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NTDB id 600 KW2 RS01765 WP 011675413.1	MATKK.....KTNFDDITKKYGA	ERDKALADALALIEKD	FGKGSIMRLGEA	.ANQKVS	VSSGSLALD	I	ALGAGGY	PKGR	74				
NTDB id 269 KZH43 RS08665 WP 001085462.1	.MAKK.....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73				
NTDB id 228 SPD RS09265 WP 001085462.1	.MAKK.....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73				
NTDB id 194 SPR RS08825 WP 001085462.1	.MAKK.....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73				
NTDB id 159 SP RS09750 WP 001085462.1	.MAKK.....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73				
NTDB id 527 SMSK321 RS11065 WP 001085454.1	.MAKK.....PKKLDEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73				
NTDB id 499 SM12261 RS08315 WP 078228268.1	.MAKK.....PKKLDEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73				
NTDB id 453 Spy49 1753c ACI62003.1	.MAKK.....LKKNEEITKKFG	DERRKALDDALKNIEKD	FGKGAVMRLGER	.AEQKVQV	MSSGSLALD	I	ALGAGGY	PKGR	73				
NTDB id 408 SMU RS09530 WP 002262392.1	.MAKR.....IKKTEEITKKFG	DERKKALDDALKNIEKD	FGKGAVMRLGER	.AEQKVQV	MSSGSLALD	I	ALGAGGY	PKGR	73				
NTDB id 115 BSU 16940 NP 389576.2	MSDRQAALDMALKQ	IEKQFGKGSIMKLGEK	.TDTRI	STVPSGSLALD	T	ALGIGGY	PRGR	58					
NTDB id 625 LCA RS02525 WP 011374196.1	MAKDERQAALDAALKK	IEKNFGKGSIMRMGEK	.VDTQV	STVSSGSLALDE	A	LGVGGY	PRGR	60					
NTDB id 1313 DR RS12030 WP 010888966.1	MSKDATKEISAPTDAK	ERSKATETAM	SQIEKAFGKGSIMKLGAE	.SKLDVQV	VSTGSLSLD	I	ALGVGG	IPRGR	72				
NTDB id 1245 Cj1673c YP 002345041.1	MDDNKRKSLDAALKSL	DKTFGKGTILRLGDK	.EVEQIDS	IGTGSVGLD	I	ALGIGG	VPKGR	59					
NTDB id 1214 NCTC11637 00359 SQJ03206.1	MAIDEDKQKATISLA	IKQIDKVF	FGKGALVRLGDK	.QVEKIDA	ISTGSLGLD	I	ALGIGG	VPKGR	61				
NTDB id 1211 C694 RS00795 WP 000963128.1	MAIDEDKQKATISLA	IKQIDKVF	FGKGALVRLGDK	.QVEKIDE	ISTGSLGLD	I	ALGIGG	VPKGR	61				
NTDB id 1334 RAOC RS04870 WP 004918236.1	MAKT..ETTSPN	DDKKKALA	AVLEKLDKTY	GKGTVMKLG	DGTVDHNI	EVIPS	GSGLGLD	I	ALGVGG	YPKGR	68		
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.MAENKKSSKNNTV..VKQVEP	EQKKQALEAALA	QIEKQFGKGSIMKLGQT	.EQLDIES	VSTGSLGLD	I	ALGIGGL	PMGR	76				
NTDB id 1130 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGA	AIMKMDGSQ	Q	Q	EENLEV	I	STGSLGLD	I	ALGVGGL	PRGR	60	
NTDB id 1124 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGA	AIMKMDGSQ	Q	Q	EENLEV	I	STGSLGLD	I	ALGVGGL	PRGR	60	
NTDB id 1123 OK783 RS03845 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGA	AIMKMDGSQ	Q	Q	EENLEV	I	STGSLGLD	I	ALGVGGL	PRGR	60	
NTDB id 1427 RS RS02760 WP 011000510.1	.MEDG.....K..KAASMSA	EKQKALAAALA	QIEKQFGKGSIMKMDA	.EVEPVQV	VSTGSLGLD	V	ALGVGGL	PRGR	68				
NTDB id 1165 A1552VC RS01565 WP 000344154.1	MDENKQKALAAALG	QIEKQFGKGSIMRLGDN	.RAMDVET	ISTGSLSLD	I	ALGAGGL	PMGR	59					
NTDB id 1142 GTF74 RS11550 WP 000344154.1	MDENKQKALAAALG	QIEKQFGKGSIMRLGDN	.RAMDVET	ISTGSLSLD	I	ALGAGGL	PMGR	59					
NTDB id 334221 EQH48 RS10795 WP 000344169.1	MDENKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQAVEA	VSTGSLTLD	I	ALGIGGL	PKGR	59					
NTDB id 1074 ABD1 RS10195 WP 000344167.1	MDENKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQAVEA	VSTGSLTLD	I	ALGIGGL	PKGR	59					
NTDB id 1022 ACIAD RS06390 WP 004925639.1	MDDNKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQAVEA	VSTGSLTLD	I	ALGIGGL	PKGR	59					
NTDB id 1205 PSJM300 05545 AFN77183.1	MDENKKRALAAALG	QIEKQFGKGAVMRMGDH	.DRQAIPS	ISTGSLGLD	I	ALGIGGL	PKGR	59					
consensus	***	***	*	***!	***!	***!	*	***!	***!	***!	***!	***!	***!

NTDB id 600 KW2 RS01765 WP 011675413.1
NTDB id 269 KZH43 RS08665 WP 001085462.1
NTDB id 228 SPD RS09265 WP 001085462.1
NTDB id 194 SPR RS08825 WP 001085462.1
NTDB id 159 SP RS09750 WP 001085462.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 499 SM12261 RS08315 WP 078228268.1
NTDB id 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 1313 DR RS12030 WP 010888966.1
NTDB id 1245 Cj1673c YP 002345041.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
NTDB id 1130 NGFG RS03960 WP 003688695.1
NTDB id 1124 NGFG RS03960 WP 003688695.1
NTDB id 1123 OK783 RS03845 WP 003688695.1
NTDB id 1427 RS RS02760 WP 01100051.1
NTDB id 1165 A1552VC RS01565 WP 000344154.1
NTDB id 1142 GTF74 RS11550 WP 000344154.1
NTDB id 334221 EQH48 RS10795 WP 000344169.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus



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NTDB id 159 SP RS09750 WP 001085462.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 499 SM12261 RS08315 WP 078228268.1
NTDB id 453 Spy49 1753c ACI62003.1
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NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
NTDB id 1130 NGFG RS03960 WP 003688695.1
NTDB id 1124 NGFG RS03960 WP 003688695.1
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NTDB id 1427 RS RS02760 WP 011000510.1
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NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

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NTDB id 194 SPR RS08825 WP 001085462.1
NTDB id 159 SP RS09750 WP 001085462.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 499 SM12261 RS08315 WP 078228268.1
NTDB id 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 1313 DR RS12030 WP 010888966.1
NTDB id 1245 Cj1673c YP 002345041.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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NTDB id 1124 NGFG RS03960 WP 003688695.1
NTDB id 1123 OK783 RS03845 WP 003688695.1
NTDB id 1427 RS RS02760 WP 01100051.1
NTDB id 1165 A1552VC RS01565 WP 000344154.1
NTDB id 1142 GTF74 RS11550 WP 000344154.1
NTDB id 334221 EQH48 RS10795 WP 000344169.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

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NTDB id 600 KW2 RS01765 WP 011675413.1	DEKIGQGA	EKAKNYLKEHQDV	DEIDHKVRAAHG	LDDSEVAETEEE	TTASKTK	..AKAKKEEKAVETEEIELELED..	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTE	NKKDE	PKKEEA..VNEEVPLDLGDEL	382
NTDB id 228 SPD RS09265 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTE	NKKDE	PKKEEA..VNEEVPLDLGDEL	382
NTDB id 194 SPR RS08825 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTE	NKKDE	PKKEEA..VNEEVPLDLGDEL	382
NTDB id 159 SP RS09750 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTE	NKKDE	PKKEEA..VNEEVPLDLGDEL	382
NTDB id 527 SMSK321 RS11065 WP 001085454.1	DEKIGQGS	ENAKKYLADNPEVFAE	IDHQVRVQFGL	LIDGEEAAE	SKKDE	VAQVDS..VNEEVTLDLGDEL	378
NTDB id 499 SM12261 RS08315 WP 078228268.1	DEKIGQGS	ENAKKYLADNPEIF	DEIDHQVRVQFGL	LIDGEEIAE	SKKDE	AAQVDS..VNEEVTLDLGDEL	378
NTDB id 453 Spy49 1753c ACI62003.1	GEKIGQGS	ENAKRYLADHPQLF	DEIDRKVRVKFGL	LEESEEEESAMAV	ASE	E.....TDDLALDLNGI	374
NTDB id 408 SMU RS09530 WP 002262392.1	GEKIGQGS	ENAKKFLADNPEIF	DDIDHKVRVQYGL	IEEDNTEEKQSS	KEK	ETDEK..ADKNLVLELDDTI	379
NTDB id 115 BSU 16940 NP 389576.2	EERLGGG	RENAKQFLKENKDIM	LMIQEQIREHYGL	DNNGVVQQAAEE	TQEEL	E..FE.E.....	348
NTDB id 625 LCA RS02525 WP 011374196.1	SERIGQG	RENAKNYLADHEDVE	DEVRLKVRAAYG	ISDVPEEDLP	TTE	DE.QI.N..ILPDDST....EE	355
NTDB id 1313 DR RS12030 WP 010888966.1	DERIGQG	KEKTIAYIAERPEME	QEIRDRVMAAIRAG	NAGEAPALAPAPA	APEAAEA	.....	363
NTDB id 1245 Cj1673c YP 002345041.1	DKKLGGG	RENSKAFLENPEIA	DEITKAIQNSMG	TEGMISGS	..EDDEGE	..E.....	343
NTDB id 1214 NCTC11637 00359 SQJ03206.1	DKKLGGG	RENAKALLKEDKAL	ADEITLKI	KESIGSNEEIMPL	..PDEPLE	..EME.....	347
NTDB id 1211 C694 RS00795 WP 000963128.1	DKKLGGG	RENAKALLKEDKAL	ADEITLKI	KESIGSNEEIMPL	..PDEPLE	..EME.....	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	DTKLGGG	RDTVKELIKDNPEL	AEELEAKIREKLQAK	.....	.....	.....	343
NTDB id 1389 A4U84 RS07560 WP 021112712.1	GTKIGQG	KNNAVKWLKENPEIA	DKLEQEIRNTL	ASNPNSVLK	..ATASDSND	ESDVVEEFSE.....EEL	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	GAKIGQG	KDNVRVWLKENPEIS	DEIDAKIRALNG	VEMHITEG	..TQDET	D.....GERPE.....E	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	GAKIGQG	KDNVRVWLKENPEIS	DEIDAKIRALNG	VEMHITEG	..TQDET	D.....GERPE.....E	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	GAKIGQG	KDNVRVWLKENPEIS	DEIDAKIRALNG	VEMHITEG	..TQDET	D.....GERPE.....E	348
NTDB id 1427 RS RS02760 WP 011000510.1	GERIGQGR	DNCREFLRENAEL	AREIENKVRHL	GVTPMGAV	..TLAEEVEED	.....	352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	GDKIGQG	KANACKYLKENPEIA	KTLDKKLREMLLN	PENMQLI	..AETSSAAD	DVEFGAVPE.....EF	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	GDKIGQG	KANACKYLKENPEIA	KTLDKKLREMLLN	PENMQLI	..AETSSAAD	DVEFGAVPE.....EF	354
NTDB id 334221 EQH48 RS10795 WP 000344169.1	GNKIGQG	KNNVIRYFEENTQIA	EEIERNIREQLLT	TGTNGAV	..Q.I.EDEE	EPD..LLE.....S	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	GNKIGQG	KNNVIRYFEENNQIA	EEIERNIREQLLT	TGTNGAV	..Q.I.EDEE	EPD..LLE.....S	349
NTDB id 1022 ACIAD RS06390 WP 004925639.1	GNKIGQG	KNNVIRYLEENPQI	STEIEAVIREQLLT	TKASDQTA	..A.HDETEE	EPD..LLES.....	349
NTDB id 1205 PSJM300 05545 AFN77183.1	GSKIGQG	KANAAYYLEENPEI	GQIEIEQQIRAKLL	VTSANTKA	..TPVAEDLAD	AD..I.....	347
consensus	***!!!	*****	**	*****	*****	**	*

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	E	I	E	L	E	E
NTDB id 600 KW2 RS01765 WP 011675413.1						387
NTDB id 269 KZH43 RS08665 WP 001085462.1	EIEIEE					388
NTDB id 228 SPD RS09265 WP 001085462.1	EIEIEE					388
NTDB id 194 SPR RS08825 WP 001085462.1	EIEIEE					388
NTDB id 159 SP RS09750 WP 001085462.1	EIEIEE					388
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EIEIEE					384
NTDB id 499 SM12261 RS08315 WP 078228268.1	EIEIEE					384
NTDB id 453 Spy49 1753c ACI62003.1	EIED..					378
NTDB id 408 SMU RS09530 WP 002262392.1	ELED..					383
NTDB id 115 BSU 16940 NP 389576.2	.....					348
NTDB id 625 LCA RS02525 WP 011374196.1	.....					355
NTDB id 1313 DR RS12030 WP 010888966.1	.....					363
NTDB id 1245 Cj1673c YP 002345041.1	.....					343
NTDB id 1214 NCTC11637 00359 SQJ03206.1	.....					347
NTDB id 1211 C694 RS00795 WP 000963128.1	.....					347
NTDB id 1334 RAOC RS04870 WP 004918236.1	.....					343
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.....					372
NTDB id 1130 NGFG RS03960 WP 003688695.1	.....					348
NTDB id 1124 NGFG RS03960 WP 003688695.1	.....					348
NTDB id 1123 OK783 RS03845 WP 003688695.1	.....					348
NTDB id 1427 RS RS02760 WP 011000510.1						352
NTDB id 1165 A1552VC RS01565 WP 000344154.1						354
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NTDB id 1022 ACIAD RS06390 WP 004925639.1						349
NTDB id 1205 PSJM300 05545 AFN77183.1						347
consensus						

 non conserved
 similar
 ≥ 50% conserved