

OsCPK18	MCLCS	-----SSSARRDAGTPGGGNGAGNKDNA-----GRKG-----	32
TaCPK6	MCLCT	-----SSSAASPAG-PAGNKEKGRKGS-----GCRG-----	31
MtCDPK1	MCLCF	-----SSTKVVSGSNSNTTNNDNRKRNQSTTDTTTVTVTATTAAQK-----QTAQRKKGGSNETA-----QKKNHHQHHLRLEKTG-----	77
OsCPK4	MCACF	-----SSHTATAAADGGSGKRQQRKGDHKG-----KLPDGGGG-----	38
OsCPK30	MCLCHGKPSQIPEPEAEAAAAAGVAVAGAASPGPAAAAAAAKPGTPKQKPFYLPSPLPASSYKSSPANSSVASTPARGGLKRPFP-----PPSPAKHIRALLARRHGSVK-----	111	
OsCPK3	MCN	-----CCRSAAAAAREDVKSSHF PASAG-----KKKPHQARNGGVGGG-----GGGGGGGGGG-----	52
TaCPK3	MCN	-----CCRSAAAAAREDVKSSHF PASAAA-----AARKNKPHQPRSGAAGTG-----GGGG-----	49
OsCPK16	MCN	-----CCRSAAAAAREDVKTSHF PASTGG-----G-----KKKPHQARNGGGGGG-----GGGGGG-----	49
TaCPK15	MCN	-----CCRSAAAAAREDVSSSHF PASAG-----KRKPHQARNGGGGGA-----GGGGGGGGAGA-----	52
OsCPK8	MCN	-----CCGTPATAEEGGKRRRRGKQ-----KKANPFTVAYNRPSS-----AGAAAGR-----	46
TaCPK12	MCN	-----CCGAPSTQG-GGRGKNDRRK-----PKANPYTVAYNRG-----AGAPPAR-----	42
OsCPK20	MCN	-----CCVTP-----EGSGRGRKKQQEQKQKQKEPKQ-----QQQKKGKKPNPFSIEYNRS-----SAPSG-----	57
TaCPK7	MCN	-----CCATPPAVDGGGGGGGKQ-----KEPKQ-----RKGGKPNPFSIEYNRS-----APPGA-----	48
OsCPK9	MCN	-----TCCVAPATT-----DEVGAPPRDHHHAAKSPAPSATTTTATRQRHGQEPKPKPKPRARAKPNPYDWAPP-----RVLPARGGGAAS-----	80
TaCPK19	MCNACF	-----SCCTASSQPELDAXGAPRPQHRKRPATPPRPSRSSEPSPTAARAS-PKPRPRTRAKAKPNPY-----AQRGGGGS-----	75
OsCPK21	MCS	-----CYSAYASS-----RKLGRISKISLVIPDPVPD-----AEAASPRKDGVDGDD-----VRGGGGGCD-----	57
OsCPK22	MCG	-----CSSAFVSTRMIRFSRGRVPAAILPVTSNDEP-----CCSCSPENNNKNDGGGGGCDGGEHQKGSWRRRWQYRRCGGGGGG-----	80
OsCPK29	MCN	-----CCVSRPSGADKRRRCGSSTAPHTRGGRRVIGA-----ANMRCLSTVSSVSDAARAVMSNEP-----ATVLGNSGSSG-----	70
OsCPK1	MCNR	-----TSRHH-----RAAPEQPP-----PQPKPKPQ-----PQQQQQWP-----RPQOPTPPPA-----	44
TaCPK8	MCNR	-----TSRHR-----RAAADQPA-----TAPPPTAQ-----PKPQPPPKP-----QTAPAPAPT-----	44
OsCPK15	MCAR	-----ASRHRQSPDQSQSQSPSPHHKHHHHHQTTRAPKPKPK-----PQPPPPQ-----PRSQPPPPP-----RHQPQQAPQ-----	68
OsCPK2	MCNC	-----CP-----GSGDAEP-----ASSDASTG-----NGSSSFKAG-----ASPSSAPAQ-----	39
TaCPK13	MCNC	-----CA-----GSGDAEPA-----AAADPSTR-----RAGASVQAG-----GASPSSAPAQ-----	41
OsCPK14	MCNC	-----CPPG-----SSEPDPP-----PASSGSSRPAGSAGAAASPA-----TISPSAAAP-----	46
OsCPK25	MCQC	-----CTGGGKAVAGDEAEP-----GTSKAAPPSRGTSSKNGSAKQQPCSPAAKAAA-----TEAAAAAASS-----	61
OsCPK26	MCQC	-----CTGGGKAVAGDEAEP-----GTSKAAPPSRGTSSKNGSAKQQPCSPAAKAAA-----TEAAAAAASS-----	61
OsCPK12	MCNC	-----FTKTYEIPITSGTMRR-PASTAERSKARGGDEPG-----TWRRPSFPRHGAPPHRP-----PTGSS-----SAAGALSRA-----	69
TaCPK18	MCNC	-----FTKAYEIPISGSGFKRPPPSFGEQPPPAGHGKPPRPPSRSTFPKP-PPPPRPSGRPPLPS-----FLSGLSLRKV-----	74
OsCPK19	MCSC	-----CSRA-----TSPD-----SGRGGANGYGYSHQTKPAQTTPSYNH-PPPPPAEVRYPSPA-----MNPPVVPVV-----	63
TaCPK5	MCQC	-----CSRA-----TSPD-----SVQGGANGYGYSHQPKQAQTPPSYNNA-QPPPQAEVRYPSPA-----MNPPVVPVV-----	63
ZmCDPK2	---	-----M-----VMAI-----LTRQ-----SRR-----KHLRVYNPP-QQA-----AEVRYPSPA-----TNSSAVPPVA-----	43
ZmCDPK9	MCQC	-----CSRA-----PAPD-----SGRGGTNGYGYSNQAKPAQTTPSSYNPP-QQP-----AEVRYPSPA-----TNPPVVPVV-----	61
MtCDPK3	MCCL	-----LSKD-----KDSEPEHNNGGYRYGE-----HNHRNNHEQVNTSRTAP-TSSYQPQIPTKPS-----ISAPSPKPLI-----	65
MsCDPK3	MCCL	-----LSKD-----KDSEQEHNNNGGYRYAESSGMHNRNNHEQVNTSRTAP-TSSYQPQIPTKPS-----ISAPSPKPLI-----	69
OsCPK10	MCNT	-----CVGPS-----ISKNGFFQSVS-TVLWKARQDGDALPGANGAPDG-GGQRLPAPPPPTSDAP-----LAVQNKPEHVKIVS-----	75
ZmCPK10	MCNT	-----CVGPS-----ITMNGFFQSVS-TALWKTPEGD-ALPAAANGPGGAPAGSGSALPKPASDVHH-----VAVQSEAPEPVKIAAYHSEPAVRSEAPEPVKIA-----T-----	96
OsCPK17	MCNT	-----CVGPSSAADRHGFFHSVSLAVLWR-----PGG-RAEPSQPPGYPPRESSHS-----SVTSSTAPERV-----	61
TaCPK9	MCNT	-----CAGPSATADRHGFFSTVSVAVLWR-----PGAARAEPVAPP-----PDSCPSMC-----SSTSSAGPD-----	57
OsCPK11	MCNN	-----CVGPS-----AAGQNGFFANV-----ALWR-----PRPADAAPPALPPPSSAPSDQA-----PEPVTIIPSEH-----S-----	58
OsCPK27	MCNV	-----CIGPRRNFAGNLLGILRPRHAAPSSPSQP-----TTTSRSIPVVLPSAPSSKPPPTQTAPPV-----PVVISEPPPPQPQPEPQP-----AAP-----	84
OsCPK24	---	-----MQPDP-----SGSGGD-----MQPDA-----SGNAGG-----GGANPRPKLP-----	21
TaCPK4	---	-----MQPDP-----SGN-----MQPDPQPHGRGRE-----KAAGAGPRLP-----	16
ZmCPK11	---	-----MQPDP-----SGN-----MQPDPQPHGRGRE-----KAAGAGPRLP-----	23
OsCPK28	---	-----MQPDPQPHGRGRE-----KAAGAGPRLP-----	23
OsCPK13	MCNA	-----CGGSLRSKYL5-FKQTAS-QRHDTT-DNNNAAAADSPKK-PSRPP-----AAAKTDDHPVSAS-----APAAAMRRG-----	67
TaCPK2	MCNA	-----CGGSLRSKYLHSFKHPAS-QRHDPDRDYDHTAAADSPKKQPGSQPTATAAAKTGDGHAAPA-----QPAAAMRRGG-----	73
ZmCDPK1	---	-----MRRGG-----	5
ZmCDPK7	MCNA	-----CGGALRSKHQHSFKHAASSQRHHASSEYSASAAAADSPRKP-----ATTDAHAPPP-----PPATAMRRG-----	69
OsCPK5	MCNT	-----CGVTLRSKYFASFRGASQRHDEAGYAPVATSAAAAAADEPAGKK-----APRGSAADA-----PHAASMKRG-----	69
OsCPK7	MCNQ	-----C-----QNGTLGSDYHN-RFPREHVG-----YVQGDSYLDLKKFDD-----TWPEVNNFKP-----TAASILRRG-----	59
TaCPK1	MCN	-----C-----QNGTPGNDYCS-RFPREHPASRYADGIEDDSYSDLKSEK-----PWPDA DSFKP-----TAAGILRQG-----	61
OsCPK23	MCNS	-----C-----QNGTYGNNYQNSNRQFQDRFAS-----RYVDGNDTED-----CYSGSS-----RA-----SLAGALRQG-----	54
OsCPK6	MCNY	-----YSCGASSTSSPTSPSLVDYCYHR-----YPSSCSSTS-----TATSSGGRMP-----IRSHQQLRS-----	57
OsCPK31	---	-----MRGLVLQGRQSLQGLRLSSSKFCVSRPVAPRCPCKACRRAARSGSSSCSRAVAVQVVASLD-----YIATASDEGVKLKP-----	75
OsCCaMK	---	-----	-
TaCCaMK	---	-----	-
MtCCaMK	---	-----	-



OsCPK18	-----IVACGKRTDFGYDKD	FEARYALGKLLGHGQFCGYTFAAVDR	-----RSSER---	VAMKRIDKNNK	-----MVLPAVED	96	
TaCPK6	-----IIACGKRTDFGYDKD	FEARYALGKLLGHGQFCGYTFAAVDR	-----QSDER---	VAMKRIDKNNK	-----MVLPAVED	95	
MtCDPK1	-----SKHVPCGKRTDFGYEKD	FDKRFSLGKLLGHGQFCGYTYVGVDK	-----SNGDR---	VAMKRLEKAK	-----MVLPIAVED	143	
OsCPK4	-----EKEKEAARVEFGYERD	FEGRYQVGRLLGHGQFCGYTFAATDR	-----ASGDR---	VAMKRIDKAK	-----MVRPVAVED	103	
OsCPK30	-----PNEAPIPEGGETEVL	DKGFGFSKHFFAKYELGDEVGRCHFQYICSAKAK	-----KGDHKGHDVAMKVITPRAK	-----MTTATAIED	188		
OsCPK3	-----GAGQKRLPVLGEEGCE	LIGGIDDKYALDRELGRGEFGVTYLCMDR	-----DTKEL---	LACKSISKRR	-----TRTAVVED	121	
TaCPK3	-----QKRLAVLGEEGCDFI	GIDDKYLDRDELGRGEFGVTYLCVDR	-----DTKEQ---	LACKSISKRR	-----TRTPVVED	115	
OsCPK16	-----WEKKRLSVLGEEGSE	VNGGIEEKYALDRELGRGEFGVTYLCMDR	-----CSREL---	LACKSISKRR	-----TRTPVVED	117	
TaCPK15	-----GGEKKRLSVLGEEGPD	VSGGIDDKYALDRELGRGEFGVTYLCMDR	-----GSKEL---	LACKSISKRR	-----TRTPVVED	121	
OsCPK8	-----PGLMVLRL-DPTG--	RDLGARYELCGELGRGEFGCITYLCTEA	-----ETGDR---	LACKSISKRR	-----TRTPVVED	108	
TaCPK12	-----AGLVVLR-DPTG--	RDLDDKYVLCGELGRGEFGVTYLCCTDA	-----ATGAR---	LACKSISKRR	-----TRTPVVED	104	
OsCPK20	-----HRLVVLR-EPTG--	RDLAARYELCGELGRGEFGVTYLCCTER	-----ETGDA---	LACKSISKRR	-----TRTAVDIED	119	
TaCPK7	-----SRLVVLR-EPTGTGRD	LAERYELCGELGRGEFGVTYLCCTDR	-----ATREA---	LACKSISKRR	-----TRTAVVED	112	
OsCPK9	-----AVRVLEGVPHHPRLR	VTDKYQLGRELGRGEFGVTYHLATDR	-----ATRER---	LACKSIPKRR	-----TRTAVDAD	145	
TaCPK19	-----ARVLGCVPHHPRLR	VTDKYHLGRELGRGEFGVTYRLATDRG	-----AARER---	LACKSIPKAR	-----TRTAVDAD	140	
OsCPK21	-----DGGDVVAIA----	TTTDADEFARRYVLGKELGRGEFGVTYRRCSDA	-----ATGEA---	LACKTIRKRR	-----PRVTAAKAAAAHGED	131	
OsCPK22	-----GGGRKNAILGDAAD	VKTAAGFAERYRLCAELGRGEFGVTYRRCSDA	-----ATGEA---	LACKTIRKRR	-----LRRRCGGAED	150	
OsCPK29	-----NGG-----	VMAAEEMLRRYELGELGRGEFGVTYRRCSDA	-----VTGER---	LACKSISKRR	-----LRSSVVED	128	
OsCPK1	-----AAPDAAMGRVLGRPM	--EDVRATYTFGRELGRGQFCGYTYLVTHK	-----ATGKR---	LACKSIATRKR	-----LAHRDDIED	110	
TaCPK8	-----EAGQVAMGRVLGRPM	--EDVRATYTFGRELGRGQFCGYTYLVTHK	-----ATGQR---	LACKSIATRKR	-----LVHRDDIED	110	
OsCPK15	-----AAAEDGVGRVLGRPM	--EDVRATYTFGRELGRGQFCGYTYLATHK	-----PTGRR---	LACKSIATRKR	-----LARPPDLDD	134	
OsCPK2	-----NKPPAPIGPVLGRPM	--EDVRSIYTIKELGRGQFCGYTYSLCTHK	-----ATGQK---	LACKTIATRKR	-----LSTKEVED	105	
TaCPK13	-----NKPPAAIGPVLGRPM	--EDVRSIYTIKELGRGQFCGYTYSLCTHK	-----ATGQK---	LACKTIATRKR	-----LSTKEVED	107	
OsCPK14	-----AKPPAPIGPVLGRPM	--EDVRSIYTIKELGRGQFCGYTYSLCTHK	-----ATGQR---	LACKTIATRKR	-----LSTKEVED	112	
OsCPK25	-----KKPAGPIGEVLERPM	--EEVRTTYSIGKELGRGQFCGYTYHLCTHK	-----ATGEK---	LACKTIATRKR	-----LANKEDVDD	127	
OsCPK26	-----KKPAGPIGEVLERPM	--EEVRTTYSIGKELGRGQFCGYTYHLCTHK	-----ATGEK---	LACKTIATRKR	-----LANKEDVDD	127	
OsCPK12	-----SGGGGEMGPVLQRAM	--VSVRSLYQLDKLGSQFCGYTYLCTER	-----ATGNR---	LACKSVSKRR	-----LVRRTDVDD	135	
TaCPK18	-----PVG--EIGPVLQRPM	--ADVRLALYNLERKLGSQFCGYTYLCTER	-----ATGLK---	LACKSVSKRR	-----LVRRAVED	138	
OsCPK19	-----APPKPTPDTILGKPY	--DDVRSVYYLGKELGRGQFCGYTYLCTEI	-----ASGQK---	LACKSISKRR	-----LVSKADKED	129	
TaCPK5	-----APSKPMPDTILGKQY	--EDVRSVYSLGKELGRGQFCGYTYLCTEI	-----STGRQ---	LACKSISKRR	-----LVSKADKED	129	
ZmCDPK2	-----VPPKPTADTILGKQY	--EDVRSVYSFCKELGRGQFCGYTYLCTEI	-----ASGRQ---	LACKSISKRR	-----LVSKADRED	109	
ZmCDPK9	-----VPPKPTADTILGKQY	--EDVRSVYSLGKELGRGQFCGYTYLCTEV	-----ASGQK---	LACKSISKRR	-----LVSKADRED	127	
MtCDPK3	-----KQD---SNTILGKGL	--EDVKQFYTLGKELGRGQFCGYTYFLCTEN	-----STGLL---	LACKSISKRR	-----LVSKSDRED	128	
MsCDPK3	-----KQD---TNTILGKGL	--EDVKQFYTLGKELGRGQFCGYTYFLCTEN	-----STGLL---	LACKSISKRR	-----LVSKSDRED	132	
OsCPK10	TTDTASAEQDASKSSAGSDSGEAARPRPRV	-----PPVKRVSSAGLLVGSVLRRKT	--ESLKDKYSLGRKLGGQFCGYTYLCTEVE	-----ATGKE---	LACKSILKRR	177	
ZmCPK10	ASHSEPAAPMAAKPGGAANASPSPSPRPR	-----PQVKRVSSAGLLGSVLRRKT	--ENLKDKYSLGRKLGGQFCGYTYLCTEVE	-----ATGKE---	LACKSILKRR	197	
OsCPK17	IADSDLSS--TPNKGGNK	-----PKVRRVQSAGLLADSVLKRDS	--ERLKDLYTLGKKLGGQFCGYTYQCVEK	-----ATGKV---	LACKSIATRKR	150	
TaCPK9	LDDSDLSS--PSSDPNK	-----PKVRRVQSAGLIAESVLKRDS	--ERLKDLYTLGKKLGGQFCGYTYKVEK	-----ATGKE---	LACKSIATRKR	144	
OsCPK11	SHHSSRSTDPSTPTSAAEQPANRAA	-----PKVRRVQSAGLLADSVLKR	DVNTARLKDLYTLGKKLGGQFCGYTYLCTEVE	-----ATGRE---	LACKSIATRKR	157	
OsCPK27	SQPPPPQEQSPSPPPASNTTQQPPPPQQRQOSRAKPAHIKRIS	SAGLQVESVLRRTT--ENLKDKYSLGRKLGGQFCGYTYLCTEVE	-----ANGGE---	LACKSIATRKR	-----LITDEVED	194	
OsCPK24	-----PPP-VTAAG-GRPVS	VLPHKT--ANVRDHYRIGKKLGGQFCGYTYLCTEVE	-----ASGGE---	LACKSIPKRR	-----LCREPYED	91	
TaCPK4	-----PVAXAPAPS-GRPAS	VLPHKT--ANVRDHYRIGKKLGGQFCGYTYLCTEVE	-----EDGGE---	LACKSIPKRR	-----LCHEDYED	92	
ZmCPK11	-----QLVTAPAPSSGRPAS	VLPHKT--ANVRDHYRIGKKLGGQFCGYTYQCVEK	-----ADGAE---	LACKSIPKRR	-----LCREPYED	88	
OsCPK28	-----PPVTAPSVG--RPAS	VLPHKT--ANVRDHYRIGKKLGGQFCGYTYLCTEVE	-----PDGGE---	LACKSIPKRR	-----LCREPYED	93	
OsCPK13	-----QAPADLGS--VLGHPT	--PNLRDLALYALGRKLGGQFCGYTYLCTEL	-----STGVD---	LACKSISKRR	-----LITKEDIED	132	
TaCPK2	-----AGAPADLGS--VLGHPT	--PNLRDLALYALGRKLGGQFCGYTYLCTEL	-----ATGAD---	LACKSISKRR	-----LITKEDIED	139	
ZmCDPK1	-----AGAPPDLGS--VLGHPT	--PNLRDLALYALGRKLGGQFCGYTYLCTEL	-----ATGID---	LACKSISKRR	-----LITKEDVDD	71	
ZmCDPK7	-----AGAPPDLGS--VLGHPT	--PNLRDLALYALGRKLGGQFCGYTYLCTEL	-----ATGVD---	LACKSISKRR	-----LITREVD	135	
OsCPK5	-----APAPAEALTAN-VLGHPT	--PSLSEHYALGRKLGGQFCGYTYLCTDL	-----ATGVD---	LACKSIATRKR	-----LITKEDVED	136	
OsCPK7	-----LDPTSINVLGRKT--	ADLREHYIIGKKLGGQFCGYTYLCTEI	-----NTGCE---	LACKTIATRKR	-----LITKEDVED	123	
TaCPK1	-----LDLTSISVLGRKT--	ADLREHYIIGKKLGGQFCGYTYLCTEI	-----STGCD---	LACKTIATRKR	-----LVTKVVED	125	
OsCPK23	-----LNLKSP-VLGYKT--	PNVRELYTLGRELGGQFCGYTYLCTEI	-----STGCD---	LACKTIATRKR	-----LRCVSDIED	117	
OsCPK6	-----SPTAVLGHET--PAL	REVYTVGRKLGGQFCGYTYLCTQV	-----STGAE---	LACKSIATRKR	-----LSPEDVED	118	
OsCPK31	-----ARTELDPEEIKSVFGYPRNLDSYYLGRVIGAGSFGVVRGIEV	-----STGRR---	LACKTIATRKR	-----FAVKTVSKVPR	-----GSPTPRYLLK	146	
OsCCaMK	-----MSKTESRKLSDDY	EVVDVLGRGFGFSIVRRGVSK	-----SEE-KTQVAIKTLRRLGPAMA	--GMKQGT-KPVP	SGSGL-LPMWKQV	SDAL	79
TaCCaMK	-----MSTTESRRLSDDY	EVADVLRGCGFSIVRRGVSK	-----SDEGKTQVAIKTLRRLGPAMTGMGMQ	QGS-KDAPSSGGLPLWKQV	SDAL	83	
MtCCaMK	-----MGYG-TRKLSDEY	EVSEILGRGFGFSVVRKGTKKSSIEEEKSQSOVAIKTLRRLGASNNPSGLPRKKDIGEKSTIGFPTMRQV	SDTL			87	

OsCPK18	VKREVKILKALQ-----GHEN---VVHFYNAFEDDNY--VYIVMELCEGGELDRILAKKDSRYSEKDAAVVVRQMLKVAAECHLHGLVHRDMKPENFLFKSTKEDSSLKATDFGLSDFIIRPKCK-HQRDIVGSAYYVAPE	225
TaCPK6	VKREVKILKALH-----GHEN---VVHFYNAFEDDNY--VIIVMELCEGGELDRILAKKDSRYSEKDAAVVVRQMLKVAAECHLHGLVHRDMKPENFLFKSSKEGSPLKATDFGLSDFIITPKCK-QQRDIVGSAYYVAPE	224
MtCDPK1	VKREVKILKEET-----GHEN---VVQFYNAFDDDSY--VYIVMELCEGGELDRILANKDSRYTEKDAAVVVRQMLKVAAQCHLHGLVHRDMKPENFLFKSNKEDSALKATDFGLSDFIKPKCK-RQQRDIVGSAYYVAPE	272
OsCPK4	VKREVKILKEEK-----GHEN---IVHFYNAFEDDSY--VYIVMELCEGGELDRILAKKNSRYSEKDAAVVVRQMLKVAAECHLHGLVHRDMKPENFLFKSTKEDSPLKATDFGLSDFIKPKCK-KHQRDIVGSAYYVAPE	232
OsCPK30	VRREVRILSSIT-----GHSN---LVQFYDAFEDEDN--VYIVMELCKGGELDRILAR-GQKYSEEDAKVMVQILSVVSFCHLQGVVHRDLKPENPLFTSKDENSALKVIDFGLSDFVKPKDE-RLNDIVGSAYYVAPE	316
OsCPK3	VRREVALMRHLP-----KSAS---IVSLREACEDDEGA--VHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVEVQQLCHRHGVTHRDLLKPENFLFANKKENSPLKATDFGLSIFFFKPCGE-KRSEIVGSPYYMAPE	248
TaCPK3	VRREVALMRHLP-----RSHS---IVALLREACEDDEGA--VHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVEVQQLCHRHGVTHRDLLKPENFLFANKKENSPLKATDFGLSIFFFKPCGE-KRSEIVGSPYYMAPE	242
OsCPK16	VRREVALMRHLP-----RSAS---IVSLREACEDDGA--VHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVEVQQLCHRHGVTHRDLLKPENFLFANKKENSPLKATDFGLSIFFFKPCGE-KRSEIVGSPYYMAPE	244
TaCPK15	VRREVALMRHLP-----RSAS---IVTLREACEDDGA--GHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVEVQQLCHHHGVTHRDLLKPENFLFANKKENSPLKATDFGLSIFFFKPCGE-KRSEIVGSPYYMAPE	248
OsCPK8	VRREVALMRHLP-----SHPN---IVSLRAAYEDEDN--VHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVEVQQLCHRHGVTHRDLLKPENFLYANKKEDSSPLKATDFGLSIFFFKPCGE-RKTEIVGSPYYMAPE	235
TaCPK12	VRREVALMRHLP-----PHPN---IVSLSAAYEDEDN--VHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIAEVQQLCHRHGVTHRDLLKPENFLYANKKESPLKATDFGLSIFFFKPCGE-RKTEIVGSPYYMAPE	231
OsCPK20	VRREVALMRHLP-----KHPN---IVTLRDTYEDDNA--VHLVMECEGGELFDRIVAR--GHYTERAAALVTRTIVEVQQLCHKHGMVHRDLKPENFLFANKKETAAKATDFGLSVFFFTPCGE-RKTEIVGSPYYMAPE	246
TaCPK7	VRREVALMRHLP-----KHPN---IVTLRDTYEDDNA--VHLVMECEGGELFDRIVAR--GHYTERAAALVTRTIVEVQQLCHKHGMVHRDLKPENFLFANKKETAVLKAIDFGLSVFFFTPCGE-RKTEIVGSPYYMAPE	239
OsCPK9	VRREVALMASLP-----DHPA---LVRLRAAYEDADA--VHLVMECEGGELFDRIVAR--GRYTERAAAAAATVAEVVRACHAHGMVHRDLKPENFLYAGKAEDAQLKAIDFGLSVFFFRPCGE-RKREIVGSPYYMAPE	272
TaCPK19	VRREVALMASLP-----DHPA---LVRLRAAYEDDEA--VHLVMECEGGELFDRIVAR--GRYTERAAAAAATVAEVVRACHAHGMVHRDLKPENFLYAGKEEDAQLKAIDFGLSVFFFRPCGE-RKSEIVGSPYYMAPE	267
OsCPK21	VKREVALMRSSASSSRGGGAASSAAVHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVEVQQLCHKHGMVHRDLKPENFLYANKKEDSPLKVIDFGLSVFFFTPCGE-RKTEIVGSPYYMAPE	271
OsCPK22	VRREVALRRHS-----ALGAGADS--VVRLRDACEDSDG--VHLVMECEGGELFDRIFAR--GHYTERAAAKLARTIVGVQQLCHENGVMHRDLKPENFLFANKSEDSPLKATDFGLSVFFKPCGE-RKTEQVVGSTYYMAPE	281
OsCPK29	VRREVALRRSP-----AHAN---VVRLREAFEDADA--VHLVMECEGGELFDRIVAR--GHYTERAAANVTRTIVGVQQLCHKHGMVHRDLKPENFLYANASENSPLKVIDFGLSVCFKPKCA-RKNEIVGSPYYMAPE	255
OsCPK1	VRREVALMRHLP-----GHRN---IVELRGAYEDRHS--VNLVMECEGGELFDRITAR--GHYSERAAALCREIVGVVHSHSMGVHRDLKPENFLFLSKEDSPLKATDFGLSVFFKPCGE-HKQDLVGSAYYVAPE	237
TaCPK8	VQREVALMRHLP-----GHRN---IVELRGAYEDRHS--VNLVMECEGGELFDRITAR--GHYSERAAALCREIVGVVHSHSMGVHRDLKPENFLFLNNKEDSPLKATDFGLSVFFFKHCE-QKDLVGSAYYVAPE	237
OsCPK15	VRREVALMRHLP-----GHRN---IVELRGAYEDRHS--VNLVMECEGGELFDRITAR--GHYSERAAALCREIVGVVHSHSMGVHRDLKPENFLFLNNKEDSPLKATDFGLSVFFFKPCGE-QQRDIVGSAYYVAPE	261
OsCPK2	VRREVALMRHLP-----GQPN---VVELKGAYEDKQS--VHLVMECEGGELFDRITAK--GHYTERAAASLRTIVEIHTCHSLGVTHRDLLKPENFLLLSKDEDAPLKATDFGLSVFFKPCGE-VKQDIVGSAYYVAPE	232
TaCPK13	VRREVALMRHLP-----GQPN---IVELKGAYEDKLS--VHLVMECEGGELSDRITAK--GHYTERAAASLRTIVEIHTCHSLGVTHRDLLKPENFLLLSKEDAPLKATVFGSLVLYKQCE-VKQDIVGSAYYVAPE	234
OsCPK14	VRREVALMRHLP-----GQPG---VVELKGAYEDKHA--VHLVMECEGGELFDRITAK--GHYTEHAASSLRTIVEIHTCHSMGVTHRDLLKPENFLLLSKDEHAPLKATDFGLSVFFFKCE-VQRDIVGSAYYVAPE	239
OsCPK25	VRREVALMRHLP-----GQPN---IVDLRGAYEDKHN--VHLVMECEGGELFDRITAK--GHYTERAAALLRAIVGVVHTCHSMGVTHRDLLKPENFLLLSKGDDAPLKATDFGLSVFFFKCE-VQRDIVGSAYYVAPE	254
OsCPK26	VRREVALMRHLP-----GQPN---IVDLRGAYEDKHN--VHLVMECEGGELFDRITAK--GHYTERAAALLRAIVGVVHTCHSMGVTHRDLLKPENFLLLSKGDDAPLKATDFGLSVFFFKCE-VQRDIVGSAYYVAPE	254
OsCPK12	VRREVALMRHLP-----GQPN---IVAEFRGAYEDNDH--VHLVMECEGGELFDRITAK--GSYSERQAAAVCRDITVHVHCHFMGVTHRDLLKPENFLLASADDDAPLKATDFGLSVFIEECK-VKQDIVGSAYYVAPE	262
TaCPK18	MRREVALMRHLP-----GQPN---IVAEFRGAYEDAES--VHLVMECEGGELFDRITAK--GSYSERQAAAVCRDITVHVHCHFMGVTHRDLLKPENFLLASPADDAPLKATDFGLSVFIEECK-VKQDIVGSAYYVAPE	265
OsCPK19	IRREIOLMRHLP-----GQON---IVAEFRGAYEDKSN--VHVVMELCAGGELFDRITAK--GHYSERAAALICRAVNVVNICHFMMVHRDLKPENFLLATKEENAMLKATDFGLSVFIEECK-MQRDIVGSAYYVAPE	256
TaCPK5	IRREIOLMRHLP-----GQPN---IVAEFRGAYEDKGS--VHVVMELCAGGELFDRITAK--GHYSERAAALICRAVNVVNICHFMMVHRDLKPENFLLATKEDENAVLKATDFGLSVFIEECK-MQRDIVGSAYYVAPE	256
ZmCDPK2	IRREIOLMRHLP-----GQPN---IVAEFRGAYEDKSN--VHVVMELCAGGELFDRITAK--GHYSERAAALICRAVNVVNICHFMMVHRDLKPENFLLATMEENAMLKATDFGLSVFIEECK-MQRDIVGSAYYVAPE	236
ZmCDPK9	IRREIOLMRHLP-----GQPN---IVAEFRGAYEDKSN--VHVVMELCAGGELFDRITAK--GHYSERAAALICRAVNVVNICHFMMVHRDLKPENFLLASKEENAMLKATDFGLSVFIEECK-MQRDIVGSAYYVAPE	254
MtCDPK3	IKREIOLMRHLP-----GQPN---IVAEFRGAYEDRNS--VHVVMELCAGGELFDRITAK--GHYSEKAAASCRQIVNVVNICHFMMVHRDLKPENFLLASKEDENALLKATDFGLSVFIEECK-VQRDIVGSAYYVAPE	255
MsCDPK3	IKREIOLMRHLP-----GQPN---IVAEFRGAYEDRNS--VHVVMELCAGGELFDRITAK--GHYSEKAAASCRQIVNVVNICHFMMVHRDLKPENFLLASKEDENALLKATDFGLSVFIEECK-VQRDIVGSAYYVAPE	259
OsCPK10	VRREIOLMRHLP-----GHPN---VVISIRGAYEDAVA--VHLVMECEGGELFDRIVQK--GHYTERAAALARVIVGVVEACHSMGVHRDLKPENFLFADQTEEAALKTTDFGLSVFFFRPCGE-VQTDVVGSPYYVAPE	304
ZmCPK10	VRREIOLMRHLP-----GHPN---VVISIRGAYEDAVA--VHLVMECEGGELFDRIVQK--GHYTERAAALARVIVGVVEACHSMGVHRDLKPENFLFADHSEEAALKTTDFGLSIFFFRCPGE-ITQTDVVGSPYYVAPE	324
OsCPK17	VRREIOLMRHLP-----GHPN---VVISIRGAYEDAVA--VHLVMECEGGELFDRIVQK--GHYSEKAAALARVIVGVVEACHSLGVHRDLKPENFLFVNHKEDSPLKTTDFGLSIFFFKPCGE-NQSDVVGSPYYVAPE	277
TaCPK9	VRREIOLMRHLP-----GHPN---VVISIRGAYEDAVA--VHLVMECEGGELFDRIVQK--GHYSEKAAALARVIVGVVEACHSLGVHRDLKPENFLFVNQKEDSPLKTTDFGLSIFFFKPCGE-IQSDVVGSPYYVAPE	271
OsCPK11	VRREIOLMRHLP-----GHAN---VVISIRGAYEDAVA--VQLVMECEGGELFDRIVQK--GHYSEKAAALARVIVGVVEACHSLGVHRDLKPENFLFIHQKEDSPLKATDFGLSIFFFKPCGE-TQTDVVGSPYYVAPE	284
OsCPK27	VRREIOLMRHLP-----GHPN---VVISIRGAYEDAVA--VHVVMELCAGGELFDRIVRQ--GHYTERQAAALARVIVGVVESCHSLGVHRDLKPENFLFVGNEDAPLKTTDFGLSMFFFRPCGE-VQTDVVGSPYYVAPE	321
OsCPK24	VRREIOLMRHLP-----EHPN---VVRIRGAYEDALF--VHVVMELCAGGELFDRIVAK--GHYTERAAALIRTIVGVVEACHSLGVHRDLKPENFLFASAAEDAPLKATDFGLSMFYKPCGE-KRSDVVGSPYYVAPE	218
TaCPK4	VVREIOLMRHLP-----EHPN---VVRIRGAYEDALF--VHVVMELCAGGELFDRIVAK--GHYTERAAALIRTIVGVVEACHSLGVHRDLKPENFLLASTAEDAPLKTTDFGLSMFYKPCGE-KRSDVVGSPYYVAPE	219
ZmCPK11	VVREIOLMRHLP-----EHPN---VVRIRGAYEDALF--VHVVMELCAGGELFDRIVAK--GHYSERAAALKIRTIVGVVEACHSLGVHRDLKPENFLFASTAEEAPLKATDFGLSMFYKPCGE-KRSDVVGSPYYVAPE	215
OsCPK28	VVREIOLMRHLP-----EHPN---VVRIRGAYEDALF--VHVVMELCAGGELFDRIVAK--GHYTERAAALIRTIVGVVEACHSLGVHRDLKPENFLFASTAEDAPLKATDFGLSVFYKPCGE-KRSDVVGSPYYVAPE	220
OsCPK13	VRREIOLMRHLP-----GHKN---VVAIKGAYEDQLY--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-TQTDVVGSPYYVAPE	259
TaCPK2	VRREIOLMRHLP-----GHRN---VVAIKGAYEDQLY--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-ITQTDVVGSPYYVAPE	266
ZmCDPK1	VRREIOLMRHLP-----GHKN---VVAIKGAYEDQVY--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-ITQTDVVGSPYYVAPE	198
ZmCDPK7	VRREIOLMRHLP-----GHTN---VVAIKGAYEDQLY--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-VQTDVVGSPYYVAPE	262
OsCPK5	VRREIOLMRHLP-----GHRN---VVAIKGAYEDQYQ--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-VQTDVVGSPYYVAPE	263
OsCPK7	VRREIOLMRHLP-----GHKN---VVISIKDVYEDGQA--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-VQTDVVGSPYYVAPE	250
TaCPK1	VRREIOLMRHLP-----GHKN---VVISIKDVYEDVQA--VHVVMELCAGGELFDRIVQK--GHYSEKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-VQTDVVGSPYYVAPE	252
OsCPK23	VRREIOLMRHLP-----GQKN---IVTIKDYTEDEQA--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-VQTDVVGSPYYVAPE	244
OsCPK6	VRREIOLMRHLP-----GHGS---VVISIKDVYEDNLY--VHVVMELCAGGELFDRIVQK--GHYSERKAAALIRTIVGVVEACHSLGVHRDLKPENFLFVNKEDSPLKATDFGLSIFFFKPCGE-VQTDVVGSPYYVAPE	245
OsCPK31	LRAEVVMQQLVES-----VSLN---AVHLHDVYEDDVN--VHVVMELCAGGELFDRIVQK--VYSELYISKVRSIRFLAQCHAKGIIYRDVNPENFLFVTAEDSPLKATDFGLSIRHYSHPEPKLTSRSGTPPAYMAPE	273
OsCCaMK	LTNEILVMRRIVES-----VAPHN---VINLHDVYEDDVH--VHLVLELCSGGELFDRIVQK--DRYSEFDAQVIRQIASGLEADHKASIVHRDLKPENCLFSDKDEKSTLKKIMDFGLSVVEDFSQ-PIVALFGSIDVVSPE	210
TaCCaMK	LTNEILVMRRIVEN-----VAPHN---VISLHDVYEDAHG--VHLVLELCSGGELFDRIVQK--ERYSEFDAQVIRQIASGLEADHKASIVHRDLKPENCLFSDKDEKSTLKKIMDFGLSVVEDFSQ-PIVALFGSIDVVSPE	214
MtCCaMK	LTNEILVMRRIVEN-----VSPHPN---VIDLYDVYEDTNG--VHLVLELCSGGELFDRIVQK--DRYSEFDAQVIRQIASGLEAVHRANIVHRDLKPENCLFLDVRKDSPLKKIMDFGLSVVEEFTD-PVVGLFGSIDVVSPE	218

OsCPK18 VLKR-KSGPESDVWSIGVITYILLCCRRPFID-----KTEDGIFKEVLRKNKPDFRRKPWENITPSAKDFVOKLLVKDPRARLTAACALSHFWVREGGQASEIPLDISVLHNMROFVKYSRFKQFALRALAST----- 351
TaCPK6 VLKR-KSGPESDVWSIGVITYILLCCRRPFID-----KTEDGIFKEVLRKNKPDFRRKPWANITPSAKDFVOKLLVKVPRARLTAACALSHFWVREGGQASEIPLDISVLHNMROFVKYSRFKQFALRALAST----- 350
MtCDPK1 VLKR-KSGPESDVWSIGVITYILLCCRRPFID-----KTEDGIFKEVLRKNKPDFRRKPWETISNAAKDFVOKLLVKDPRARLTAACALSHFWVREGGQASEIPLDISVLHNMROFVKYSRFKQFALRALAST----- 398
OsCPK4 VLKR-KSGPESDVWSIGVITYILLCCRRPFID-----KTEDGIFKEVLRKNKPDFRRKPWEGISSAKDFVOKLLVKVPRARLTAACALSHFWVREGGQASEIPLDISVLHNMROFVKYSRFKQFALRALAST----- 358
OsCPK30 VLHR-SYGTEDMWSIGVIAIYILLCCSRPFWA-----RTESGIFRAVLKAEPSEDEAPWFTLTAEAKDFVKRLLNKDYKRKMTAAACALSHFWIRNS-QOVKIPLDMIIYKLMRAYISSSSLRKSALRALAKT----- 441
OsCPK3 VLKR-NYGPEIDIWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWENVSENAKDLVRRMLDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAH----- 374
TaCPK3 VLKR-NYGPEIDIWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWENVSENAKDLVRRMLDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAH----- 368
OsCPK16 VLKR-NYGPEIDIWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWENVSDNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAH----- 370
TaCPK15 VLKR-NYGPEIDIWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAH----- 374
OsCPK8 VLKR-HYGPEVDVWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAH----- 361
TaCPK12 VLKR-NYGPEIDVWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLHDSKKNPDIOGLDGTVRARLQOFSAMNKLKKKALRVIAEH----- 357
OsCPK20 VLKR-NYGPEVDVWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 372
TaCPK7 VLKR-NYGPEVDVWSAGVILYILLCGVPPFFWA-----ETEQGVAQAAILRGNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 365
OsCPK9 VLRR-DYGPEVDIWSAGVILYILLCGVPPFFWA-----ETEQGVARAAILRGAAIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLHHAARAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 398
TaCPK19 VLRR-SYGPEDVWSAGVILYILLCGVPPFFWA-----ETEQGVARSILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 393
OsCPK21 VLRR-SYGPEDVWSAGVILYILLCGVPPFFWA-----DNDEKTAQAAILRGAAIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 397
OsCPK22 VLNR-SYGPEDVWSAGVILYILLCGVPPFFWA-----DNDEKTVTAAIILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 407
OsCPK29 VLKR-NYGPEIDIWSAGVILYILLCGVPPFFWA-----ETEDGTAQAAILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 381
OsCPK1 VLKR-HYGAEADIWSAGVILYILLCGVPPFFWA-----ETEDGTAQAAILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 363
TaCPK8 VLKR-HYGAEADIWSAGVILYILLCGVPPFFWA-----DNEDGIFEAVLLGHIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 363
OsCPK15 VLKR-LYGAEADIWSAGVILYILLCGVPPFFWA-----ENEDGIFEAVLLGHIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 387
OsCPK2 VLKR-SYGPEDVWSAGVILYILLCGVPPFFWA-----ESEHCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 358
TaCPK13 VPKR-NYGPEADIWSAGVIVYILLCGVPPFFWA-----ESEHCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 360
OsCPK14 VLKR-SYGPEDVWSAGVILYILLCGVPPFFWAGKLLLFIAMHCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 371
OsCPK25 VLKR-KYGPEADIWSAGVILYILLCGVPPFFWA-----ESENATFQAAILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 380
OsCPK26 VLKR-KYGPEADIWSAGVILYILLCGVPPFFWA-----ESENATFQAAILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 380
OsCPK12 VLQR-NYGKEADIWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 387
TaCPK18 VLHR-NYGREIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 390
OsCPK19 VLRR-NYGREIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 381
TaCPK5 VLRR-NYGREIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 381
ZmCDPK2 VLRR-SYKGEIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 362
ZmCDPK9 VLKR-SYKGEIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 380
MtCDPK3 VLRR-RCCKEIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 380
MsCDPK3 VLRR-RCCKEIDVWSAGVILYILLCGVPPFFWA-----ETEKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 384
OsCPK10 VLKR-KYGEADVWSAGVILYILLCGVPPFFWA-----ENEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 430
ZmCPK10 VLKR-KYGEADVWSAGVILYILLCGVPPFFWA-----ENEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 450
OsCPK17 VLMK-HYGREVDVWSAGVILYILLCGVPPFFD-----ESEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 403
TaCPK9 VLMK-HYGREVDVWSAGVILYILLCGVPPFFD-----ESEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 397
OsCPK11 VLMK-HYGREVDVWSAGVILYILLCGVPPFFD-----ESEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 410
OsCPK27 VLKR-SYGEADVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 447
OsCPK24 VLQR-CYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 344
TaCPK4 VLQR-CYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 345
ZmCPK11 VLQR-CYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 341
OsCPK28 VLQR-CYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 346
OsCPK13 VLLK-HYGPEADVWTAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 385
TaCPK2 VLKR-KYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 392
ZmCDPK1 VLLK-HYGPEADVWTAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 324
ZmCDPK7 VLLK-HYGPEADVWTAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 388
OsCPK5 VLRR-CYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 389
OsCPK7 VLHR-KYGPESDVWSAGVILYILLCGVPPFFWA-----ETEQGIFEVVLHGRLDFESEPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 376
TaCPK1 VLHR-KYGPESDVWSAGVILYILLCGVPPFFWA-----DTQKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 378
OsCPK23 VLKR-KYGPESDVWSAGVILYILLCGVPPFFWA-----DTQKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 370
OsCPK6 VLKR-KYGPESDVWSAGVILYILLCGVPPFFWA-----DTQKCFIDAVILRGVNIIDFKREPWEHVSNAKDLVRQMLQDPDKRLRTAKOVLEHPWLQNAKKAPNVPLGDIVKSRLKQFSRMNRFKRRALRVIAEH----- 371
OsCPK31 LVMQ-CYDEKADLWSGMLAYQLLGRFPFIEDVRN--ETLSDVWKAILSGELDWAPELQLSSAARDLIERLLQRNPFVMPSSAAALHPWLAQEGANMPELKGSSVQRIQRFATYTHLKQVVRMTED----- 403
OsCCaMK ALSRQEVSTAASDMWSAGVILYILLSGVPPFFHA-----INNEKQQRILQGEFSQDHTKTISSSAKDLIRSLLSVQPYKRPTASDLRRFVWIGDCAQDLMDAEVVSRLQKFNARRRLRAAATASVLSCKVALRTKRLR----- 346
TaCCaMK ALSRQEVSTAASDMWSAGVILYILLSGVPPFFHA-----INNEKQQRILQGEFSQDHTKTISSSAKDLIRSLLSVQPYKRPTASDLRRFVWIGDCAQDLMDAEVVSRLQKFNARRRLRAAATASVLSCKVALRTKRLR----- 350
MtCCaMK ALSQKITTKSDMWSAGVILYILLSGVPPFFHA-----NNRQKQQMIMNGNFSYEKTKGISQPAKNLJSSLLTVDESKRPSALELLSDFPWVGKAKADVQMDPEIVSRLQSFNARRRLRAAATASVWSSTIFLRTKKLK----- 354

OsCPK18	-----	LNABE	-----	LSDLRQDFNAIDV	KNGTISLEELKQALAK	DVPWRLKGRVLEI	VEAID	SNTDCLVDFE	EFVAATLHVHQL	VEHDETEKWSLSQA	AFDKFDV	GDGYIT	SDEIR	RM--	QTGLKGS	-----	ID	470																			
TaCPK6	-----	LNPEE	-----	LSDLRQDFNAID	DKSGTISLEELKQALAK	DVPWRLKGRVLEI	VEAID	SNTDCLVDFE	EFVAATLHVHQL	VEHDETEKWSLSQA	AFDKFDV	GDGYIT	SDEIR	RM--	NTGLKGS	-----	ID	469																			
MtCDPK1	-----	LNKEE	-----	LSDLRQDFDAIDV	KNGAISLEEMRQALAK	DLPWLKESRVEI	EQATIS	SNTDCLVDFE	EFVAATLHVHQL	EEHSDSKWQQR	SQA	AFKFDI	KDGYIT	PEEIR	RM--	HTGMRGS	-----	ID	517																		
OsCPK4	-----	LKEEE	-----	LADLKQDFDAIDV	KSGSISIEEMRHALAK	DLPWLKGRVLEI	EQATIS	SNTDCLVDFE	EFVAATLHVHQA	ELDSERWGLRCQA	AFKFDLD	GDGYIT	PDEIR	RMVQHTGLKGS	-----	IE	479																				
OsCPK30	-----	LTANO	-----	LFYLREQFELL	GPKNGYISLONLKTAL	VKNSTDAMKDSR	VIDFVNTVCT	LQYRKLD	EEFAASAVSVYQ	MEALET--	WEQHARRAYEL	FDKEG	NRPIVIEE	ASELGLGPSVP	-----	LH	560																				
OsCPK3	-----	LSABE	-----	VEDIKEMFKAMDT	DNDGIVSYEELKSGIAK	-FSGH	LAEEVQML	TEAVDTNGK	DALDYGEFLAVSLH	QORMANDEH	-----	IRRAFLF	FDKDGNGYI	EPPEE	REALVDDGAGD	-----	SMEVN	492																			
TaCPK3	-----	LSABE	-----	VEDIKEMFKAMDT	DNDGIVSYEELKSGIAK	-FSGH	LAEEVQML	TEAVDTNGK	DALDYGEFLAVSLH	QORMANDEH	-----	IRRAFLF	FDKDGNGYI	EPPEE	REALKDGDAA	-----	SMEVN	486																			
OsCPK16	-----	LSABE	-----	VEDIKDMFKVMDT	DNDGIVSYEELKSGIAK	-FSGH	LAEEVQML	TEAVDTNGR	CALDYGEFLAVSLH	QORMTNGEH	-----	IRRAFLF	FDKDGNGYI	EPPEE	QEALEDGATD	-----	IMEVVK	488																			
TaCPK15	-----	LSABE	-----	VEDIKEMFKVMDT	DNDGIVSYEELKSGIAK	-FSGH	LAEEVQML	TEAVDTNGR	CALDYGEFLAVSLH	QORMANDEH	-----	IRRAFLF	FDKDGNGYI	EPPEE	QEALEDGAVD	-----	ITEVVK	492																			
OsCPK18	-----	LSABE	-----	AADIKDMFDKMD	VSKNGHLSDEL	LEGIRK-L	GNQMPDSDLK	ILMDAAD	DKNCLDYGEFVAVSI	HVRKIGNDEH	-----	IQKAFSYF	QDKSGYI	TEIEE	REALVDEIDGN	-----	DEDIIN	479																			
TaCPK12	-----	LSLEE	-----	VADIKKMFDSMDV	NKCOLTFEEF	RAGLRK-L	GNKMHSDDLQ	MLMDAAD	VDKNCLDYGEFVAVSI	HVRKIGNDEH	-----	IQKAFSYF	QDKSGYI	TEIEE	RVALTDEVDGAC	-----	DEDIIN	476																			
OsCPK20	-----	LSVEE	-----	VAGIKDMFEKMDL	NKDNINFD	DELKLGHLK-L	GHQMAPADVQ	ILMDAAD	VDGNC	SLDYGEFVALSVH	HRKIGNDEH	-----	HKAFAYF	DRNCSGYI	TEIDE	RESLADDLGN	-----	HEEVIN	490																		
TaCPK7	-----	LSVEE	-----	VAGIKDMFEKMDL	NKDNINFD	DELKLGHLK-L	GHQMAPADVQ	ILMDAAD	VDGNC	SLDYGEFVALSVH	HRKIGNDEH	-----	HKAFAYF	DRNCSGYI	TEIDE	RESLADDLGN	-----	HEEVIN	483																		
OsCPK9	-----	LSVEE	-----	VEVIKDMFALMDT	DNNGRVTLQEL	KDGLTK-V	SGKLAEP	EMEL	LMEAAD	VDGNCYLDYGEFVAVSI	HLHQR	LSNDNH	-----	IRTAFLF	FDKDGSGYI	DRABE	ADALADDSGHA	-----	DDAVLD	516																	
TaCPK19	-----	LSABE	-----	VEVIKEMFALMDT	DNNGRVTLDEL	KAGLAR-V	SGKLAEP	EMEL	LMEAAD	VDGNCYLDYGEFVAVSI	HLHQR	LSNDQH	-----	IRKAFLF	FDNRSSGYI	TERPE	ADALADDSGKA	-----	DDAVVD	511																	
OsCPK21	-----	LPGEE	-----	VDKYVQMFHMDK	KNCHLSDEL	LEGLHI-N	QVPPEPIR	MLLEA	ADTDGNC	TLDCE	EFVTVSVH	HKMSNDEY	-----	IAAFAFY	FDKDGSGYI	TEDEIR---	BEVGYP	-----	NEQAII	510																	
OsCPK22	-----	LPVBE	-----	MDKYTQMFHKMD	KNSCNLTLED	LKLGLOI-N	HPVPETE	IEMLLEAG	IDGNC	TLDCE	EFVTVL	HLHKMSNEEY	-----	IPKAFKF	FDKDGNGYI	TEMEB	MDALGDELGP	-----	TEQVVK	524																	
OsCPK29	-----	LPTBE	-----	LDAIRELFNMLD	TKKKCHITLEEL	RKGLQV-I	GHNIHDT	VDMLME	EAADIDGNC	ILDC	CEFVTVS	HLHKIR	SDEH	-----	IPKVFSE	FDKDGSGYI	TEIEE	K---	HALSPRG	-----	DQKSTD	496															
OsCPK1	-----	LSDEE	-----	ITGLKEMFRSLDT	DNSGTTILEEL	RSGLPK-L	GTKISESEI	IQLME	EAADVDGNC	TIDYAEFISAT	MMHNR	LKEDEH	-----	ILKAFYF	FDKDHSGYI	TVDEE	EEALKKYDMGD	-----	DKTNK	480																	
TaCPK8	-----	LSDEE	-----	ITGLKEMFRSLDT	DNSGTTILEEL	RSGLPK-L	GTKISESEI	IQLME	EAADVDGNC	TIDYAEFISAT	MMHNR	LKEDEH	-----	ILKAFYF	FDKDHSGYI	TVDEE	EEALKKYDMGD	-----	DKTNK	480																	
OsCPK15	-----	LSDEE	-----	IVGLKEMFKSLDT	DNSGTTILEEL	RAGLPK-L	GTKISESEI	IQLME	EAADVDGNC	TIDYAEFISAT	MMHNR	LKEDEH	-----	YKAFYF	FDKDHSGYI	TVDEE	EEALKKYDMGD	-----	EATNK	504																	
OsCPK2	-----	LSDEE	-----	IRGLKEMFKSMD	SNSGTTIVDEL	RKGLSK-Q	TKLTEVEV	QQLME	EAADVDGNC	TIDYEFITAT	MMHNR	MDREEH	-----	YTAFAQY	FDKDN	SGYISKEE	EQALREKGLD	-----	GRDMS	475																	
TaCPK13	-----	LSDEE	-----	IRGLKEMFKSXXX	SNSGTTIVDEL	RKGLSK-Q	TKLTEAVE	QQLME	EAADVDGNC	TIDYEFITAT	MMHNR	MDREEH	-----	YTAFAQY	FDKDN	SGYISKEE	EQALREKGLA	-----	GRDMS	477																	
OsCPK14	-----	LSDEE	-----	IRGLKEMFKSMD	SNSGTTIVDEL	RKGLSK-Q	TKLTEAVE	QQLME	EAADVDGNC	TIDYEFITAT	MMHNR	MDREEH	-----	YTAFAQY	FDKDN	SGYISKEE	EQALREKGLD	-----	GRETK	488																	
OsCPK25	-----	LSDEE	-----	IKGLKEMFKNID	KNSGTTILEEL	KNGLAK-Q	TKFSDNE	IEQLME	EAADVDGNC	TIDYEFITAT	MMHNR	MDREEH	-----	YTAFAQY	FDKDN	SGYITKEE	EQALKEQGLYD	-----	ANEIK	497																	
OsCPK26	-----	LSDEE	-----	IKGLKEMFKNID	KNSGTTILEEL	KNGLAK-Q	TKFSDNE	IEQLME	EAADVDGNC	TIDYEFITAT	MMHNR	MDREEH	-----	YTAFAQY	FDKDN	SGYITKEE	EQALKEQGLYD	-----	ANEIK	497																	
OsCPK12	-----	LSPEE	-----	IKGLKQMFNNMDT	DSGTTIVDEL	KVGLRK-L	SRISAE	EVQKLME	AVVDKSSIDY	SEFLTAM	NKHKLEKEED	-----	ILRAFH	QFDDKDN	SGYITRDE	EQAMAEYGMGD	-----	EANTK	504																		
TaCPK18	-----	LSPBE	-----	IKGLKQMFNNMDT	DKSGTTIVDEL	KIGLTK-L	SKITEA	EVQKLME	AVVDKSSIDY	TEFLTAM	NKHKLEKEED	-----	LHAFQH	QFDDKDN	SGYSRE	EQAMTEYGMGD	-----	EANTK	507																		
OsCPK19	-----	LNDEE	-----	IKGLKQMFNNMDT	DNSGTTIYEEL	KAGLAR-L	SKLSE	AEVQQLME	AAVDGNC	IDYVEFITAT	MMHNR	KLERDEH	-----	IFKAFQY	FDKDN	SGYITRDE	ESALIEHEMGD	-----	TSTIK	498																	
TaCPK5	-----	LNDEE	-----	IKGLKQMFNNMDT	DNSGTTIYEEL	KAGLAR-L	SKLSE	AEVQQLME	AAVDGNC	IDYVEFITAT	MMHNR	KLERDEH	-----	IFKAFQY	FDKDN	SGYITRDE	ETALIEHEMGD	-----	ADTIK	498																	
ZmCDPK2	-----	LNDEE	-----	IKGLKQMFNNMDT	DNSGTTIYEEL	KAGLAR-L	SKLSE	AEVQQLME	AAVDGNC	IDYVEFITAT	MMHNR	KLERDEH	-----	IFKAFQY	FDKDN	SGYITRDE	ESALIEHEMGD	-----	TSTIR	479																	
ZmCDPK9	-----	LNDEE	-----	IKGLKQMFNNMDT	DNSGTTIYEEL	KAGLAR-L	SKLSE	AEVQQLME	AAVDGNC	IDYVEFITAT	MMHNR	KLERDEH	-----	IFKAFQY	FDKDN	SGYITRDE	ESALIEHEMGD	-----	TSTIK	497																	
MtCDPK3	-----	MSDEE	-----	IRGLKAMFTNMDT	DNSGTTIYEEL	KAGLOR-L	SKLSE	AEVQQLME	AAVDGNC	IDYVEFITAT	MMHNR	KLERDDH	-----	YKAFQY	FDKDN	SGYITRDE	ETAMKEYGMGD	-----	DATIK	497																	
MsCDPK3	-----	MSDEE	-----	IRGLKAMFTNMDT	DNSGTTIYEEL	KAGLOR-L	SKLSE	AEVQQLME	AAVDGNC	IDYVEFITAT	MMHNR	KLERDDH	-----	YKAFQY	FDKDN	SGYITRDE	ETAMKEYGMGD	-----	DATIK	501																	
OsCPK10	-----	LSDEE	-----	IAGLKEMFKMIDT	DNSGQITFEEL	KVGLRK-V	ANLQ	SESEIYAL	MQAADVDNS	TIDYGEFIAAT	LHMLNK	VEREDH	-----	IFAAFQY	FDKDGSGYI	TADEL	QVACEEFG	-----	VQLE	546																	
ZmCPK10	-----	LSDEE	-----	IAGLKEMFKMIDT	DNSGQITFEEL	KVGLRK-V	ANLQ	SESEIYAL	MQAADVDNS	TIDYGEFIAAT	LHMLNK	VEREDH	-----	IFAAFQY	FDKDGSGYI	TADEL	QVACEEFG	-----	VQLE	566																	
OsCPK17	-----	LSDEE	-----	IARLRKEMFKMIDT	DNSGQITLEEL	KTGRLR-V	ANLKD	SEITTL	LMEAADIDNS	CTIDYGEFIAAT	LHMLNK	VEREDN	-----	IFAAFQY	FDKDN	SGYITQDE	QKACEEFG	-----	AHLE	519																	
TaCPK9	-----	LSDEE	-----	IAGLRKEMFKMIDT	DNSGQITLEEL	KTGRLR-V	ANLKD	SEITTL	LMEAADIDNS	CTIDYGEFIAAT	LHMLNK	VEREDN	-----	IFAAFQY	FDKDN	SGYITQDE	QKACEEFG	-----	AHLD	513																	
OsCPK11	-----	LSDEE	-----	IAGLRKEMFKMIDT	DNSGQITLEEL	KTGRLR-V	ANLMD	SEIDAL	LMEAADIDNS	CTIDYGEFIAAT	LHMLNK	VEREDK	-----	IFAAFQY	FDKDN	SGYITQDE	QKACEEFG	-----	TRIE	526																	
OsCPK27	-----	LSDEE	-----	IAGLKEMFKMIDT	DNSGQITFEEL	KAGLAR-V	ANLMD	SEIYQ	LMQAADIDNS	CTIDYGEFIAAT	LHMLNK	VEREDH	-----	YAAFQY	FDKDGSGYI	TSDE	QQACDEF	-----	VRLE	563																	
OsCPK24	-----	LSDEE	-----	IGGLKELFKMIDT	DNSGQITFEEL	KVGLRK-V	SELTE	HEIQA	LMEAADIDNS	CTIDYGEFIAAT	LHMLNK	LEREEN	-----	IVSAFSE	FDKDGSGYI	TIDE	SQACREF	-----	LHLE	460																	
TaCPK4	-----	LSDEE	-----	IGGLKELFKMIDT	DNSGQITFEEL	KVGLRK-V	SELTE	HEIQA	LMEAADIDNS	CTIDYGEFIAAT	LHMLNK	LEREEN	-----	IVSAFSE	FDKDGSGYI	TIDE	SQACREF	-----	VHLE	461																	
ZmCPK11	-----	LSDEE	-----	IGGLKELFKMIDT	DNSGQITFEEL	KVGLRK-V	SELTE	NEIQA	LMEAADIDNS	CTIDYGEFIAAT	LHMLNK	LEREEN	-----	IVSAFSE	FDKDGSGYI	TIDE	SQACREF	-----	LHLE	457																	
OsCPK28	-----	LSDEE	-----	IGGLKELFKMIDT	DNSGQITFEEL	KVGLRK-V	SDLM	MEPEIQA	LMDAADIDNS	CTIDYGEFIAAT	LHMLNK	LEREEN	-----	IVSAFSE	FDKDGSGYI	TIDE	SQACREF	-----	VHLE	462																	
OsCPK13	-----	LSDEE	-----	IAGLKEMFQMD	ADNSCAITYDEL	KEGLRK-Y	STLKDTE	IRDLMD	AAADIDNS	CTIDYEFIAAT	LHMLNK	LEREEH	-----	IVAAFSE	FDKDGSGYI	TVDE	QQACKEHN	-----	AFLD	501																	
TaCPK2	-----	LSDEE	-----	IAGLKEMFQMD	ADNSCAITYDEL	KEGLRK-Y	STLKDTE	IRDLMD	AAADIDNS	CTIDYEFIAAT	LHMLNK	LEREEH	-----	IVAAFSE	FDKDGSGYI	TVDE	QQACKEHN	-----	AFLD	508																	
ZmCDPK1	-----	LSDEE	-----	IAGLKEMFQMD	ADNSCAITYDEL	KEGLRK-Y	STLKDTE	IRDLMD	AAADIDNS	CTIDYEFIAAT	LHMLNK	LEREEH	-----	IVAAFSE	FDKDGSGYI	TVDE	QQACKEHN	-----	AFLD	440																	
ZmCDPK7	-----	LSDEE	-----	IAGLKEMFQMD	ADNSCAITYDEL	KEGLRK-Y	STLKDTE	IRDLMD	AAADIDNS	CTIDYEFIAAT	LHMLNK	LEREEH	-----	IVAAFSE	FDKDGSGYI	TVDE	QQACKEHN	-----	AFLD	504																	
OsCPK5	-----	LSDEE	-----	IAGLKEMFKAMDT	DNSCAITYDEL	KEGMRK-Y	STLKDTE	IRDLME	AAADIDNS	CTIDYEFIAAT	LHMLNK	LEREEH	-----	IVAAFSE	FDKDGSGYI	TVDE	QQACKEHN	-----	AFLD	505																	
OsCPK7	-----	LSDEE	-----	IAGLRKEMFKAMDT	DKNRGVITF	GELRGR-F	AEFKDTE	IGDLME	AHNDNVITHY	EFIAATPL	NKIEREEH	-----	ILAAFSE	FDKDGSGYI	TVDE	QKACEHNMED	-----	SLLE	492																		
TaCPK1	-----	LSDEE	-----	IAGLRKEMFKAMDT	DKNRGVITF	GELRGR-F	ENELVDTE	ICDIME	AAADTD	TVTINY	EFIAATPL	NKIEREEH	-----	ILKAAFTY	FDKDGSGYI	TVDE	QKACEHNMED	-----	TLLE	494																	
OsCPK23	-----	LSDEE	-----	IVGLREMFKAMDT	DKNRSVITF	GELRGR-F	ENELVDTE	ICDIME	AAADTD	TVTINY	EFIAATPL	NKIEREEH	-----	ILKAAFTY	FDKDGSGYI	TVDE	QKACEHNMED	-----	TLLE	484																	
OsCPK6	-----	LSDEE	-----	IAGLKEMFKAMDT	ASCAITYDEL	KEGLRK-Y	SNLRE	AEIRDLMD	AAADVDK	KAAPS-----	TTSSSP	PSTSTS	-----	WSARSTC	SPSP	ISTATA	AAATSP	-----	STSS	473																	
OsCPK31	-----	MRQR	KAPS	FNSALQEL	FAAYDK	KSQTIS	FEELAE	GLRG-Q	GVVNE	SEVRQLME	KMDMDHD	ENVGG	EFFATL	LDWQ	VMQEQE--	WQSY	QDAFN	RM	DL	GDG	FDL	DEL	LS	ELPA	AYF	HE--	PS	SED	529								
OsCCaMK	-----	NLLG	THDL	TSBEE	-----	LDNR	LRHFG	RICAD	GEN-A	ILSFE	QVFLA	-MKM	SLIPL	APRV	FD	FL	FN	NRD	CTV	DMREIL	CGFSS	-----	RLCF	QMY	DA	DR	SGC	-----	SKEE	AS	MLRAL	PEE	CLPG	DITE	PGK	LD	476
TaCCaMK	-----	SLLG	THDL	SSBEE	-----	LDNR	LRHFG	RICAD	GEN-A	ILSFE	QVFLA	-MKM	SLIPL	APRV	FD	FL	FN	NRD	CTV	DMREIL	CGFSS	-----	RLCF	QMY	DA	DR	SGC	-----	SKEE	AS	MLRAL	PEE	CLPG	DITE	PGK	LD	480
MtCCaMK	-----	SLVG	SYDL	KEBEE	-----	LDNR	LRMH	FKKIC	ARDN-A	ILSFE	FEVFLA	-MN	MLSLI	PFASR	FD	FL	FN	NRD	CTV	DMREIL	CGFSS	-----	RLCF	QMY	DA	DR	SGC	-----	SKEE	AS	MLRAL	PEE	CLPG	DITE	PGK	LD	484



OsCPK18	PLLEEA	-----IDKDGKISLDEERRLLKTA-----	-----SMSSRNVTQPRSVHRS-----	512
TaCPK6	PLLEEA	-----IDKDGKISLDEERRLLKTA-----	-----SMSSRN-PTPRSVSK-----	509
MtCDPK1	PLLEEA	-----IDKDGKISLPEERRLLKTA-----	-----SLGSRNVTSPTLRHRI-----	560
OsCPK4	PLLEEA	-----IDKDGRIISLSEERRKLLKTA-----	-----SMNLPSPRGPPNPQPL-----	522
OsCPK30	VVLQDWI	-----RHADGKISFLGFIKLLH-----	-----GVSSRSIPKA-----	594
OsCPK3	DILQEV	-----TDKDGKISYDEEVAMMKTGTDWRKASRHYSR-----	-----GRFNLSMKLIKDGSVKLVNE-----	551
TaCPK3	DILQEV	-----TDKDGKISYDEEVAMMKTGTDWRKASRHYSR-----	-----GRFNLSMKLVKDGSVKLGVE-----	545
OsCPK16	DILQEV	-----TDKDGKISYEEFVAMMKTGTDWRKASRHYSR-----	-----GRFNLSIRLIKDGSVKLGNE-----	547
TaCPK15	DILQEV	-----TDKDGKISFEEFVAMMKTGTDWRKASRHYSR-----	-----GRFNLSIRLIKDGSVKMGNE-----	551
OsCPK8	SLIRDV	-----TDKDGKISYDEFAVMMKAGTDWRKASRQYSR-----	-----QRFNSLSKLQKDGSIDDTQ-----	538
TaCPK12	GIHHDV	-----TDKDGKISYDEFAAMMKAGTBWRKASRQYSR-----	-----QRFNSLSKLHKDGSIDDQK-----	535
OsCPK20	ALIRDV	-----TDKDGKISYDEFAAMMKAGTDWRKASRQYSR-----	-----ERFTSLSLKLQKDGSLQLTTTQ-----	550
TaCPK7	ALIRDV	-----TDKDGKISFDEEVAMMKAGTDWRKASRQYSR-----	-----ERFTSLSLKLQKDGSLQITSTQ-----	543
OsCPK9	HILREV	-----TDKDGRIISYEEFVAMMKSGTDWRKASRQYSR-----	-----ERFKTLSNSLIKDGSIITMAR-----	574
TaCPK19	HVLLEV	-----TDKDGRIISFEEFVAMMKAGTDWRKASRQYSK-----	-----QRFKLSLSNSLIKDGSIISMAP-----	569
OsCPK21	ELIRDV	-----TDKDGRIISYQEFELMMKSGADWRNASRHFSR-----	-----ANFSTLSRRLCKDITLTP-----	565
OsCPK22	DILRDI	-----TDKDGRIISYQEFESMMISGSDWRNASRRYSK-----	-----ANFSSLSRKLCKGNS-----	577
OsCPK29	DIFLDV	-----IDKDGKISYEEFELMMKSGMDWRNASRQYSR-----	-----AVYNTLSRKIFKEVSLKLDHSGPLVAAGK-----	563
OsCPK1	ELIAEV	-----TDHDGRINYQEFVAMMRNN-----	-----NPE-IVPNR-RRMF-----	518
TaCPK8	DILAEV	-----TDHDGRINYQEFVAMMRNN-----	-----SPE-IVPNR-RRMF-----	518
OsCPK15	ELIAEV	-----TDHDGRINYQEFVAMMRNN-----	-----SPE-IVPNR-RRMF-----	542
OsCPK2	DILSEV	-----ADNDGRIDYSEFAAMMRKG-----	-----NPE-ANPKK-RRDVVI-----	515
TaCPK13	EIVSEV	-----ADNDGRIDYSEFVAMMRKG-----	-----APEGANPKK-RRDVVL-----	518
OsCPK14	DILSEV	-----ADNDGRINYTEFVAMMRKG-----	-----DPE-ANPKK-RRDVVL-----	528
OsCPK25	DVITDA	-----SANDGRIDYSEFVAMMRKGS-----	-----GCAEATNPKKKRRDLVL-----	541
OsCPK26	DVITDA	-----SANDGRIDYSEFVAMMRKGS-----	-----GCAEATNPKKKRRDLVL-----	541
OsCPK12	QVLDEV	-----KDKDGRIDYEEFVEMMRKG-----	-----TQT-----	533
TaCPK18	AVLDEV	-----KDRDGNIDYEEFVEMMRKG-----	-----K-----	534
OsCPK19	DILSEV	-----TDNDGRINYEEFCAMMRGGG-----	-----MQQPMRLK-----	533
TaCPK5	DILSEV	-----TDNDGRINYEEFCAMMRGG-----	-----MQQPIRLK-----	532
ZmCDPK2	ELISEV	-----TDNDGRINYEEFCAMMRGG-----	-----MQQPMRLK-----	513
ZmCDPK9	ELISEV	-----TDNDGRINYEEFCAMMRGG-----	-----MQQPMRLK-----	531
MtCDPK3	ELISEV	-----TDNDGRINYEEFCAMMRSG-----	-----NQOQVKLF-----	538
MtCDPK3	ELISEV	-----TDNDGRINYEEFCAMMRSG-----	-----NQOQVKLF-----	542
OsCPK10	EMIREV	-----QNDNGRIDYNEFVAMMQ-----KPTMGLPAKKSGGLQNSFS-----	-----TGFRREALRMSWETATRVSHTLVEATTTRSICCLP-----	623
ZmCPK10	DILGEV	-----QNDNGRIDYNEFVAMMQ-----	-----KPTVGGSRRRPICRTASASGSASGSRSGWRPLCLWLPCCLRVGVDD-----	639
OsCPK17	DILKDI	-----QNDNGRIDYNEFVTMMR-----	-----KGNPNLGGKG-----QGQLS-FGLREALKLG-----	568
TaCPK9	DILRDI	-----QNDNGRIDYNEFVTMMQ-----	-----KGNPNLGGKG-----QGQMS-FGLREALKIR-----	562
OsCPK11	DILGDI	-----QNDNGRIDYNEFVEMMQ-----	-----KGNNAMGKMG-----QHSTGNFGLGEALKLR-----	576
OsCPK27	DILGEV	-----QNDNGRIDYNEFVAMMQ-----	-----KTTTGFGGKG-----GHNFS--GFRDALKSHS-----	612
OsCPK24	DMIKDV	-----QNDNGRIDYSEFTAMMR-----	-----KGNAG-----GAGRRTMRNSLQLNLGEILNPSNS-----	513
TaCPK4	DMIKDV	-----QNDNGRIDYSEFTAMMR-----	-----KGNAG-----ATGRRTMRNSLNLNLGDILNPSNS-----	514
ZmCPK11	DMIKDV	-----QNDNGRIDYSEFTAMMR-----	-----KGNAG-----ATGRRTMRNSLHLNLGELLNPSKT-----	510
OsCPK28	DMIKDV	-----QNDNGRIDYSEFAAMMR-----	-----KGNAGGANAGVTSSTGGTGRRTMRNSLRVNLGDILKPEN-----	526
OsCPK13	DVINEA	-----QNDNGRIDYGEFVAMMT-----	-----KGNMGVGRRT-----MRNSLNI SMRDAPGAL-----	551
TaCPK2	DVKEA	-----QNDNGRIDYGEFVAMMT-----	-----KGNMGVGRRT-----MRNSLNI SMRDAPGAI-----	558
ZmCDPK1	DVINEA	-----QNDNGRIDYGEFVAMMT-----	-----KGNMGVGRRT-----MRNSLNI SMRDDLVCSET-----	492
ZmCDPK7	DVINEA	-----QNDNGRIDYGEFVAMMT-----	-----KGNMGVGRRT-----MRNSLNI SMRDAPGAF-----	554
OsCPK5	DVKEA	-----QNDNGRIDYGEFVAMMT-----	-----KGNMGVGRRT-----MRNSLNI SMR-----	549
OsCPK7	ELISEV	-----QNDNGRIDYAEFVAMMQ-----	-----GSNVGLGWRT-----MESSLNVALRDAPQVH-----	542
TaCPK1	ELILEA	-----QNDNGRIDYAEFVAMMQNTNGGNIGLGRPT-----	-----METSLNVTLRDAAQVH-----	548
OsCPK23	EMILEV	-----QNDNGRIDYAEFVTMMQ-----	-----SNNFGLGWQT-----VESSLNVALREAPQVY-----	534
OsCPK6	-----	-----TPAGTTTPTLASTTS-----	-----SAKST-----KTTTAASTTASSSQ-----	508
OsCPK31	ERISEA	-----KRMRLREADENGGRISKQEFYNLLRDN-----	-----SAKST-----VAPDSL SMYDDRLSHNVAAMSV-----	584
OsCCaMK	EMFDQM	-----ANDSGKVTDEFKAAAMNKD-----	-----SALQDVLLSSLRPQ-----	516
TaCCaMK	EMFDTM	-----ANDGGEVTFDEFKAAAMQKG-----	-----SALQDEVLLSSLRPGQQ-----	522
MtCCaMK	EMFDLM	-----ANDNGKVTDEFKAAAMQORD-----	-----SSLQDVLLSSLIRP-----	523