

	(1)	10	20	30	40	50	60	70	80	90	100	110	120	136			
mPTPsigma D1 (NP 035484) (revised) PTPRS	(1)	ADAEHETERRKANDS	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
mPTPsigma D1 (NP 035484) (revised) PTPRS	(1)	TDAAHEERRKANDS	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
rPTPsigma D1 (NP 062103) PTPrs	(1)	TDAAHEERRKANDS	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
xPTPsigma D1 (AAF43607)	(1)	ADAEHETERRKANDN	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
cPTPsigma D1 (I50212)	(1)	SEAAHEHELKANDN	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
zPTPsigma D1 (CAC44759)	(1)	SEAAHEHELKANDN	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
hPTPdelta D1 (NP 002830) PTPRD	(1)	LEADHEERRKANDN	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
mPTPdelta D1 (D54689)	(1)	LEADHEERRKANDN	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
xPTPdelta D1 (AAF43605)	(1)	LEADHEERRKANDN	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
hLAR D1 (NP 002831) PTPRF	(1)	TDAAHEERRKANDG	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
mLAR D1 (NP 035343) PTPrf	(1)	TDAAHEERRKANDG	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
rLAR D1 (NP 062122) PTPrf	(1)	TDAAHEERRKANDG	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
xLAR D1 (AAF43606)	(1)	TDAAHEERRKANDG	---LKLQSG	DPG	---QQTWEH	---NLEVNP	---AN	LAIDHSRVL	IQPIEGI	---MG	DDIYANY	DDRRQN	---	A	IATIQ		
hPTPrho D1 (NP 573400) PTPRT	(1)	ADLQHQTKRRKGG	---YGRKEV	PEG	---QTASWDT	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
mPTPrho D1 (NP 067439) PTPrt	(1)	ADLQHQTKRRKGG	---YGRKEV	PEG	---QTASWDT	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
xPTPrho D1 (AAD50295)	(1)	ADLQHQTKRRKGG	---YGRKEV	PEG	---QTASWDT	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
hPTPmu D1 (NP 002836) PTPRM	(1)	ADLQHQTKRCABG	---YGRKEV	FFEG	---QSAPWDS	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
mPTPmu D1 (NP 033010) PTPrm	(1)	ADLQHQTKRCABG	---YGRKEV	FFEG	---QSAPWDS	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
hPTPKappa D1 (NP 002835) PTPRK	(1)	ADLQHQNKIKTSDS	---YGRKEV	FFEG	---QSASWDV	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
mPTPKappa D1 (NP 033544) PTPrk	(1)	ADLQHQNKIKTSDS	---YGRKEV	FFEG	---QSASWDV	---KEDNNV	---GN	SYSDHSRVL	LVLDGG	---P	DDIYANY	DDRRQN	---	H	IATIQ		
hPTPlambda D1 (NP 056595) PTPRU	(1)	ADLQHQNKIKTAEQ	---YGRKEV	FFEG	---WD	---TKKKDL	LVGG	QEP	SAIRRH	HK	HPMLAD	---P	DDIYANY	DDRRQN	---	H	IATIQ
mPTPlambda D1 (NP 035344) PTPrl	(1)	ADLQHQNKIKTAEQ	---YGRKEV	FFEG	---WD	---TKKKDL	LVGG	QEP	SAIRRH	HK	HPMLAD	---P	DDIYANY	DDRRQN	---	H	IATIQ
rPTPpsi D1 (AAB42210) PTPru	(1)	ADLQHQNKIKTAEQ	---YGRKEV	FFEG	---WD	---TKKKDL	LVGG	QEP	SAIRRH	HK	HPMLAD	---P	DDIYANY	DDRRQN	---	H	IATIQ
hPTPaamma D1 (NP 002832) PTPRG	(1)	KQFKVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
mPTPaamma D1 (NP 033007) PTPrg	(1)	KQFKVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
rPTPaamma D1 (NP 599183) PTPra	(1)	IFPDDHEAEPVQKFG	---KSGHG	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
cPTPaamma D1 (Q98936)	(1)	KQFKVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
hPTPzeta D1 (NP 002842) PTPRZ	(1)	KHFVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
rPTPzeta D1 (NP 033544) PTPRz	(1)	KHFVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
cPTPzeta D1 (AA49015)	(1)	KHFVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
xPTPzeta D1 (BA97445)	(1)	KQFKVHGGKSNNAQ	---HGSEDE	QRC	---TADMNITAEH	NHNP	---IN	LAIDHSRVL	RFLPGKDSKH	DDIYANY	DDRRQN	---	A	IATIQ			
hPTPaloha D1 (NP 002827) PTPRA	(1)	DRLEEEENRMADDN	---KLREFFNA	---	ACPIQATCEA	SKEKNE	---VN	LYDHSRVL	TPVEGV	---P	DDIYANY	DDRRQN	---	K	IATIQ		
mPTPaloha D1 (AAK56109) PTPra	(1)	DRLEEEENRMADDN	---KLREFFNA	---	ACPIQATCEA	SKEKNE	---VN	LYDHSRVL	TPVEGV	---P	DDIYANY	DDRRQN	---	K	IATIQ		
rPTPaloha D1 (NP 036895) PTPra	(1)	DRLEEEENRMADDN	---KLREFFNA	---	ACPIQATCEA	SKEKNE	---VN	LYDHSRVL	TPVEGV	---P	DDIYANY	DDRRQN	---	K	IATIQ		
xPTPaloha D1 (AAA17990)	(1)	DRLEEEENRMADDN	---KLREFFNA	---	ACPIQATCEA	SKEKNE	---VN	LYDHSRVL	TPVEGV	---P	DDIYANY	DDRRQN	---	K	IATIQ		
cPTPaloha D1 (AAB04150)	(1)	DRLEEEENRMADDN	---KLREFFNA	---	ACPIQATCEA	SKEKNE	---VN	LYDHSRVL	TPVEGV	---P	DDIYANY	DDRRQN	---	K	IATIQ		
zPTPaloha D1 (NP 574963) pTPra	(1)	DRLEEEENRMADDN	---KLREFFNA	---	ACPIQATCEA	SKEKNE	---VN	LYDHSRVL	TPVEGV	---P	DDIYANY	DDRRQN	---	K	IATIQ		
hPTPpsilon D1 (NP 002824) PTPRS	(1)	EHLEEEERVSADD	---KREFFNS	---	SGHIOGTFL	NKKE	---FN	LNDCSRVL	SQVDGI	---P	DDIYANY	DDRRQN	---	K	IATIQ		
mPTPpsilon D1 (NP 035342) PTPrs	(1)	EHLEEEERVSADD	---KREFFNS	---	SGHIOGTFL	NKKE	---FN	LNDCSRVL	SQVDGI	---P	DDIYANY	DDRRQN	---	K	IATIQ		
rPTPpsilon D1 (XP 215102) PTPrs	(1)	EHLEEEERVSADD	---KREFFNS	---	SGHIOGTFL	NKKE	---FN	LNDCSRVL	SQVDGI	---P	DDIYANY	DDRRQN	---	K	IATIQ		
hCD45 D1 (NP 002829) PTPRC	(1)	DIILEYTKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
mCD45 D1 (NP 035340) PTPrc	(1)	DIILEYTKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
rCD45 D1 (XP 213985) PTPrc	(1)	DIILEYTKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
cCD45 D1 (AA5080)	(1)	DIILEYTKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
cypcCD45 D1 (BA992179)	(1)	GGVLETKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
fcCD45 D1 (CA992148)	(1)	GGVLETKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
sharkCD45 D1 (NP 035341) PTPrc	(1)	GGVLETKRIADG	---RLLAFFOS	---	RVFSPFKPK	DRKFFN	---VD	LYDHSRVL	VESEINGD	---A	GTINASD	DDRRQN	---	K	IATIQ		
hDEP1 D1 (NP 002834) PTPRP	(1)	ENFEAYFKKQADSN	---CGAEVYD	---	LVGISQPKY	AEIAIA	---GN	LYDHSRVL	SVQVTHS	---T	DDIYANY	DDRRQN	---	D	IATIQ		
rDEP1 D1 (NP 058965) PTPri	(1)	ENFEAYFKKQADSN	---CGAEVYD	---	LVGISQPKY	AEIAIA	---GN	LYDHSRVL	SVQVTHS	---T	DDIYANY	DDRRQN	---	D	IATIQ		
mDEP1 D1 (NP 033008) PTPri	(1)	ENFEAYFKKQADSN	---CGAEVYD	---	LVGISQPKY	AEIAIA	---GN	LYDHSRVL	SVQVTHS	---T	DDIYANY	DDRRQN	---	D	IATIQ		
hPTPbeta D1 (NP 002828) PTPRB	(1)	NQFEGHMKQADSN	---YLLSKVDR	---	DVGRSQSD	ILLP	---GN	LYDHSRVL	SNVDDP	---P	DDIYANY	DDRRQN	---	E	IATIQ		
mPTPbeta D1 (NP 084204) PTPrb	(1)	NQFEGHMKQADSN	---YLLSKVDR	---	DVGRSQSD	ILLP	---GN	LYDHSRVL	SNVDDP	---P	DDIYANY	DDRRQN	---	E	IATIQ		
rPTPbeta D1 (XP 235156) (revised)	(1)	NQFEGHMKQADSN	---YLLSKVDR	---	DVGRSQSD	ILLP	---GN	LYDHSRVL	SNVDDP	---P	DDIYANY	DDRRQN	---	E	IATIQ		
hGLEPSP D1 (NP 109592) PTPRO	(1)	DDFDVYKDKAKSDS	---YKSLQRE	---	LIGLDI	PHAFD	---PL	LNDCSRVL	VMNME	---E	GTINASD	DDRRQN	---	E	IATIQ		
rGLEPSP D1 (NP 059032) PTPro	(1)	DDFDVYKDKAKSDS	---YKSLQRE	---	LIGLDI	PHAFD	---PL	LNDCSRVL	VMNME	---E	GTINASD	DDRRQN	---	E	IATIQ		
mPTPphi D1 (NP 035346) PTPrh	(1)	DDFDVYKDKAKSDS	---YKSLQRE	---	LIGLDI	PHAFD	---PL	LNDCSRVL	VMNME	---E	GTINASD	DDRRQN	---	E	IATIQ		
rAbPTP D1 (AAB16824)	(1)	DDFDVYKDKAKSDS	---YKSLQRE	---	LIGLDI	PHAFD	---PL	LNDCSRVL	VMNME	---E	GTINASD	DDRRQN	---	E	IATIQ		
hPTP31 D1 (AOC73855) PTPGMC1	(1)	KSFLLQKQADSN	---LKEQEFSE	---	KFLQDLS	TD	---PL	LNDCSRVL	VMNME	---E	GTINASD	DDRRQN	---	E	IATIQ		
rPTGMC1 D1 (NP 075214) PTPrh	(1)	KSFLLQKQADSN	---LKEQEFSE	---	KFLQDLS	TD	---PL	LNDCSRVL	VMNME	---E	GTINASD	DDRRQN	---	E	IATIQ		
hSAP1 D1 (NP 002833) PTPRH	(1)	EDFADHRENEKSDN	---CGAEVYD	---	LVGHSQCMV	SASNA	---RN	LYDHSRVL	PKFHEE	---P	DDIYANY	DDRRQN	---	E	IATIQ		
mSAP1 D1 (BAC37443)	(1)	KDFADHRENEKSDN	---CGAEVYD	---	LVGHSQCMV	SASNA	---RN	LYDHSRVL	PKFHEE	---P	DDIYANY	DDRRQN	---	E	IATIQ		
rPTPBEM2 D1 (NP 598276)	(1)	KDFADHRENEKSDN	---CGAEVYD	---	LVGHSQCMV	SASNA	---RN	LYDHSRVL	PKFHEE	---P	DDIYANY	DDRRQN	---	E	IATIQ		
mPTPESP D1 (NP 031981) PTPri	(1)	HSFQSYEAKSARRA	---QAQFQRE	---	EVGQDQRL	SEHPTA	---TT	PH	LNDCSRVL	QLSGSE	---P	DDIYANY	DDRRQN	---	E	IATIQ	
rPTPSTP D1 (NP 149090) Etp	(1)	HSFQSYEAKSARRA	---QAQFQRE	---	EVGQDQRL	SEHPTA	---TT	PH	LNDCSRVL	QLSGSE	---P	DDIYANY	DDRRQN	---	E	IATIQ	
hCOP1 D1 (NP 002825) PTPRC	(1)	SRILTRSLQROVAVSS	---HLQSEFME	---	MNVDPK	IEDIRPHGT	---KT	LNDCSRVL	PKMIVD	---P	DDIYANY	DDRRQN	---	K	IATIQ		
rCOP1 D1 (NP 446046) PTPrc	(1)	SRILTRSLQROVAVSS	---HLQSEFME	---	MNVDPK	IEDIRPHGT	---KT	LNDCSRVL	PKMIVD	---P	DDIYANY	DDRRQN	---	K	IATIQ		
mPTPSSL D1 (NP 035347) PTPri	(1)	SRILTRSLQROVAVSS	---HLQSEFME	---	MNVDPK	IEDIRPHGT	---KT	LNDCSRVL	PKMIVD	---P	DDIYANY	DDRRQN	---	K	IATIQ		
hSTEP D1 (NP 116170) PTPNS	(1)	SRILTRSLQROVAVSS	---HLQSEFME	---	MNVDPK	IEDIRPHGT	---KT	LNDCSRVL	PKMIVD	---P	DDIYANY	DDRRQN	---	K	IATIQ		
mSTEP D1 (NP 038671) PTPns	(1)	SRILTRSLQROVAVSS	---HLQSEFME	---	MNVDPK	IEDIRPHGT	---KT	LNDCSRVL	PKMIVD	---P	DDIYANY	DDRRQN	---	K	IATIQ		
rSTEP D1 (NP 062126) PTPns	(1)	SRILTRSLQROVAVSS	---HLQSEFME	---	MNVDPK	IEDIRPHGT	---KT	LNDCSRVL	PKMIVD	---P	DDIYANY	DDRRQN	---	K	IATIQ		
hHePTP D1 (NP 002823) PTPN7	(1)	SPTRALQROVAVSS	---KQLEEFMLK	---	SNFVSP	KEDIDIPGHAS	---DK	LNDCSRVL	QGRAGSO	---E	DDIYANY	DDRRQN	---	K	IATIQ		
mHePTP D1 (NP 796055) PTPn7	(1)	SPTRALQROVAVSS	---KQLEEFMLK	---	SNFVSP	KEDIDIPGHAS	---DK	LNDCSRVL	QGRAGSO	---E	DDIYANY	DDRRQN	---	K	IATIQ		
rHePTP D1 (NP 049445) PTPn7	(1)	SPTRALQROVAVSS	---KQLEEFMLK	---	SNFVSP	KEDIDIPGHAS	---DK	LNDCSRVL	QGRAGSO	---E	DDIYANY	DDRRQN	---	K	IATIQ		
hSH1 D1 (NP 002824) PTPN6	(1)	ADENRRLENNKQESDTRAKG	WESEF	---TQ00	---EVL												

