



C

CONSENSUS A D LTGL NR F L L LL DLD FK IND G H GD L A R R D A
 10 20 30 40 50 60 70 80 90
G. xylanus DGC KSLAATDP LTGLFNRGG FNNV LQTAVE DKSQNTDRDMLVMFDLGGFKQINDIHG-HHAGDVVV LKVISNRL LALVH----PEDAVC
PA4332 DGC LEDLVATDEL TGLFNRRHFMRLASRAL-EDLLPNRG-HGLALIDLDFHFKRINDRHG-HAAGDRVL QTFAAVARSCLR----DGDVLA
PA2771 DGC DREQRKSLLD PTLQLWNRAGFHALHQHELE-ELARASDQRIGIYSDIDHFKRINDTLG-HRAGDQVSL REAASRLRAALR----PEDLLA
PleD DGC LAVTDQTLGLNRRYMTGL LDSLVR-KRATLGGDPPYSALLIDIDFFFKRINDTFG-HDIGDEV LRFALRLASNVR----AIDLPC
PA2870 DGC RLLASTDTLTGLNRRHSFLHQAEMLL-KAERFRHP CVALMLDIDHFKNINDSHG-HLTGDRAL QRVAETL RQGLR----EVDLLG
PA0338 DGC SEIDPLTEL YNRKFEQCLHHEW-MRRQRHGRTALMMIDVDFHFKRINDLFG-HSTGDRVL VAFGRLVASELR----EVDVLA
PA0169 DGC LALKEASIRDPL TGLPNRRMLLERLREEN-ERSQRHGQSYV LAMLDVDFFKVNDTWG-HDSGDRVL VEIFARAMESELR----EYDLCG
PA5487 DGC RQKALTDPL TGLPNRAALSERLEQEV-ARRHRDGRDL LFAVLDIDHFKRINDDFG-HLAGDKVL KTIAGEL RKRRLR----QADFLA
PA4843 DGC KARMYRDSL TGLYNHHTTLLQLLEDAR-LRRARDGGP LSLAMLDIDHFKRINDDFG-HPMGRDVKIGKGLALFLKQRLR----KTDHIG
PA3177 DGC QTLALRDALT GTGNRIAMDQALGRELE-ELARRNLQPLSLVMLDIDHFKRINDYHG-HAVGDEAL KAVAE TIKDHLR----NVDVMV
PA3343 DGC RVMADHDSL TGLNRRSFNQHLDRLLV-RQAQREKQTLALLL CVDHDFKAYNDRYG-HOAGDAV LQRIGAVFEANARR----PLDMAV
PA1851 DGC GMAEQDSSL TGLVNRYYELLAQRAL-EQGAREEKGVALL LVDDVDYFKAYNDRYH-HPAGDAAL RQLGVVLRQGGARR----PLDIAA
PA3702 DGC QRLMNSDGLTGLSNRRHFDEYLEMEW-RRSLRGGSELALL LDVDDYFKSYNDTFG-HVAGDEAL RQVAGATIREGCSR----SSDLAA
PA1107 DGC EYLAGHDPL TGLFNRRFDQLVLMEL-ARIDARQOPQLS LLMVDLDFHFKYINDRYG-HPFGDEV LRHAANLRGNTR----SSDSVA
PA4929 DGC LQYAAHHDPL TGLGNRRHLMEFAESAL-DDARRHGSMALL IDLDFHFKPINDTHG-HDAGDFV LQNVAQRLRHCVR----TEDCVA
PA0290 DGC QRLATTDL TGLTQSNRRRYFDSEAAAF-KECRREGIPLAFLL LDVDDFKKINDRFG-HQVGDQV LQRIAQSGSAALR----RGDLFG

PA4601 DGC HRLAAYDALT HLPNRTLFQDR LHTAL-QQAERNQGWV LMFLLD DRFKPINDSLG-HAAGDRML QEVATRL SACSVS----QDDTVA
PA1181 DGC SYHASHDAL TGLFNRTKFEEL LQRAL-ANQERATQHALL CDFLDLR FKVVNSAG-HAAGDML LRELSRL LADTR----ASDTLA
PA0861 DGC SWQATHDAL TGLNRRFEYRLQIAL-ERALESTRSGHALL FDLQFKLVNDTCG-HAAGDEL LRQVCTLL QQGLR----EGDTLA
PA1120 DGC LAHQAHHDSL TSLPNRAF FEGRLSRAL-RQAEHREQLAVLF DSDRFKE INDRLHG-HAAGD TVLVNIAMRIRGQLR----ESDLVA
PA1727 DGC IQLALHDNLT KLPNRM LDDRL EQAT-QQATRDHREFAVLFMDLGGFKAVNDAYG-HHLLGDLL IEVAERIRANVR----AQDTIA
PA0575 DGC ARLDYQAHHDP LTGLPNRLL FESRLNHAL-DEAREESP GALVLF DDLDRFKHINDSLG-HPIGDLL KAIAEERLRDQLR----VDVTVA
PA0847 DGC LEMAYRDP LTGLGNRKA FDEQLGQAL-LRAGSGSELALL LD DRFKEVNDRFG-HDIGDAL LRVTAEVRSTLR----QPDKAY
PA3311 DGC SLRQMARYDSL TGLQNRTAFNEVFVQHL-ENCLRGKGLAVMFLD DHFKRINDSLG-HDSGDEAL LRVSELRISVLR----DSDVVA
PA0285 DGC DFLAHHDSL TGLPNRVLL RERIEQAL-ENCKRDVTAGALL IDLDFHFKINDSLG-HTTGDML LKESVKR LQHQLD----ERCLLS
PA5442 DGC HLLHYDEL TGLANRR LFRERLHEAA-QRARQEEGGLALL IDL DRFK LNDL SG-HEVADQL RREMAQRLRTAP----EANTLA
PA5295 DGC QLLAEQDPL TGLANRQGFTL LAARL-ESSDGRG--LVLGHLDL NFRHVNSLG-HQGGDRL LQVNVLR LRGFME----NGDSL A
PA5017 DGC QQHIEKLA YRDNLTGLANRHYF IGALEERL-FEFDGR--LSLLLDV DNFKRIINDSLG-HQTGDKL VLSARLRSLG----DSATLA
PA2072 DGC QHLSLHDALT GLPNRRNKL FQFLERLL-AEKAGKS-PVAVLMLD DRFKPINDQHG-HPAGDAV LVAIAEERLRASTR----DQDMVA

PA3258 DGC QQARHANP LTL LPGNVPIQQCLERLL---QRRRE--AVICYIDIS FKPINDLYG-YARGDEV L LCLAQCLSERIDP---GSD FVG
PA4367 DGC LRSQYDFLT GLPNRQLLQQLDQLDGLD-DGAGRQR RVAVLCLGLD FFKINEQYT-YQLGDDLL LALADRLRGHSA----RLGSLA
PA1433 DGC RAQAYQDSSL TGLPNRRL FADAR LNEQL--GAGEHEHAGCYLLL LRLNDL NGLNQLRG-QGRTDELI QAVARLLVDS CGQQGRADWLLA
PA4396 DGC MEERNLVDTLT GLGNPRYL RQKLADSL-RQVETRGGALCYLLL VGMPEAPV LNRQRHG-EAFHRELL LQVARR LQQLVLR----PLDVLV
PA4959 DGC REVSSQDPVY TGLYNRSHFLDLMDAAV-QQAVTARKPST LAYIHLNGYPSLQADHG-LSGIDL L LQLAGL MREQFG----EADLA
PA2567 DGC RSTNYIDEPTGL YNRRLRLQLQEDVSLRQ--QRD GALT V IAADLPLALLNTITRTL G-YPFSDNLML EARDRIAE L P----DFTLYK

I
II
III

CONSENSUS R GGDEFA LL A AERL T S G L AD ALY AK GRN
 100 110 120 130 140 150 160 170 180
G. xylanus DGC RLGGDEFALILNHTLHKFFLS LMLEKL LAELAEPIEVGNT---MNVVSGS IGVTPIASQES-----AES LQKNADIALYA AKRAGGHQ
PA4332 DGC RYGGEEFV L L LPHA-DAEQLES CCEERL RLAFAEQAEPIVGVG---VDTLVLSV GM TLLYADDD-----LDEAL QRADQAL YRAKRGGRNR
PA2771 DGC RFGGEEFVAMVRRV-ETTELTMIANR IRELMEATPIDCAG---TSVPV TISAGCTLAGSGEE-----PERALARADAA LYDAKRA G
PleD DGC RYGGEEFVIMPDT-ALADALRIAER IRMHVSGSPFTVAH-GREMLNTVISIGV SATAGEGD-----TPEALLKRADEGVYQAKASGRNA
PA2870 DGC RLGGEEFAALLPEV-SLDQALDVAEERLRAGVEALRVSNPD-G-EPLRNVTSIGV ALRRADAGD-----DLES LLVRAD SALLYQAKS GRNR
PA0338 DGC RWGGEEFILLLPET-GLEAAAALAEERLRQRVRSQSFMEG-E-RLTASFVGVGLND--GET-----LDL LCRVDDAL YRAKQR-RD-C
PA0169 DGC RWGGEEFLLLPQT-RLQDAGPVLERVRDSVRTLAVRVGT-E--ALSTVASV GTEHRIGET-----YSQTVNRADAA LLDAKRSGRDCV
PA5487 DGC RFGGEEFVLLPAT-SLEAGRQLLERLRRAAIAACPFFHFGK-E--PLSITCSA GITAFEGNEA-----GEVVFERADQAL YRAKRAGRDR
PA4843 DGC RYGGEEFV LVPDT-DLDAARLVLDEIRQFAEIHYP AQP-T--DLRCTFSCG IAE LTPDL-----IKSMAKQADEAL YRAKRGGRNR
PA3177 DGC RFGGEEFV LLSST-PLQAACMVGERLRQAVEELD YRHAG-E--PLKLSISLGCADLRPGE G-----SDDL RRVDAEAL YRAKRDGRNR
PA3343 DGC RLGGEEFALLLYGA-NEHEARLRAEALRAQVQALRMEHEA-SDTAREVTLSV GSCWLPPTPGND--LKRLYDLYEHADRAL YEAKAFGRNV
PA1851 DGC RLGGEEFAVLLYDS-EEGNLT AIAEERLRQAVEALRGIHGLG-SAGPCLTISLV G VAYSTS GMG-----LDAL YREADRAL YEAKDAGRNA
PA3702 DGC RYGGEEFV LVPGT-SPGGARLLAEKVRRTVESLQISHDQ-PRPGSYLTVS IGVSTLVPGGGG---QTFRVL IEEMADQAL YQAKNNGRN
PA1107 DGC RLGGEEFLLLPDT-AEQQARSLAEKLRERLEGPLATQD-G--VLCVLTASIFG VASLDGGGG---ASYEQLY SAADQAL YRAKSSGRNR
PA4929 DGC RLGGDEFV LLVGGSNAEQHARDIAERLL RREL-AKPVEFAK-Q--WLVTIPSI IGVTLFPGDALQ-----DFGLYKAAADQAL YRVKAGGRAG
PA0290 DGC RIGGEEFV LPPGC-DEQTA RQIGERLQREVRQLRFQEGE-Q--SFGITVISOGLV LVLQADDE-----GLGAL YSRADAA MYSAK RQKDC

PA4601 DGC RMG GDEF TLL LPSQGDREI LKRAIQVAEL L GRLAR PFTLE GREFFVTSIGV ALSPODGA-----ELSL MKNADTAMY HAKEMGKNN
PA1181 DGC RLGGDEFGLL LFD-CDLAEAEQVASKLIEIQC---VRFPWGR LRYDV GASIGITALATSR-----STSE LMSQADVAC YAAK HAGRNR
PA0861 DGC RLGGDEFGLLEN-CPAEKAVEIADHLRKTVQD---LHFTWSGPPFNCTVSVGLVHL L PGIS-----TLEEALRSADMAC YMAKEKGRNR
PA1120 DGC RLGGDEFV L LAPLASGADALRIADNI ASMQA---PIRLSD GSTVSTSLTI GIALYPEHAD-----TPAALL HDAMMYIAKRRARGS
PA1727 DGC RLGGDEFV L L-IEAREPADAA TLAEKLVKRISQ---PYQI-SRHEVRSAS I GIALY PGDQ-----TRHE LMINADAAMY HAKDQGRNG
PA0575 DGC RLGGDEFI L L PGLHQESDAEHVARK L LNAFTA---PFQA-EGHEFFVSASV GIALFPKDGD-----DAPT LVKNADAAMY RAKSRGRSRIE
PA0847 DGC RLGGDEFV L LLED S-QENNPORLAERL LAAVLQPIALNGE---RIDFVTPS I GIALYPRHAG-----DAEGLVRAADSAMY QAKQRNH
PA3311 DGC R FAGDEFV L LADLT-QDH EAHILSQR LMKKKEPIALDG---RTLVTASV GVS LFPNDGE-----QCEE LKKNAGLAL HQSKACGR
PA0285 DGC RLGGDEFV L LVEND-DPEAVARLSQR LLDGFPAPFVHLCQ---PIYISASL GVS LYFEDAS-----DVDH LMQHADAAL FQAKDSGRNA
PA5442 DGC RL AGDEFV L LDG GGTGAALSRLAERL L VLQRNPVSVLG---HEL I GASL GVS LYFSEQAR-----EISV LMSQANL AQHAKLGQNTF
PA5295 DGC RLGSDEFV L LDTRRDPQRAERVAER LVEICLQEPYWDG---SLLLGCSL GLAHARADGE-----ADPL MWHAHIAMQAKASROGCT
PA5017 DGC R FASNEFV L LDDT-AVEKGESIAA QVHMLDKPLFDN---QLINITG SI GLASAPQHG-----DPQT LMKYAGLA H KAKANGKHQV
PA2072 DGC RLGGDEFV VVSTHVSSKLETEKFC SRLIDVTRN--E IAY-EGHS FHV GAS IGV LALAPEHG---DPRGL LRCADV AMY EAKKA GRNT

PA3258 DGC H I G G D D F M L V L G P E D W R T I D R L L E T F Q S Q C R R F Y S R E H L E A C F V A H N R H G Q R E E Y P L L S V G V V H L P A E A C Q G M D A A H L A T L S E A K R Q A K A V P G S Y
PA4367 DGC RLGGDQFV L VQADIEQPYEA AELAQSI L DGL EA---PFEI-DQHEVRLRATIGITLFPEDGE-----TTEK L L Q K A E Q T M T L A K T R S R N R
PA1433 DGC RSRGGEFV L LAPGC-SREQERLAEEICEGLENLARTGAS---DLTPVAYLGISAFAGDS-----PADLLARADQALAEASQPAQP
PA4396 DGC R L D E Q H F A L I T L V E D L H E C S S S F K R L H D G L N L K A F T S---E G F T S L K A G T A M L G L D S G---A L P L G D I E L L Q R T E A L L P D A Y A S G R I A
PA4959 DGC R F G D S I F A A L F K G K-TPEQQAALQRLLKKNVNHFLFELNG---RSAQATLSIGVAGLDEKTA-----KAQDMNR ARHCADDAARKGGSQ
PA2567 DGC -I S P T R F G L L L P R Q-QQEETE SVCLRL LRAFESPVV CRG---IPIKAVI VGL V L P L A D D P L A G---DQDWLRLVVSVA ADDARDRGVGW

I
II
III

Figure 6C

D

Consensus: LR AL L L YQP L G EAL RW HP G P FIP AE GLI L WVL A L

10 20 30 40 50 60 70 80

PA3947 PDE ELPSVADVVRGIDNGE-FAEAYYQPKVALDGGGLIG--AEVLARWNHPHL-GVLPSSHFLYVMEYTNLVVDKLFWQLFSQGLATRR
pvR PDE ETPHGRALLDALHNEQ-LVTWFQAKKSLHTGRIVG--AEALIRWSHPQH-GLLLPSCFMSDDVATGLHEALLWRVLEQLTNAQE
VieS PDE AITLTCEIEEQAFLDH-IFNYYQPQDFRS GAMVG--VEALVRYEHPHTH-GMLSPAVFLPLIEQCGLHEKLFLLTVEKSVSALAE
PA3258 PDE VTEQLSALDSILAHGD-LHCLFQPILSLSERRLVG--YEALTRGP-SNS-PLHSLALFAVARQCGRLELLELLCRQRAFSRFR
PA2133 PDE DLRLARRFQAALARGR-VRLDWQAVRHAGHPWEPLYRETLRLVTAASGEPPLTQELTLALERGLTLRLLDRCVLTGTVLDRLN
PA1433 PDE SQDWHWDIDQALERR-LLLYFQPVVDCLDTRQVHL-HKVLARLDDPAQ-TAIAAGRFLPWIERFGLWAARLDLAMLQESLEHLR
PA4959 PDE QRGDVIAI LQQALLETNS-FRLLFQPVVISLRGDSHEN--YEVLRLLNPPQG-QEVPAAEFLHAAKEAGLAEKIDRWVILNSIKLLA
PA1181 PDE DILLASGLREALENDR-FQLQAQEVVPGPRRDGRHYELLRLLYDDPG-QMTPPGAFFPAAERFNLMASIDRWVINEALINFG
PA0861 PDE EMTWVQRHLLALEEDR-FSLYAQPIVPLGEGAEGLHVE-ELLRLRDEGG-RLVPLSFLIPAERYGLMTLIDRWVVENAFRTL
PA2200 PDE EKLPARLLRALKREA-LEVHYQPIVRLASGRACAG--VEALARWTDSSL-GRVSPDVFIGALEESGDIETLRFVFRRAALKQLG
PA2818 PDE RLSLVGDMYRAMRARE-FHMVYQPIHLDTGECRGG--VEALVRWRQRPDR-SQVRPDIFFPLAEEDNGMIGDLTRHIFGLVAADLA
PA3825 PDE VASPSSELRRALAEANE-FIPYYQPLSPGQGGRWIG--VEVLWRWHHPRE-GLIRPDLFIIPAERSGLIVMTRALMRQVGEDLG
PA5295 PDE LADLEAELRRALRRDE-LELHYQPRCLDSGRIVG--LEALVRRWHGER-GLLTPSEFVPLAEESGLIVPLGYWVIARALRDMQ
PA2072 PDE KKLRETELRAALQNGE-FELYYQPRFLAQEQTAS--AEALIRWNHPRR-GLIGPDEFFIGLAEESDLIVQIGNVWLREACATAA
PA5442 PDE LRLETRLRKAVEEGQ-LDVHYQPKCLASARPDAS--VEALVRWHHPPEE-GMIPPSFTFIPLAEESGLIAGEFVLLRRAFLQAA
PA1727 PDE QLQLLHDLRQALERRQ-LVLYHYQPKVLAPNGPMVG--VEALRWEHPQH-GLIIPPQDFPLAEKTKGLIVQIGEWVLDEACRQMR
PA4367 PDE RRELEKDLRALQRHE-LHLVYQPVVDYRDHRVVG--VEALRWRQHPLH-GFVPPDLFIPLAEENQNGSIFSIGEWVLDAQCRQLR
PA0285 PDE HVQVESALRHALEANE-LRVHYQPVHDLASGRIVG--VESLVRWQHPER-GLVPPGFFVPAEECGLIAALDNWVLRKACRQMR
PA0575 PDE RMALETETRRALERDE-LQLYYQPKLSLESGLLVG--AEALVRWHHPHF-GEISPERFIPLAEDCGLIPLGDDVYLGACQQMG
PA4601 PDE ERLELESDLRRALELGE-FVLYHYQPKFTGDRRLTG--AEALRWRQHPRR-GLVPPSEFVPLAEETGLVAQVGDWLLAEACKQLR
PA5017 PDE KLFVESNLRRAEAQNE-LAVHYQPKLRSGLLVG--LEALRWRQHPEK-GMIRPDRFISVAEETGLIVPIGWVIREACRQAR
PA3311 PDE TQELQMEEEE LQQALRDDQ-LELHYQPIALALADGEVHQ--LEALVRRWHPTQ-GLLGDRFIPLAEENGMIDQLDDWVLRACRDLR
PA2567 PDE AFTLLTSLSQAIGTEEGFHLVYQPKIDLPTGRCTG--VEALRWRWHHPQL-GFVSPAEFVPLAEKTKALMRPLSDWVLRHAMAQLA

Consensus: VN S L L L LE TE LR LG A DDFGTGY

90 100 110 120 130 140 150 160 170

PA3947 PDE KLAQLG---QPINLAFNVHP-SQLGSRA LAENISALLTEFHLPPSSVMFEI TETGLISAPASSLENLVR LRIMG CGLAMDDFGAGY
pvR PDE SWRRAG---YEIPVSVNLPP-HLLDNQELPDRLEYVYGARGACTSSLCFEL TESSVTLLSSNYAGACRLRMKGFGLAQDDFGQGY
VieS PDE SIGAD-----LQLSVNISQ-RNLQHS-ICDPIALICERYGFPASKLLEMTHEVYNGTPTSLANLARLRMYGVGLSIDDFGTGY
PA3258 PDE DIQGD-----AMLFLNVSPESSLLEAGHPGRTLQLLQQLGISPNRVVVIELTEQTPIDDFLLDALTALHHRAMGFSIALDDDLGAGY
PA2133 PDE AEPT-----LRLACNLSR-QSAAMDAAWEAVCRWLAARPQVARRLTLEL TETAVGERV-ATREFIRRLREHGVRLIDDFGAAH
PA1433 PDE RHPRP-----LALSLSAAS--VRNAQAFAPLALLKAHPQEARQLTELEDERHLPAAA-ELERLSQVLRLELGCGLIQHFFGGRF
PA4959 PDE EHRAKG---HQTKLFLVHLS-ASLQDPGLLPWLGVALLKAARLPPEESLVFQISEADATSYLKKQAKLTQGLATLHCQAAISQFGCSL
PA1181 PDE ARIAAVEGLSISG--INLSG-NSLNDPLFLPYLDRIEHSPLRPERLYFEL TETALMNLQSVASRIVAKLRDLGCKVALDDFGAGM
PA0861 PDE ERAQDPRAEPIGTCAINLSG-ATIGDESFLQFLTELFAARYRPPQITCFEVTETVAVANLVAAIRFINELKDTGCRFSLDDFGCSL
PA2200 PDE PLLRE---QRSFYVSVNVTG-KDIADPGFIDFAMRQIMARESVRPEQVALEL TERTTEAQQ-CLLAGMNRRLRELGKLIYVDDFGTGH
PA2818 PDE QLGLG---AGDHLGIVNSG-SHLASHGFVDDVRRLLGAIGSEGGPQLVLEVTEREALPHDAQLQHNIQLRELVGQWALLDDFGTGY
PA3825 PDE GHAGK---LEPGHIGFNISA-THCHELALVDDCRELLAFAFPGHITLVLELTERELISESEVTDRLFDLHALGVKIAIDDFGTGH
PA5295 PDE WLNGR---GLEPLHMAVNSL-SF-RQFQDSQLLPTLQRLIEEHGV DARWLEFEL TETAVMRRSDQVLQTMQALGQLGVRFSLLDDFGTGF
PA2072 PDE SWPG---EVMVSVNSP-AQFMTGDVWQVREALRHLAHDARRLELEV TENVMLNVDGALRTMTALKELVRLNMDDDFGTGY
PA5442 PDE EWSQR---GLN-LRVSVNSLV-HQLRQDGLDVVRSALADSLGPAQLELEL TENSQLDALDSVLATFRQLREMGVRLSDDFGTGY
PA1727 PDE LWLDG---GHAEWNIAVNSA-LQFAHAGLVDSVRNALLRHSLPEPSHLILEV TETAMRDADASLVILEQLSAMGVGISIDDFGTGY
PA4367 PDE EWHQD---GFDELRAVNSLST-VQLHNNALPRVSNLLQVYRLLPARSLELEV TETGLMEDISTAAQHLLSLRRAGALIAIDDFGTGY
PA0285 PDE EWQQR---GVELEFVAVNSL-SRLFNRGGLLEERIANALEESGLEPSYLELEV TETSAVMEDEFSQSNLLCRLRLGVNLAIIDDFGTGY
PA0575 PDE EWQKL---HAPFGPLSVNLAG-AQLGQPQLIERLEQLLEQSGLEPSRLQLEI TESFIMNQTEEFALVHLGLKRLGVQLAIDDFGTGY
PA4601 PDE SWHKA---KVRVPKVSNSL-SA-RQFADGQLGERIAALYETGIPPAQLELEL TESILMSDVAAEQMLISGLKRLGLAIAVDDFGTGY
PA5017 PDE ELAEA---GLGELQIAINLSP-KQFTDPPLVGSI AATLEENIPASQLELEL TESLLLDATDDTRQLLERLAKSLGLTALDDFGTGY
PA3311 PDE SLHLA---GHERLRVAVNCCA-SNLGRASLVDEVRHALDQAGLAARFLELEV TEDALMYNIDQTIPLLERLRELGVSLSIDDFGTGY
PA2567 PDE QWNAR---NIPLRLAINVSA-SDMEDSSFLEEAVRLAKTYDIDLSALELEF TESVLRDASAVGSVLLRARELGMGIAVDDFGTGY

Consensus: SSL YL LP D LKID SFV I II L L VVAEGVET L G QGYL P

180 190 200 210 220 230 240 250

PA3947 PDE SSDRLCEFPFSQIKLDRTFVQKMKTPRSCAVISSVVA LAQALGSLVVEGVESDEQRVRLIELG-CSIAQGYLFAFMPPEQH
pvR PDE SSFYNLVTTPTTELKIDRSLVQGCVEDNGLNAAVISCIELGHRLLNLDVVAEGVETCEENLNLRLRG-CDRAQGFLLISKA
VieS PDE ASLQGLAQLPFTTELKIDRSFVHDLATNYKHQQLTNMCLLQAQSLGLHCVVEGVENEETWQYLRLQGVDTCCGGYAAKP
PA3258 PDE SSLRLWSELRPDYVKIDRHFDGHIHLDTVKREFVGSILKMARASRAQVIAEGIELPEELAVLSEMG-VDLVQGYLFGRP
PA2133 PDE NNLDVFLDARPDKYKIDCRYTREARRSAGKAEVLRHLLALCRELAPCVVLEGLEEDDAFARLPTGD--VYLQGNAIAPP
PA1433 PDE SLIGNLTHLGLAYLKLIDGCVLHADVREGDKRLFIEAVYRTHSIDLPLIAEQVETLGELEVRMG-LRGMAGRLFGSP
PA4959 PDE NPFNALKHLTVQFIKIDGFSVQDLNQVE-NQETLKGLELAEHLQKLSIVPFVESA SVLATLWQAG-ATYIQGYLQGGSQAMD
PA1181 PDE SSFNLYKKNFVYKIDGFSVRNLKDKSPVDAIVDSINQIAHRLGAVTIAEFVESREILDHARLQ-VDFAAQGYAVGRP
PA0861 PDE SSFIYLKHLVPDYKIDGFSVKNMLEDPIIDAMVQVNHIGHVMGRTVIAEFVETVEVMEALREIG-IDYAAQGLAIGAPL
PA2200 PDE SNLVYLANLPVDAIKIDKVFQTQSIGDSSAVELIFDKLCSMAEHLIEIGVVVEGIETQAQADHVLRRSPEALGGWHFGKA
PA2818 PDE SSLSHLQKLAHDFKIDRSFVSSVSGS VNAVLETLIALAQRLLDLAMTAEGETREEQYLCGHS-IQWGGYLLFSPPLK
PA3825 PDE SSLAYLRKFQVCLKIDQSFVIARIGIDTLSGHLDSIVELSAKLDLIDVAEGVETPEQRDYLAARG-VDYLQGYLIGRMPLES
PA5295 PDE SSFVHLNSLPITLLKIDRSFVGGMDQRAENFQLVRAMINLAHNLEVVVAEGVETLRQQEQLRDFG-CDQVQGYWISPP
PA2072 PDE SSLGLYLRTPFDYSIKIDKRFVASMETKGRDRSIVQATINLGNALNLRVTAEGVETEGQMHILRDEQ-CHELQGFLLSRP
PA5442 PDE SSLSYLKRLLDYLIKIDQSFVDRDLTQNSEDAIIARAIAMAHSLDLKVVVAEGVETIEQRDFLVAQR-CDELQGYLIGRPL
PA1727 PDE SSLLYLKRLLPASELKIDRGINELAHDSDDAAIVSAIVALGRTLNLKIVAEGVETEAQQEFLTRLG-CNSLQGFLLGRP
PA4367 PDE SSLSYLKLPLDKIKIDKSFVQDLQDEDDATVRAITQLGKSLGMQVIAEGVETAEQYAYIAEG-CNEGQGYLFGSRP
PA0285 PDE SSLMRLKRLPVHKLKIDQSFVAGLPAGVDDAAIARAIAMAHSLDLKVVVAEGVETIEHQDQALFLREHG-CDFGQGYWYGRP
PA0575 PDE SSLSYLKRLLPDLILKIDKSFIRGLPDDPHDAAITRAITLGRSMQLTVIAEGVETEGQSFLLTHEG-CEQIQGFVLSPP
PA4601 PDE SSLNLYKQFPIDVLIKIDRSFVDGLPHGQDDAIARAIAMAHSLNLMVIAEGVESQAQLDFLRHG-CDEVQGYLFGSRP
PA5017 PDE SSLSYLKKFPIDVLIKIDRSFVFKDIPDSQDDMETTAVIAMAHSLNLMVIAEGVESAEQLAFLRRNR-CDIGQGYLFDPR
PA3311 PDE SSLAYLRRLLPDLALKIDRSFIMDIPASQRDMEIAQAIAMAHSLNLMVIAEGVETPQQLAFLRENH-CELVQGYLFS
PA2567 PDE SNWTYLRDLPLVTAIKLIDQSFTRDLAGSPKAQSVTQAVIGLASQLGYRVVAEGVETHTDFHLLQAWG-CHEGQGYLIAQP

Figure 6D