

Supplementary Figure 1. Comparisons of MKP7-CD with VHR and PTP1B. (a) Electrostatic potential surfaces of JNK1-MKP7-CD complex. Interacting surfaces of MKP7-CD and JNK1 are shown in right and encircled in black. (b) The stereo image of the  $2F_0$ - $F_c$  omit map for the P-loop. (c) Superposition of MKP7-CD with VHR (PDB 1VHR). VHR is shown in gray, and its bound sulfate ion (orange stick) is well superimposed on the chloride ion identified at the active site of MKP7-CD. (d) Superposition of MKP7-CD with PTP1B (PDB 1PTY). PTP1B is colored in gray, and its bound phosphotyrosine is highlighted as yellow stick. Notably, the chloride ion in the MKP7-CD structure can be superimposed on the phosphate group of phosphotyrosine as well. (e) Electrostatic potential surfaces of MKP7-CD. Hydrophobic region of MKP7-CD that involved in binding JNK1 is encircled in blue. (f) Electrostatic potential surfaces of VHR. The orientation of the panel is almost identical to those of panel e. (g) The stereo image of the  $2F_0$ - $F_c$  omit map for the  $^{285}$ FNFL<sup>288</sup> segment.



Supplementary Figure 2. Close-up view of the residue Phe287 in MKP7-CD structure. (a) Gel filtration analysis for interaction of JNK1 with MKP7-CD mutant F287D. When 3 molar equivalents of mutant F287D were mixed with 1 molar equivalent of JNK1, a significant amount of mutant F287D co-migrated with JNK1 to earlier fractions, indicating stable complex formation. (b) Hydrolysis of *p*NPP by MKP7 in the presence of the indicated concentrations of unphosphorylated JNK1. Each experiment was performed in replicate for at least three times. The error bars represent s.e.m.. (c) Comparison of MKP7-CD with PTP1B (PDB 3I80) and VHR (PDB 1VHR). VHR and PTP1B are shown in light blue and gray, respectively. The P-loop, general acid loop (WPD loop in PTP1B) and  $\alpha 5$  ( $\alpha 6$  in PTP1B) are highlighted as cyan, green and magenta, respectively, and critical residues are labeled. The water molecule found in PTP1B is shown in red. Blue dashed lines represent polar interactions.



**Supplementary Figure 3.** F-site is crucial for mediating the MKP7 and JNK1 interaction. (a) F-site is required for JNK to interact with MKP7. HEK293T cells were co-transfected with MKP7 and JNK1 (wildtype or mutants as indicated,  $1.0 \mu g$ ). At 16 h post-transfection, cells were lysed. Whole cell extracts were then immunoprecipitated with antibody against HA for JNK1 followed by immunoblotting with antibodies indicated. IP, immunoprecipitation; TCL, total cell lysate. Shown is a typical result from three independent experiments. (b) Effect of MKP7 (wildtype or mutants) expression on apoptosis. HeLa cells were infected with lentiviruses expressing MKP7 and its mutants. At 36 h post-infection, cells were regularly cultured (control for the cells irradiated with 25 J m<sup>-2</sup> UV) for 6 h and subjected to flow cytometry analysis. Apoptotic cells were determined by Annexin V-APC/PI staining.



**Supplementary Figure 4. A model of the JNK1-MKP5 complex.** (a) Circular dichroism (CD) spectra for MKP5 wildtype and mutants. Measurements were averaged for three scans. (b) Results of simulations of JNK1-MKP5-CD complex. The MKP5-CD is colored in gray, and the JNK1 is shown in surface representation colored according to the electrostatic potential (positive, blue; negative, red). (c) Total backbone root mean square deviation (rmsd) for JNK1-MKP5-CD relative to the starting structure in simulation. (d) Contacts between MKP5-CD and JNK1. Residues of MKP5-CD and JNK1 are highlighted as pink and orange sticks, respectively. Blue dashed lines represent polar interactions.

|  |  |  |  |  |  |  |  |  | Gei   | neral acid loc  | p   |  |   |   |  |  |   |  |  |  |   |
|--|--|--|--|--|--|--|--|--|---|---|---|--|---|---|--|--|---|--|--|--|---|
| a  | MKPs   | 5  | β1   | β2   | α1'  | α1   | β3   | 1  | β4  | *   | α2  | 0  | β5  | P-loop  | α3   | 0 <b>**</b> *  | α4  | 0  | α.5  |  |   |
|  |  |  |  |  | +-   |  | -+   | +  | +   | +   | +   | +  |   |   | +  | +  | +   |  | +  |  |   |
| MKP1 : F   | 28562  | 1/1  | QGGPVEILPE   | LILGSA   | IHASR  | KDMLDALA   | SITALINV   | SANCPNHEE  | GHIQIKSIP   | VEDNHKADISS   | WENEAIDEII  | SIKNAGG  | KVEVHC  | QAGISKS   | ATICLAILM  | RINRVELDE  | AFEFVK  | PRESITSP   | NESEMGQLLQ   | ESQVLA 3   | 14  |
| MKP2:C   | 213115   | 193  | QGGPVEILPE   | LYLGSA   | YHAAR  | RDMLDAL  | JITALLNV.  | SSDCPNHFE  | GHYQYKCIP   | VEDNHKADISS   | WFMEAIEYII  | AVKDCRG  | RVLVHC  | CQAGISRS  | ATICLAYLM  | MKKRVRLEE  | AFEFVK  | QRRSIISP   | NFSFMGQLLQ   | ESQVLA 3   | 36  |
| PAC1:C   | 205923   | 170  | QGGPVEILPY   | LFLGSC   | SHSSD  | LQGLQAC  | GITAVLNV   | SASCPNHFE  | GLFRYKSIP   | VEDNQMVEISA   | WFQEAIGFII  | WVKNSGGE   | RVLVHC  | CQAGISRS  | ATICLAYIM  | QSRRVRLDE  | AFDFVK  | QRRGVISE   | NFSFMGQLLQ   | ETQVLC 3   | 13  |
| hVH3:C   | 216690   | 176  | QGGPVEILPE   | LYLGSA   | YHASK  | CEFLANL  | HITALLNV   | SRRTSEACA  | THLHYKWIP   | VEDSHTADISS   | HFQEAIDFII  | CVREKGG  | CATAHO  | CEAGISRS  | PTICMAYLM  | KTKQFRLKE  | AFDYIK  | ORRSMVSF   | NFGFMGQLLQ   | ESEILP 3   | 19  |
| MKP3:0   | 216828   | 204  | PSFPVEILPF   | LYLGCA   | KDSTN  | LDVLEEF  | GIKYILNV   | TPNLPNLFE  | NAGEFKYKQIP   | ISDHWSQNLSQ   | FFPEAISFII  | EARGKNCO   | <b>SATAHO</b>   | CLAGISRS  | TVTVAYLM   | QKLNLSMND  | AYDIVK  | KKSNISP  | NFNFMGQLLD   | FERTLGL 3  | 49  |
| MKP4:0   | 299956   | 201  | ASFPVQILPN   | LYLGSA   | RDSAN  | LESLAKL  | GIRYILNV   | TPNLPNFFE  | KNGDFHYKQIP   | ISDHWSQNLSF   | FFPEAIEFII  | EALSQNCO   | <b>SVLVHO</b>   | CLAGVSRS  | TVTVAYLM   | QKLHLSLND  | AYDLVKI   | RKKSNISP   | NFNFMGQLLD   | FERSLRL 3  | 46  |
| MKPX : C   | 216829   | 242  | PAFPVQILPY   | LYLGCA   | KDSTN  | LDVLGKY  | SIKYILNV   | TPNLPNAFE  | HGGEFTYKQIP   | ISDHWSQNLSQ   | FFPEAISFII  | EARSKKCO   | SVLVHC  | CLAGISRS  | TVTVAYLM   | QKMNLSLND  | AYDFVK  | RKKSNISP   | NFNFMGQLLD   | FERTLGL 3  | 87  |
| MKP5:C   | 29Y6W6   | 319  | NAELTPILPE   | LFLGNE   | QDAQD  | LDTMQRL  | NIGYVINV   | TTHLPLYHY  | EKGLFNYKRLP   | ATDSNKQNLRC   | YFEEAFEFIE  | EAHQCGK  | GLLIHO  | QAGVSRS   | TIVIAYLM   | KHTRMTMTD  | AYKEVK  | GKRPIISP   | NLNFMGQLLE   | FEEDLNN 4  | 64  |
| hVH5:C   | 213202   | 158  | SVGLTRILPH   | LYLGSQ   | KDVLN  | KDLMTQN  | GISYVLNA   | SNSCPKPDF  | IC-ESRFMRVP   | INDNYCEKLLE   | WLDKSIEFI   | KAKLSSC  | 2VIVHC  | LAGISRS   | ATIAIAYIM  | KTMGMSSDD  | AYRFVKI   | ORRPSISE   | NFNFLGQLLE   | ERSLKL 3   | 02  |
| MKP7:0   | 29BY84   | 156  | NIGPTRILPN   | LYLGCQ   | RDVLN  | KELMQQN  | GIGYVLNA   | SNTCPKPDF  | IP-ESHFLRVP   | VNDSFCEKILF   | WLDKSVDFI   | KAKASNGO   | VLVHC   | LAGISRS   | TIAIAYIM   | KRMDMSLDE  | AYRFVK  | KRPTISP  | NENELGQLLD   | EKKIKN 3   | 00  |
|  |  |  |  |  |  |  |  |  |   |   |   |  |   |   |  |  |   |  |  |  |   |
|  |  |  |  |  |  |  |  |  | Ger   | neral acid loc  | p   |  |   |   |  |  |   |  |  |  |   |
| h  | MKD7   | ,  | β1   | β2   | α1'  | α1   | β3   |  | β4.   |   | α2  |  | β5  | P-loop  | α.3  |  | α4  |  | α.5  |  |   |
| D I  | MILE /   |  |  |  | 0  |  |  |  |   |   |   |  |   | -   |  | 0 tox  | * *   |  | *** *  |  |   |
|  |  |  | +  |  | +-   |  | +  | +  | +   | +   | +   | +  |   |   | +  | +  | +   |  |  |  |   |
| MKP/_[   | [Hs]   | 156  | NIGPTRILPN   | LYLGCQ   | RDVLN  | KELMQQNG   | JIGYVLNA:  | SNTCPKPDF  | IP-ESHFLRVP   | VNDSFCEKILF   | WLDKSVDFI   | KAKASNGO   | CATAHC  | CLAGISRS  | TIAIAYIM   | KRMDMSLDE/   | AYREVKI   | EKRPTISP   | NENELGQLLD   | EKKIKNQ  | 301   |
| MKP7_[   | [Mm]   | 156  | NIGPTRILPN   | LYLGCQ   | RDVLN  | KDLMQQNO   | JIGYVLNA   | SNTCPKPDF  | IP-ESHFLRVP   | VNDSFCEKILF   | WLDKSVDFIE  | KAKASNGO   | CALIHO  | CLAGISRS  | ATIAIAYIM  | KRMDMSLDE  | AYRFVKI   | EKRPTISP   | NFNFMGQLMD   | EKTINNQ  | 301   |
| DUSP16   | 5_[Rn]   | 156  | NTGPTRILPN   | LYLGCQ   | RDVLN  | KELMQQN  | GIGYVLNA   | SNTCPKPDF  | IP-ESHFLRVP   | VNDSFCEKILF   | WLDKSVDFIE  | KAKASNGO   | CATIHO  | LAGISRS   | TIAIAYIM   | KRMDMSLDE  | AYRFVKI   | EKRPTISP   | NFNFMGQLMD   | EKTISSQ  | 301   |
| DUSP16   | 5_[Xt]   | 158  | SVGPTRILPH   | LYLGCQ   | RDVLN  | KELMQQNI   | EIGYVLNA   | SNTCPKPDF  | IS-DSHFLRIP   | NDSFCEKILF  | WLDKSVDFIE  | KAKASNDE   | RATAHO  | CLAGISRS  | TIAIAYIM   | KRMDMSLDEJ   | AYRFVKI   | EKRPTISP   | NFNFLGQLLD   | EKKIKAQ  | 303   |
| DUSP16   | 5_[Dr]   | 156  | SAGPTRILPH   | LYLGCQ   | RDVLN  | QELMQQNI   | DIAFVLNA   | SNSCPKPDF  | IP-DTHFLRVP   | NDSFCEKILF  | WIDRSVEFTE  | KAKASNAL   | WT.VHC  | TACTORS   | TTATAYTM   | REMONTLOF  | AYRFVKI   | KRPTISP  | NENET COLLD  | FUNIT VOU  |   |
| VHP1_[   | 10-1   |  |  |  |  |  | 1 Indiana  |  |   |   |   | autoron/h  | (ATANIC   | Jureo L DI DI   |  | uuuuprii mom   |   |  | NE NE LOQUID   | ERNLROV  | 301   |
|  | [Ce]   | 173  | GDGITLITPN   | IYLGSQ   | IDSLD  | ETMLDAL  | DISVVINL   | SMTCPKSVC  | IKEDKNFMRIP   | NDSYQEKLSP  | YFPMAYEFL   | KCRRAGK  | CLIHO   | LAGISRS   | TLAISYIM   | RYMKMGSDD  | AYRYVKI   | RRPSISP  | NFNFMGQLLE   | ENVLIKD  | 301<br>319  |
|  | [Ce]   | 173  | GDGITLITPN   | IYLGSQ   | IDSLD  | ETMLDALI   | DISVVINL:  | SMTCPKSVC  | IKEDKNFMRIP   | /NDSYQEKLSF   | YFPMAYEFL   | KCRRAGK  | CLIHO   | CLAGISRS  | TLAISYIM   | RYMKMGSDD  | AYRYVKI   | ERRPSISP   | NFNFMGQLLE   | ENVLIKD  | 301<br>319  |
|  | MKP5   | 173  | GDGITLITPN   | IYLGSQ<br>B2   | 1DSLD<br>α1'<br>0-   |  |  | SMTCPKSVC  |   | UNDSYQEKLSF   | yfpmayefle<br>α2  | KCRRAGK  |   | P-loop  | ptlaisyim<br>α3  | RYMKMGSDD  | ayryvki<br>α4   | ERRPSISP   | NFNFMGQLLE<br>α5   | ENVLIKD  | 301<br>319  |
|  | MKP5   | 173<br>5   |  |  | 1DSLD<br>α1'<br>   | etmldali   |  | SMTCPKSVC  |   |   | wfpmayefle<br>α2  | KCRRAGK  | сілно<br>β5   | P-loop  | a3   | RYMKMGSDD  | α4  | ERRPSISP   | NFNFMGQLLE<br>α5   |  | 301<br>319  |
| MKP5_[   | MKP5   | 173<br>5<br>319  | GDGITLITPN   |  | IDSLD<br>α1'<br>+-<br>QDAQD  | etmldali   |  | SMTCPKSVC  |   | VNDSYQEKLSF   | YFPMAYEFLF<br>α2<br>+   | CRRAGK   | β5<br>GLLIH   | P-loop  | etlaisvim<br>α3<br>-+  | RYMKMGSDD<br>  | α4<br>α4  | CRRPSISP   | nfnfmgqlle<br>a5<br>+  | ENVLIKD<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()  | 301<br>319<br>464   |
| MKP5_[<br>MKP5_[   | MKP5<br>[Hs]<br>[Mm]   | 173<br>5<br>319<br>320   | GDGITLITPN   | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE   | IDSLD<br>α1'<br>0-<br>0-<br>0-<br>0-<br>0-<br>0-<br>0-<br>0-<br>0-<br>0-   | a1<br>Δ1<br>LDTMQRLI   | $\xrightarrow{\beta3}_+$   | SMTCPKSVC  | IKEDKNFMRIP   | ATDSNKQNLRQ   | YFPMAYEFLE<br>α2<br>YFEEAFEFI<br>YFEEAFEFI  | CRRAGK   | KGLIHC  | P-loop<br>P-loop<br>COAGVSR:  | α3<br>α3<br>sativiayl  | RYMKMGSDD<br>0   | α4<br>-+-<br>DAYKFVF  | CRRPSISP   | NFNFMGQLLE<br>α5<br>+-<br>PNLNFMGQLL<br>PNLNFMGQLL   | CENVLIKD<br>0<br>CEFEEDLNN<br>CEFEEDLNN  | 301<br>319<br>464<br>465  |
| MKP5_[<br>MKP5_[<br>DUSP10   | MKP5<br>[Hs]<br>[Mm]<br>) [Rn]   | 173<br>319<br>320<br>320   | GDGITLITPN   | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE  | IDSLD<br>α1'<br>0-<br>+-<br>QDAQD<br>QDAQD<br>QDAQD  | a1<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI   | DISVVINL:<br>$\beta 3$<br>$\beta 3$ | SMTCPKSVC  | IKEDKNFMRIP<br><u>B4</u><br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ  | ATDSNKQNLRQ   | xfpmayefle<br>α2<br>+<br>yffeeafefi-<br>yffeeafefi-<br>yffeeafefi-  | EEAHQCGF   | CLIHC<br>β5<br>CGLLIH<br>CGLLIH   | P-loop<br>HCQAGVSR:<br>HCQAGVSR:  | α3<br>+<br>SATIVIAYL<br>SATIVIAYL  | RYMKMGSDD<br>  | α4<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ<br>Δ   | CRRPSISP   | nFnFmGQLLe<br>a5<br>+<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL  | CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN   | 301<br>319<br>464<br>465<br>465   |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10   | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0 [Xt]   | 173<br>319<br>320<br>320<br>322  | GDGITLITPN   | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE   | IDSLD<br>α1'<br>0-<br>+-<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAOD   | ETMLDALI   |  | SMTCPRSVC  | IKEDKNFMRIP<br><u> <u> </u> </u>  | ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ  | xFPMAYEFLE<br>α2<br>+<br>xFEEAFEFI-<br>xFEEAFEFI-<br>xFEEAFEFI-<br>xFEEAFEFI-   | EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP   | CLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH   | P-loop<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:   | TLAISYIM<br>α3<br>-+<br>SATIVIAYL<br>SATIVIAYL<br>SATIVIAYL<br>SATIVIAYL   | RYMKMGSDD<br>  | α4<br>AYRYVKI<br>α4<br>DAYKFVI<br>DAYKFVI<br>DAYKFVI<br>DAYKFVI<br>DAYKFVI  | CRRPSISP   | NFNFMGQLLE<br>α5<br>+<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL  | ERALKSV<br>ERVLIKD<br>()<br>FEEDLNN<br>FEEDLNN<br>FFEEDLNN<br>FFEEDLNN   | 301<br>319<br>464<br>465<br>465<br>467  |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10   | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Xt]   | 173<br>319<br>320<br>320<br>322<br>296   | GDGITLITPN<br>B1<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF   | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE   | IDSLD<br>α1'<br>+-<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAQD<br>BDAOD  | ETMLDALI   |  | SMTCPKSVC<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY   | IKEDKNFMRIP<br><u>B4</u><br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>EKGVFNYKRLPJ<br>DIARFCYKRLPJ  | VNDSYQEKLSF<br>+<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ   | YFPMAYEFLE<br>α2<br>+<br>YFEEAFEFI-<br>YFEEAFEFI-<br>YFEEAFEFI-<br>YFEEAFEFI-   | EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>DEAHQCGP<br>EEAHQCGP   | CLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH   | P-loop<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:   | α3<br>-+<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl  | RYMKMGSDDJ<br>0  | α4<br>DAYRYVKI<br>DAYRFVI<br>DAYRFVI<br>DAYRFVI<br>DAYRFVI<br>DAYRFVI<br>DAYRFVI  | CRRPSISP   | PNINFMGQLLE<br>α5<br>+<br>PNINFMGQLL<br>PNINFMGQLL<br>PNINFMGQLL<br>PNINFMGQLL<br>PNINFMGQLL   | ERALKSV<br>(ENVLIKD<br>()<br>FEEDLNN<br>FFEEDLNN<br>FFEEDLNN<br>FFEEDLNN   | 301<br>319<br>464<br>465<br>465<br>467<br>442   |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10   | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]   | 173<br>319<br>320<br>320<br>322<br>296   | GDGITLITPN<br>ALLTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTAVLPF<br>THDSSPUPPF  | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LLLGNG   | IDSLD<br>α1'<br>+-<br>QDAQD<br>QDAQD<br>QDAQD<br>RDAQD<br>RDAQD<br>RDAQD   | etmldali<br>a1<br>LDTMQRLi<br>LDTMQRLi<br>LDTMQRLi<br>LETMQRLI<br>LETMQRLI<br>LELLQRLI<br>PSSVG  | A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A   | SMTCPKSVC<br>+<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TCOSDMESH   | IKEDKNFMRIP<br><u>B4</u><br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>DIARFCYKRLPJ<br>DIARFCYKRLPJ  | ANDSYQEKLSF   | yfpmayefle<br>α2<br>•<br>•<br>yffeafefi<br>yffeafefi<br>yffeafefi<br>yffeafefi<br>yffeafefi   | EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQAGP   | CLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH   | P-loop<br>P-loop<br>CQAGVSR<br>CQAGVSR<br>CQAGVSR<br>CQAGVSR<br>CQAGVSR   | α3<br>+<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl  | RYMKMGSDD)<br>   | α4<br>ΔΑΥRYVKE<br>α4<br>ΔΑΥΚΕΥΕ<br>ΔΑΥΚΕΥΕ<br>ΔΑΥΚΕΥΕ<br>ΔΑΥΚΕΥΕ<br>ΔΑΥΚΕΥΕ<br>ΔΑΥΚΕΥΕ<br>ΔΑΥΚΕΥΕ   | CRRPSISP   | NFNFMGQLLE<br>CLS<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL  | ERALKSV<br>(ENVLIKD<br>()<br>FEEDLNN<br>FFEEDLNN<br>FFEEDLNN<br>FFEEDLNN<br>FFEEDLNN<br>FFEEDLNN   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272  |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>DUSP10<br>puc_[D                     | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>0m]  | 173<br>319<br>320<br>320<br>322<br>296<br>131  | GDGITLITPN<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTAVLPF<br>THPASPVFPH   | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LLLGNG  | IDSLD<br>a1'<br>+-<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAQD<br>RDAQD<br>RDADD   | ETMLDALI<br>α1<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LETMQRLI<br>LELLQRLI<br>PSSVG  | ANCVINU  | SMTCPKSVC<br>+<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TCQSPNESH  | IKEDKNFMRIP<br><u><u><u></u></u><u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u>                    | ANDSYQEKLSF<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ASDTPHQNIKQ  | YFPMAYEFL<br>α2<br>+<br>YFEEAFEFI<br>YFEEAFEFI<br>YFEEAFEFI<br>YFEEAFEFI<br>YFEEAFEFI<br>YFEEAFEFI  | EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQCGP<br>EEAHQAGP<br>EEAHQAGP   | CLIHC<br>β5<br>CGLLIF<br>CGLLIF<br>CGLLIF<br>CGLLIF<br>CGLLIF<br>CGLLIF<br>CGLLIF<br>CGLLIF   | P-loop<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:  | a3<br>α3<br>α3<br>α3<br>ατινιαγμ<br>σατινιαγμ<br>σατινιαγμ<br>σατινιαγμ<br>σατινιαγμ<br>σατιαιαγν  | RYMKMGSDDJ<br>   | ayryvke<br>a4<br>Daykeve<br>Daykeve<br>Daykeve<br>Daykeve<br>Daykeve<br>Daykeve<br>Daykeve<br>Daykeve<br>Daykeve  | CRRPSISP   | NFNFMGQLLE<br>α5<br>+<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL  | CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN<br>CFEEDLNN   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272  |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>puc_[D                               | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>Dm]  | 173<br>319<br>320<br>320<br>322<br>296<br>131  | GDGITLITPN<br>ALLTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTVLPF<br>THPASPVFPH<br>81   | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LLLGNG<br>B2  | IDSLD<br>a1'<br>+-<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAQD<br>RDAQD<br>RDADD   | ETMLDALI<br>al<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LELLQRLI<br>PSSVG  |  | SMTCPKSVC<br>+<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TCQSPNESH<br>6   | IKEDKNFMRIP<br><u>B4</u><br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>DIARFCYKRLPJ<br>DIARFCYKRLPJ<br>DIARFCYKRLPJ<br>JQG-LKYMQIPJ<br>3' B4                                     | ATDSNKQNLRG<br>ATDSNKQNLRG<br>ATDSNKQNLRG<br>ATDSNKQNLRG<br>ATDSNKQNLRG<br>ATDSNKQNLRG<br>ATDSNKQNLRG<br>ATDSNKQNLRG  | YFPMAYEFLE<br>α2<br>  | ()   | CLIHC<br>β5<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>SRVLLH<br>β5   | P-loop<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR  | α3<br>«3<br>«3<br>«4<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl  | RYMKMGSDDJ   | ayryvke<br>a4<br>baykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve<br>daykeve | GKRPSISP<br>GKRPIIS<br>GKRPIIS<br>GKRPIIS<br>GKRPIIS<br>GKRPIIS<br>(VARPIIS  | NFNFMGQLLE<br>α5<br>+<br>PNLNFMGQLLE<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL   | CRALKSV<br>CENVLIKD<br>O<br>FFEEDLANN<br>FFEEDLANN<br>FFEEDLANN<br>SFEEDLANN<br>SFEEDLANN<br>SFEEDLANN   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272  |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>DUSP10<br>puc_[D                     | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>0m]<br>MKP3  | 173<br>319<br>320<br>320<br>322<br>296<br>131  | GDGITLITPN<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTAVLPF<br>THPASPVFPH<br><u><u><u><u></u></u><u><u></u><u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u></u>   | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LLLGNG<br><u>B2</u>   | IDSLD<br>a1'<br>+-<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAQD<br>RDADD  | ETMLDALI<br>a1<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LETLQRLI<br>PSSVG<br>a1  | BISVVINL<br>β3<br>+<br>NIGYVINV<br>NIGYVINV<br>NIGYVINV<br>NIGYVINV<br>DIGFVINV<br>-ANCVINV<br>β3<br>β3  | SMTCPKSVC<br>+<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TCQSPNESH<br>B   | IKEDKNEMRIP   | ANDSYQEKLSP<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ASDTPHQNIKQ                               | 2<br>+<br>+<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  | EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQAGF<br>EEAHQAGF<br>EDARKTGS   | CCLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL  | P-loop<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICHAGISR:<br>P-loop   | a3<br>   | RYMKMGSDD<br>+<br>+<br>MKHTRNTMT<br>MKHTRNTMT<br>MKHTRNTMT<br>MKHTRNTMT<br>MKHZSLSLL   | α4<br>+<br>DAYKEVH<br>DAYKEVH<br>DAYKEVH<br>DAYKEVH<br>DAYKEVH<br>DAYKEVH<br>DAYKEVH<br>CA4   | CRRPSISP   | PNLNF#GQLL<br>PNLNF#GQLL<br>PNLNF#GQLL<br>PNLNF#GQLL<br>PNLNF#GQLL<br>PNLNF#GQLL<br>PNLNF#GQLL<br>PNLNF#GQLL   | Cenvliko<br>Cenvliko<br>Speedlinn<br>Speedlinn<br>Speedlinn<br>Speedlinn<br>Speedlinn<br>Sleonlikk   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272  |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>puc_[D                               | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>0m]<br>MKP3  | 173<br>319<br>320<br>320<br>322<br>296<br>131  | GDGITLITPN<br>ALLTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPILPF<br>ALLTPI | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LLLGNG<br><u>B2</u>   | IDSLD  | etmilaali<br>a1<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LEILQRLJ<br>PSSVG   | DISVUINL<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$   | SMTCPKSVC<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TCQSPNESH<br>β   | IKEDKNFMRIP   | ANDSYQEKLSE<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ                               | YFPMAYEFL<br>α2<br>+<br>YFEEAFEFI<br>YFEEAFEFI<br>YFEEAFEFI<br>YFFEAFEFI<br>YFFEAFEFI<br>YFFEAYDFI<br>α2<br>-+  | EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQAGF<br>EEAHQAGF<br>EDARKTGS   | CCLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL  | P-loop<br>CQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR:<br>ICQAGVSR: | α3<br>+<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>satialayv<br>α3<br>+   | RYMKMGSDDJ<br>+<br>MKHTRMTMT<br>MKHTRMTMT<br>MKHTRMTMT<br>MKHTRMTMT<br>MKHTSLSLIJ<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | α4<br>+<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   | CRRPSISP   | NFNEMGQLLE<br>CS<br>+<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>CS<br>CS<br>+<br>+  | CENVLIKD   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272  |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>DUSP10<br>puc_[D<br>MKP3_[           | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>0m]<br>MKP3<br>[Hs]                                  | 173<br>319<br>320<br>322<br>296<br>131<br>8<br>204   | GDGITLITPN<br>B1<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTAVLPF<br>THPASPVFPH<br>B1<br>PSFPVEILP  | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LLLGNG<br><u>B2</u><br>FLYLGC                               | IDSLD<br>α1'<br>QDAQD<br>QDAQD<br>QDAQD<br>RDAQD<br>RDAQD<br>RDADD   | etmildali<br>a1<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LELLQRLJ<br>PSSVG<br>a1<br>NLDVLEEJ   |  | SMTCPKSVC<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TCQSPNESH<br><br>VTPNLPNLF   | IREDRNFMRIP<br>$\beta 4$<br>ERGLFNYKRLPJ<br>ERGLFNYKRLPJ<br>ERGUFNYKRLPJ<br>ERGVFNYKRLPJ<br>ERGVFNYKRLPJ<br>IQG-LKYMQIPJ<br>IQG-LKYMQIPJ<br>IQG-LKYMQIPJ<br>$\beta 4$<br>ENAGEFKYKQII | ANDSYQEKLSE   | γFPMAYEFLE           α2           **           yYFEEAFEFI   | EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>DEAHQCGF<br>DEAHQCGF<br>EEAHQAGF<br>EDARKTGS   | CLIHC<br>β5<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL  | CLAGISRS<br>P-loop<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGVSR<br>HCQAGS<br>HCLAGISR<br>HCLAGISR  | α3           +           sativiayl   | RYMKMGSDD<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | α4<br>+<br>DAYKEVI<br>DAYKEVI<br>DAYKEVI<br>DAYKEVI<br>DAYKEVI<br>CA4<br>+<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   | CRRPSISP   | NFNFMGQLLE<br>a5<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL                                     | IERALKSY<br>IERVLIKD<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272<br>349   |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>Puc_[D<br>MKP3_[<br>MKP3_[           | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>0m]<br>MKP3<br>[Hs]<br>[Mm]                          | 173<br>319<br>320<br>320<br>322<br>296<br>131<br>32<br>204<br>204                            | GDGITLITPN<br>β1<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>THPASPVFPH<br>β1<br>PSFPVEILP<br>PSFPVEILP   | IYLGSQ<br><u>B2</u><br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LYLGNE<br>FLYLGC<br>FLYLGC<br>FLYLGC                        | IDSLD<br>α1'<br>QDAQD<br>QDAQD<br>QDAQD<br>QDAQD<br>RDAQD<br>RDAQD<br>RDADD  | etmildali<br>a1<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LETMQRLI<br>LELLQRLI<br>PSSVG   |  | SMTCPKSVC<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTCQSPNESH<br>φ<br>VTPNLPNLF<br>VTPNLPNLF                                  | IKEDKNFMRIP<br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>EKGLFNYKRLPJ<br>LQG-LKYMQIPJ<br>IJ3<br>44<br>ENAGEFKYKQIJ<br>ENAGEFKYKQIJ  | ANDSYQEKLSE<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ASDTPHQNLKQ<br>PISDHWSQNLS<br>PISDHWSQNLS                               | γFPMAYEFLE           α2           +           YFEEAFEFI           YFEEAFEFI <td>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQAGF<br/>EEAHQAGF<br/>EDARKTGS</td> <td>CLIHC<br/>β5<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGLLH<br/>CGL<br/>CGL<br/>CGL<br/>CGL<br/>CGL<br/>CGL<br/>CGL<br/>CGL</td> <td>CLAGISRSI<br/>P-loop<br/>HCQAGVSR:<br/>HCQAGVSR:<br/>HCQAGVSR:<br/>HCQAGVSR:<br/>HCHAGISR:<br/>P-loop<br/>HCLAGISR:<br/>HCLAGISR:</td> <td>α3           +           sativiayl           sativiayl</td> <td>MKHTKMGSDJ<br/>MKHTKMTMT<br/>MKHTKMTMT<br/>MKHTKMTMT<br/>MKHTKMTMT<br/>MKHTKSLSLL<br/>D<br/>MKHTKSLSLL<br/>MKKLNLSMN<br/>MKLNLSMN</td> <td>ayryvki<br/>α4<br/>Dayrevi<br/>Dayrevi<br/>Dayrevi<br/>Dayrevi<br/>Dayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi<br/>Cayrevi</td> <td>CRRPSISP</td> <td>NFNFMGQLLE<br/>AS<br/>PNLNFMGQLL<br/>PNLNFMGQLL<br/>PNLNFMGQLL<br/>PNLNFMGQLL<br/>PNLNFMGQLL<br/>AS<br/>AS<br/>AS<br/>AS<br/>AS<br/>AS<br/>AS<br/>AS<br/>AS<br/>AS</td> <td>CENVLIKO<br/>CENVLIKO<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDLNN<br/>SFEEDL</td> <td>301<br/>319<br/>464<br/>465<br/>465<br/>467<br/>442<br/>272<br/>349<br/>349</td> | EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQAGF<br>EEAHQAGF<br>EDARKTGS   | CLIHC<br>β5<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGLLH<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL<br>CGL  | CLAGISRSI<br>P-loop<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCHAGISR:<br>P-loop<br>HCLAGISR:<br>HCLAGISR:  | α3           +           sativiayl   | MKHTKMGSDJ<br>MKHTKMTMT<br>MKHTKMTMT<br>MKHTKMTMT<br>MKHTKMTMT<br>MKHTKSLSLL<br>D<br>MKHTKSLSLL<br>MKKLNLSMN<br>MKLNLSMN                           | ayryvki<br>α4<br>Dayrevi<br>Dayrevi<br>Dayrevi<br>Dayrevi<br>Dayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi<br>Cayrevi | CRRPSISP   | NFNFMGQLLE<br>AS<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>PNLNFMGQLL<br>AS<br>AS<br>AS<br>AS<br>AS<br>AS<br>AS<br>AS<br>AS<br>AS                                 | CENVLIKO<br>CENVLIKO<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDLNN<br>SFEEDL | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272<br>349<br>349                                    |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>Puc_[D<br>MKP3_[<br>MKP3_[<br>MKP3_] | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>m]<br>MKP3<br>[Hs]<br>[Mm]<br>[Rn]                   | 173<br>319<br>320<br>320<br>322<br>296<br>131<br>32<br>204<br>204<br>204                     | GDGITLITPN<br>B1<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>NAELTPILPF<br>SPFPEILP-<br>SFPVEILP-<br>SFPVEILP-<br>SFPVEILP-   | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LLLGNG<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>FLYLGC                               | IDSLD<br>α1'<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAQD<br>RDAQD<br>RDAQD<br>RDAQD<br>AKDST<br>AKDST                        | etmidali<br>a1<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LELLQRLI<br>PSSVG  | $\beta 3$  | SMTCPKSVC<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>VTPNLPNLF<br>VTPNLPNLF<br>VTPNLPNLF                           | IKEDKNFMRIP<br>$\beta 4$<br>EKGLFNYKRLP<br>EKGLFNYKRLP<br>EKGLFNYKRLP<br>DIARFCYKRLP<br>DIARFCYKRLP<br>1,00 - LKYMQIP<br>3,00 - LKYMQIP<br>ENAGEFKYKQII<br>ENAGEFKYKQII               | ANDSYQEKLSF<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>SDTPHQNLRQ<br>SDTPHQNLRQ<br>PISDHWSQNLS<br>PISDHWSQNLS                  | γΥΡΡΑΧΥΕΡΙΑ           α2           *           γΥΡΕΑΛΡΕΡΙ-           ΥΥΡΕΑΛΡΕΡΙ-           ΥΥΡΕΑΛΡΕΡΙ-           ΥΥΡΕΑΛΡΕΡΙ-           ΥΥΡΕΑΛΡΕΡΙ-           ΥΥΡΕΑΛΡΕΡΙ-           (ΥΡΕΑΛΡΕΡΙ-           (ΥΡΕΑΛΡΕΡΙ- <td>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQCGF<br/>EEAHQAGF<br/>EDARKTGS<br/>DEARGKWC<br/>DEARGKWC</td> <td>CLIHC<br/>β5<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CGLLIH<br/>CG</td> <td>P-loop<br/>CQAGVSR<br/>ICQAGVSR<br/>ICQAGVSR<br/>ICQAGVSR<br/>ICQAGVSR<br/>ICQAGVSR<br/>ICQAGVSR<br/>ICQAGVSR<br/>ICQAGSR<br/>ICCAGISR<br/>ICCAGISR<br/>ICCAGISR</td> <td>a3<br/>+<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sativiayl<br/>sati</td> <td>RYYKNGSDDJ<br/>D</td> <td>α4<br/>α4<br/>DAYREVH<br/>DAYREVH<br/>DAYREVH<br/>DAYREVH<br/>DAYREVH<br/>CA4<br/>+<br/>DAYDIVH<br/>DAYDIVH<br/>DAYDIVH<br/>DAYDIVH<br/>DAYDIVH<br/>DAYDIVH</td> <td>CRRPSISP</td> <td>IN PROCEED<br/>IN PROCEED<br/>IN PROCEED<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL<br/>PRINTMODIL</td> <td>IENULISY<br/>IENVLIKD<br/>IENVLIKD<br/>IFEEDLNN<br/>IFEEDLNN<br/>IFEEDLNN<br/>IFEEDLNN<br/>IEGNLRK<br/>IEGNLRK</td> <td>301<br/>319<br/>464<br/>465<br/>465<br/>467<br/>442<br/>272<br/>349<br/>349<br/>349<br/>349</td>   | EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQAGF<br>EDARKTGS<br>DEARGKWC<br>DEARGKWC   | CLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CG   | P-loop<br>CQAGVSR<br>ICQAGVSR<br>ICQAGVSR<br>ICQAGVSR<br>ICQAGVSR<br>ICQAGVSR<br>ICQAGVSR<br>ICQAGVSR<br>ICQAGSR<br>ICCAGISR<br>ICCAGISR<br>ICCAGISR  | a3<br>+<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sativiayl<br>sati | RYYKNGSDDJ<br>D  | α4<br>α4<br>DAYREVH<br>DAYREVH<br>DAYREVH<br>DAYREVH<br>DAYREVH<br>CA4<br>+<br>DAYDIVH<br>DAYDIVH<br>DAYDIVH<br>DAYDIVH<br>DAYDIVH<br>DAYDIVH   | CRRPSISP   | IN PROCEED<br>IN PROCEED<br>IN PROCEED<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL<br>PRINTMODIL | IENULISY<br>IENVLIKD<br>IENVLIKD<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IFEEDLNN<br>IEGNLRK<br>IEGNLRK   | 301<br>319<br>464<br>465<br>465<br>467<br>442<br>272<br>349<br>349<br>349<br>349                      |
| MKP5_[<br>MKP5_[<br>DUSP10<br>DUSP10<br>Puc_[D<br>MKP3_[<br>MKP3_[<br>DUSP6_           | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>0m]<br>MKP3<br>[Hs]<br>[Mm]<br>[Rn]<br>_[X1]         | 173<br>319<br>320<br>320<br>322<br>296<br>131<br>3<br>204<br>204<br>204<br>204<br>201        | GDGITLITPN           β1           NAELTPILPF           NAELTPILPF           NAELTPILPF           NAELTPILPF           NAELTPILPF           PSFPVEILP-           PSFPVEILP-           PSFPVEILP-           PSFPVEILP-           PSFPVEILP-  | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>FLYLGC | IDSLD<br>α1'<br>QDAQD<br>QDAQD<br>QDAQD<br>HDAQD<br>RDAQD<br>RDAQD<br>RDAQD<br>AKDST<br>AKDST<br>AKDST               | a1<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LDTMQRLJ<br>LETMQTRJ<br>LELLQRLJ<br>PSSVG  | $\begin{array}{c} \beta 3 \\ \beta 3 \\ \beta 3 \\ \beta 3 \\ \beta 4 \\$                                   | SMTCPKSVC<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLYHY<br>TTHLPLHY<br>VTPNLPNLF<br>VTPNLPNLF<br>VTPNLPNLF                            | IKEDKNEMELP<br>EKGLENYKKLP<br>EKGLENYKKLP<br>EKGLENYKKLP<br>EKGVENYKKLP<br>EKGVENYKKLP<br>IQ3-LKYMQIP<br>IQ3-LKYMQIP<br>ENAGEFKYKQII<br>ENAGEFKYKQII                                  | ANDSYQEKLSE<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>ATDSNKQNLRQ<br>SISDHYSQNLS<br>PISDHWSQNLS<br>PISDHWSQNLS<br>PISDHWSQNLS | γΥΡΜΑΥΕΓΙΑ           α2           +           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           ΥΥΡΕΑΛΕΓΙ           (ΥΡΕΑΛΕΓΙ           (ΥΡΕΑΛΕΓΙ           (ΥΡΕΑΛΕΙ           (ΥΡΓΡΕΑΛΙΣΓΙ)           (ΥΡΓΡΕΑΛΙΣΓΙ)           (ΥΡΓΡΕΑΛΙΣΓΙ)           (ΥΡΓΡΕΑΛΙΣΓΙ)           (ΥΡΓΡΕΑΛΙΣΓΙ)           (ΥΡΓΡΕΑΛΙΣΓΙ)           (ΥΓΡΕΑΛΙΣΓΙ)  | EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQCGF<br>EEAHQAGF<br>EEAHQAGF<br>EDARKTGS<br>DEARGKNC<br>DEARGKNC<br>DEARGKNC<br>DEARGKNC                         | CLIHC<br>β5<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CGLLIH<br>CG   | P-loop<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGVSR:<br>HCQAGSSR:<br>HCQAGSR:<br>HCLAGISR:<br>HCLAGISR:<br>HCLAGISR:<br>HCLAGISR:   | α3           +           sativiau           syttyvau           syttyvau           syttyvau           syttyvau  | RYYKKISSDJ<br>T<br>KRHTRMTMT<br>MKHTRMTMT<br>MKHTRMTMT<br>MKHTRMTMT<br>MKHTSLSLL<br>MCKLNLSMN<br>MCKLNLSMN<br>MCKLNLSMN                            | ayryvki<br>a4<br>baykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi<br>daykevi | CGKRPIIS<br>CGKRPIIS<br>CGKRPIIS<br>CGKRPIIS<br>CGKRPIIS<br>CORRPIIS<br>CORRPIIS<br>CORRENIS<br>CORRENIS<br>CONKESNIS<br>CONKESNIS   | AND  | CENULIKO<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()<br>()   | 301<br>319<br>464<br>465<br>465<br>467<br>272<br>349<br>349<br>349<br>349<br>349                      |
| MKP5_[<br>DUSP10<br>DUSP10<br>DUSP10<br>puc_[D<br>MKP3_[<br>MKP3_[<br>DUSP6_<br>DUSP6_ | MKP5<br>[Hs]<br>[Mm]<br>0_[Rn]<br>0_[Xt]<br>0_[Dr]<br>m]<br>MKP3<br>[Hs]<br>[Mm]<br>[Rn]<br>_[X1]<br>_[Dr] | 173<br>319<br>320<br>320<br>322<br>296<br>131<br>3<br>204<br>204<br>204<br>204<br>201<br>203 | GDGITLITPN   | IYLGSQ<br>B2<br>LFLGNE<br>LFLGNE<br>LFLGNE<br>LYLGNE<br>LYLGNE<br>LYLGNE<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>FLYLGC<br>HLYLGC           | IDSLD<br>α1'<br>0<br>2DAQD<br>QDAQD<br>QDAQD<br>QDAQD<br>RDAQD<br>RDAQD<br>RDAQD<br>RDAQD<br>AKDST<br>AKDST<br>AKDST | a1<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LDTMQRLI<br>LETMQTRI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI<br>NLDVLEEI | DISVUINT<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$<br>$\beta$   | 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**Supplementary Figure 5. Sequence alignment of MKPs generated by ClustalW.** (a) Sequence alignment of different MKPs in human. Residues of MKP7-CD involved in JNK1 recognition are indicated by cyan asterisks. The secondary structure assignments of MKP7-CD are shown above sequences. The FXF-motifs are boxed. (b) Sequence alignment of MKP7-CD, MKP5-CD and MKP3-CD among different species, respectively. The secondary structure assignments of MKP7-CD, MKP5-CD and MKP3-CD and MKP3-CD are shown above sequences, respectively. *Hs, Homo sapiens; Mm, Mus musculus; Rn, Rattus norvegicus; Xt, Xenopus tropicalis; Xl, Xenopus laevis; Dr, Danio rerio; Ce, Caenorhabditis elegans; Dm, Drosophila melanogaster*. The Uniprot identifiers for MKP7 on different species are Q9BY84, Q920R2, D4A3W6, A1A5G3, Q6NXD7 and Q10038, respectively. The Uniprot identifiers for MKP5 on different species are Q9Y6W6, Q9ESS0, D3ZBG7, F6WGV1, F1QIT6 and Q9VHV8, respectively. The Uniprot identifiers for MKP3 on different species are Q16828, Q9DBB1, Q64346, Q91663, Q7T2L8 and Q9VVW5, respectively.



**Supplementary Figure 6. A model of the JNK1-JIP1-MKP7 ternary complex.** JIP-1 is shown in gray, and the color schemes for JNK1 and MKP7 are the same as that in Fig. 2a. JIP-1 specifically binds the MKP7 via a region independent of its JNK binding domain (JBD); MKP7 interacts with JNK1 and JIP1 through catalytic domain and C-terminal region, respectively; and JNK1 contacts with MKP7-CD through F-site, instead JIP-1 binds the D-site of JNK1. Through the specific binding of JNK1-JIP1-MKP7 ternary complex, MKP7 dephosphorylates JNK1 effectively.



**Supplementary Figure 7. Scans of uncropped blots and gels of the figures.** Cropped regions are indicated with rectangles as appropriate.

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