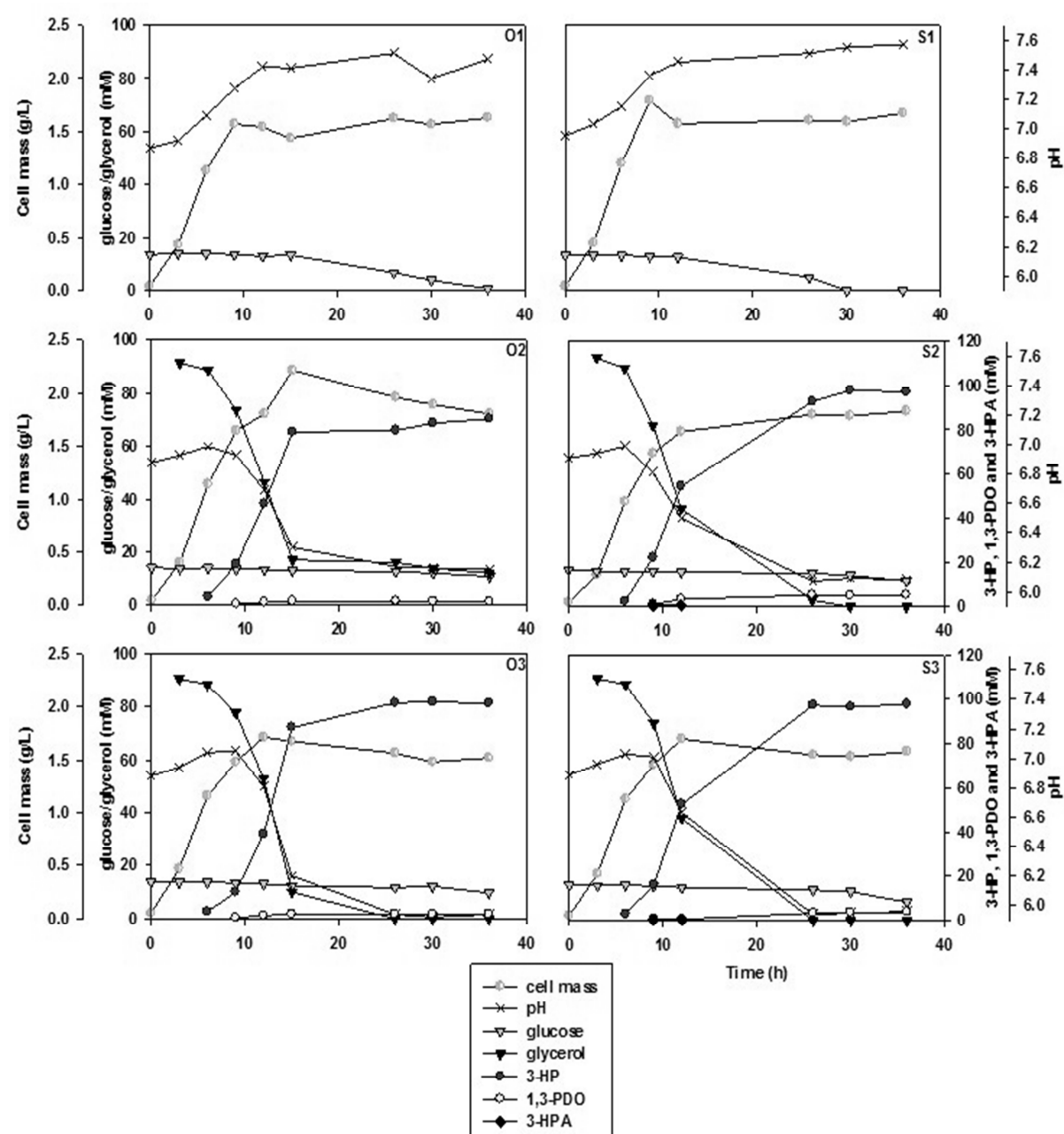
【FIG. 15a】

	(1)	1	10	20	30	40	50	60	70	81																																																												
Achromobacter_sp.	(1)	----	MLDWD	SLRYF	LEVARTQ	RVSAA	ARKLV	GEHTTV	SSRR	IRALE	TELD	TLL	FEK	SR	SAG	FV	L	T	E	D	G	Q	R	L	F	V	H	A	----																																									
Acidovorax_avenae	(1)	----	MDWEN	IRYF	LEI	ARTG	T	L	A	A	A	R	T	G	V	E	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	E	S	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	H	L	L	P	A	V	E	A	----												
Acidovorax_ctrulli	(1)	----	MDWEN	IRYF	LEI	ARTG	T	L	A	A	A	R	T	G	V	E	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	E	S	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	H	L	L	P	A	V	E	A	----												
Acidovorax_delafieldii	(1)	----	MDWDN	IRYF	LEI	ARAG	T	L	V	GA	ARR	L	VD	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	S	A	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	V	L	L	P	Q	V	E	A	----															
Acidovorax_ebreus	(1)	----	MDWDN	IRYF	LEI	ARAG	T	L	V	GA	ARR	L	VD	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	S	A	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	V	L	L	P	Q	V	E	A	----															
Acinetobacter_baumannii	(1)	----	MKVDW	HLQ	FFL	VL	ART	K	T	L	N	A	A	R	I	I	G	V	E	H	S	T	V	A	R	R	I	Q	A	L	E	I	A	L	G	T	T	L	F	K	R	E	A	T	-	G	Y	E	L	T	E	G	M	A	L	V	P	R	V	E	----									
Acinetobacter_guillouiae	(1)	----	MKVDW	HLQ	FFL	VL	ARAK	T	L	N	A	A	R	I	I	G	V	E	H	S	T	V	A	R	R	I	Q	A	L	E	I	A	L	G	T	T	L	F	R	E	A	T	-	G	Y	E	L	T	M	E	G	L	A	L	V	P	R	V	E	----										
Acinetobacter_gyllenbergii	(1)	----	MKVDW	HLQ	FFL	VL	ART	K	T	L	N	A	A	R	I	I	G	V	E	H	S	T	V	A	R	R	I	Q	A	L	E	I	A	L	G	T	T	L	F	K	R	E	A	S	-	G	Y	E	L	T	E	G	M	A	L	V	P	R	V	E	----									
Acinetobacter_johnsonii	(1)	----	MKVDW	HLQ	FFL	VL	ARAK	T	L	N	A	A	R	I	I	G	V	E	H	S	T	V	A	R	R	I	Q	A	L	E	I	A	L	G	T	T	L	F	K	R	E	A	T	-	G	Y	E	L	T	V	D	G	M	A	L	V	P	R	V	E	----									
Acinetobacter_junii	(1)	----	MKVDW	HLQ	FFL	VL	ART	K	T	L	N	A	A	R	I	I	G	V	E	H	S	T	V	A	R	R	I	Q	A	L	E	I	A	L	G	T	T	L	F	K	R	E	A	S	-	G	Y	E	L	T	M	E	G	L	A	L	V	P	Q	V	E	----								
Acinetobacter_soli	(1)	----	MKVDW	HLQ	FFL	VL	ARAK	T	L	N	A	A	R	I	I	G	V	E	H	S	T	V	A	R	R	I	Q	A	L	E	I	A	L	G	T	T	L	F	K	R	E	A	T	-	G	Y	E	L	T	M	E	G	L	A	L	V	P	R	V	E	----									
Advenella_kashmirensis	(1)	----	MPDWD	DIRY	F	LEVART	H	R	A	S	A	A	A	R	L	G	V	E	H	T	V	T	R	R	I	R	H	E	A	D	L	G	Q	L	L	F	E	K	S	R	R	S	G	F	T	L	R	S	G	Q	L	L	A	H	A	---														
Afpia_birgiae	(1)	----	MTDQ	FDW	N	L	V	R	S	F	L	A	I	T	R	S	G	M	T	A	A	A	K	R	L	K	I	D	Y	S	T	S	R	R	I	A	A	L	E	A	S	L	G	S	Q	L	F	D	R	R	T	S	-	G	S	S	L	T	E	A	G	D	R	L	L	E	---			
Afpia_broomeae	(1)	----	MTDQ	FDW	N	L	V	R	S	F	L	A	I	T	R	S	G	M	T	A	A	A	K	R	L	K	I	D	Y	S	T	S	R	R	I	A	A	L	E	A	S	L	G	S	Q	L	F	D	R	R	T	S	-	G	S	S	L	T	E	A	G	E	R	L	L	E	---			
Agrobacterium_tumefaciens	(1)	----	MNWD	D	V	R	L	F	L	S	V	A	R	S	G	Q	L	S	A	A	R	K	L	G	N	H	A	T	S	L	S	R	R	I	S	A	L	E	A	A	I	G	T	Q	L	F	L	R	S	T	N	-	G	C	E	L	T	E	E	G	Q	R	L	L	A	G	E	H	---	
Alcaligenes_faecalis	(1)	----	MDWDN	IRYF	LEI	ARAG	T	L	V	GA	ARR	L	VD	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	S	A	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	V	L	L	P	Q	V	E	A	----															
Alicyclophilus_denitrificans	(1)	----	MDWDN	IRYF	LEI	ARAG	T	L	V	GA	ARR	L	VD	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	S	A	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	V	L	L	P	Q	V	E	A	----															
Azorhizobium_caulinodans	(1)	----	MDWDN	IRYF	LEI	ARAG	T	L	V	GA	ARR	L	VD	H	T	V	A	R	R	I	Q	A	L	E	K	M	G	S	A	L	F	A	R	E	A	G	-	G	H	R	L	T	E	A	G	R	V	L	L	P	Q	V	E	A	----															
Azospirillum_lipoferum	(1)	----	AVTGA	FEW	S	D	I	R	Y	L	L	T	V	A	R	S	G	L	T	A	A	A	R	M	G	V	E	H	S	T	V	S	R	R	I	T	A	L	E	T	A	L	G	A	K	L	F	D	R	R	T	G	-	G	L	L	T	P	Q	E	R	L	---							
Azospirillum_sp.	(1)	----	MADFN	W	N	D	I	R	F	F	L	A	V	A	R	A	G	T	L	T	A	A	Q	R	L	A	D	H	T	V	S	R	R	I	S	A	L	E	D	A	L	R	V	T	L	F	E	R	R	P	S	-	G	F	T	L	T	P	Q	E	R	L	---							
Bordetella_hinzii	(1)	----	MADFN	W	N	D	I	R	F	F	L	A	V	A	R	A	G	T	L	T	A	A	Q	R	L	A	D	H	T	V	S	R	R	I	T	A	L	E	D	A	L	R	V	T	L	F	E	R	R	P	S	-	G	F	T	L	T	P	Q	E	R	L	---							
Bordetella_pertii	(1)	----	MLDWD	SLRYF	LEVARTQ	RVSAA	ARKLV	GEHTTV	SSRR	IRALE	TELD	TLL	FEK	SR	SAG	FV	L	T	E	D	G	Q	R	L	F	V	H	A	----																																									
Bordetella_trematum	(1)	----	MLDWD	SLRYF	LEVARTQ	RVSAA	ARKLV	GEHTTV	SSRR	IRALE	TELD	TLL	FEK	SR	SAG	FV	L	T	E	D	G	Q	R	L	F	V	H	A	----																																									
Brucella_sp.	(1)	----	MLDWD	SLRYF	LEVARTQ	RVSAA	ARKLV	GEHTTV	SSRR	IRALE	TELD	TLL	FEK	SR	SAG	FV	L	T	E	D	G	Q	R	L	F	V	H	A	----																																									
Bradyrhizobium_yuanmingense	(1)	----	MERFD	W	D	D	I	R	F	F	L	A	V	A	R	S	G	R	L	T	A	A	A	R	L	G	A	D	H	A	T	V	S	R	R	I	T	S	L	E	E	A	L	K	A	K	L	F	E	R	R	P	Q	-	G	Y	T	L	T	A	H	G	E	R	L	L	A	K	---	
Brucella_abortus	(1)	----	MLDQ	G	-	A	I	D	W	D	D	E	R	F	V	L	A	I	V	R	G	S	V	S	A	A	K	Q	L	G	V	D	H	A	T	V	I	R	R	V	D	R	L	E	K	H	L	S	A	K	L	F	D	R	R	K	T	-	G	Y	L	L	T	E	A	G	Q	R	V	---
Brucella_inopinata	(1)	----	RWMR	P	F	T	W	D	D	L	Q	Y	F	L	A	V	A	R	T	G	L	S	T	A	A	R	Q	L	R	T	S	H	V	T	V	L	R	I	D	R	L	E	Q	A	L	S	T	K	L	F	E	R	N	P	R	-	G	Y	L	L	T	P	M	G	E	R	L	V	---	
Brucella_melitensis	(1)	----	QAKN	A	M	N	W	D	D	I	R	I	F	L	A	V	A	R	S	G	Q	I	L	G	A	A	R	Q	L	G	I	N	H	T	V	A	R	R	L	T	A	L	E	T	A	L	S	T	L	L	T	R	T	N	-	G	S	T	L	H	A	G	E	E	F	L	---			
Brucella_neotomae	(1)	----	MNWD	D	I	R	I	F	L	A	V	A	R	S	G	Q	I	L	G	A	A	R	Q	L	G	I	N	H	T	V	A	R	R	L	T	A	L	E	T	A	L	S	T	L	L	T	R	T	N	-	G	S	T	L	H	A	G	E	E	F	L	A	A	E	R	M	---			
Brucella_ovis	(1)	----	RWMR	P	F	T	W	D	D	L	Q	Y	F	L	A	V	A	R	T	G	L	S	T	A	A	R	Q	L	R	T	S	H	V	T	V	L	R	I	D	R	L	E	Q	A	L	S	T	K	L	F	E	R	N	P	R	-	G	Y	L	L	T	P	M	G	E	R	L	V	---	
Brucella_pinnipedialis	(1)	----	QAKN	A	M	N	W	D	D	I	R	I	F	L	A	V	A	R	S	G	Q	I	L	G	A	A	R	Q	L	G	I	N	H	T	V	A	R	R	L	T	A	L	E	T	A	L	S	T	L	L	T	R	T	N	-	G	S	T	L	H	A	G	E	E	F	L	---			
Brucella_sp.	(1)	----	MPAQ	A	K	N	A	M	N	W	D	D	I	R	I	F	L	A	V	A	R	S	G	Q	I	L	G	A	A	R	Q	L	G	I	N	H	T	V	A	R	R	L	T	A	L	E	T	A	L	S	T	L	L	T	R	T	N	-	G	S	T	L	H	A	G	E	E	F	L	---
Brucella_suis	(1)	----	QAKN	A	M	N	W	D	D	I	R	I	F	L	A	V	A	R	S	G	Q	I	L	G	A	A	R	Q	L	G	I	N	H	T	V	A	R	R	L	T	A	L	E	T	A	L	S	T	L	L	T	R	T	N	-	G	S	T	L	H	A	G	E	E	F	L	---			
Burk																																																																						

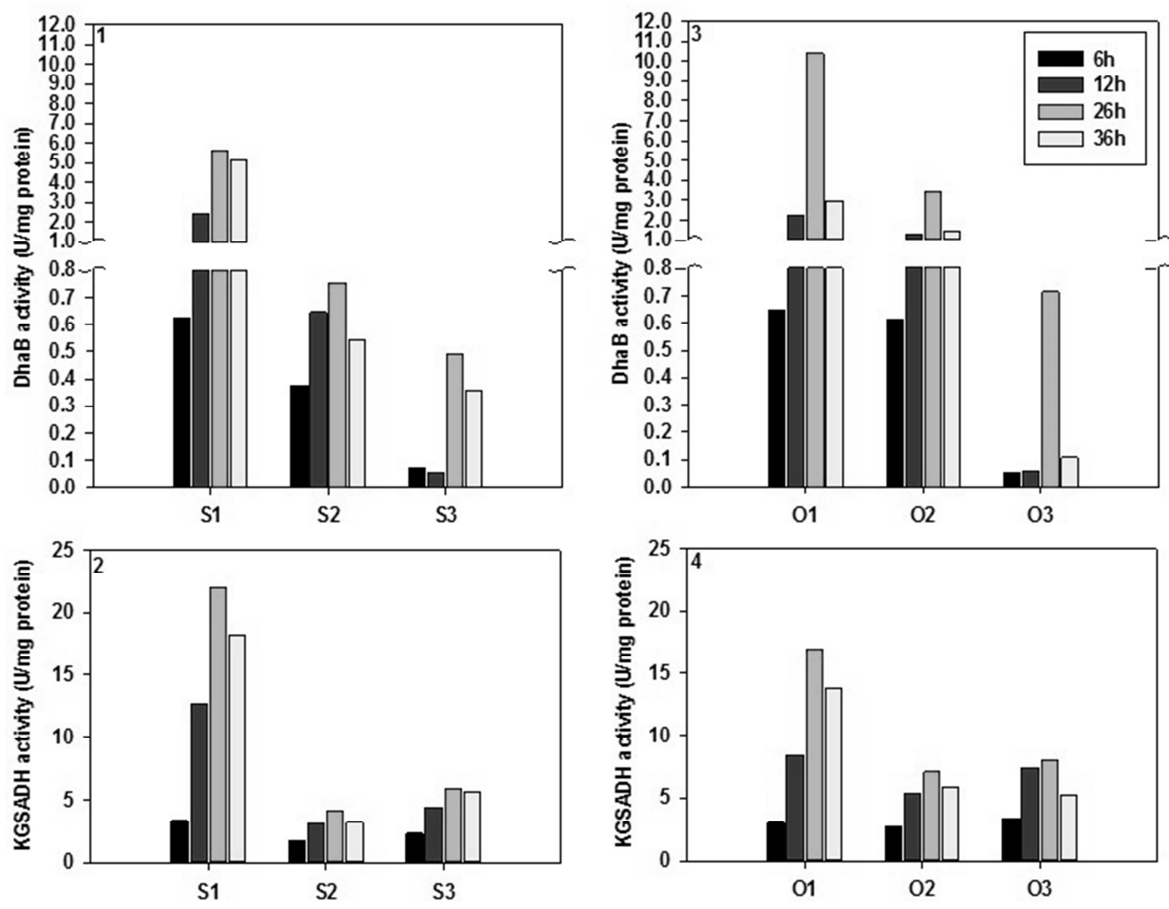
【FIG. 16】



【FIG. 17】



【FIG. 18】



【FIG. 19】

