

↓ Beta 1 domain

Sasa-DAB -----MSMSI-FCVSLTLVLVLSI---FSGTDGYFEQVVRQCRYSSKDLQIEFIDSVFNKAKEYVRFNSTVGVKYGVTGELGVKNAEAWNKG
Onmy-DAB .....P.A.YIC...LW...---.....H.R.T...F.E.H.M.Y.....Q...I.....RF.....H.L.....SD
Sasa-DBB -----MYVLNCFSIHL.L.FS.LSEVVDSS.ED.AHDDAW..F..R..HNM.Y.LEHH...ILVAQY...TERWT...AW..IS..K..ED
Onmy-DBB .....K..R.YIC.AVA..T---LYE...ASD..TR.L...I.MH.A...Q..T...V.HL.....EF.....L...KRL.R.
Orla-DAB -----DSSSL--CL.F.T---LCSA.AFM.YA.NR.EFN.S..TD..Y.Y.MYY.RK..A..S.SL.....F.....RF..D
Orla-DBB .....
Xima-DAB -----LGW.LVLIIT---INAA..FR.YSADR.VFN.T..ND.Q..R..IY..K.FL..D.NL.RL.....M...RL..D
Gaac-DAB -----APS.ISVSL.FIG---LHAA..FMMF.TDE.VFN.TE.KD...R.SY...K.DT..S.S...F..F..Q...I.AN...D
Gaac-DBB -----APS.ISVSL.FIG---LHAA..FMMF.VFN.TE.KD..Y...F...L.LT..S.S...F..F..Y..R...Y..NN
Dila-DAB -----ASS.LSFSL.FIIS---LYTA..FLNYS.DR.DFN.T.PKN..Y.R..YY..L.LL..S.S..E.....RL..D
Fuhe-EST1 -----
Fuhe-EST2 -----MASSLTW.L.FIT---VHSAGAFM.YR.VR.VFN.SE.ND..Y...CY..K..A..S.S.....F.....R...SD
Taru-EST -----SSSLRVFL.FI---LYTAG.FQYY..SR.SFN.T..KD..YSR.VVY..LM.A..S.S...FE...KY.LFQ.DY..NQ
Icpu-DAB -----KLLKIL.IVLPVAV---LHTAH.N.LSQPDW.IW.KE..SDM.Y.KPLII..IK.LEY.....V.....I...DRF..D
Cyca-DAB -----LKLILFHPHILMLSAF---TGTA..Y.YTMYE.V..TS.YSDMVVLV.LS..QVVD.QC..SAV.C.....E...Y..NF..D
Dare-DAB -----MYLLKPFVLVILMLSTF---TGTA..YDYIKQ..F..TS.YSDMVYLA..S...VVDTQ...S..F.....Q.LIF..NF..D
Dare-DCB -----MQFSRVACLAMILSAL---LEKVC.NYGYLQS...VL.S-TKKV.L.F.FI...I..I.Y...DQ.I.....F.E.FV.NYKNN
Dare-DBB -----
Pipr-EST1 -----MSLPKVLFSFHILMLSAF---TGAAN...YS.WSK.IW..H..SDMVY..N.I...DVFIQ.....F.....H..Y...LR.NN
Pipr-EST2 -----MSVRKGLFHFHILMLSAF---IGTA..Y.YIMSE.F..TS.YSDMVLLQ..S...VVD.QY..SL..F.....E...Y..N...D
Pipr-EST3 -----MSVPGLEWSFQHILMLSVL---TGAA...YFHQWT..I...P..SDMVY.EGFY...YPF.K.....F..F..F..RI..NY.ND
Dare-EST -----MLSVF---TGAA...YSSTWS..I..YP.FRDM...VG.Y...WMDIQ.....F.....Q...F..NF..D
Pipr-EST4 -----MRLHWKQNTMERT.RLT.V..GLAFCCV.SK.V.VF.NIVE.E..KV..SDMVY.IKL...QKLLCSYD.RL.....D.Y.I...DHY.SQ
Ximu-DXB -----MAQAQG.TVFLVFLV---.PGGAFYLS.RER.QF..S.GHDAVLL.QVY...ILE.EY...MI...KTEAL.IIL.NN
Gaac-EST -----MTVRPESRSDHVPAAV.VKCSAADGH..F.MHDSFVN.NMQTARP.QV.YLVDWY...EFTMQY...WT.F.AA.LVS.AVF.GN
Gici-DAB -----LGGVASRSLWIRIPFLIAV..IFNGERD..AGAHCFDQLHR.VFN.S--KDWV.LEQ..YDQELIAYDYDNQR..IAVKAWMKS.VDR..SE
HLA-DRB1 MVCLKLPGG.CMTALT.T.MVLS.RLALAGD.RPR.LWQLKFECHFNGTERVRLLERCIY.QE.S...D.D..E.RAVE...RPD..Y..SQ
+++ + + + + + + +

↓ Beta 2 domain

Sasa-DAB P-ELAVELGELERFCKHN-AAIYSAILDKTVEPHVRLLSSVAPPSSGR-HPAMLMCSAYDFYPKPIRVTWLDRGREVKSQVSTTEELANGDWY
Onmy-DAB AGI.GQ.QVQ..SY.....D.....T.....Q.....
Sasa-DBB .D.IPRRRDTMGVL..PY..NRI.N.TEMFM...N.T.RLEG.S.DS---S.V..VHF...H.....N.E..T.....DV...L.S.
Onmy-DBB Q..VVQMR.....L..P...D.H.R.....T.....
Orla-DAB TS..S.RRAQK.TY...-ID.D.QTA.S.S.Q.R..VQ.L..SG.H---V..V.....T...S...GKE..S.....A.MED.
Orla-DBB -----Q.S.MIE..T.SG.H---V..V.....T...S...GKE..S.....A.MED.
Xima-DAB QSQI.ALKAQK.TY.LN.-VGVW.QTK.T.S.A.T..F.TT..A.H--S.V.RV.....T.K.Q...Q..T...T.D.MED....
Gaac-DAB ASF.SAMKAQK.VY.LNH-VPV..T.A.T.SA..Y..H.ET..G.G-PLS..V..V.....K.I.R.T...PETTG...D...D...
Gaac-DBB .SY.SAMKAQK.VY.LNH-VPV...NA.T.SA..Y..H.ET..G.G-PLS..V..V.....K.I.R.T...PETTG...D...D...
Dila-DAB .S...AMRAQK.TY.LTT-VN.D.Q.V...S.K.Y...R...A.K--S.V..V..F..H..S...Q..T...D...DA..F.
Fuhe-EST1 TSYIEGLKAQRDTY.LN.-VG.D.QVA.T.S...Y..IH.E..SG.GGQHG..V.GV.S...T.K.....Q..T...T...PD...
Fuhe-EST2 .SLI.GLKAQK.TY.LNH-VTA..P.A.T.S.A.T..IVH.TT..A.S--V.RV.....N.K.S.R..Q..T...T.D.MED....
Taru-EST SSI.EQVRDNK..Y.Q...-IKNW..N..S..S..E.IYH..V..A.G--V..V...RY.K.S.Q...E..SQ...D...D...F.
Icpu-DAB .AFMQGLKA..DSV..N.-VGN...G..S...Q.KVKL.KKSD.T...T...S...PA.S...N.K.I.GG...M.D...
Cyca-DAB .SV.QDLKTSVDTY.RS.-.QLAD.SVR..A.Q.KIT.R.AQAG-S.R..V...E...K.K.S...K.MT...M.M..N.F.
Dare-DAB QAY.HQLKAQVDT..R..R.WD..VR..A.L.E.TIK..RQAE..-V.L..E...K.KMS...K..T...M.M.D...
Dare-DCB TFV.VLAEFGIDNCK.IAK.L.SDGMNLHV..K.E.IIR..TEAK.N-QK.F.V...A.KL..M.NDKK.TA...I..M.D...
Dare-DBB -----K.T.V...TQAN..-I...E...RH.K.S..KG.KA.T.E...M.M.D...
Pipr-EST1 SDI.QS.RA.V...Y..-E.DQRT.T..S.P.Q.K...TQAG...V...R.QIS.M..KV...M.D...
Pipr-EST2 GAS.QQLKAQVDT..RP.-.Q.FD.NVR..A.K.E.T...KQAE.N--V...E...K.K.S...KLIT...M.M.D...
Pipr-EST3 .QI.QQTRAQVDV..R...-EFTEA.VYN...Q.R.K.R..M.GDDT--LV..V...EQ.K.S.YK..VVMT...P...L.
Dare-EST QAL.QQKKS.VDSI.R..-E..E..VF..A.K.K.N.NL.QKGDG--YL.K.N...QQ.KMS..KN.K-MV.EL..S.KKP..N...
Pipr-EST4 GWKMKQRKE...TL.RA--.RL.VNSTRRK.P.V.TVRPTKKAHYG-QLST.V.H..N..QA.NI...L..S..TG..I...FMD...R.
Ximu-DXB .EFITH.IWKTN-L..R.-TPLAQKVLTP..Y.Q.RLEKAEYSQ-.QQ..I...Q.....K..T...D..P..N.L.
Gaac-EST HFDVLQRKE.RRLI.VD.-VGHALN.TE.NMAA.S...AEASGSGHN--TT.V...GR..LA...Q..T.GA.FS.VTT..N.T.
Gici-DAB G--AEEQYQ.AKAY.E.-IPVM.ESA.ARQ..K.TIRTKESTYPG-PS.I.I.Y.VG..AK.S...KN.QK.SDADVTV.L.S...T.
HLA-DRB1 KDL.EQKR.QVDNY.R..-YGVGE.FTVQRR...K.TVYPSKTQPLQ--HNL.V..VSG...GS.E.R.F.N.Q.E.AG.V..GLIQ...TF
+ + + + + + + +

↓ CP/ TM/ Cyt

Sasa-DAB QIHSLEYTPRSGEKISCMVEHISLTPMVIYHWDPSLPEAERN--KIAIGASGLVLGAILALAGLIYKSSGVL-----
Onmy-DAB .....K.....M.....T.....
Sasa-DBB .Q.Y.K...TT..R.T...Q...KL.Y...KS.K---V..VC..L..VVFVV...WA.STGRL.GLIGERDYGTCD--
Onmy-DBB .....K.....M.....T.....
Orla-DAB .....K...A..KD.L.TD...M..S...-V...I..LV.S..F...R.AR.RILVPSS-----
Orla-DBB .....K...A..KD.L.TE...M..S...-V...I..LV.S..F...R.AR-----
Xima-DAB .V..Q.....R..R..V..K..LITD...M..S...-L...I..L.S..F...R.AR.RILVPTS-----
Gaac-DAB .T.....V.....SK.L.TD.N.M..S...-V...I..LT.S..F...R.AR.RILVPSH-----
Gaac-DBB .T.....V.....SK.L.TD.N.M..S...-V...I..LT.S..F...R.AR.RILVPSH-----
Dila-DAB .....V...A..R..L.TD...M..S...-I..L.S..F...R.AR.RILVPSN-----
Fuhe-EST1 .V..T.....A..K..LITD.N..MS...-L...I..LV.S..F...R.AR.RILVPTN-----
Fuhe-EST2 .V..N.....A..K..LIT.N..MS...-L...I..LV.S..F...R.AR.RILVPTN-----
Taru-EST .L.....V...A..KT.L.KD...M..S...-Q.....I..L.S..F..F.R..R.RILVNN-----
Icpu-DAB .V...M.E..E..V.Q.A.F.K..N.K..S.M..PDKS-----IV.SA..F.....RILVPT-----
Cyca-DAB ...E...K.....A.FSK..ITD...G.....I..I.A.....A.RILVNP-----
Dare-DAB .....K.....Q.L..A..Q.LTKD.N.HIS.SD---F.....I..I.I.....T.RILVNP-----
Dare-DCB .....F.QP.....V.D.A.FHK..I.Y...T..S---IL..V..LM.IFT.A.V...R.QT-----
Dare-DBB ...E...P.....A.SS...I.D...S---SLL...FGD.IHNSAV..IL..R...T.LRRLD-----
Pipr-EST1 .....K.....A.D.AG..K.IIVD...M..P.....I..I.A.....IT.RILVPS-----
Pipr-EST2 .....E...K.....V...A..SPQ.I.KD.N.M.DI...S.....I..I.A.....RILVNP-----
Pipr-EST3 ...E...A.QQ...V...A.FSK...PV..F.L.VELLL.VETA..M..ITT.A..F...IRTGL-----
Dare-EST .N..E.VFN.K...T...S.S.RTI.IELK.PVH.V.WEFQLLS.ARD.SA...I..I.A..YFPTD-----
Pipr-EST4 .M...DLVLRH.VSV...R...SG.EK.L.VQ..STSLDFRIA--L.V.CFSFL..L.V.FSAAYI.Y.RXH-----
Ximu-DXB ...TY..F..KP...T..L..A..K.K.NL.D.E--E.DSKWS--V.V.SA..L..LVFSI..F...T.N.RVVVPTTEDVCPEETL
Gaac-EST .S..S.F..GGRDRV..K...AG.QK.ALRT.AAHGARDWETG--FLVG.VCA.L..ACLS...VHRR.Y.NIS-----
Gici-DAB .VRQY.Q.E.VY.D.YT.H...S...S..SVD.EVESTSKSEK--T..IV.VL.FGF.L.IL..V.MRL.NAKAI.DSNHGPRMLMGPVAVS
HLA-DRB1 .TLVM..IV...VYT.Q...P.V.S.LTVE.RARSES.QSK---MLS.VG.F...LLFLG...FI.FRNQK.HSGLQPTGFLS-----