

LIC12017ClpB MKLDKLT SKLNEAIYN-AQASAEKLG NPEISEEHILKEVLSQPDGLVPLLISKLNLSPKS 59
LIC11814ClpA -----MERTLRK-AWEEAKRRNEFITLEHILLALTY--DSVAKEVLEACGADIER 48
LIC10339ClpC --MLEFTKRAKRVINEIAQDEAKRLGSDYIGPEHILLGLLKEEDSVAIKILNINLNINE 58
LIC11418ClpX -----MAKKTGPNNGKQKLFCSFCGKEQDAVKRLVAGPGVYICD 39
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LIC12017ClpB FLESTENALGKQPKVGGNTSADVG--FSRSVAVSLLKAADEVRKELKDEYLSTDHILLGLM 117
LIC11814ClpA LRKDLIDYLESELESFPESSEVDPIYITIGVQHVQLAEFHVQSTRNKKMDGGDVLAAALF 108
LIC10339ClpC LRKEVERRTREAS--GALLMDVAG--GQDRYQKIIELSKEEAKRLKHNYVGTETHILLALL 114
LIC11418ClpX ECISLCN-----EIIAEDHEHSHEKSEVFSEVP----- 67
. : : .

LIC12017ClpB KNG---TG---SLKTEFLKLGLEYHKLKITLENRKGGKTIMDDS-----PEGKTDALA 164
LIC11814ClpA REDQSNVAVYFLGSQDISRLDIVRYISHGIRKDSKKNPGKEMAGEE-----GEKISDPLR 162
LIC10339ClpC RDNNNIAGGALYSFSVNYNVIKSEILRLLGAPPTSSVGVSTTQSGPQPRQEKTKTPILD 174
LIC11418ClpX -----SPADIKSILDQYVIGQDHAKKALSVAVYN-----H 97
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Walker A

LIC12017ClpB KYAKNLNELAKQGKLDPVIGRDEEIRRTIQVLSRRTKNNPVLIGEPGVGKTAIVEGLANK 224
LIC11814ClpA AFCVDLTAKAKEGKLDPMVGREDELDRTHILCRRRKNNPIFVGEAGVGKTSIVEGLAQR 222
LIC10339ClpC EFARDLTQLARDKCLDPVVGRAIEIQRVIQILSRKTKNNPVLVGESGVGKTAIVEGLALA 234
LIC11418ClpX YKRVNLKEKKSDEIE-----KSNILLIGPTGSGKTLAQLAR- 136
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pore

Walker B

LIC12017ClpB IVQGEVPEGIKNKTLYTLDLGSMIAGAKYRGEFEDRLKALLDEVK---SSDGEVILFIDE 281
LIC11814ClpA VVDGKVPKLNKLVYSLDMGLLLAGTKFRGEFEERLKNVVAQIT---AQED-HVLFIDE 278
LIC10339ClpC IVEKSVPDLLFEKRVLSLDASLIAGTKFRGEFEERLKKIMKEIT---SSTN-IIIFIDE 290
LIC11418ClpX -----IIKVPFAIVDATALTEAGYVGEDVENIILKLIQNADNDIKKAEVGIYIDE 187
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LIC12017ClpB IHTLVGAGATEG-ALDASNMLKPMLARGELRCIGATTLKEYQKYIEKDAALERRFQPVVY 340
LIC11814ClpA IHTIIGAGAVSGGSLDASNLLKPALSSGELRCIGTTTTYKEFKTIFEKDHALSRRFQKVEV 338
LIC10339ClpC LHTLIGAGAAEG-AVDAANILKPALARGELQCIGATTSAEYRKYIEKDSALERRFQVVKV 349
LIC11418ClpX VDKIARKSDSASITRDVS----- 205
: : : . : : * : :

LIC12017ClpB KEPSVEETVTILRGLKGRYELHHGIRILDSALIAAATLSNRYISDRFLPKAVDLIDEAS 400
LIC11814ClpA GEPSETIEIILKGLLEKYESFHVKYSSSAVEQAAELSARYILDRKLPDKAIDLLDEAG 398
LIC10339ClpC AEPSVDDAIQILQGLKKAYETHHKVRYSDKALEQSVKLSHRYINDRYLPDKAIDIIDEAG 409
LIC11418ClpX GEGVQQALLKIIIEGTVANVPPQGGKHPHQEYLQVDTKNILFILGGAFVD----- 255
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LIC12017ClpB SKMRIEIDSMPEELDANKRIQSLKTIEREALKEQDTASKERLKTLELDSEQEQNFQTL 460
LIC11814ClpA ARVRLRESGK-----KVTVTR----- 414
LIC10339ClpC AKARLANCARPQTIKDLFEEIKSLASK----- 436
LIC11418ClpX -----

LIC12017ClpB KARWDLEKSKIGRLKQIKEEIEKYKNLEAEAERRGEINRVAEIRYGLVDLQKELESANE 520
 LIC11814ClpA -----
 LIC10339ClpC -----KEELVRAQEYEKAAGVRDEVNRKKQAMEEKLRSWQEKMEDFAV 479
 LIC11418ClpX -----

LIC12017ClpB ELKKQESASRLKKEEVSEEDIANIVSRWTGIPVSKMLQGERAKLLMEDVLKTKVIGQDH 580
 LIC11814ClpA -----EIEDLVSKIAKVPSTVKADDREKLKNLDEELKAKIYGQDS 455
 LIC10339ClpC NIE-----EDDILSVISLWTGIPLKMEESESDKLLRLEEELKKRVVQAE 525
 LIC11418ClpX -----LPNIIKSRTGIKTIGFGSEEQRIQSENKDVLMQVIP--- 292
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Walker A

LIC12017ClpB ALRLVSEAVQRSRAGIADPNRPIGTFLFLGPTGVGKTETAKALAEFLFDDVAMTRIDMS 640
 LIC11814ClpA AIDQLVQSIRLSRGLSEPGKPVGSFLFAGPTGVGKTELTRKLAELG---VELIRFDMS 512
 LIC10339ClpC AIEKIAKAVRRARTGFKSERRPTGSFIFLGPVGVGKTELAKALANFLFGNDAMLRVDM 585
 LIC11418ClpX -----E 293

pore

Walker B

LIC12017ClpB EYMEAHSVARLIGAPPGYVGYDEGGQLTEAVRRRPYSLILFDEIEKANPEVFNIFLQILD 700
 LIC11814ClpA EYMEKHTVSRLIGSPPGYVGFEGGGQLTDAVYRNPHCVLLLEIEKAHEDIYNILLQIMD 572
 LIC10339ClpC EYMEPHAVSRLIGAPPGYVGYDDGGQLTEFVRKRYPYSIILLDEIEKAHHDIFNILLQIME 645
 LIC11418ClpX DLIKFGLIPEFIGRLP-----IVATLQELNVDMLRQIFREP 330
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LIC12017ClpB EGRLTDGKGRNVDFKNTVIIILTSNIGS-EILGSSEYTSEE-----KERLVEQRLK 751
 LIC11814ClpA HATLTDNNGRKSDFRQVILVMTTNTGARERSTNPVGFAND-----LLEDRSLKATIEK 625
 LIC10339ClpC EGRLTDTKGRKVNFRDTIIIMTSNIGAKEIQAGGRLGFEDRKDEALKYKSDQTRDQLK 705
 LIC11418ClpX NSVLKQYTR-----LLELENVKLT 349
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LIC12017ClpB FKPEFLNRIDEVILFHSITDSVIHKIADIQLEGLRQKAKENGLDVSFTNELKDYSKAGF 811
 LIC11814ClpA FSPEFRNRLTAVIEFSSLNQENVTKVAKQLALLQERLNSKQIELEFNEVDLVYIADKAY 685
 LIC10339ClpC FNPEFLNRVDEVIYFGSLTKENIMSIIDIMVTDNKRLEHTIQISITQAANKNHIMDIGY 765
 LIC11418ClpX FHDEAIDKIAELAIKR-----ESGARGLRAIVENIMLDLMDIPSRKDIEEVII 398
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LIC12017ClpB DAEYGARPLKRLIQREVGNALSRYLIDGKFTNGQNVTVDYRQGVVVVV----- 860
 LIC11814ClpA TPEFGARPVQRWIDTHHISKRISEEILFGVLKSGGKAKLISGKEGEMEFSSGKKN----- 740
 LIC10339ClpC DEKFGARPLRRVFQRELEDHMAVQTLKGAYKEPTKIEIDFKEGKLEFLETPWTDYKPVDP 825
 LIC11418ClpX TAEVIANRVAPTLILKESKIA----- 420
 : * . : : . . : :

LIC12017ClpB -----
 LIC11814ClpA -----
 LIC10339ClpC KTGNDNSSGNPERSEEIALV 846
 LIC11418ClpX -----

AAA 1 domain	
AAA 2 domain	
Walker A	(G/A)XXXXGK(S/T)
Walker B	HyHyHyHyD(E)
ClpP binding motif	(L/I/V)G(F/L)