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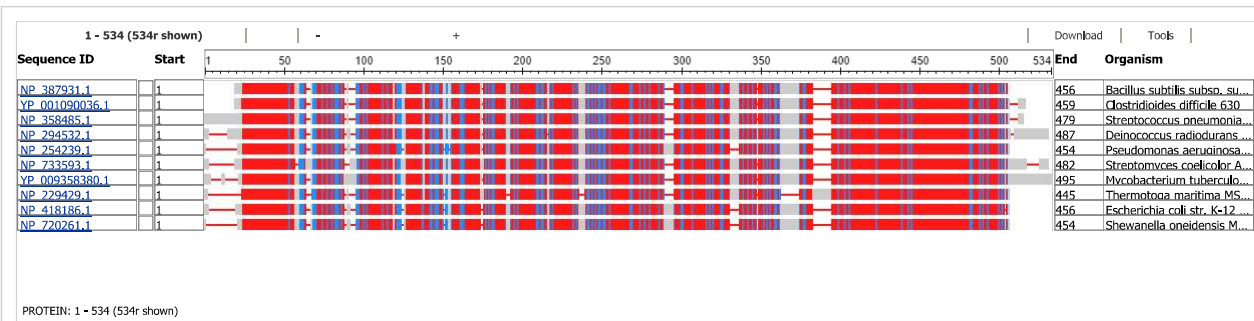
COBALT Constraint-based Multiple Alignment Tool

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Multiple Alignment Results - BAB41687:gcaD [Staphylococcus aureus subsp.... - Cobalt RID 43GUU3Z0211 (10 seqs)

Graphical Overview



Descriptions Select All Re-align Alignment parameters

Accession	Description	Links
<input checked="" type="checkbox"/> NP_387931.1	bifunctional glucosamine-1-phosphate N-acetyltransferase/UDP-N-acetylglucosamine pyrophosphorylase [Bacillus subtilis subsp. subtilis str. 168]	Related Information
<input checked="" type="checkbox"/> YP_001090036.1	bifunctional N-acetylglucosamine-1-phosphate uridylyltransferase/glucosamine-1-phosphate acetyltransferase [Clostridioides difficile 630]	Related Information
<input checked="" type="checkbox"/> NP_358485.1	bifunctional N-acetylglucosamine-1-phosphate uridylyltransferase/glucosamine-1-phosphate acetyltransferase [Streptococcus pneumoniae R6]	Related Information
<input checked="" type="checkbox"/> NP_294532.1	bifunctional N-acetylglucosamine-1-phosphate uridylyltransferase/glucosamine-1-phosphate acetyltransferase [Deinococcus radiodurans R1]	Related Information
<input checked="" type="checkbox"/> NP_254239.1	bifunctional glucosamine-1-phosphate acetyltransferase/N-acetylglucosamine-1-phosphate uridylyltransferase [Pseudomonas aeruginosa PAO1]	Related Information
<input checked="" type="checkbox"/> NP_733593.1	bifunctional N-acetylglucosamine-1-phosphate uridylyltransferase/glucosamine-1-phosphate acetyltransferase [Streptomyces coelicolor A3(2)]	Related Information
<input checked="" type="checkbox"/> YP_009358380.1	Probable UDP-N-acetylglucosamine pyrophosphorylase glmU [Mycobacterium tuberculosis variant bovis AF2122/97]	Related Information
<input checked="" type="checkbox"/> NP_229429.1	bifunctional N-acetylglucosamine-1-phosphate uridylyltransferase/glucosamine-1-phosphate acetyltransferase [Thermotoga maritima MSB8]	Related Information
<input checked="" type="checkbox"/> NP_418186.1	fused N-acetylglucosamine-1-phosphate uridylyltransferase and glucosamine-1-phosphate acetyltransferase [Escherichia coli str. K-12 substr. MG1655]	Related Information
<input checked="" type="checkbox"/> NP_720261.1	bifunctional N-acetyl glucosamine-1-phosphate uridylyltransferase/glucosamine-1-phosphate acetyl transferase GlmU [Shewanella oneidensis MR-1]	Related Information

Alignments Select All Re-align Mouse over the sequence identifier for sequence title

View Format: Compact

Conservation Setting: 2 Bits

NP_387931	1	---	MDKRF	AVVLAAGQ	GRMKSK	LYKVLHP	VGCPKPV	EHVWDEAL	KLS---	L	S	K	L	V	I	V	G	H	G	A	E	V	K	K	L	G	D	--	K	67																																																																																																																																																																
YP_001090036	1	---	MNFK	-A	I	L	A	A	G	K	T	R	M	S	K	Y	P	V	I	H	K	V	C	G	K	E	M	N	H	I	D	V	S	K	K	S	G	---	V	K	D	T	V	I	L	G	H	E	A	D	V	V	K	E	L	A	E	--	E	66																																																																																																																																		
NP_358485	1	MRN	[16]	I	M	S	N	F	A	I	L	A	A	G	K	T	R	M	S	D	L	P	K	V	L	H	K	V	A	G	I	S	M	L	E	H	V	F	R	S	V	G	A	I	Q	---	P	E	K	T	V	T	V	G	H	K	A	E	L	V	E	E	V	L	A	E	--	Q	86																																																																																																																									
NP_294532	1	MTT	[4]	T	R	P	L	D	V	V	I	L	A	A	G	Q	T	R	M	S	A	L	P	K	V	L	H	P	V	A	G	R	P	M	V	A	M	V	K	A	R	D	L	G	---	A	R	K	I	V	V	T	G	H	G	A	E	Q	V	E	A	A	V	Q	--	P	G	75																																																																																																																										
NP_254239	1	M	--	--	S	L	E	T	V	L	A	A	G	Q	T	R	M	S	A	L	P	K	V	L	H	P	I	A	G	K	P	M	L	G	H	V	I	D	C	A	R	Q	L	Q	---	P	E	R	I	H	V	I	G	H	G	A	D	L	V	R	E	M	A	--	D	D	67																																																																																																																											
NP_733593	1	MSA		T	R	P	A	A	V	V	L	A	A	G	E	T	R	M	S	A	T	P	K	V	L	H	E	L	C	G	R	S	L	V	G	H	V	L	---	A	A	A	G	E	I	D	P	E	N	I	V	A	V	G	H	A	E	K	V	T	A	H	L	A	E	---	E	69																																																																																																																										
YP_009358380	1	MTF	[3]	---	T	A	V	L	A	A	G	P	T	R	M	S	D	T	P	K	V	L	H	T	L	A	G	R	S	M	L	S	H	V	L	H	A	I	A	K	L	A	---	P	Q	R	I	V	I	V	L	G	H	D	H	Q	I	A	P	L	V	G	E	I	a	D	T	73																																																																																																																										
NP_229429	1	MR	---	---	A	L	V	A	A	G	K	T	R	M	S	K	I	P	K	V	L	H	P	L	S	G	R	P	M	E	W	I	E	T	A	G	K	V	---	---	Q	K	V	G	V	L	G	F	E	A	E	L	V	R	K	A	L	P	E	--	W	63																																																																																																																																
NP_418186	1	MLN	---	N	A	M	S	V	V	L	A	A	G	K	T	R	M	S	D	L	P	K	V	L	H	T	L	A	G	K	A	M	V	Q	H	V	I	D	A	N	E	L	G	---	A	A	H	V	L	V	Y	G	H	G	D	L	L	K	Q	A	L	K	D	--	D	N	70																																																																																																																											
NP_720261	1	M	--	--	A	L	N	V	V	L	A	A	G	K	T	R	M	S	D	L	P	K	V	L	H	P	I	A	H	K	S	M	V	Q	H	V	I	D	A	N	E	L	G	---	S	D	A	I	Q	L	V	Y	G	V	G	A	D	L	K	S	T	L	G	E	--	Q	K	67																																																																																																																										
NP_387931	68		S	E	Y	A	L	Q	A	K	Q	L	G	T	H	A	V	K	Q	A	P	F	L	A	D	E	K	G	--	V	T	I	V	I	C	G	D	T	P	L	L	T	A	E	T	M	E	Q	M	L	K	E	H	T	Q	R	E	A	K	I	T	A	V	A	E	D	P	T	G	Y	G	R	I	143																																																																																																																				
YP_001090036	67		I	I	A	M	Q	T	E	Q	L	G	T	H	A	V	K	M	A	K	E	Y	I	N	D	E	D	T	--	I	--	V	V	L	C	G	D	T	P	L	I	K	E	E	T	L	K	R	L	F	E	V	H	I	E	N	K	Y	H	A	T	V	L	T	T	R	G	N	P	T	G	Y	G	R	I	141																																																																																																																		
NP_358485	87		T	E	F	V	T	Q	S	E	Q	L	G	T	H	A	V	M	T	E	P	I	L	E	G	S	G	--	H	T	L	V	I	A	G	D	T	P	L	I	T	G	E	S	L	N	L	I	D	F	H	I	N	H	K	N	V	A	T	I	L	A	E	T	D	N	P	F	G	Y	G	R	I	162																																																																																																																				
NP_294532	76		V	A	F	A	R	Q	E	R	Q	L	G	T	G	D	A	F	L	S	G	A	S	A	L	T	E	G	G	A	--	D	I	L	V	Y	G	D	T	P	L	L	R	P	D	T	L	R	E	L	V	A	S	H	R	E	Q	S	A	M	T	V	L	T	G	E	L	P	D	A	T	G	Y	G	R	I	151																																																																																																																	
NP_254239	68		L	N	F	V	L	A	E	Q	L	G	T	H	A	V	A	Q	A	L	P	F	L	--	S	A	D	Q	--	V	L	I	L	Y	G	D	V	P	L	I	Q	D	T	L	Q	R	L	A	Q	V	T	P	--	D	Q	--	L	S	L	T	V	D	M	L	D	P	T	G	Y	G	R	I	139																																																																																																																					
NP_733593	70		[4]	V	R	T	A	V	Q	N	G	T	H	A	V	R	M	G	L	E	A	M	G	G	A	V	D	V	V	V	V	C	G	D	T	P	L	L	T	G	E	T	L	K	A	L	A	A	T	H	A	D	G	N	A	V	T	L	A	E	V	P	D	A	T	G	Y	G	R	I	150																																																																																																																							
YP_009358380	74		[4]	I	D	V	A	Q	D	R	P	L	G	T	H	A	V	L	C	G	L	S	A	L	P	D	D	Y	A	g	N	V	V	T	S	G	D	T	P	L	L	D	A	T	L	A	D	L	I	A	T	H	R	A	V	S	A	A	V	T	L	T	T	L	D	D	P	F	G	Y	G	R	I	154																																																																																																																				
NP_229429	64		V	D	V	F	V	Q	E	Q	L	G	T	H	A	V	M	K	A	D	F	I	E	P	G	D	--	V	L	I	L	Y	G	D	V	P	L	I	S	E	N	T	L	K	R	M	I	E	E	H	R	--	G	A	D	V	T	L	V	A	D	E	D	P	S	G	Y	G	R	I	137																																																																																																																							
NP_418186	71		L	M	N	V	L	A	E	Q	L	G	T	H	A	M	Q	A	A	P	F	A	D	D	E	--	I	L	M	L	Y	G	D	V	P	L	I	S	--	V	E	T	L	Q	R	L	R	D	A	K	P	--	Q	G	G	I	G	L	T	V	K	L	D	D	P	T	G	Y	G	R	I	143																																																																																																																						
NP_720261	68		L	N	M	I	L	A	E	Q	L	G	T	H	A	V	A	Q	A	I	P	N	I	D	D	N	T	--	V	L	I	L	Y	G	D	V	P	L	I	Q	--	A	S	T	L	E	A	L	L	A	A	R	P	--	E	Y	G	V	A	I	L	V	N	L	N	P	M	G	Y	G	R	I	140																																																																																																																					
NP_387931	144		R	S	--	E	N	G	A	V	Q	I	V	E	H	K	D	A	S	E	E	R	L	V	T	E	I	N	T	G	T	Y	C	F	D	N	E	A	L	F	R	A	I	D	Q	V	S	N	D	N	A	Q	E	Y	L	P	D	V	I	E	I	L	K	N	E	G	E	T	V	A	A	Y	Q	T	G	N	F	Q	222																																																																																																															
YP_001090036	142		R	D	--	K	K	G	D	L	L	I	V	E	Q	K	D	A	N	S	E	E	K	M	I	S	E	I	N	S	G	I	C	F	N	G	K	S	L	R	E	A	L	D	L	L	N	N	N	S	Q	E	Y	L	T	D	T	A	K	I	M	R	D	K	L	G	K	V	G	A	F	A	G	S	T	I	E	220																																																																																																																
NP_358485	163		R	N	--	D	N	A	E	V	L	R	I	V	E	Q	K	D	A	T	D	F	E	Q	I	E	K	I	N	T	G	T	Y	V	F	D	N	E	R	L	F	E	A	L	K	N	I	N	T	N	N	A	Q	E	Y	I	T	D	V	I	G	I	F	R	E	T	G	E	K	V	G	A	Y	T	L	K	D	F	241																																																																																																															
NP_294532	152		R	G	--	E	G	G	A	V	E	I	V	E	Q	K	D	A	S	D	A	E	K	A	I	E	F	N	S	G	V	Y	V	F	D	R	A	P	E	L	A	R	--	R	I	G	N	D	N	K	A	G	E	Y	L	T	D	L	G	L	Y	R	A	G	G	A	T	V	R	A	F	L	S	D	P	229																																																																																																																		
NP_254239	140		R	D	--	Q	G	A	V	Q	A	I	V	E	H	K	D	A	T	P	A	Q	R	T	G	E	I	N	T	G	L	A	V	P	G	K	R	L	A	D	W	L	G	R	L	S	N	D	N	A	Q	E	Y	L	T	D	V	I	A	M	A	V	G	D	L	V	S	A	Q	P	L	D	A	M	218																																																																																																																			
NP_733593	151		R	D	--	a	S	G	A	V	T	A	I	V	E	H	K	D	A	S	E	S	Q	R	A	I	E	N	S	G	V	F	A	F	D	G	Q	L	L	A	D	A	L	G	K	V	R	T	D	N	S	Q	E	Y	L	T	D	V	L	G	I	L	R	E	A	G	H	R	V	G	A	S	V	A	G	D	H	R	230																																																																																																															
YP_009358380	155		R	T	--	Q	D	H	V	M	A	I	V	E	Q	T	A	D	T	P	S	Q	R	E	I	R	E	V	N	G	V	A	F	D	I	A	A	L	R	S	A	L	S	R	L	S	S	N	N	A	Q	E	Y	L	T	D	V	I	A	L	R	S	D	G	Q	T	V	H	A	S	H	V	D	D	S	A	233																																																																																																																	
NP_229429	138		Q	D	Q	K	Y	I	E	D	T	D	L	P	E	--	--	L	K	S	V	T	I	N	T	G	V	F	S	G	D	F	L	R	A	L	P	E	I	K	N	E	A	K	E	Y	L	T	D	A	V	N	--	--	A	E	K	V	R	V	R	T	D	L	210																																																																																																																													
NP_418186	14		R	--	E	N	G	K	V	T	G	I	V	E	H	K	D	A	T	E	Q	R	I	Q	E	I	N	T	G	I	L	A	N	G	A	D	M	K	R	N	L	A	K	L	I	N	N	A	Q	E	Y	I	T	D	I	A	L	A	Y	Q	E	G	R	I	V	A	H	P	Q	R	L	221																																																																																																																						
NP_720261	141		R	--	E	N	G	K	V	T	G	I	V	E	H	K	D	A	T	E	Q	N	E	P	L	A	T	N	E	V	N	T	G	M	A	V	P	N	G	A	L	K	T	W	L	D	R	L	S	N	N	A	Q	E	Y	L	T	D	I	A	M	A	H	A	D	G	V	E	I	N	A	Q	P	Q	S	A	218																																																																																																																	
NP_387931	223		E	T	L	G	V	N	D	R	V	A	L	S	O	A	E	F	M	K	E	R	I	N	K	R	H	M	O	N	G	V	L	I	D	P	M																																																																																																																																																									

✓ NP_001090036	221	ELMGVNSRVELSKAEIMRRRINSHMVGVTIIDTN	STYIESDMIGNDIIYPGVM LQ GKTRIGSDCIIGMNSSI	297
✓ NP_358485	242	ESLGVNDRVALATAESVMRRRINHHMVGVSFVNPE	ATYIDI D VEIAPEVQIEANVILKGQTKIGAEVLTNGTVV	318
✓ NP_294532	230	EVLGANDRAGLTQLEATLQRRINEGHLKAGVSTSLPG	TVLI E DTVEIGRDVVIEPGALLRQ T RIAGGAVIGAYSVI	306
✓ NP_254239	219	EVQGVNDRMQAQLERHYQRLRAEELMRQGVTLDPQ[6]	EISVGRDVLIDVNVLEGRV I EDDVRI G PN C VIR-----	296
✓ NP_733593	231	EIAGINNRRVQLAEARRILNDRLLTGAMLAGVTVDPA	TTWVDVTVTFEQDVVHPGTQLHGTTHLAEGCEVGPNTRL	307
✓ NP_009358380	234	LVAGVNNRVQLAQLASELNRRVVAHQLAGVTVDPA	TTWIDVDVTIGRDTVIHPGTQLL R TQIGGRCVVGPD T TL	310
✓ NP_229429	211	EITGVNTRKTLVMLEEQLRMRKIEELLENGVTILDPA	TTYIHYSVEIGMDTVIYPMTFIEGKSRVGENCEIGPMTRI	287
✓ NP_418186	222	EVEGVNRLQLSRLERVYQSEQAELLLAGVMLRDP[6]	TLTHGRDVEIDTNVIEGNVTLGHRVKIGTGCVIK-----	299
✓ NP_720261	219	EVEGANNRVQLAQLERAYQAREAEKLMIAGANLRDPS[6]	EVTVGM D VMIDVNVIFEGKVIGNVNTIGAGAIIT-----	296
✓ NP_387931	300	MNSATGSRVTIK-QSVVNH S KVGN D VNIGPF A HRPDSVIGNEVKIG	NFVEIKKTQFGDRSKASHLSYVGDAE V GT	374
✓ NP_001090036	298	FNSEITGDGTIK-NSTIIDSKVGENSTVGPYAYLRPKSDLGN N VKIG	DFVEVKNAI I EDGSKASHLSYIGDAHV G K	372
✓ NP_358485	319	VDSTIGAGAVIT-NSMIESSVADGVTVGYAHIRPNSSLGAQVHIG	NFVEVKGSSIGENTKAGHLTYIGNCEVGS	393
✓ NP_294532	307	TDSV I HERAVIKaHSVLQAEVAGSGDVGP F ARLRPGSVLGE G VHIG	NFVETKNARLDAGVKGAGHLAYLGDV E IGA	382
✓ NP_254239	297	-DSV L RRGAVIKaNSHLEGAELGEGSDAGPFARLRPGSVLGARAHVG	NFVELKNARLGE G SKAGHLSYLGDAELGA	371
✓ NP_733593	308	TDT R VEAGARVD-NTVANGAHVGPQASVGPYAYLRPGTRLGLKSKIG	TFVEAKNSSTIGETKVP H LSYMGDATVGD	382
✓ NP_009358380	311	TDVAVGDGASVV-RTHGSSSSIGDGAAGPFTYLRPGTALGADGKLG	AFVEVKNSTIGTGKVP H LYTVGDADIGE	385
✓ NP_229429	288	VDCEIGNRVKIT-RSECFKSVIEDDVS-----VGP F ARLR[12]	NFVEIKKSTIGETKAGHLSYIGDAFV G K	362
✓ NP_418186	300	-NSVIGDDCEISpYTVVEDANLAACTIGPFARLRPGAELLEG A HVG	NFVEMKKARLGK G SKAGHLTYLGDAEIGD	374
✓ NP_720261	297	-DTEIADNAEIKpYSIIEGAKLGVAASAGPFARLRPGAELMQD A HIG	NFVEMKKAVLGVGSKAGHLAYLGD A QIGA	371
✓ NP_387931	375	DVNLGCGSITVNYDGKNKYLT K IEDGAFIGCSN L VAPVTVGEGAYVAAGSTVTE D VPKALAIARARQV N KDDVYKNIH		454
✓ NP_001090036	373	NVNIIGCGVVFVNYDGKNKF S IVKDN A FIGSN N L V APV V VEEKGYATG S TI T HDV P DGALAIARERQV I KEG V VEKKN		452
✓ NP_358485	394	NVNFAGATTVNYDGKNKYKTVIGD N VFGSNSTIIAPVELGDNSLVGAGSTITKDV P ADATAI A IGRGRQ N KDEYATRLP		473
✓ NP_294532	383	ETNVGAGTIVANFDGLNKHQSKVGAGVFIGSNTTLIAPRVGDAAFIA G SGSAIHDDVPEGAMAVARGKQRNIEGWARRYW		462
✓ NP_254239	372	NCNIGAGTITCNYDGANKFRTELGDDVFIGSN S LVAPLKIGDGATTAAGSTI T HEVP A KNLAFGRARQKNLENWKRPEK		451
✓ NP_733593	383	FTNIGAASVFNVDGQDKHHTIGSHCRTGSDNM F VAPVTVGDAYTAAGSVITKDV P PGSLAVARGQQRNIEGWARKR		462
✓ NP_009358380	386	YSNIGAASVFNVDGTSKRRTTVGSHVRTGSDTMFVAPVTIGDAYTGAGTVVREDVPPGALAVSAGPQRNIE N WQRKR		465
✓ NP_229429	363	NVNVGAGTITCNYDGKKNPTFIEDGAFIGSN S LVAPVRIGKGALIGAGSVITEDVPPYSLGLGRARQVKEG V LKKR		442
✓ NP_418186	375	NVNIIGAGTITCNYDGANKFKTIIIGDDVFGSDTQLVAPVTVGKGATIAAGTTVTRNVGENALISRV P TQKEGRRPVK		454
✓ NP_720261	372	GVNIGAGTITCNYDGANKHLTVIEDNVFGSDTQLVAPVTIGKGATLGAGSTITRDVGEDELVITRVKQKHLTGQ R RPVK		451
✓ NP_387931	455	KK- ---	456	
✓ NP_001090036	453	QKD DQS[1]	459	
✓ NP_358485	474	HHP KNQ	479	
✓ NP_294532	463	AAP[4]KLA[15]	487	
✓ NP_254239	452	IKK ---	454	
✓ NP_733593	463	PGS[6]EAV[8]	482	
✓ NP_009358380	466	PGS[6]KRA[18]	495	
✓ NP_229429	443	KEE ---	445	
✓ NP_418186	455	-KK ---	456	
✓ NP_720261	452	IKK ---	454	