

Figure S1

		K757del				
hsCDK12	726	KFDIIGIIGEGTYGQVYKAK--D-KDTGELVALKVVRLDNEKEGFP---ITAIREIKILRQLI---HRSVNMKEIVT [7] FKKDKgaFYLVFEYMDHDLMLGL [1] ---	825			
hsCDK13	704	KFDIIGIIGEGTYGQVYKAR--D-KDTGEMVALKVVRLDNEKEGFP---ITAIREIKILRQLT---HQSIINMKEIVT [7] FKKDKgaFYLVFEYMDHDLMLGL [1] ---	803			
hsCDK9	18	KYEKLAKIQGGTFGEVFKAR--H-RKTGQKVALKVVLMENEKEGFP---pITALREIKILQLLK---HENVVNLIEICR [5] YNRCKgsIYLVDFDFCEHDLAAGL	SNV 117			
hsCDK3	3	MFQKVEKIGEGTYGVVYKAK--N-RETGQLVALKIRLDLEMEG---vpSTAIREISLLKELK---HPNIVRLLDVVH	-NERK--LYLVFEFLSQDLKKYM	DST 94		
hsCDK2	3	NFQKVEKIGEGTYGVVYKAR--N-KLTGEVVALKIRLDTEGEG---vpSTAIREISLLKELN---HPNIVKLLDVIH	-TENK--LYLVFEFLHQLDKKFM	DAS 94		
hsCDK1	9	DYTKIEKIGEGTYGVVYKGR--H-KTTGQVAMKIRLESEEEG---vpSTAIREISLLKELR---HPNIVSLQDVLN	-QDSR--LYLVFEFLSMDLKKYL	DSI 94		
hsCDK20	5	QYICLGRIGEGAGHIVFKAK--H-VETGEI VALKVVRLRLEDEGFP---pNQALREIKALQEME--dnQYVVQLKAVFP	---HGggFVLAFEFMLSDLAEVV	RHA 95		
hsCDK5	9	KYEKLEKIGEGTYGVVYKAK--S-RETGEI VALKVVRLDDDEGFP---vpSSALREICLLKELK---HKNI VRLHDVHL	-SDKK--LTLVFEFCQDLKKYF	DSC 94		
hsCDK11b	168	EFQCLNRIEETGYGVVYRAK--D-KKTDEI VALKVVRLMEKEGFP---pITSLREINTILKAQ---HPNIVTVREIVV [1] SNMdk--IYIVMNYVEHDLKSLM	ETM 261			
hsCDK10	38	EFQCLNRIEETGYGVVYRAK--D-TQTDEI VALKVVRLMEKEGFP---ipISSLREITLLRLR---HPNIVELKEVVV	GNHLE-sIFLVMGYCEQDLASLL	ENM 131		
hsCDK18	179	TYVKLDKLGEGTYATVFKGR--S-KLTENLVALKEIRLEHEEGAPC---TAIREVSLKLNK---HANIVTLHDLIH	-TDRS--LTLVFEYLDSDLKQYL	DHC 263		
hsCDK16	170	TYKLDKLGEGTYATVFKGR--S-KLTENLVALKEIRLEHEEGAPC---TAIREASLLKELK---HANIVTLHDLIH	-TKET--LTLVFEYLDKDLKQYL	DDC 260		
hsCDK17	197	TYIKLEKLGEGTYATVYKGR--S-KLTENLVALKEIRLEHEEGAPC---TAIREVSLKDLK---HANIVTLHDLIH	-TDKS--LTLVFEYLDKDLKQYM	DDC 281		
hsCDK7	11	RYEKLDFLGEQFATVYKAR--D-KNTNQIVAIKKIKLGRHSEAKDginRTALREIKLQELS---HPNIGLDDAFG	-HKSr--ISLVDFEMETDLVETI	KDN 105		
hsCDK6	12	QYECVAIEIGEGAYGKVPKAR--D-KNGGRFVALKVVRLVQTEGEGFP---mpLSTIREVAVLRHLEtfeHPNVVRLFDVCT [4] DRETk--LTLVFEHVQDLITTYL	DRK 112			
hsCDK14	140	SYEKLEKIGEGTYGVVYKAK--S-KVNGKLVAIKVVRLQEEEGFP---TAIREASLLKELK---HANIVLHDLIH	-TKET--LTLVFEYMDHDLKQYM	KHV 224		
hsCDK15	108	SYLNLEKLGEGSYATVYKGI--S-RINGQLVALKVVISMNAEEGVPF---TAIREASLLKELK---HANIVLHDLIH	-TKET--LTLVFEYMDHDLKQYM	SOH 192		
hsCDK4	5	RYEPVAEIGVAYGTVYKAR--D-PHSGHFVALKVVRLVGGGGGgIpISTVREVALRRLAefehPNVVRMLDVCA [4] DREIK--VTLVFEHVQDLRTRYL	DKA 107			
hsCDK1	4	KYEKIGKIGEGSYGVVFKCR--N-RDTGQIVAIKKFLSEDDPV---ikkIALREIRMLKQLK---HPNLVNLLEVFR	-RKRr--LHLVFEYCDHTVLHEL	DRA 95		
hsCDK2	3	KYENLDGVLGEGSYGMVKCR--N-KDTGRIVAIKKFLRQEEEGFP---KIAMREIKLLKQLR---HENLVNLLEVCK	-KKRr--WYLVFEYFMDTLLDDL	ELF 94		
hsMAPK1	27	RYTNLSYIGEGAYGMVCSAY--D-NVNKVRVAIKKIS--PFEHQTYC---QRTLREIKILLRFR---HENIIGINDIIR [4] EQMKD--YVIQDLMETDLYKLL	KTQ 119			
hsMAPK3	47	RYTQLQYIGEGAYGMVSSAY--D-HVRKTRVAIKKIS--PFEHQTYC---QRTLREIQILLRFR---HENVIGIRDILR [4] EAMRD--YVIQDLMETDLYKLL	KSQ 136			
hsMAPK7	54	EYETIETIGNGAYGVSSAR--R-RLTGQVVAIKKIPNAPDVVTNA---KRTLREIKILKHFK---HDNI IAKDILR [5] GEFKS--YVVLDLMSDLHQII [1] --SS	151			
hsMAPK12	26	VYRDLPVGGSGAYGAVCSAV--D-GRTGAKVAIKKFLRPFQSEIFA---KRAYRELRLKHMGR---HENVIGLLDVFT [5] DDFTD--FYLVMFPMQDTLQKML	KHE 123			
hsMAK	3	RYTMRQLGDGTYSVLMGK--S-NEGSELVAIKRMKRKPYSWDEC---MNLREVKSLKLN---HANVIKKEVIR	--END-hLYFIFEYMKENLYQLM [1] DRN	94		
hsCDK19	26	EYE-GCKVGRGTYGHVYKARkd-GKDEKEYALQIE-----GTG-isMSACREIALRELK---HPNVIALQKVFL [1] HSDRK--VWLLFDYAEHDLWHII [6] KAN	117			
hsNLK	137	DIEPDRPIGYGAFGVVSVT--D-PRDGKRVALKKMPNVFQNLVSC---KRVFRELKMLCFK---HDNVLSALDILQ [4] DYFEE--IYVVTLMQSDLHKII	VSP 233			
hsMAPK13	24	TYVSPDTHVGGSGAYGAVCSA--D-KRSGEKVAIKKFLRPFQSEIFA---KRAYRELRLKHMGR---HENVIGLLDVFT [5] RNFYD--FYLVMFPMQDTLQKML	GME 121			
hsMAPK15	12	RYLLRRQLQGAYGIVWKAV--D-RRTGEVVAIKKIFADFRDKTDA---QRTFREITLQEFG--dHPNIIISLLDVIR [1] ENDRD--IYLVFEFMDTDLNAVI	RRG 106			
		R858W				
hsCDK12	826	SGLvHFSEDHIKSFMKQLMEGLECYHKKNFLHRDIKCSNILLN	NSGQIKLADDFGLARLYN	SEes--RPYTNKVITLWYRPELLLGEERYTPAIDVWVSCGCIIGELFTK	932	
hsCDK13	804	SGLvHFENENHIKSMFRQLMEGLDYCYHKKNFLHRDIKCSNILLN	NRGQIKLADDFGLARLYS	SEes--RPYTNKVITLWYRPELLLGEERYTPAIDVWVSCGCIIGELFTK	910	
hsCDK9	118	LV---KFTLSEIKRVMQMLNGLLYIHRNKILHRDMKAANVLIT	RDGVLKADDFGLARAFS [5] QPnr----	YTNRVVTLWYRPELLLGERDYGPPIDLWGAGCIIMAEWTR	225	
hsCDK3	95	PggsELPLHLIKSYLFQLLQGVSFCHSHRVIHRDLKPNLLIN	ELGAIKADDFGLARAFG	VP---LRTYTHEVTLWYRAPELLLGSSTAVDIWSIGICIFAEMVTR	199	
hsCDK2	95	A-ltGIPLPLIKSYLFQLLQGLAFCHSHRVLHRDLKPNLLIN	TEGAIKADDFGLARAFG	VP---VRTYTHEVTLWYRAPELLLGSSTAVDIWSIGICIFAEMVTR	199	
hsCDK1	95	PpgqYMDSSLVKSXYLQLQGVIFVCHSRVLRDLKPNLLID	DKGTIKADDFGLARAFG	IP---IRVVTHEVTLWYRSPVLLGSARYSTPVDIWSIGITFAELATK	200	
hsCDK20	96	QR---PLAQAVKSYLQMLKGVAFCHANNIVHRDLKPNLLIS	ASGQLKIADDFGLARVFS	-Pdg-SRLYTHQVATRWYRAPELLYGARQYDQGVLDVSWGCIIMGELLNG	200	
hsCDK5	95	NG---DLDPBEIVKSYLFQLLQGLGFCHSRNLVHRDLKPNLLIN	ERGELKADDFGLARAFG	IP---VRCYSAEVTLWYRPPDILLGSDYSTQIDMWGVCIFVEMATG	198	
hsCDK11b	262	KQ---PFLPGEVKTLMIQLLRGVHLHDNWLHRDLKTSNLLLS	HAGILKVGDFGLAREYG	SP---LKAYPEVVTWYRAPELLLGAKEYSTAVDMWVSGCIFGELLTQ	365	
hsCDK10	132	PT---PFSEAQVKCIVLQVLRGLQYLHRNFIIHRDLKVSNNLMT	DKGCVKADDFGLARAYG	VP---VKPMTPKVVTWYRAPELLLGTTPQTSTIDMWAVGCI LAELLAH	235	
hsCDK18	264	GN---IIMHNVKLFYQLRGLRAYCHRRKILHRDLKPNLLIN	ERGELKADDFGLARAKS	VP---TKTYSNEVVTWYRPPDVLGSTEYSTPIDMWGVCIFHEMATG	367	
hsCDK16	261	GN---IIMHNVKLFYQLRGLRAYCHRRKILHRDLKPNLLIN	ERGELKADDFGLARAKS	IP---TKTYSNEVVTWYRPPDILLGSDYSTQIDMWGVCIFVEMATG	358	
hsCDK17	282	GN---IIMHNVKLFYQLRGLRAYCHRRKILHRDLKPNLLIN	EKGEKADDFGLARAKS	VP---TKTYSNEVVTWYRPPDVLGSSSEYSTQIDMWGVCIFFEMASG	385	
hsCDK7	106	SL---VLTSPSHIKAYMLTLQGLEYLHQHWILHRDLKPNLLLD	ENGVLKADDFGLARAFS	SP---NRAYTHQVTRWYRAPELLFGARMYGVGDMWAVGCI LAELLLR	209	
hsCDK6	113	PE-pGVPTETIKDMFQLRGLDFLHSHRVVHRDLKPNILVT	SSGQIKLADDFGLARIYS	FQ---M-ALTSVVVTLWYRAPEVLLQSS--YATPVDLWVSGCIFAEMFRR	215	
hsCDK14	225	PG---GLHPDNVKLFLFQLRGLSYIHQRYILHRDLKPNLLIS	DTGELKADDFGLARAKS	VP---SHTYSNEVVTWYRPPDVLGSTEYSTQIDMWGVCIFVEMIQG	328	
hsCDK15	193	PG---GLHPDNVKLFLFQLRGLSYIHQRYILHRDLKPNLLIS	HLGELKADDFGLARAKS	IP---SQTYSSEVVTWYRPPDALLGATEYSSSELDIWGAGCIFIEMFQG	296	
hsCDK4	108	PP-pGLPAETIKDLMRQFLRGLDFLHANCIVHRDLKPENILVT	SGGTVKADDFGLARIYS	YQ---M-ALTPVVVTLWYRAPEVLLQST--YATPVDMWVSGCIFAEMFRR	210	
hsCDK1	96	QR---GVPEHLVKSITWTLQAVNFCFKHNCIHRDVKPENILIT	KHSVIKCLDFGFARLLT	GP---SDYYTDYVATRWYRSPVLLGSDYQYGPVVDVWAIICGVFAELLSG	199	
hsCDK2	95	PN---GLDYQVQKYLFLQINGIGFCSHSNIIHRDLKPENILVS	QSGVVKCLDFGFARTLA	APge---VYTDYVATRWYRAPELLVGDVYKAVDVAICLVTTEMFMG	198	
hsMAPK1	120	H----LSNDHICYFLYQLIRGLKYIHSANVLHRDLKPSNLLLN	TTCDLKICDFGLARVAD	PdhdtGFLTEYVATRWYRAPEIMLSKGYTKSIDIWSVGCILAEMLSN	224	
hsMAPK3	137	Q----LSNDHICYFLYQLIRGLKYIHSANVLHRDLKPSNLLLN	TTCDLKICDFGLARIAD	PEhdhTGFLETVATRWYRAPEIMLSKGYTKSIDIWSVGCILAEMLSN	241	
hsMAPK7	152	QP---LTLEHVRYFLYQLRGLKYMHAQAIVHRDLKPSNLLVN	ENCELKIDDFGMARGLC [1] SpaehQYFMTEYVATRWYRAPEMLSLHEYTQAIIDLWVSGCIFGEMLAR	258		
hsMAPK12	124	K----LGEDIQIRFLYQMLKGLRYIHAAGIIHRDLKPNLAVN	ENCELKIDDFGLARQAD	SE-----MTGYVVTRWYRAPEVLLNWMRYTQVDIWSVGCIMAEMITG	212	
hsMAK	95	KL---FPESIVRNIMYQLQLGLAFIHKHGFHRDMKPNLLCM [2] --ELVKIADDFGLARELR [2] PP-----	YTDYVTRWYRAPEVLLNWSVSPIDVWAVGSIIMAEYML	196		
hsCDK19	118	KKpmlQPRSMVKSLLYQLIDGIIHVLHANVWVHRDLKPNILVM [4] ERGRVKIADMGFARLFN	SP1kplADLDVVVTFWYRAPELLLGGARHYTKAIDIWAIIGCIFAELLTS	230		
hsNLK	234	QP---LSSDHVKVFLYQLIRGLKYIHSAGILHRDKPKNLLVN	SNCVLIKDFGLARVEE	LDes--RHMTQEVVTVYRAPEILMGSRRHYSNAIDIWSVGCIFAELLTG	337	
hsMAPK13	122	----FSEKIQYLVYQMLKGLKYIHSAGVHRDLKPNLAVN	ENCELKIDDFGLARHAD	AE-----MTGYVVTRWYRAPEVILSMWHNYQTVDIWSVGCIMAEMLTG	219	
hsMAPK15	107	GL---LQDVHVRSLFYQLLRATRFLHSGHVHRDKPKNLLLD	ANCTVKLDFGLARSLG [4] Gped--	QAVTEYVATRWYRAPEVILSGVMDLWVSGCILAEMLRG	214	