

#NEXUS

begin data;
dimensions ntax=225 nchar=595;
format interleave datatype=protein missing=X gap=-;

matrix
DmeGlob1 -----
GauGlob1A -----
GauGlob1B -----
LcuGlob1 -----
MdoGlob1 -----
CcaGlob1 -----
MscGlob1a -----
MscGlob1b -----
MscGlob1c -----
MscGlob1d -----
GinGlob1 -----
LloGlob1 -----
PpaGlob1 -----
MdeGlob1 -----
BmoHbL -----
ScyHbL -----
AasHbL -----
HvirHbL -----
SfrHbL1 -----
SliHbL -----
BanHbL -----
DplHbL3 -----
DplHbL1 -----
DplHbL2 -----
SfrHbL2 -----
TcaHbL1 -----
TcaHbL2 -----
DpoHbL1 -----
DceHbL -----
LkoHbL -----
LmiHbL1 -----
RflHbL -----
ZneHbL1 -----
BgeHbL1 -----
BgeHbL2 -----
LysHbL -----
LfuHbL3 -----
LfuHbL2 -----
BspHbL -----
EdaHbL1 -----
IscHbL1 -----
IscHbL3 -----
CexHbL1 -----
AmeHbL -----
BteHbL1 -----
NviHbL -----
CflHbL -----
SinHbL -----
BteHbL2 -----
MgiHbL -----
SsuHbL -----
DviHbL -----
SjeHbL -----
IscHbL2 -----
StuHbL -----
DpuHbH -----
FocHbL -----
CmaHbL -----
DpuHbA -----
DpuHbD -----
DpoHbL2 -----
EdaHbL2 -----
ApiHbL -----

MpeHbL	-----
MhiHbL	-----
DciHbL	-----
HsaNgb	-----
DreNgb	-----
BflGb4	-----
BflGb1	-----
BflGb2	-----
BflGb5	-----
BflGb9	-----
SkoGb1	-----
SkoGb3	-----
SkoGb4	-----
SkoGb2	-----
SkoGb5	MHRKAVAILYVVV-----
BflGb8	-----
AsaHbT1-9	-----
PhuGbX	-----
ApiGbX	-----
AgoGbX	-----
BtaGbX	-----
DciGbX	-----
PveGbX	-----
CleGbX	-----
HhaGbX	-----
OfaGbX	-----
ZneGbX	-----
BgeGbX	-----
LfuGbXa	-----
LfuGbXb	-----
LfuGbXc	-----
EdaGbX	-----
CexGbX1	-----
CexGbX2	-----
HazGbXb	-----
SmaGbX	-----
SkoGb7	-----
XtrGbX	-----
DreGbX	-----
SkoGb10	-----
SkoGb16	-----
SkoGb9	-----
SkoGb8	MSRFTSRLSSSTLDNFEAISNLG-WEKKLYEHSSTRTFRTRKRKLTIHNY
PhuHbL1	-----
IscHLb4	-----
GgaGbE	-----
MgaGbE	-----
HsaCygb	-----
DreCygb1	-----
XtrGbY	-----
OanGbY	-----
HsaMb	-----
DreMb	-----
HsaHbA	-----
DreHbA	-----
HsaHbB	-----
DreHbB	-----
SkoGb11	-----
SkoGb14	-----
SkoGb12	-----
SkoGb13	-----
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AaeGbXL	-----
PpaGbXL	-----
BmoGbXLa	-----
SfrGbXLa	-----
DplGbXLa	-----
TcaGbXL	-----
DpoGbXL	-----
ApiGbXL	-----

AgoGbXL	-----
NluGbXL	-----
HvitGbXL	-----
CleGbXL	-----
HhaGbXL	-----
RprGbXL	-----
OfaGbXL	-----
ZneGbXL	-----
BgeGbXL	-----
FocGbXL	-----
MdeGbXL	-----
AmeGbXL	-----
BteGbXL	-----
NviGbXL	-----
CflGbXL	-----
SinGbXL	-----
CriGbXL	-----
LfuGbXL	-----
MmoGbXL	-----
PhuGbXL	-----
EdaGbXL	-----
CmaGbXL	-----
HazGbXL	-----
BmoGbXL	-----
AasGbXL	-----
SfrGbXL	-----
DplGbXL	-----
SmaGbXL	-----
CexGbXL	-----
MocGbXL	-----
IscGbXL	-----
CexGbXL	-----
SkoGb15	-----
SkoGb6	-----
BflGb12	-----
BflGb3	-----
BflGb6	-----
BflGb13	-----
BflGb14	M-----
CinGb1	-----
CinGb2	-----
CinGb3	-----
CinGb4	MKIIICGLILFST-FAIIFVSGLNCWTCNVL-GGNNVCRRSGLRTRCFNNQ
MsaLegHb	-----
LluLegHb	-----
CexHbL2	-----
CexHbL3	-----
IscHbL5	-----
DpuHbB	-----
DpuHbG	-----
DpuHbC	-----
DpuHbE	-----
DpuHbF	-----
DpuHbK	-----
DpuHb1-1	MQFLKIAL-----FFAFVA-----
CriHb2B	-----
CriHb6	-----
CriHbE	-----
CriHb3A	-----
BflGb10	-----
BflGb15	-----
BflGb7	-----
BflGb11	-----
BtaHbL	-----
AgaGlob1	-----
AaeGlob1	-----
CquGlob1a	-----
CquGlob1b	-----
AgaGlob2	-----
AaeGlob2	-----

CquGlob2	-----	
CclHbL	-----	
LsaHbL	M-----	
CcalHbL1	-----	
CcalHbL2	-----	
CcalHbL3	-----	
MocHbL1	-----	
DpuHb1-2	-----	
NluHbL	-----	
BmaHbL	-----	
HvitHbL3	-----	
DmeGlob2	-----	
DmeGlob3	M-----	
CcaGlob2	-----	
GauGlob2	M-----	
LcuGlob2	-----	
MdoGlob2	-----	
HvitHbL2	-----	
EdaHbL3	MRFL-----	
PhuHbL2	-----	
PhuHbL3	-----	
PspHbL2	-----	
DmeGlob1	-----	
GauGlob1A	-----	
GauGlob1B	-----	
LcuGlob1	-----	
MdoGlob1	-----	
CcaGlob1	-----	
MscGlob1a	-----	
MscGlob1b	-----	
MscGlob1c	-----M-----	
MscGlob1d	-----M-----	
GinGlob1	-----	
LloGlob1	-----	
PpaGlob1	-----	
MdeGlob1	-----	
BmoHbL	-----MGT-----	WFSYM-WW-
ScyHbL	-----MGN-----	WISQF-WW-
AasHbL	-----MGH-----	WLSQY-WW-
HvirHbL	-----MGG-----	WLSYF-WW-
SfrHbL1	-----MGG-----	LLSYI-WW-
SliHbL	-----MGA-----	LLTYI-WW-
BanHbL	-----MGS-----	WLTYF-WW-
DplHbL3	-----MGS-----	WLTYL-WW-
DplHbL1	-----MGG-----	LLNRM-WW-
DplHbL2	-----MGG-----	IVSRI-WW-
SfrHbL2	-----MGVGD-----	IVTRW-WW-
TcaHbL1	-----MGI-----	ITSTL----
TcaHbL2	-----MGQ-----	LIS-L----
DpoHbL1	-----MGT-----	VLSYI----
DceHbL	-----MGG-----	LLSYF-YGQ
LkoHbL	-----MGS-----	VLSYL-WSG
LmiHbL1	-----MGA-----	LLSFL-WGG
RflHbL	-----MSG-----	
ZneHbL1	-----MGS-----	VLTYF-WGR
BgeHbL1	-----MGG-----	ILSYF-LG-
BgeHbL2	-----MGN-----	LLNAL-SG-
LysHbL	-----MGG-----	VVSYF-FA-
LfuHbL3	-----MGG-----	ILSLL-YRS
LfuHbL2	-----MGL-----	
BspHbL	-----MSG-----	IVNTI-LGL
EdaHbL1	-----MGG-----	FLSYL-LGS
IscHbL1	-----MG-----	
IscHbL3	-----MG-----	
CexHbL1	-----MGS-----	SWSTL-LV-
AmeHbL	-----MGT-----	FLRFLGIS-
BteHbL1	-----MGT-----	FLRFFGFS-
NviHbL	-----MGS-----	SGSLF-WG-
CflHbL	-----MAW-----	FRGLF-NF-

SinHbL	-----MAL-----FRGLF-HF-
BteHbL2	-----MGS-----VLTYF-LG-
MgiHbL	-----MS-----AG-
SsuHbL	-----
DviHbL	-----MGS-----VLSYF-LG-
SjeHbL	-----MGI-----VWSVF----
IscHbL2	-----MSW-----
StuHbL	-----MSL-----LLGFM----
DpuHbH	-----MSHTS-----PNGSQLLEDL----
FocHbL	-----MGA-----ILSYL-WS-
CmaHbL	-----MGA-----VLSVV-WGW
DpuHbA	-----
DpuHbD	-----
DpoHbL2	-----MGI-----ITSYF----
EdaHbL2	-----MGG-----LMSRG----
ApiHbL	-----M-----
MpeHbL	-----M-----
MhiHbL	-----M-----
DciHbL	-----MT-----
HsaNgb	-----
DreNgb	-----MEK-----
BflGb4	-----MGTIA-----DGEGETELNGY----
BflGb1	-----MGA-----FLT KP-FSL
BflGb2	-----MGG-----ALGKP-LSL
BflGb5	-----MGSL-----
BflGb9	-----MGSW-----
SkoGb1	-----
SkoGb3	-----
SkoGb4	-----
SkoGb2	-----MES-----TESNT----
SkoGb5	-----MAE-----LMSYA----
BflGb8	-----MS-----
AsaHbT1-9	-----
PhuGbX	-----MGS-----SVAHH----
ApiGbX	-----MGN-----AGTTR----
AgoGbX	-----MGN-----AGTTR----
BtaGbX	-----MGN-----TGTTR----
DciGbX	-----MGN-----TGTTR----
PveGbX	-----MGN-----AGTTR----
CleGbX	-----MGN-----AAPGR----
HhaGbX	-----MGN-----VAAGR----
OfaGbX	-----MGN-----VSAVR----
ZneGbX	-----MGN-----ASSHH----
BgeGbX	-----MGN-----ASSHH----
LfuGbXa	-----MGN-----SAHSR----
LfuGbXb	-----MGN-----SVHSR----
LfuGbXc	-----MGN-----SAHSR----
EdaGbX	-----MG-----
CexGbX1	-----MGC-----VPAKSVSNLPYGL
CexGbX2	-----MGC-----KYTKTVNAN----
HazGbXb	-----MKKKT SIDVDWSKFKFASSDGNSVSRK----
SmaGbX	-----MGV-----ESSKTSKL----
SkoGb7	-----MGC-----SNSSH----
XtrGbX	-----MGC-----ILSSL----
DreGbX	-----MGC-----AISGS----
SkoGb10	-----MGC-----S-----
SkoGb16	-----MGC-----LI-----
SkoGb9	-----MGN-----EVAKS----
SkoGb8	TIYPA---GLFLLTVYNAMGC-----GSSKI----
PhuHbL1	-----MG-----
IscHLb4	-----MGN-----ILT-----
GgaGbE	-----
MgaGbE	-----
HsaCygb	-----ME-----
DreCygb1	-----MEGD-----
XtrGbY	-----
OanGbY	-----MVQ-----
HsaMb	-----
DreMb	-----MA-----
HsaHbA	-----

DreHbA	-----	-----
HsaHbB	-----	-----
DreHbB	-----	-----
SkoGb11	-----MGC-----	-----ANSHH----
SkoGb14	-----MGC-----	-----TESIG----
SkoGb12	-----MGC-----	-----
SkoGb13	-----MGC-----	-----SVSTS----
AgaGbXL	-----MGC-----	-----ELTK----
AaeGbXL	-----MGC-----	-----ELTK----
PpaGbXL	-----MGC-----	-----QLGK----
BmoGbXLa	-----MGC-----	-----QLGK----
SfrGbXLa	-----MGC-----	-----QLGK----
DplGbXLa	-----MGC-----	-----QLGK----
TcaGbXL	-----MGC-----	-----ELGK----
DpoGbXL	-----MGC-----	-----ELGK----
ApiGbXL	-----MGC-----	-----DLGK----
AgoGbXL	-----MGC-----	-----DLGK----
NluGbXL	-----MGC-----	-----ELGK----
HvitGbXL	-----MGC-----	-----ELGK----
CleGbXL	-----MGC-----	-----ELGK----
HhaGbXL	-----MGC-----	-----ELGK----
RprGbXL	-----MGC-----	-----ELGK----
OfaGbXL	-----MGC-----	-----ELGK----
ZneGbXL	-----MGC-----	-----ELGK----
BgeGbXL	-----MGC-----	-----ELGK----
FocGbXL	-----MGC-----	-----ELGK----
MdeGbXL	-----MGC-----	-----ELGK----
AmeGbXL	-----MGC-----	-----ELGK----
BteGbXL	-----MGC-----	-----ELSK----
NviGbXL	-----MGC-----	-----KLGK----
CflGbXL	-----MGC-----	-----ELSK----
SinGbXL	-----MGC-----	-----ELSK----
CriGbXL	-----MGC-----	-----ELGK----
LfuGbXL	-----MGC-----	-----ELGK----
MmoGbXL	-----MGC-----	-----KMSK----
PhuGbXL	-----MGC-----	-----AKST----
EdaGbXL	-----MGC-----	-----ELGK----
CmaGbXL	-----MGC-----	-----HITK----
HazGbXLa	-----MGC-----	-----QLTKA----
BmoGbXLb	-----MGC-----	-----ELTK----
AasGbXL	-----MGC-----	-----QLTK----
SfrGbXLb	-----MGC-----	-----ELSK----
DplGbXLb	-----MGC-----	-----KLSQ----
SmaGbXL	-----MGC-----	-----SFVK----
CexGbXLa	-----MGC-----	-----RFGK----
MocGbXL	-----MGC-----	-----TLSK----
IscGbXL	-----MGC-----	-----TLSK----
CexGbXLb	-----MGT-----	-----SLSK----
SkoGb15	-----MGC-----	-----TVSTK----
SkoGb6	-----MGC-----	-----TSSA----
BflGb12	-----MGS-----	-----GASRP----
BflGb3	-----MGC-----	-----SASMT----
BflGb6	-----MGC-----	-----AAS-----
BflGb13	-----MGC-----	-----EMSTD----
BflGb14	-----G-----ANMGC-----	-----SNSKK----
CinGb1	-----	-----
CinGb2	-----	-----
CinGb3	-----	-----
CinGb4	VCYNEVRRRG---NTINIRKGC-----	-----KNSGV----
MsaLegHb	-----	-----
LluLegHb	-----MGA-----	-----
CexHbL2	-----MGC-----	-----NVGRQ----
CexHbL3	-----MGC-----	-----SVGRQ----
IscHbL5	-----MGY-----	-----GVSRQ----
DpuHbB	-----	-----
DpuHbG	-----MLVH-----	-----
DpuHbC	-----MTRLILAL-----	-----CALLSLA-VGQ
DpuHbE	-----MSWLILVF-----	-----CSILSLS-AGQ
DpuHbF	-----MSMFILVL-----	-----CAVLSLS-AGQ
DpuHbK	-----MSK-----	-----ALRFY----

DpuHb1-1	-----LAS-----SSS-----
CriHb2B	-----MKFL-----VLALC-----
CriHb6	-----MKFL-----VLALC-----
CriHbE	-----MKFI-----ILALC-----
CriHb3A	-----M-----
BflGb10	-----
BflGb15	-----
BflGb7	-----
BflGb11	-----
BtaHbL	-----
AgaGlob1	-----MSGPGS-----LVGS-----
AaeGlob1	-----
CquGlob1a	-----MFNS-----
CquGlob1b	-----MNE-----IYET-----
AgaGlob2	-----
AaeGlob2	-----
CquGlob2	-----
CclHbL	-----MSI-----
LsaHbL	-----VTMSL-----
CcalHbL1	-----MAA-----VIAPP-----
CcalHbL2	-----MAT-----KIAAP-----
CcalHbL3	-----MGA-----TVSTT-----
MochHbL1	-----
DpuHb1-2	-----
NluHbL	-----MSGLQILVL-----RSLFGRISLQ-----
BmaHbL	-----MPK-----
HvitHbL3	-----MAS-----GRRTSDN-----
DmeGlob2	-----MSQISKLT-----HISRI-----
DmeGlob3	-----MSEEVIAK-----NISLSSL-----
CcaGlob2	-----MPP-----
GauGlob2	-----IDS-----
LcuGlob2	-----MAT-----
MdoGlob2	-----MSF-----
HvitHbL2	-----MAKKLNC-----
EdaHbL3	-----ISC-----VLSMV-----
PhuHbL2	-----
PhuHbL3	-----MSKN-----
PspHbL2	-----MAC-----
DmeGlob1	-----
GauGlob1A	-----
GauGlob1B	-----
LcuGlob1	-----
MdoGlob1	-----
CcaGlob1	-----
MscGlob1a	-----
MscGlob1b	-----
MscGlob1c	-----
MscGlob1d	-----
GinGlob1	-----
LloGlob1	-----
PpaGlob1	-----
MdeGlob1	-----
BmoHbL	-----
ScyHbL	-----
AasHbL	-----
HvirHbL	-----
SfrHbL1	-----
SliHbL	-----
BanHbL	-----
DplHbL3	-----
DplHbL1	-----
DplHbL2	-----
SfrHbL2	-----
TcaHbL1	-----SY-----
TcaHbL2	-----YKY-----
DpoHbL1	-----TPA-----
DceHbL	-----
LkoHbL	-----SAAN-----
LmiHbL1	-----GGA-----

RflHbL	-----QT-----
ZneHbL1	-----EPN-----
BgeHbL1	-----SK-----
BgeHbL2	-----SG-----
LysHbL	-----PG-----
LfuHbL3	-----GDG-----
LfuHbL2	-----
BspHbL	-----FGLR-----
EdaHbL1	-----DGGA-----
IscHbL1	-----NE-----
IscHbL3	-----SI-----
CexHbL1	-----SK-----
AmeHbL	-----
BteHbL1	-----
NviHbL	-----
CflHbL	-----
SinHbL	-----
BteHbL2	-----
MgiHbL	-----
SsuHbL	-----
DviHbL	-----FFV-----
SjeHbL	-----TGK-----
IscHbL2	-----
StuHbL	-----
DpuHbH	-----
FocHbL	-----
CmaHbL	LS-----PG-----TQVGAVTFPEEGS-----
DpuHbA	-----
DpuHbD	-----
DpoHbL2	-----GR-----
EdaHbL2	-----
ApiHbL	-----
MpeHbL	-----
MhiHbL	-----
DciHbL	-----
HsaNgb	-----
DreNgb	-----
BflGb4	-----G-----
BflGb1	VGRLWLK-----VLFSW-----
BflGb2	VKTLWLK-----VLFSW-----
BflGb5	-----
BflGb9	-----
SkoGb1	-----
SkoGb3	-----
SkoGb4	-----
SkoGb2	-----PVKETT-----
SkoGb5	---VCLPVNGTSDALT-FDEFKIERANLMQYQSA-----
BflGb8	-----
AsaHbT1-9	-----
PhuGbX	-----KNHSNSIDGNST-----
ApiGbX	-----RGSIF-----
AgoGbX	-----RGSIF-----
BtaGbX	-----RNSLF-----
DciGbX	-----RNSLF-----
PveGbX	-----RNSLF-----
CleGbX	-----RNSML-----
HhaGbX	-----RGSVL-----
OfaGbX	-----RGSVL-----
ZneGbX	-----KVGIG--GVSA-----
BgeGbX	-----KAGGV-----
LfuGbXa	-----M-----
LfuGbXb	-----
LfuGbXc	-----
EdaGbX	-----VK-----
CexGbX1	-----G-----
CexGbX2	-----
HazGbXb	-----
SmaGbX	-----CRHG-----QNAAPACVNSGMST-----
SkoGb7	-----
XtrGbX	-----

DreGbX	-----GL-----
SkoGb10	-----
SkoGb16	-----
SkoGb9	-----
SkoGb8	-----NG-----
PhuHbL1	-----
IscHlb4	-----
GgaGbE	-----
MgaGbE	-----
HsaCygb	-----KVP-----
DreCygb1	-----
XtrGbY	-----
OanGbY	-----
HsaMb	-----
DreMb	-----
HsaHbA	-----
DreHbA	-----
HsaHbB	-----
DreHbB	-----
SkoGb11	-----VQTNSSLKL-----
SkoGb14	-----TAVAGM-----
SkoGb12	-----TP-----
SkoGb13	-----
AgaGbXL	-----LASS-----
AaeGbXL	-----LASS-----
PpaGbXL	-----LSGV-----
BmoGbXL	-----LAAS-----
SfrGbXL	-----LAAS-----
DplGbXL	-----LAAS-----
TcaGbXL	-----LASS-----
DpoGbXL	-----LASR-----
ApiGbXL	-----LASS-----
AgoGbXL	-----LASS-----
NluGbXL	-----LALA-----
HvitGbXL	-----LAQM-----
CleGbXL	-----LTRI-----
HhaGbXL	-----LTKS-----
RprGbXL	-----LTKG-----
OfaGbXL	-----LTKS-----
ZneGbXL	-----LVMV-----
BgeGbXL	-----LVAA-----
FocGbXL	-----LAAS-----
MdeGbXL	-----LAAS-----
AmeGbXL	-----LA-----
BteGbXL	-----LA-----
NviGbXL	-----LASS-----
CflGbXL	-----LATT-----
SinGbXL	-----LASS-----
CriGbXL	-----LASS-----
LfuGbXL	-----LGLV-----
MmoGbXL	-----SGST-----
PhuGbXL	-----
EdaGbXL	-----LSSK-----
CmaGbXL	-----NKKN-----
HazGbXL	-----LTEGDGKSPTSPNAPNGPK-----
BmoGbXLb	-----MIKS-----
AasGbXL	-----LAAS-----
SfrGbXLb	-----LASS-----
DplGbXLb	-----LASS-----
SmaGbXL	-----HSNG-----AGE
CexGbXL	-----TVPS-----
MocGbXL	-----AVTSLV-----
IscGbXL	-----TLSSLV-----RGS
CexGbXLb	-----GSYG-----
SkoGb15	-----P-----
SkoGb6	-----ASDR-----
BflGb12	-----TPRKR-----
BflGb3	-----G-----
BflGb6	-----IKFA-----
BflGb13	-----G-----QALSSVI-----

BflGb14	-----MSHE-----
CinGb1	-----
CinGb2	-----
CinGb3	-----
CinGb4	-----CENHIMQSM-----
MsaLegHb	-----
LluLegHb	-----
CexHbL2	-----TVLK GK-----
CexHbL3	-----SVLKGN-----
IscHbL5	-----SVLRGE-----
DpuHbB	-----
DpuHbG	-----YILTAILVVVLE--TRP-GR
DpuHbC	S-PYNDRFSGGIGSGSWYRGGMSGGGPFVTTTTVTTVLD--LST-GMT
DpuHbE	S-PFNEGIPGGVESGGY--GDSTMRGSGPFVTTTTVTTILD--FNPAGMS
DpuHbF	SILFKEG-----TQGPFIAATTTVTTTFD--FNPAGVP
DpuHbK	-----
DpuHb1-1	-----SCSQAPGTTITSVTTTVT--TV----
CriHb2B	-----
CriHb6	-----
CriHbE	-----
CriHb3A	-----
BflGb10	-----
BflGb15	-----
BflGb7	-----
BflGb11	-----
BtaHbL	-----
AgaGlob1	-----
AaeGlob1	-----
CquGlob1a	-----
CquGlob1b	-----
AgaGlob2	-----
AaeGlob2	-----
CquGlob2	-----
CclHbL	-----
LsaHbL	-----
CcalHbL1	-----
CcalHbL2	-----
CcalHbL3	-----
MocHbL1	-----
DpuHb1-2	-----
NluHbL	-----NNLPAQTVAQ-----
BmaHbL	-----
HvitHbL3	-----
DmeGlob2	-----
DmeGlob3	-----
CcaGlob2	-----
GauGlob2	-----
LcuGlob2	-----
MdoGlob2	-----
HvitHbL2	-----
EdaHbL3	-----
PhuHbL2	-----
PhuHbL3	-----
PspHbL2	-----
DmeGlob1	-----
GauGlob1A	-----
GauGlob1B	-----
LcuGlob1	-----
MdoGlob1	-----
CcaGlob1	-----
MscGlob1a	-----
MscGlob1b	-----
MscGlob1c	-----
MscGlob1d	-----
GinGlob1	-----
LloGlob1	-----
PpaGlob1	-----
MdeGlob1	-----
BmoHbL	-----GGD-----

ScyHbL	-----GGD-----
AasHbL	-----GGD-----
HvirHbL	-----GGD-----
SfrHbL1	-----GGD-----
SliHbL	-----GGD-----
BanHbL	-----GGD-----
DplHbL3	-----GGD-----
DplHbL1	-----GGD-----
DplHbL2	-----GGV-----
SfrHbL2	-----GGD-----
TcaHbL1	-----YMTK-----
TcaHbL2	-----YTTR-----
DpoHbL1	-----NSGR-----
DceHbL	-----
LkoHbL	-----AAIE-----
LmiHbL1	-----TPAL-----
RflHbL	-----DESN-----
ZneHbL1	-----DDPE-----
BgeHbL1	-----DDPS-----
BgeHbL2	-----SNAN-----
LysHbL	-----NDPN-----
LfuHbL3	-----PE---EMDGPM-----
LfuHbL2	-----RHSTAV-----
BspHbL	-----QNAG-----
EdaHbL1	-----PQ---EELPAK-----
IscHbL1	-----LGAN-----
IscHbL3	-----VSSQ-----
CexHbL1	-----SDTS-----
AmeHbL	-----SSD-----
BteHbL1	-----SSD-----
NviHbL	-----SAN-----
CflHbL	-----FLD-----
SinHbL	-----FLN-----
BteHbL2	-----NPD-----
MgiHbL	-----VK-----
SsuHbL	-----MDPS-----
DviHbL	-----NQGR-----
SjeHbL	-----PEYH-----
IscHbL2	-----LFGSAS-----
StuHbL	-----YTGE-----
DpuHbH	-----QREQPE---TIASSD-----
FocHbL	-----PSL-----
CmaHbL	-----LGPE-----
DpuHbA	-----
DpuHbD	-----
DpoHbL2	-----ELER-----
EdaHbL2	-----EPVDV---WPKGVD-----
ApiHbL	-----
MpeHbL	-----
MhiHbL	-----
DciHbL	-----
HsaNgb	-----
DreNgb	-----
BflGb4	-----
BflGb1	-----WVKQ-----
BflGb2	-----WVKP-----
BflGb5	-----SAKE-----
BflGb9	-----WGKP-----
SkoGb1	-----
SkoGb3	-----
SkoGb4	-----
SkoGb2	-----EINP-----
SkoGb5	-----KLAKE-----L-----
BflGb8	-----
AsaHbT1-9	-----
PhuGbX	-----GTEQVQSSSSNQTPIK--VKPSNNQKQRRKTFSS-----
ApiGbX	-----SKQDSTGD-----
AgoGbX	-----SKQDSTGD-----
BtaGbX	-----TKQDSSSS-----
DciGbX	-----LKQESGDEP-----PSHKKE-----GVT-----

PveGbX	-----LKQESGEE-----GHKKE----GVT
CleGbX	-----SKEGSVNE-----
HhaGbX	-----SKESSITDSK-----
OfaGbX	-----SKEGSIADSKG-----
ZneGbX	-----GSEKTVRGDV-----TASGNEQAKEGDT
BgeGbX	-----AEKVPPGDL-----GKNGAE-----
LfuGbXa	-----SKEGSDGSP-----KSLRQK----SLS
LfuGbXb	-----NAKDNGQESA-----
LfuGbXc	-----LAKEGSADCS-----PRSFHRK-----
EdaGbX	-----NSKLI EAKCPGA-----PNSPARK----S
CexGbX1	-----
CexGbX2	-----LKKKEANKKNS-----P-----
HazGbXb	-----PSQDCDDTSAA-----PS-----W
SmaGbX	-----SMTGKEFCEN-----
SkoGb7	-----N---CVSPKK-----
XtrGbX	-----
DreGbX	-----TAGAPE-----
SkoGb10	-----
SkoGb16	-----
SkoGb9	-----
SkoGb8	-----
PhuHbL1	-----
IschLb4	-----
GgaGbE	-----
MgaGbE	-----
HsaCygb	-----GEME-----
DreCygb1	-----
XtrGbY	-----
OanGbY	-----
HsaMb	-----
DreMb	-----
HsaHbA	-----
DreHbA	-----
HsaHbB	-----
DreHbB	-----
SkoGb11	-----
SkoGb14	-----RGNNVHI-----
SkoGb12	-----SINERDFQ-----
SkoGb13	-----TENGNFV-----
AgaGbXL	--SNGGNS-----KSNLPLSLDAC-----
AaeGbXL	--N--GGG-----KGNNVPSLDAC-----
PpaGbXL	--SKGE-----DGQAFAPNEMP-----
BmoGbXLa	--ERRGNNAG-----P-VTDG-----
SfrGbXLa	--ERRGNNAG-----PAISDG-----
DplGbXLa	--ERRGNNQD-----LGDG-----
TcaGbXL	--GGSGNHRK-----PDESA-----
DpoGbXL	--DNRNGARK-----FEEPT-----
ApiGbXL	--ATSGDDRG-----GKHKDVLEPP-----
AgoGbXL	--ATSGDDRG-----GKHKDALQEP-----
NluGbXL	--QRGGSNGGSDVGMQEGGGGQRGG-----
HvitGbXL	--QRGGSEGG-----PNRGADDP-----
CleGbXL	--SGSGNSEG-----REPPP-----
HhaGbXL	-----GAEQA-----
RprGbXL	--GGNSRDAG-----DAREPPP-----
OfaGbXL	--AGS-----PVEAARPPP-----
ZneGbXL	--HRDAGEGS-----KGRHGEAGPPP-----
BgeGbXL	--PRG-----EEEEP-----
FocGbXL	--ERGGGRGGG-----GDGGGKDDIP-----
MdeGbXL	-----TKSDGAYGQPD-----
AmeGbXL	-----TP-----
BteGbXL	-----TP-----
NviGbXL	--TTSQI-----QNARSGRESPP-----
CflGbXL	--KSRN-----QTGNDG-SSPP-----
SinGbXL	--KSRN-----QAGNDGSSPPP-----
CriGbXL	--SSSKK-----EIENGTVSEPA-----
LfuGbXL	--QRE-----RKSGDEVPEPP-----
MmoGbXL	--STASGSKSNN-----NRNGKVLLEPP-----
PhuGbXL	--QNGGRGGG-----GGSGDLKGDEK-----
EdaGbXL	--GNRAGK-----DTAKDGNLNPP-----
CmaGbXL	--KETE-----EVKVIDLPEPP-----

HazGbXLa	NNKKKKKKDKD-----IDANGKLEPP-----
BmoGbXLb	--E-----PHDLMNQPP-----
AasGbXL	--EF-----NHDLIDRPP-----
SfrGbXLb	--EF-----NNHDALDRPP-----
DplGbXLb	--EF-----SHDPFEKPP-----
SmaGbXL	EGRSAKSSAGK----SGVVNAVDTPA-----
CexGbXLa	-----VKDQNDQTDPP-----
MocGbXL	--HKGSERSAG----VGRVGDVEDPP-----
IscGbXL	EGRKGSNSGTG----GSEADPVADPP-----
CexGbXLb	--FSKKG-----QDGISPLDDPP-----
SkoGb15	-----DLYSQNGDADPYKK-----
SkoGb6	-----PSKNDPLLDPP-----
BflGb12	-----KAKKGPLPSPQ-----
BflGb3	-----MGRAGPALPEPE-----
BflGb6	-----DLKNESLPEPE-----
BflGb13	-----RKDRSELYKSPG-----
BflGb14	-----SESANSGDSTPPKS-----
CinGb1	-----
CinGb2	-----
CinGb3	-----
CinGb4	-----STPNPNNQCVNGPNYF-CS-----C
MsaLegHb	-----
LluLegHb	-----
CexHbL2	-----
CexHbL3	-----
IscHbL5	-----
DpuHbB	-----
DpuHbG	ECPRG-----YKASSSGQRDPS-----
DpuHbC	KTFHSSNPPSSG---GSSGGERYSSYGGGY-----
DpuHbE	RSMRS-----YPSASERSY-----
DpuHbF	RA-----RSSACDRTH-----
DpuHbK	-----APGSDRRHH-----
DpuHb1-1	-----
CriHb2B	-----
CriHb6	-----
CriHbE	-----
CriHb3A	-----
BflGb10	-----
BflGb15	-----
BflGb7	-----
BflGb11	-----
BtaHbL	-----
AgaGlob1	-----DEEE-----
AaeGlob1	-----
CquGlob1a	-----EHHE-----
CquGlob1b	-----EQGE-----
AgaGlob2	-----
AaeGlob2	-----
CquGlob2	-----
CclHbL	-----
LsaHbL	-----
CcalHbL1	-----P---VVKEGD-----
CcalHbL2	-----S---CAGEGD-----
CcalHbL3	-----D---QTHAND-----
MocHbL1	-----
DpuHb1-2	-----
NluHbL	-----RLFSAD-----
BmaHbL	-----
HvitHbL3	-----LRNSRPDGRRQPG-----
DmeGlob2	-----SQNNQSDGSDEDK-----
DmeGlob3	-----
CcaGlob2	-----
GauGlob2	-----
LcuGlob2	-----
MdoGlob2	-----
HvitHbL2	-----
EdaHbL3	-----FLLE-----
PhuHbL2	-----
PhuHbL3	-----
PspHbL2	-----

DmeGlob1	-----
GauGlob1A	-----
GauGlob1B	-----
LcuGlob1	-----
MdoGlob1	-----
CcaGlob1	-----MA---
MscGlob1a	-----ME---
MscGlob1b	-----MIE---
MscGlob1c	-----DLE---
MscGlob1d	-----DLD---
GinGlob1	-----
LloGlob1	-----MPG---
PpaGlob1	-----MPS---
MdeGlob1	-----MAS---
BmoHbL	-----P-DVVNPVSG---
ScyHbL	-----P-DEVNPISG---
AasHbL	-----P-DEANPVSG---
HvirHbL	-----P-DVVNPVSG---
SfrHbL1	-----P-DEVNPISG---
SliHbL	-----P-DVVNEISG---
BanHbL	-----P-DAVNPLTG---
DplHbL3	-----P-DLVNPLSG---
DplHbL1	-----P-DGVNPVSG---
DplHbL2	-----P-DAVQAYSG---
SfrHbL2	-----P-DERNKVSG---
TcaHbL1	-----T-NDPDPITG---
TcaHbL2	-----T-DDPDPITT---
DpoHbL1	-----S-DDPDPVTG---
DceHbL	-----S-NEPDPATG---
LkoHbL	-----C-DVPDPDTG---
LmiHbL1	-----P-EVADPVTG---
RflHbL	-----L-DTPGPSTG---
ZneHbL1	-----L-DIPHPTTG---
BgeHbL1	-----M-DIPDKATG---
BgeHbL2	-----L-DVPDPATG---
LysHbL	-----D-DIPESITG---
LfuHbL3	-----V-DVPDEATG---
LfuHbL2	-----D-NTPDPVTG---
BspHbL	-----L-DVEDPATG---
EdaHbL1	-----W-DEPEPATG---
IscHbL1	-----T-QHRDTITE---
IscHbL3	-----Q-DVPDAKTG---
CexHbL1	-----A-DSVDPATG---
AmeHbL	-----D-NRIDQATG---
BteHbL1	-----D-NRIDEATG---
NviHbL	-----D-NVLNPATG---
CflHbL	-----D-NKLDEKIG---
SinHbL	-----D-NKVDEKLG---
BteHbL2	-----D-DVDPKLG---
MgiHbL	-----N-GAQEILMG---
SsuHbL	-----L-DISDPVTG---
DviHbL	-----I-NDANPVTG---
SjeHbL	-----L-DIPDPITG---
IscHbL2	-----A-DMPSTKTG---
StuHbL	-----G-DDPDPATG---
DpuHbH	-----D-NPIDPVTG---
FocHbL	-----S-TEVDPATG---
CmaHbL	-----A-DVPDKTTG---
DpuHbA	-----MDV---
DpuHbD	-----MDV---
DpoHbL2	-----D-DDPDPKTG---
EdaHbL2	-----P-DLIDPETG---
ApiHbL	-----ASS---
MpeHbL	-----ASS---
MhiHbL	-----TDSKKI---
DciHbL	-----TYEQLVSN---
HsaNgb	-----
DreNgb	-----
BflGb4	-----GEKEPGGGHGG

BflGb1	-----I-ETPSDVTG----
BflGb2	-----I-ETPNDDVTG----
BflGb5	-----D-GTPDDVTG----
BflGb9	-----VD-NTPDDITG----
SkoGb1	-----MADPVTT-----
SkoGb3	-----MA-----
SkoGb4	-----MS-----
SkoGb2	-----D-DIPDEVTT-----
SkoGb5	-----EVPNAVTT-----
BflGb8	-----TDRSAVVS-----
AsaHbT1-9	-----PQNA-----
PhuGbX	SLGIRGSFDFRGSSLSFRSRGSFDV-GSSKPDQC-SPV-LEEQRPEP----
ApiGbX	-----DGSTRHNKRLSSRQNT----FLEEEEFPPPEP-PVLPPPEP----
AgoGbX	-----DGSTRHNKRLSSRQNT----FLEEEEFPPPEP-PALPPPEP----
BtaGbX	-EVGSTPGGGGGRKMTITSRQST----LKEEE-----N-ELGPPPKP----
DciGbX	HSIARRLTLGGKGLGLGSRQNT----LLEEEIV-PPC-VNSPPPEP----
PveGbX	HSIARRLTLGGKGLGLGSRQNT----LIEEESV-PPC-VNNPPDP-----
CleGbX	-----ASRQNT----LTAD-----QQGPQRA-----
HhaGbX	-----PSRQNT-----L-AEDSPPEP-----
OfaGbX	-----GSRQNT-----V-AEEPTPEP-----
ZneGbX	KPGSKVAANNHQDHQQHRKRSSVI--GGGEREGD-----IAVVRPEE----
BgeGbX	-----FEEQEQRKRSSV----GVESDRD---V-IPLVCEP-----
LfuGbXa	CAESTEFPKAANDATAAAENGPK----SKSVV-----M-ELNVKPEP----
LfuGbXb	SKAAPPKPVDDGNDAGFDKNSAL-KHRAFE-----M-ELDVKPEP----
LfuGbXc	-SLSRRESSEQNKRKSDASGATPAENGLEVKVI---E-RDPVTAKK----
EdaGbX	LEPVPEPAKTPENMTSCCETIPIV--LAPLE-----LESIGPPP----
CexGbX1	-----GFKGGVPF-----
CexGbX2	-----LLKDEKPD-----
HazGbXb	HRPSKGSFDLGRVALRFTKRSSTDK--GID-----GPALEEEPPPAE----
SmaGbX	-----ENA-YDDVESWV-----
SkoGb7	-----EDS-MEQLPPTS-----
XtrGbX	-----GWQWRDSLHD-----TET-SPLLPTLN----
DreGbX	-----IRP-GEEETPAG----
SkoGb10	-----NSTADKPK-----
SkoGb16	-----SSNGEHPM-----
SkoGb9	-----SRSSTSQS-----
SkoGb8	-----NVVEEKPE-----
PhuHbL1	-----LGSSKSEP-----
IscHLb4	-----K-SLPDSRTG-----
GgaGbE	-----MS-----
MgaGbE	-----MS-----
HsaCygb	-----I-ERRERSEE-----
DreCygb1	-----GGV-QLTQSPDS-----
XtrGbY	-----MAD-----
OanGbY	-----
HsaMb	-----MG-----
DreMb	-----
HsaHbA	-----MV-----
DreHbA	-----MS-----
HsaHbB	-----MVH-----
DreHbB	-----MVE-----
SkoGb11	-----QKQ-KTVDSAVS-----
SkoGb14	-----ANLSKSPR-----
SkoGb12	-----TPVDDKHL-----
SkoGb13	-----QLSDSVDI-----
AgaGbXL	-----GP-PPVDSRLP-----
AaeGbXL	-----GP-PPTDSRLP-----
PpaGbXL	-----KQ-AKTDSRLP-----
BmoGbXLa	-----PP-PATDPRLP-----
SfrGbXLa	-----PP-PATDPRLP-----
DplGbXLa	-----PP-PATDPRLP-----
TcaGbXL	-----PP-ATVDPRLP-----
DpoGbXL	-----PPQVQVDPRLP-----
ApiGbXL	-----SP-GPPDPRLP-----
AgoGbXL	-----SP-GPPDPRLP-----
NluGbXL	-----AP-AKPDPRLP-----
HvitGbXL	-----AP-APPDPRLP-----
CleGbXL	-----SAP-APSDPRLP-----
HhaGbXL	-----SP-PKQDPRLP-----
RprGbXL	-----QPP-APTDPRLP-----

OfaGbXL	-----PQ-QQSDPRLP----
ZneGbXL	-----PP-EPPDPRLP----
BgeGbXL	-----AP-PQADPRLP----
FocGbXL	-----AP-PATDPRLP----
MdeGbXL	-----EP-PPHDPRLP----
AmeGbXL	-----NQ-PTTDPRLP----
BteGbXL	-----NQ-PTTDPRLP----
NviGbXL	-----PP-PATDPRLP----
CflGbXL	-----PP-AATDPRLP----
SinGbXL	-----PP-AATDPRLP----
CriGbXL	-----AP-APPDPRLP----
LfuGbXL	-----AP-APTDPRLP----
MmoGbXL	-----PP-QPPDPRLP----
PhuGbXL	-----PP-PQTDPRLP----
EdaGbXL	-----AP-APPDPRLP----
CmaGbXL	-----EP-PPPDPRLP----
HazGbXL	-----PP-PALDPRLP----
BmoGbXL	-----PPSDPRCP----
AasGbXL	-----PPADPRSP----
SfrGbXL	-----PPADPRSP----
DplGbXL	-----PPSDPRSP----
SmaGbXL	-----AP-APVDPRLP----
CexGbXL	-----PP-APTDPRIIP----
MocGbXL	-----PP-PPDPSP----
IscGbXL	-----PP-PPDPSP----
CexGbXL	-----IP-AAPDPRLP----
SkoGb15	-----KKV-APVDSRLP----
SkoGb6	-----PP-QELDPRIIP----
BflGb12	-----PP-KPLDPRLK----
BflGb3	-----AP-PPVDPRLP----
BflGb6	-----AP-LPPDPRLP----
BflGb13	-----IG-DREDWRLP----
BflGb14	-----STP-SALDERLP----
CinGb1	-----MP----
CinGb2	-----MG----
CinGb3	-----MS----
CinGb4	CCGNSVCNSNWLTCVTAGSVAPT-----VST-TVPPADEG----
MsaLegHb	-----MS----
LluLegHb	-----MS----
CexHbL2	-----TEEQLLAN----
CexHbL3	-----IEPQLSKN----
IscHbL5	-----VDPDLSNS----
DpuHbB	-----MS----
DpuHbG	-----TKS-ESQRILENF----
DpuHbC	-----GGGEKNKFTEGS-SGTSPLMNI----
DpuHbE	-----HYGDKKFGS----
DpuHbF	-----YDSDKKYGS----
DpuHbK	-----GGSEKKLF-----EEFGLQRS----
DpuHb1-1	-----T-ADESDSGL----
CriHb2B	-----IAAAVAAP----
CriHb6	-----IAAASAASV----
CriHbE	-----VAAASA----
CriHb3A	-----VATPAMPS----
BflGb10	-----MS----
BflGb15	-----MG----
BflGb7	-----MS----
BflGb11	-----MA----
BtaHbL	-----MPDMDEG----
AgaGlob1	-----QTNHYHTPDETG----
AaeGlob1	-----MADTDLSTG----
CquGlob1a	-----ESVLNSPDDTG----
CquGlob1b	-----EIVASIPDETG----
AgaGlob2	-----MDQTG----
AaeGlob2	-----MDESG----
CquGlob2	-----MDETG----
CclHbL	-----MS----
LsaHbL	-----MS----
CcalHbL1	-----SAYNTPCTKSG----
CcalHbL2	-----AGYNNPCPRTG----
CcalHbL3	-----PAWNTPDSTTG----

MocHbL1 -----MGNIASPHK---
DpuHb1-2 -----DPQTK---
NluHbL -----CPP-KDCCPPPE---
BmaHbL -----AFS---
HvitHbL3 -----AQQVPLRR-----SAHERPKDLAS---
DmeGlob2 -----FRRANFPVYPKPLPDRDL-----SYKADENE---
DmeGlob3 -----TYPKRIPKIKF-----GPIKDEMG---
CcaGlob2 -----IFPKALEPYDM-----KPVENELG---
GauGlob2 -----GIQYPKPLPTLNL-----ENVCNEMG---
LcuGlob2 -----NIIYPKPLPKLVK-----QNIPLLETG---
MdoGlob2 -----HILYPKPLPPRDN-----QSLPNENG---
HvitHbL2 -----GQSLPLEA---
EdaHbL3 -----TTIANPND---
PhuHbL2 -----
PhuHbL3 -----IKRDINQE---
PspHbL2 -----

DmeGlob1 -MNSDEVQLIKKTWEIP--VATPTDSGAAILTQFFNRFPNLEKF-----
GauGlob1A -MNSDEVYIEIKRTWEIP--ATPTESGVAILIRFFTKYPSNLQKF-----S
GauGlob1B -MNSDEVSEIKKTWEIP--AASPTESGVAILIQFFTKYPSNLEKF-----S
LcuGlob1 -MNCDEVYIEIKKTWEIP--AATPTESGVAILLKFFTKYPSNLEKF-----Y
MdoGlob1 -MNTDEVLEIKRTWDIP--AANPTESGSAILMLFFKRYPSNLQKF-----S
CcaGlob1 -LNAEDIAEIKKTWAIP--VATPTDSGAAILIRFFTKYPSNLEKF-----
MscGlob1a -LSDFEVIEIKNTWKIP--MADPSGSGQAILLKFFERYPHNKLKF-----Q
MscGlob1b -LSDNDILEIKATWKIP--MANPSESGEAILLKFFERYPSNLEKF-----K
MscGlob1c -LSEAEILEIQNTWKIP--MADPLASGQAVYLLKFKRYPSNLQKF-----I
MscGlob1d -ISEKEVLEIKRTWKIP--MADPLTSGETMLLKLFFERYPANQKKF-----Q
GinGlob1 -MNSEEVNDIKRTWEIV--AAKMTEAGVEMLKRYFKKYPHNLNHF-----P
LloGlob1 -LTPEQIEIVKSTWQIV--AKAPEDAGEAILMRFFEKFPDNQKYF-----
PpaGlob1 -LTPREQIEIVKSTWTV--ANAPEDSGEAILLRFFEKYPHNQKYF-----
MdeGlob1 -LTPHQIALIQSTWSIP--AKVPIDSGEAILLAYFEKYPQNQKF-----N
BmoHbL -LTRREIHAVQKSWAPV--NANSFATGSELLRRLFNTPDTKEYF-----K
ScyHbL -LTRREIYAVQKSWAPV--FANSIPNGAELLRRLFQTFPETKEFF-----K
AasHbL -LTRREIYAVQKSWAPV--FANTVANGTEFFRRLFQTSPEETKEFF-----K
HvirHbL -LTRREISLVQKSWVPV--NADAINPGAELLRFFIAFPESKDF-----K
SfrHbL1 -LTRREVNLIQKSWAPV--NADKAANGAELLRFFTAAPAAKEFF-----K
SliHbL -LTRREYVLVQKSWAPV--NADKVNNGAELLRFFTAAPASKEFF-----K
BanHbL -LTRREYVAVQKSWAPV--YANSVANGTELLKRLFRAYSETKEFF-----K
DplHbL3 -LTKREVYAIQKSWAPV--YSNSVANGTELLKRLFRAYPETKEFF-----K
DplHbL1 -LSRRDVFAVQKSWAIV--YANPLANGSELLKRYFRAHPESKEFF-----R
DplHbL2 -LSHRDIYTVQKTWAVV--YCNAENGIEIFKRLFHANPETKNFF-----I
SfrHbL2 -MSLRDVHNVQKSWAVI--QANSNGNGFLMFFRLEAEFPETKLF-----K
TcaHbL1 -LTSRDYVIQTSWAPV--KKDLTGNGVALLLLYFEKFPATKNYF-----
TcaHbL2 -LTSREYFLVQSSWDPI--KKDLTGNGVALLLLYFEKFPPEEQNF-----
DpoHbL1 -LTSKEKYLVRTSWAKI--MKNPADSGVALLCLLFFERHPEYVQLF-----
DceHbL -LTPREKSLVNSWAIV--RKDMIGNGTELFILFFTKFPKYLYTF-----
LkoHbL -LTPRQKQKFSVDTWQIV--KRDIKGNGIELFIRFFEMRPEGQNR-----S
LmiHbL1 -LTPREKHVVVTTWAAV--RKDITSNVQVFLRFFDKLPAAQKRF-----S
RflHbL -LTPRERQIVVDTWGVV--KRNAKEAGVEMFTRLFEAHPQYQKLF-----P
ZneHbL1 -LTPRERQAVVDTWAIM--KQDAKRAGVELFIQLFEAHPYQKLF-----R
BgeHbL1 -LTPRERQIVKDTWALA--YKNSKSVGVELFIQLFTTYPHHQKF-----P
BgeHbL2 -LTPREKNAIRRNWELV--KGDIKQNGIDLMLFFEENPSYQQFF-----N
LysHbL -LTPREKRAVTESWAI--RTDLKNGMIFLLMFFDDYPDYQKFF-----R
LfuHbL3 -LTPRQKRAVAVTWDIV--KKDLKNGVELLHRFFTKHPYQKNF-----K
LfuHbL2 -LTPAQIQAVRSTFDVL--RSDPKDFGVDFLFLSDFDAHPPNYQKLF-----R
BspHbL -LTLRQKGLVRSTWALV--MPNIRTVSVDVLIFFETFPQYPLF-----T
EdaHbL1 -LTPRQKRAVVDTWALV--QPDLKATGIAVLIALFEAHPHQRLF-----S
IscHbL1 -MTSQEKHVVRDTWAI--KKEVQTSGVAIFVVLFFKHPAYQKLF-----V
IscHbL3 -LTPREKGLVRDTWALV--RKDVKANAIATLTLFQRHPEYQKLF-----S
CexHbL1 -LTKKEKDGIKYTWDIV--RKDIPKNGVALFIMFFKTNPDHQKVF-----T
AmeHbL -LTERQKQLVQNTWAVV--RKDEVASGIAVMTAFFKKYPEYQRYF-----T
BteHbL1 -LTERQKQLVQNTWAVI--RKDEVASGIAVMTFFFKYPEYQRYF-----S
NviHbL -LTGRQKQLVQNMWAI--RKEPIPNGVAIMLAYFKKYPEYQKVF-----T
CflHbL -MTEKQKRLVQNTWAI--RKDEVSAIVAIMIALFKQYPEYQKQF-----K
SinHbL -LTERQKRLVQNTWAI--RKDEVSAIVAIMIALFKQYPEYQKQF-----K
BteHbL2 -LTNKEKRIIRETWGVL--RANSVKGVDIMISYFKRFPQHHRF-----P
MgiHbL -ITLREKTLIRESWDLI--RPDLKNGIAFFIKLDFEFPYQKLF-----K
SsuHbL -ITARQKLVVRENYGRG--AKNLKSNVGEFFVALFTKHESLKKYF-----V
DviHbL -LTSRDIYLIKNSWNKV--ISQPTENGIKFFMRLFEIAPKHLTF-----
SjeHbL -LSLRDRKEITDSWHIL--RKDIKSAGTQFFIKLFIHPTLQKLF-----P

IscHbL2 -LTTSDKCAIKDWTWTF--RRETRTNALSFLVALFSRYPEYQKMF----P
StuHbL -LSSAQGKAVADTWAVV--RKDLKQHGKILIELFKAHPQYQAKF----K
DpuHbH -LSQREYDIQQSWHHV--RQDLKAAGLGGFFQAFFKAHPDYQLKF----K
FochbL -LSPRDKHLVRTTWAIV--KKDASSNGLYLFQLLFKHTDVRDMF----P
CmaHbL -LTLRHRTAIYRTWDLV--RPNPKLHGINLFLTMFQEEPVLQTRF----K
DpuHbA -LNSVNVAAVQSTWAVI--KSDINTFAPQFYVALLTAHPEYQAMF----P
DpuHbD -LKSVNVAAVQSTWAVI--KADLNTHAPKFYVALLTAHPEYQPMF----P
DpoHbL2 -LTSRYISVLKTTWKRI TERGGTLEIGTAIFTNLFKHPPEYQQLF-----
EdaHbL2 -MTPRRDRRVVSRTFVAV--VPKVREVAMDIFVTLFTKHPPEHQKLF----P
ApiHbL -LSPQLQISQLKDSWSVL--AQDPSQLASALVIRLRFKENPEYQSLF----K
MpeHbL -LSPQLQISQLKDSWSVL--AQDPSQLASALVIRLRFKENPEYQSLF----K
MhiHbL -FADEVIKDVKTTWATI--NSDLQOVGYEIFNRLFNAFPTYQQLF----R
DciHbL -ISDDRLLQAVVLSLDII--KPDINDFGTKVFKTLFKEHPEYQSQF----P
HsaNgb -MERPEPELIRQSWRAV--SRSPLEHGTVLFARLFALEPDLPLFYQYNCR
DreNgb -LSEKDKGLIRDSWESL--GKNKVPHGIVLFTLRFELDPALLTLF----S
BflGb4 PLTQEQQVHGIKETWAIL--AQDPVERGVDFLPMKIFEEEDPDLKLLF----
BflGb1 -LTPQSRVLVKESWKMF--LSKKRENGFVIFRVLFTDYPVTRKLF----K
BflGb2 -LTPQQRLLQQTWVLI--LLHKKQNGFLIFKILFTDYPMTKKLF----K
BflGb5 -LTANQIRHIRETWQVV--LSNKRANGFAIFRILFTDYPFTKKLF----R
BflGb9 -LTANQIQILIRDWQIV--YKNKRENCFAIFRILFTDHPSTKSLF----R
SkoGb1 -LTSDEVAAIKSSWSAV--YDKKESGVTLFVVKLFTENPSFKSQF----G
SkoGb3 -LSAGEIKLVTDTSWTAV--YANKKANGVALFVRLFSENPGFQSQF----R
SkoGb4 -LSAGEIKLVKDSWAPV--YANKKESGIALFVRLFSENPGFQSQF----R
SkoGb2 -LTPKEVKAISESWKVV--YAKKKENGVALFIRLRFQSVPGSKSLF----K
SkoGb5 -LTPSEAIQSTWLVFV--YEDKEENGVELFVVKLFTHEHPDYQALF----G
BflGb8 -LTEGEKATIRRTWAVA--SRDMMNGANILLKMFENPDTKKVF----A
AsaHbT1-9 -FSAYDIQAVQRTWALA--KPDLMGKGAMVFKQLFTDH--GYQPLF----S
PhuGbX -LTTREKELLLETWKEL--EENIAKVGVI TFVSLFETHPDVQESF----M
ApiGbX -LTMRQKELLTEMWKL--EEDIAKVGVI TFVSLFETHPDVQESF----M
AgoGbX -LTMRQKELLTEMWKL--EEDIAKVGVI TFVSLFETHPDVQESF----M
BtaGbX -LTDQKSMVLVDTWKAL--ENDIAKVGVI TFISLFEHPDVQQVF----M
DciGbX -LTEDEKLLIETWKIL--EDDIAKVGVI TFISLFEHPDVQQSF----M
PveGbX -LTDEEKMLSETWKVL--EDDIAKVGVI TFISLFEHPDVQQVF----M
CleGbX -LTKEEMDHLTRTWKLL--EDDIAKVGVI TFISLFEHPDVQQVF----M
HhaGbX -LSDLQKAEHLTRTWKLL--EEDIAKVGVI TFISLFEHPDVQQVF----M
OfaGbX -LSDQQRALHTRTWKLL--EDDIAKVGVI TFISLFEHPDVQQVF----M
ZneGbX -LTERQKELLEETWKEL--EGNIAKVGVI TFISLFEHPDVQQVF----M
BgeGbX -LSEKQKELLVETWKEL--EQNIAQVGVI TFISLFEHPDVQQVF----M
LfuGbXa -LTEEQMGLLQENWKEL--EDNIAKVGVI TFISLFEHPDVQEVF----L
LfuGbXb -LTEKQMAMLLQENWKEL--EDNIAKVGVI TFISLFEHPDVQDVF----I
LfuGbXc -LTERQKDLLETWKEL--EENIARVGVI IMYIGLFEHPDVQAEF----M
EdaGbX -LTEEQCVELLAETWKEL--ESNIAKVGVI TFISLFEHPDVQQTFF----M
CexGbX1 -VTYQQKVALVQTNWNL--MENLSRVGVI AFMRLFEHPDVQEIF----I
CexGbX2 -LTNQKALVLTWNL--VENISRVGVI TFMSLFEHPDVQEVF----M
HazGbXb -LTQEQQKI I IKETWAVI--KQNVREVGVI MFTNLFETHPDVQEVF----L
SmaGbX -LDEREIEHVI FTWKVL--ERNIAKVGVI TFLGLFEHPAVQSVF----L
SkoGb7 -LTDQHRVILLDSWKVI--QEDIAKVGVI MFMGLFEHPDPECKEVF----M
XtrGbX -LSEQQQQLLVESWRLI--QHDIKVGVI LRVLFEHPDPECKDVF----F
DreGbX -LTTNHIRLIKESWRLI--QEDIAKVGVI MFMGLFEHPDPECKDVF----F
SkoGb10 -LTVEQKRLIIDSWKEL--HIDLERIGMLMFMGMFGTHPQTRFFF----
SkoGb16 -ITKEQTKILTSTWHSI--HGDLEKIGLLMFMGMFDNYPETRQFFF----
SkoGb9 -LSKEQEKILVQTWLSI--RGDLERIGLLMFTGLFEHHPEAKVMF----
SkoGb8 -LTKEQKDTLIQTWQNL--HADLERIGMLMFMGLFEHNPEIKEFFF----V
PhuHbL1 -LTADELERVQNSWKVV--MENAEEENGMI FKTFLFKH--NYFPYF----K
IscHbL4 -LSKRDTKLIRNSWSML--CKQHPKADQLIFKALFTKHPDFMALF----Q
GgaGbE -FSEAEVQSARGAWKEM--YVDAEDNGTAVLVRMFTEHPDTKSYF----T
MgaGbE -FSEAEVQSARGAWKEM--YVDAEDNGTAVLIRMFTEHPDTKSYF----T
HsaCygb -LSEAERKAVQAMWARR--YANCEDVGVAIVLVRFFVNFPSAKQYF----S
DreCygb1 -LTEEDVCVIQDTWKPV--YAERDNAGVAVLVRFFFTNFPKQYF----E
XtrGbY -LTGADIENINEVWSKI--YANPEESGRVVISLFLTYPQTKIYF----K
OanGbY -VTDVEKANIQSIWSKM--MENLEKNGIDIFTRLRFREYPETKKYF----
HsaMb -LSDGEWQLVLNVWGV--EADIPGHGQEVLI RLFKGGHPETLEKF----D
DreMb -DHDLVKCGAV--EADYAANGGEVLRNLFKEYPDTLKLKLF----P
HsaHbA -LSPADKTNVKAAGWGL--GAHAGEYGAEALERMFLSFPPTTKTYF----P
DreHbA -LSDTDKAVVKAIAWAKI--SPKADEIGAEALARMLTVYPQTKTYF----S
HsaHbB -LTPEEKSAVTALWGV--NVDEVGGEALGRLLVVYPWTQRFF----E
DreHbB -WTDARTAILGLWGL--NIDEIGPQALSRLI VYPWTQRYF----A
SkoGb11 -FTDRETAIILRSTWPLL--ASDMTRNGGKIFLQIFAVAPHVKDLF----
SkoGb14 -FSSEQISELRRTWPKL--ACDLTGNGAQVFLQIFAINENIKILF----
SkoGb12 -LDDRQKRIVRKTWRPL--ANDMTENGQKIFINIFESHPEIKYMF----

SkoGb13 -FTERQRRIVRKTWRPL--ANDMTGNGTKVFLHI FEMNPKVKQLF-----
AgaGbXL -LTAKQKYTMVASWKGI--SRAMETGTITMFIKLFEEHADLLNMF-----A
AaeGbXL -LTAKQKYTMVASWKGI--SRAMETGTIHMFIKLFEEHAELLEMF-----A
PpaGbXL -LTAKQKYSMLASWKGI--SRAMEPTGVCMFIKLFEEHADLLNMF-----T
BmoGbXL -LTAKQKYSMLASWKGI--SRAMEKTGICMFIKLFEEHQDLLDMF-----E
SfrGbXL -LTAKQKYSMLASWKGI--SRAMEKTGICMFIKLFEEHQDLLNMF-----E
DplGbXL -LTAKQKYSMLASWKGI--SRAMEKTGICMFIKLFEEHQDLLNMF-----E
TcaGbXL -LTAKQKYNMLASWKGI--SRAMESTGVCMFILKLFEEHAELLTLF-----E
DpoGbXL -LTAKQKYNMMASWKGI--SRAMESTGVCMFILKLFEEHSELLLLF-----E
ApiGbXL -LTAKQKYSMIASWKGI--SRAMEPTGVYMFIKLFEEHQELLQLF-----T
AgoGbXL -LTAKQKYSMIASWKGI--SRAMEPTGVYMFIKLFEEHQELLQLF-----T
NluGbXL -LTAKQKYSMLASWKGI--SRAMEPTGVYMFIKLFEEHRELELFL-----T
HvitGbXL -LTAKQKYSMLASWKGI--SRAMEPTGVYMFIKLFEEHEELLDLF-----T
CleGbXL -LTAKQKYSMVASWKGI--SRAMEQTVYMFIKLFEEHQELLDLF-----A
HhaGbXL -LTAKQKYSMLASWKGI--SRAMEQTVYMFIKLFEEHEELLELF-----A
RprGbXL -LTAKQKYSMMASWKGI--SRAMQPTGVYMFIKLFEEHEELGLF-----A
OfaGbXL -LTAKQKYNMLASWKGI--SRAMEQTVYMFIKLFEEHEELGLF-----E
ZneGbXL -LTAKQKYSMMASWKGI--SRAMEPTGVYMFIKLFEEHQELLNLF-----E
BgeGbXL -LTAKQKYTMMASWKGI--SRAMEPTGVYMFIKLFEEHGELLNLF-----E
FocGbXL -LTAKQKYTMLASWKGI--NREMEATGVNMFIKLFEEHKELLNLF-----E
MdeGbXL -LTARQKYTVIASWKGI--ARALQPTGINMFIELFEEHGELLGLF-----N
AmeGbXL -LTAKQKFTVMASWKAV--SRKLETTGVFMLMRLFEENEELVQMF-----S
BteGbXL -LTAKQKFTVMASWKAV--SRKLETTGVFMLMRLFEENEELVQMF-----S
NviGbXL -LTARQKYLTLASWKAI--AKAMEPTGIYMFVKLFEEHAELLELMF-----S
CflGbXL -LTARQKFTVIASWKAV--SRALEPTGVYMFIRLFEENAELLELMF-----T
SinGbXL -LTARQKFTVIASWKAV--SRALEPTGIYMFIRLFEENAELLELMF-----T
CriGbXL -FTARQKYTMVASWKGI--SRAIETTGVNMFIKLFEEHADLLNMF-----T
LfuGbXL -LSAQKYNIMASWKGI--SRAMEPTGVNMFVKLFEEHQELLSLF-----E
MmoGbXL -LTAKQKYNMLASWKGI--SRAMEPTGVLMFIKLFEEHQELLNMF-----D
PhuGbXL -LTAKQKYNLVSWKGI--SRAMEPTGITMFIKLFEEQNEELLNLF-----E
EdaGbXL -LTAKQKYNIIASWKGI--SRAMEPTGVYMFIKLFEEHEDLLNLF-----S
CmaGbXL -LTARQRFNIIKSWKGI--ARAIEPTGVNMFVKLFENHSELITFF-----T
HazGbXL -LTARQKFSILKSWKGI--SRALEPTGVTFVVKLFERNAELLSLF-----V
BmoGbXL -LTTKQQYCMLASWKGI--FRQIEKTGVLLFIKLFEEHEDLLHLF-----E
AasGbXL -LTTKQQYCMLASWKGI--FRQIETTGIILLFIKLFEEHEDLLHLF-----D
SfrGbXL -LTTKQQYCMLASWKGI--FRQIEKTGIILLFIKLFEEHEDLLHLF-----E
DplGbXL -LTAKQQYCMLASWKGI--FRQVEKTGIILLFVKLFEEHEDLLHLF-----E
SmaGbXL -LNAARQLFQIGKSWKGI--SRAMEYTGVMFIKLFEEHNELLNLF-----T
CexGbXL -LTAKQCFSSISKSWKGI--ARAMEPTGINMFVKLFQDNEDLLDLF-----E
MocGbXL -LTTTRQIFSSISKSWKAI--ARAMEPTGVEMFVRLFKQNEELLDLF-----T
IscGbXL -LTARQIFSSISKSWKAI--ARAMEPTGIEMFVRLFKQEKEDLLDLF-----E
CexGbXL -LTARQRFSSISKSWKGI--SRAMESTGINMFVKLFEDNEDILHLF-----K
SkoGb15 -LTARQKQFQITKSWKGI--ARNMENTGKSMFMRLFQSNIELKNMF-----T
SkoGb6 -LTARQKFSIQKSWKAI--QRNMEGVGMDIFIRLFAHPEYQDLF-----P
BflGb12 -LDAKEKFFLEKSWKTV--ARNEDVAAMAMFINLFRSSPEIKDKW-----P
BflGb3 -LDARQKFHLEKSWKSV--ARNIDRAGMFMFLRLFRDCPEMIEKY-----P
BflGb6 -LDPWQKFFYLEKSWKTV--ARNIDKAGMIMFVKLLRDYPEIQKW-----P
BflGb13 -LDAWQRFYLLQKSWKTV--ARKSDQAARTVFLRMLQDNPLGRQKW-----P
BflGb14 -LTQKQKFLLLKSWKGV--ARQISQCGKTMLIRLFDKDDPQLMAVF-----N
CinGb1 -FTDEELKLLRDSWEVK--KLGMEVGLHIFTGLLNAAPSLRATL-----Y
CinGb2 -LTTTEEIIGLLRSSWNEMK--TIGMKELGLLIFHRLFSVPRIRKMF-----Y
CinGb3 -LTSEQVLLRSSWQTIG--KLGMSNVGLAVLHRLFNDVPETLPLFF-----H
CinGb4 -LKRSDIINIQDSWNTLK--GFGYETVGLMLVHRLFNDAPQTRYLF-----S
MsaLegHb -FTDKQEALVNSSWEAF--KQNLPRYSVFFYTVVLEKAPAAKGLF-----S
LluLegHb -LTSRQIELVTETWQIV--SQDMANVGVII FXXLLTQHPELCKLF-----K
CexHbL3 -LTPQQIQLVRSWIV--SQDMVGVGTIVFQRFLTRHPELCKMF-----R
IscHbL5 -LTARQAELVRSWIAIV--SQDLAGTGVVVFKRLLTRYPELCLRF-----R
DpuHbB -MKEADRTLVOGTWRIA--KKN--GNIAPKAFIRYFKLKPEAQKQF-----A
DpuHbG -LNERDEATIRSTWNTA--KKN--GNIGPKTFLRYFELKPEAQKMF-----P
DpuHbC -LSENDISVLVNSWHIL--KKN--SDFAPKVFMYRFFKAKPEAQKLF-----S
DpuHbE -FSQKQDVIVVNTWNTL--KKN--GDFAPKVFIRYFKAKPESQKMF-----P
DpuHbF -LSQMDVDIIVNSWNTL--KKN--GNFAPKVFIRYFKAKPESQKLF-----P
DpuHbK -LSDSDINLIVSSWNFL--KKN--LSSFAPKVFIRYFKAKPESQKMF-----P
DpuHb1-1 -LSSHDRSIRKTTWQQA--KKN--GDVPPKILFRFIVANPEYQKMF-----K
CriHb2B -LSADEASLVRSWAQV--KKN--EVDILYIIFKANPDIMAKF-----P
CriHb6 -LTTTEQADLVKKTWSTV--KKN--EVDILYAVFKAYPDIMAKF-----P
CriHbE -LSGDQIGLVQSTYQKV--KKN--SVGILYAVFKADPTIQAAF-----P
CriHb3A -MTDAQVAAVKGDWEKI-----KGSVEILYFFLNKFPGNFPMF-----K
BflGb10 -LSAADKKA VSDSWAKMS--KPSFQDAGERVFLKLLKK--DSTKAMF-----K

BflGb15 -LTSEDKSAVLDSWAKMS-GPTFQDAGEKVFLLLLLKT-DSTKALF----P
BflGb7 -LSAADKKLVQESWDKVS-KPSFADAGERVFLKLFQRNESTKAHF----K
BflGb11 -LSAAELATVKQAWAKLT-ASSFEDAGEKVFLLALLKD-PNIKANF----K
BtaHbL -LSQTEIDLIRESWQPF--AKDLQETGITFFLAFFKRQADYQEAFF----
AgaGlob1 -LTKSQKVALIAAWSIV--KKDLVTHGRNIFVMFFEEYYPQYLDYF----D
AaeGlob1 -ITPDQRHVLVDAAWKLV--KPDVVTHGTNIFLKFEEKNPEYLYGYF----D
CquGlob1a -LTNHQKAALVGAWSLV--KQDMVSHGVNVFIRLFEEHPKYLEYF----D
CquGlob1b -LNNHQKVALIGAWSLV--KKDII SHGRNIFVRFEEHPQYLYNYF----D
AgaGlob2 -LTASEKITLFSAWGLI--RKDLDVHGRNVLLLLFHKKHPRYIAYF----D
AaeGlob2 -LTGKQKITLLSAWGLL--KQESSLHGRNMMFLLFREHPRYLPYF----D
CquGlob2 -LTGKQKITLLSAWGLI--KQDLDLHGRNIMLLIFREHPHFIPYF----D
CclHbL -LTSNELSLISESWKLV--VPDLEHHGLSFFLKLFEYPTYQEKF-----
LsaHbL -FCEHEVKLISESWKLM--ALDLDNHGLNFFLKLKFEYPVYEEKF-----
CcalHbL1 -LTPHQKAAMRESWSKL--SADKRTNGTDFFAQLITRYPEYQKFF---GR
CcalHbL2 -LTPHQKAGLRESWLKL--ATDMRSNGTFFFAQLITRYPEYQKFF---AR
CcalHbL3 -LTPRDKDILRKSWSGVA--AQDFRNGTEFFYQFFKRYPKYIDTF----K
MochbL1 -LSTDEVDVAVQAQAVV--RQDQRSIGQVMMTLFSENPEYIHKF----K
DpuHb1-2 -LTPHQIHDVQRSWENI--RANRNSLVSAIFVKLFKFTPRVQKHF----A
NluHbL -PSPKDLANVKEAWCEI--DRNKGCYAKAIFTEVFKKYPDYAQLF----A
BmaHbL -MTDREVEVINQSWNQI--KAQELVVGLQMFKLLFQRYPQYERLF----T
HvitHbL3 -LTDRLRLGRATWFKN--VDATPDFGMVIFKELFRQYPEVESYF----L
DmeGlob2 -FTMVEKASLRNAWRLI--EPFQRRFGKENFYSLTRNEDLINFF----R
DmeGlob3 -FTLSERLALRQAWNLI--RPFERRYQDVFYSFLNDYYWGKFF----R
CcaGlob2 -LTI TERRSLQNGWSII--KQKQRRRAALTIYVNLFTHEHENLYEVR----
GauGlob2 -FTPLEIVALQNIWRLF--KRRFKYHSMQIFLAFFNQNHKLIERF-----
LcuGlob2 -FTSTEIVALQNGWHLI--KRRLYYHSTKIFKDFEHEHYLLLERF----R
MdoGlob2 -FTATEIASLRNGWRHF--KRRFGYHSKQIFMKFYQEHEQMLEKF----R
HvitHbL2 -ITDRDKELAREAWVQV--EFNYVLSKNLFDVDFWFTQYPEHVNF----K
EdaHbL3 -LHSEEISGVEDIKKNVL-APDLATHG PALFLELFKLEPGYQKLF----T
PhuHbL2 -----MNVVLDNDWPKI--RKNYKKIFIDSFINYFAENPNYKLLF----P
PhuHbL3 -NLSLAVKIVTPTWESI--KEDFDWYCTKIEETFFQNDTTKLELFT--LP
PspHbL2 -LTDDQKCLIHQTWCCS--IKKRPTVGVAYLLTVFSTYPKTQCFM-----

DmeGlob1 PFR--DV-P-----L-EEL-S-GNARFRAHAG-RIIRVFDESIQ-V-L-G
GauGlob1A TFK--DM-P-----L-DEL-K-NNPRFKAHAN-RIMKVFDDSIK-T-L-D
GauGlob1B TFK--DM-P-----L-DEL-K-ESPRFKAHAN-RVIKVFDDSVQ-A-L-D
LcuGlob1 SFK--DL-P-----I-DEL-K-NNARFKAHAV-RIKVFDESIQ-M-L-G
MdoGlob1 AFK--DL-P-----L-DEL-S-TNARFRAHAS-RIKVFDESIQ-M-L-G
CcaGlob1 PFR--DV-P-----V-AEL-N-NSARFRAHCG-RIKTFDQSIQ-Q-L-G
MscGlob1a DFK--DQ-S-----L-DQL-K-TCPKFKAHAS-RIVRTFNEAIN-V-L-G
MscGlob1b DFK--EM-T-----S-DEL-K-VCPRFKAHAS-KIIRTFDEAIN-I-L-G
MscGlob1c DFK--DV-R-----Y-EDL-K-DSPRFKQAL-RLMRTFDKAIN-A-L-G
MscGlob1d DLK--DL-P-----F-KDL-K-DSPKFKFHSV-RIMKAFDEAIQ-S-L-G
GinGlob1 WFK--EI-P-----I-DDL-P-ENARFKTHGT-RIILRQVDEGVK-A-L-S
LloGlob1 PFR--NV-P-----R-ENL-K-GSVMFRSHAG-RVVAVFQKAVD-A-F-N
PpaGlob1 PFR--NV-P-----R-ENL-K-GSAMFRSHAG-RVIAVFQKSVD-A-F-N
MdeGlob1 AFK--NT-P-----L-LSL-K-GTPGFRTHAG-RIITVLDEAIS-N-L-S
BmoHbL MVR--KL-P-----E-EEY-S-QNPQFKAHVI-NLMTSLNLAVN-N-L-N
ScyHbL MIR--KL-P-----D-EEY-I-QNPQFKAHVI-NLMTSLNLAVN-N-L-N
AashbL MIR--QL-P-----E-EEY-L-QSPQFRAHAI-NLMTSLNLAVN-N-L-H
HvirHbL MLK--NT-P-----E-DQY-L-QNPQFKAHVI-NLMTSLNLAVE-N-L-N
SfrHbL1 MIK--GM-P-----E-EQY-L-ENPQFKAHVI-NLMTALNLAVE-N-L-N
SliHbL MIK--NV-P-----D-DQY-X-TNPQFKAHVI-NLMTSLNLAVE-N-M-N
BanHbL MVR--KA-S-----E-HEY-A-DNPQFKAHVI-NLMSSSLNLAVN-N-L-N
DplHbL3 MVR--KS-S-----E-DEF-I-GNPQFKAHVI-NLMSSSLNLAVG-N-L-N
DplHbL1 MLR--KL-N-----E-NEF-D-DNHQFKAHVM-SLMSSSLNLAIT-N-L-D
DplHbL2 NFR--NL-S-----D-EEL-D-KSHQFRAHVI-NLMSSSLNLAIT-N-L-H
SfrHbL2 NLA--HIHT-----E-AEM-S-ANVSFRAHII-NIMSSFDTSIQ-N-L-D
TcaHbL1 VFK--DV-P-----N-EKL-K-TDKKFHAHCN-SVMVTLDSLIA-N-L-N
TcaHbL2 PFR--DM-P-----F-EEL-G-ASKKFHAHCS-NVMYAVDSIID-S-L-K
DpoHbL1 PFS--DV-P-----P-SEF-K-TNVRFRAHAN-SVYALSSIVD-A-L-N
DceHbL PFR--DV-P-----F-DQL-R-ENKKVHAHAV-NVMYALSSIVD-N-L-S
LkohbL SFV--GM-P-----L-NEL-R-HSKRLQAHTN-SVMYALDGVVM-P-L-D
LmiHbL1 SFA--DL-P-----R-DEL-A-ASKRLKAHAN-SVMYSIDSIVC-N-L-D
RflHbL NFE--GL-T-----L-SVL-R-TSKKLAHAT-NVMYSLTSVID-N-L-D
ZneHbL1 VFE--SL-S-----L-QEL-E-KSAKLSAHAT-NVMYSLTSVID-N-L-E
BgeHbL1 SFK--NV-P-----L-SEM-KLGNKKLEAHAT-NVMYSLATLVD-N-L-E
BgeHbL2 SFK--DV-P-----L-KEL-P-KNPKFAHCT-SVMYALSSVVD-N-L-D
LysHbL SFA--EV-P-----R-SQL-P-DDKRLMAHVT-SVMYALSNIVD-N-L-D
LfuHbL3 AFA--DV-P-----L-DEL-P-NSKKFQAHAN-SVYAVTSIVD-N-L-D

LfuHbL2 VFG--NV-P-----R-SEL-P-GNKRFLAHAS-TVVYSLMSVID-N-L-N
BspHbL SFA--GL-E-----V-TDL-R-SNKKFTAHAH-TVFFHALASLVD-A-L-D
EdaHbL1 AFR--DV-P-----L-SEL-R-GSKRFAAHAS-SVMHAIASLVD-T-LED
IscHbL1 AFA--AD-P-----I-AEL-P-QNPRAIAHAL-TVYAITSIID-T-L-D
IscHbL3 GFA--DV-P-----P-EAL-S-TNPRLGAHAM-SVYAITSLVD-S-L-D
CexHbL1 SFA--DV-P-----L-SEL-P-KNKKLMAHAS-SVLYSISSLVD-S-L-D
AmeHbL AFM--DT-P-----L-NEL-P-ANKRFQAHCA-GVITALNNSVID-F-L-H
BteHbL1 AFA--DV-P-----F-DEL-P-ANKRFQAHCV-SVITALNSVID-S-L-H
NviHbL HFK--DV-P-----L-EEL-S-ANKKFQAHCL-NIVTALNNLID-S-I-N
CflHbL PFK--DV-P-----I-DEL-P-KNKRQAHCV-NIISAI SKLIE-Q-M-C
SinHbL AFK--DV-P-----I-DEL-S-KNKRQAHCA-NIVATIGKVIE-Q-M-H
BteHbL2 PFK--DI-P-----A-DDL-L-DNKKFHAHCQ-GIMSTLND AID-A-L-D
MgiHbL SFD--KV-P-----K-EEL-P-TNKRMTAHAT-TVMYGFASFVD-S-L-D
SsuHbL TLV--DL-P-----I-EAL-P-SSKKLQAHST-TVMMAISGLVD-N-L-E
DviHbL PFR--DV-P-----T-EDL-P-RNKKFHAHVN-SVMYSSISIVN-S-L-N
SjeHbL AFS--DE-P-----F-SEL-Q-TNKKLIAHGT-IVMYSISSMVD-N-L-E
IscHbL2 NFA--DV-A-----L-KDM-M-QCPSLTAHAL-TVIYALASIE-S-I-D
StuHbL GFA--NV-P-----I-EDL-P-RNKKLHAHAC-NIMFTIDNMIC-N-L-N
DpuHbH KFA--DV-P-----A-DQL-A-DNKSFLVHAM-SVMNAVTMVVD-S-L-D
FocHbL FAR--GK-E-----A-AEY-R-DDPRMRAHAN-AVMYALTSYID-Q-L-D
CmaHbL GFA--GK-S-----I-EEL-K-NSKRLAAHGT-TVMMAITAMVD-N-L-E
DpuHbA TIA--NV-P-----S-GQL-L-NNAALITLSV-NVVTKLSEIID-S-L-G
DpuHbD TIA--NV-P-----A-GEL-L-NNAALKTLSV-NVLSKLSLID-G-M-S
DpoHbL2 PFK--NL-R-----R-EEL-K-TSNKFRAHCI-SVMYALTCIVE-N-V-S
EdaHbL2 QFA--DL-K-----TPEEL-R-TSKRLTAHAS-TAAHGLAAIVE-C-I-G
ApiHbL RLK--NL-S-----I-DEL-A-SNPQFMSHAS-KVGAALASTID-H-L-D
MpeHbL RLK--NL-S-----I-DEL-A-SNPQFMSHAS-KVGAALGLTID-H-L-D
MhiHbL AFK--DV-P-----F-GEL-Q-SNKDYSKHAL-AVAKALNASIE-N-L-E
DciHbL KLK--DI-P-----Y-DKL-D-ANKSFTHHVN-AVVLAIANSVV-N-L-K
HsaNgb QFS-----S-----P-EDC-L-SSPEFLDHIR-KVMLVIDAAVT-N-V-E
DreNgb YST--NC-G-----DA-PEC-L-SSPEFLEHVT-KVMLVIDAAVS-H-L-D
BflGb4 YFA--DD-G-----R-ELS-R-EDQMRSHGE-RVMEAVGGAVD-S-L-G
BflGb1 GVE--QL-DL---DAPGQL-E-SSITLRAHV-T-RFMHSFDTYME-S-L-D
BflGb2 GID--KV-D-----P-EQY-E-KTTSMRAHV-T-RFINSFDSFME-C-L-E
BflGb5 SMD--QV-DI---DVPEQF-E-KNIALRAHIT-RFLHSFDTYVS-N-L-D
BflGb9 LMD--AV-DL---DVPGEF-E-KNVAAARAHMV-RFMHSFATFMD-T-L-D
SkoGb1 YMS--GV-A-----D-GDM-K-TLPALENHGV-KVMDRINEMMG-N-L-T
SkoGb3 YLD--GV-S-----GLAAI-E-KTPALGDHAV-KVMDTINSWIG-S-L-G
SkoGb4 YLD--GV-S-----GLAAI-E-KTPALADHGV-KVMDTVNSWVG-S-L-G
SkoGb2 NLD--GI-D-----DEEKL-R-NHPRLKAHGF-RVMSVNSLIE-S-L-E
SkoGb5 YLE--GI-V-----GI-ENI-K-NVPFLRVHAS-HVLIYLNMTLE-S-L-N
BflGb8 KFR--NI-P-----D-NQL-Q-STPRFRAHV-T-RVMASIGTVVN-S-L-D
AsaHbT1-9 NLA--QY-E-----I-TGL-E-GSPELNTHAR-NVMAQLDTLVG-S-L-Q
PhuGbX SFS--GV-A-----D-EDL-K-HSKQLRAHAL-RVMAFVQKAVA-R-L-H
ApiGbX PFK--GV-D-----L-EDL-K-HSRQLRDHAL-RVMAFVQKAVA-R-L-Y
AgoGbX PFK--GV-D-----L-EDL-K-HSRQLRDHAL-RVMAFVQKAVA-R-L-Y
BtaGbX PFN--GI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKAI A-R-L-N
DciGbX PFN--NI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKAI A-R-L-H
PveGbX PFS--GI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKAI A-R-L-Y
CleGbX PFN--GI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKAI A-R-L-H
HhaGbX PFS--GI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKCI S-R-L-N
OfaGbX PFS--GI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKCI S-R-L-H
ZneGbX PFN--GI-E-----L-EDL-K-HSKQLRAHAL-RVMAFVQKAVA-R-L-H
BgeGbX PFK--EI-E-----L-EEL-K-HSKQLRAHAL-RVMAFVQKAVA-R-L-H
LfuGbXa PFQ--GM-E-----L-EEL-R-HSKQLKAHAL-RVMAFVQKAVA-R-L-H
LfuGbXb PFK--GM-G-----L-DEL-R-HSKQLKAHAL-RVMAFVQKAVA-R-L-Y
LfuGbXc PFK--GI-E-----L-TEL-K-HSKQLRSHAL-RVMGFVQKAVA-R-L-H
EdaGbX PFS--GM-G-----L-EEL-K-QSKQLRAHAL-RVMAFVQKAVA-R-L-H
CexGbX1 PFK--GL-D-----H-ESL-R-NSKELRAHAL-RVMSFVQKVVA-R-L-E
CexGbX2 PFR--DL-T-----H-EEL-S-RSTD LRAHAL-RVMGFVQKIVA-R-L-D
HazGbXb PLR--GM-E-----K-NAL-L-DNKKLRNHAL-RVMGFVEKAVG-R-L-E
SmaGbX PLS--HM-S-----R-EQL-G-SSAKLEAHAL-KVMNF IQKIIA-R-I-D
SkoGb7 PFK--EL-Q-----G-DDL-R-WSSALKAHGL-RVMAVIERVLA-R-I-D
XtrGbX LFR--DV-D-----DL-QAL-R-ANKDLRAHGL-RVLSFVEKSVA-R-I-A
DreGbX LFR--DV-E-----DL-ERL-R-TSRELRAHGL-RVMSFIEKSVA-R-L-D
SkoGb10 NFR--GT-S-----DDP-K-NTQRLREHGL-RFMSLVKKILV-F-I-D
SkoGb16 GLSGGSI-V-----L-EDP-A-VIQKIREHGL-RFMTTARKLVM-N-L-D
SkoGb9 GLSDTAM-S-----P-KDK-E-NTALIKEHGL-RFMNVVRDVL T-L-I-S
SkoGb8 GADSRDM-K-----T-EEL-R-YNEKLQEHGI-RVMGLVEKII S-S-MGF
PhuHbL1 AFA--NT-P-----L-EEL-E-ENQAFRNHAN-NIIQALDNVIL-N-L-E

IscHLb4	HFk--DK-D-----L-GVV-L-SDPQFALHSS-AIIQAFGTIIR-S-L-D
GgaGbE	HFk--GM-D----SA-EEM-K-QSDQVRGHGK-RVFTAINDMVQ-H-L-D
MgaGbE	HFk--GM-D----SA-EEM-K-QSDQVRGHGK-RVFTAINDMVQ-H-L-D
DreCygb1	QFK--HM-E-----DP-LEM-E-RSPQLRKHAC-RVMGALNTVVE-N-L-H
XtrGbY	HFR--EL-Q----DP-AEM-Q-QNAQLKKHGQ-RVLNALNTLVE-N-L-R
OanGbY	NLK--NI-S----TL-QEM-Q-DNAGIRAHGK-RVMGALNHVIE-N-L-K
HsaMb	----KNI-P-----LEGNL-Q-EDPLLRSHGR-RVMVALNRIIQ-N-L-D
DreMb	KFK--HL-K----SE-DEM-K-ASEDLKKHGA-TVLTALGGILK-K-K-G
HsaHbA	KFS--GI-S-----Q-GDL-A-GSPAVAAHGA-TVLKKGELLK-A-K-G
DreHbA	HF--DL-S-----H-----GSAQVKGHGK-KVADALTNAVA-H-V-D
HsaHbB	HWA--DL-S-----P-GSGPVKKHGK-TIMGAVGEAVS-K-L-D
DreHbB	SFG--DL-S----TP-DAV-M-GNPKVKAHGK-KVLGAFSDGLA-H-L-D
SkoGb11	TFG--NL-S----SP-AAI-M-GNPKVAAHGR-TVMGGLERAIK-N-M-D
SkoGb14	PFR--YV-P-----N-DML-Q-QNEIFKMHGR-RFMQSVGAVIE-N-L-D
SkoGb12	PFR--YV-P-----V-DIL-S-QNEVFRGHSR-RFMQAVGACVE-N-L-E
SkoGb13	PTR--DI-E-----GR-DNL-S-ANPHFRMHSS-RFMQSVGAAID-N-L-N
AgaGbXL	PCR--DK-T-----G-EEL-L-KDLNFKGHAS-RFMQSVGAADV-N-L-D
AaeGbXL	KFK--EL-K----TK-EEQ-A-TSEELQEHAN-KVMNTLDEGIR-G-L-D
PpaGbXL	NFK--EL-K----TK-EEQ-A-TSEELQEHAN-KVMNTLDEGIR-G-L-D
BmoGbXLa	KFK--EM-K----TK-EQQ-A-KSEELAEHAN-KVMETLDEGIR-S-L-D
SfrGbXLa	KFR--QC-K----TK-EEQ-I-NSMELAEHAN-NVMNTLDEGIK-G-L-D
DplGbXLa	KFR--QC-R----TK-EEQ-I-NSMELAEHAN-NVMNTLDEGIK-G-L-D
TcaGbXL	KFR--QY-R----TK-EEQ-I-NSMELAEHAN-NVMNTLDEGIK-G-L-D
DpoGbXL	KFK--EL-K----TK-EDQ-A-NSLELAEHAS-TVMNTLDEGIK-E-L-D
ApiGbXL	KFK--SL-K----SK-EDQ-A-TSLELAEHAT-TVMSTLDEGIK-G-L-D
AgoGbXL	KFG--EL-K----TR-DAQ-A-NSMELAEHAN-KVMNTLDEGIK-E-L-D
NluGbXL	KFG--EL-K----TR-DAQ-A-NSMELAEHAN-KVMNTLDEGIK-E-L-D
HvitGbXL	KFR--EL-R----TR-DEQ-A-SSMELAEHAN-KVMNTLDEGIK-E-L-D
CleGbXL	RFR--EL-K----TR-DAQ-A-NSMELAEHAT-KVMSTLDEGIK-E-L-D
HhaGbXL	KLK--EL-R----TK-EEQ-E-KSLELAEHAT-KVMATLDEGIK-E-L-D
RprGbXL	KLK--EL-R----TK-EEQ-A-SSELELQEHAHAT-KVMNTLDEGIK-E-L-D
OfaGbXL	KLK--QL-R----TK-EEQ-A-QSLELQEHAHAT-KVMHTLDEGIK-A-L-D
ZneGbXL	KFR--EL-R----TR-EEQ-A-NSMELAEHAN-TVMNTLDEGIK-G-L-D
BgeGbXL	KFR--EL-R----TR-EEQ-A-NSMELAEHAT-TVMNTLDEGIR-S-L-D
FocGbXL	KFI--AL-Q----TR-EEQ-A-SSELELQEHAHAT-KVMNTLDEGIR-G-L-D
MdeGbXL	KFR--EL-K----TK-EEQ-A-SSELELAEHAN-KVMETLDEGIR-A-L-E
AmeGbXL	RFL--DL-K----SK-EER-F-DMVELGKHAE-KVMGALDEGIR-G-L-D
BteGbXL	RFL--DL-K----SK-EER-F-DMVELGKHAE-KVMAALDEGIR-G-L-D
NviGbXL	KFK--NL-T----AQ-EEQ-S-KSVLEAEHAE-KVMNTLDEGIQ-G-L-D
CflGbXL	KFR--DL-K----TK-EQQ-S-TSMELAEHAK-TVMSTLDEGIK-S-L-D
SinGbXL	KFR--DQ-K----TK-EQQ-S-TSMELAEHAK-TVMSTLDEGIK-S-L-D
CriGbXL	KFK--EL-K----TK-EEQ-A-TSEELAEHAT-KVMETMDESIR-S-L-D
LfuGbXL	KFK--EL-R----TK-EEQ-R-NSMELAEHAT-QVMNTLDEGIK-G-L-D
MmoGbXL	KFK--QL-K----TK-EEQ-A-SSMELVEHAT-KVMRTLDDSIK-S-L-D
PhuGbXL	KFR--EL-K----TK-EQQ-A-SSMELQEHAM-NVMKTVDEAIR-E-L-D
EdaGbXL	KLK--EL-R----TK-EQQ-Q-SSLELAEHAT-KVMGTLDEAIR-A-L-D
CmaGbXL	KFR--QL-R----TR-DEQ-A-ESLELAEHAT-IVMNSIDEGIK-A-M-D
HazGbXLa	KFR--EL-K----TP-DEQ-A-ESLELAEHAT-VVMSSIDEGIR-A-M-D
BmoGbXLb	KFQ--EL-R----TT-EDL-S-QSEELAEHAN-KVMHTLDEGIK-G-L-G
AasGbXL	KFS--EL-R----TV-EDQ-A-QSEELAEHAT-KVMHTLDEGIK-G-L-G
SfrGbXLb	KFG--EL-K----TA-EAQ-M-SSELELAEHAT-KVMHTLDEGIK-G-L-G
DplGbXLb	KFR--EL-R----TK-EAI-V-SSAELAEHAT-QVMHTLDEGIK-G-L-A
SmaGbXL	KFS--DL-K----TK-EQQ-A-ESLELQEHAHAT-LVMTLDESISQ-A-L-E
CexGbXLa	KFQ--SL-K----IS-ESN-F-ESMELAQHAS-IVMSTLDESIR-S-L-D
MocGbXL	SFQ--AL-K----TE-ESQ-R-ESMELGQHAS-LVMTLDEGIN-S-L-D
IscGbXL	KFQ--AL-R----TK-ESQ-R-ESMELAQHAS-VVMNTLDEGIN-A-L-D
CexGbXLb	KFQ--YL-K----TH-EQQ-R-DSMELAQHAS-IVMSTLDEGIR-S-L-D
SkoGb15	GFE--EF-D----DL-EDM-R-ESQQLLENHAS-LVMTYIDEAIA-S-I-D
SkoGb6	EFK--GM-S-----E-EKL-R-NSINFETHVG-IFMNVIDECID-S-L-E
BflGb12	QLR--KL-S-----E-DEM-R-DSPYLQKLSV-RILGAMDHVID-S-L-D
BflGb3	ELR--GM-D----DQ-EEL-R-NSQFLQEHSQ-RVLDAFDHTID-S-L-D
BflGb6	QLK--HL-T-----D-EEV-T-KSVYLMNLAT-RIFDLDHAID-S-L-G
BflGb13	RIS--LL-T-----E-EEI-P-TSPYIKFLGE-RIFDCLDYIID-N-L-G
BflGb14	KFR--HL-RE--RDA-DVL-Y-QDAILDAAHAA-TVMEALHEAIT-H-L-D
CinGb1	TID--LP-DEEELTI-DVM-R-ENKKVVAHAT-RIANAISKFIK-F-L-D
CinGb2	NLE--LP-DDETLTM-EAM-R-SNQKMSRHAT-RIATSI-STYLK-L-A-D
CinGb3	SVL--SP-TQQT-EI-EVL-K-SNAKVVRHAS-RVGLSIDKIIN-L-L-D
CinGb4	QLS--LS-SNESFTL-EQM-R-NNSRVVYHAN-RVARAVGRLVD-L-I-E
MsaLegHb	FLK--NS-----AEV-Q-DSPQLQAHAE-KVFLVLRDSAV-Q-L-R

LluLegHb FLK--GT-----SEVPQ--NNPELQAHAG-KVFKLVEAAI-Q-L-Q
 CexHbL2 KFM--TL-K-----E-DGTYDWDLGGMERHAL-LVMQALEAAID-N-L-D
 CexHbL3 KFM--TL-K-----D-DGTYDWDLEELQRHAL-LVMQALEAAID-N-L-D
 IschHbL5 KFM--TL-R-----D-DGTYDWDMEGLQRHAL-LVMQGLEAAVE-N-L-D
 DpuHbB AFA--DV-E-----L-ADL-P-TNSHFLNQVY-TCLAGLNAYME-N-L-G
 DpuHbG AFA--EV-D-----H-MKL-P-TNEDEFQAQ-NCVSGLSNYVE-H-L-G
 DpuHbC EFA--NV-S-----V-TDL-P-NNHDFLNAAY-SCISSLEFILP-H-L-R
 DpuHbE AFA--NV-P-----I-TEL-P-TNHDFLNSAY-TCITSLNYLIP-Y-L-K
 DpuHbF AIA--NV-S-----I-TDL-P-TNPDLNSAF-TCVNSLNYLIP-F-L-K
 DpuHbK DFA--HV-N-----I-AEL-A-TNVEFRSRAC-NCVASLNYIIP-H-L-K
 DpuHb1-1 SFA--TV-P-----Q-NEL-L-GNGNFLAQAY-TILAGLNVIQ-S-L-S
 CriHb2B QFA--GK-D-----L-ETL-K-GTGQFATHAG-RIVGFVSEIVA-L-M-G
 CriHb6 QFA--GK-D-----L-DSI-K-DSAAFATHAT-RIVSFLSEVIS-L-A-G
 CriHbE QFV--GK-D-----L-DAI-K-GGAEFSTHAG-RIVGFLGGVID-D-L--
 CriHb3A KLGN-DL-----AAA-K-GTAEFKDQAD-KIIAFLQGVIE-K-LGS
 BflGb10 KFK--DI-P-----R-ERL-A-GNAALREHGG-KVVQALDDFIK-G-L-D
 BflGb15 KFR--DI-P-----Y-DQL-A-GHPDVRDHGG-KVMQVLDLDFIK-G-L-D
 BflGb7 KFK--DI-P-----S-DQL-A-GQAVVRDHGE-KVCKVLDDFIK-G-L-D
 BflGb11 KFK--DI-P-----E-ASL-P-GNTDMRAHGK-KVCTVLDKFIK-G-D-E
 BtaHbL PFR--GV-P-----L-SEL-R-QNESFRRHAK-AVLQFIDTAIA-S-L-E
 AgaGlob1 FG---GG-S-----A-GEL-G-ENRSLHAHAL-NVMNFIGTLIDYG-L-N
 AaeGlob1 FSM--DY-E-----A-KEL-K-DNRSLHAHAL-NVMNFFGAIIDYG-L-D
 CquGlob1a FSQ--DD-S-----A-EEL-R-ENKSLHAHAL-NVMHLIGALIDYG-L-D
 CquGlob1b FSQ--DK-T-----A-SEI-G-ENKSLHAHAL-NVMHFIGTLIDYG-L-H
 AgaGlob2 FTD--DP-N-----A-QSL-V-DNKSLYDQAI-HVFKAVGALIEYG-F-K
 AaeGlob2 FSS--DS-T-----N-SNL-A-DNKSFHLHAV-NVMGAI GTLIECG-L-N
 CquGlob2 FSA--DP-N-----N-TSL-S-ENRALQAHSL-NLIMALGALIEYG-L-K
 CclHbL -FP--EL-H-----Q-DERKIQRHGA-IVLKSVMGKLVAF-L-E
 LsaHbL -FP--DI-N-----G-DRKKLKRHGG-IVMKALGKLVG-F-L-E
 CcalHbL1 QVA--GM-S-----P-DQF-R-SSRKLQAHSM-QFMHGVSNLLD-N-V-D
 CcalHbL2 QVG--GL-S-----P-DQY-T-NSRKLQAHSM-QFMRGVTNLLD-N-L-D
 CcalHbL3 ALR--GL-T-----A-DEA-K-ANKRLQVHAM-GFMHGVANVLE-N-L-D
 MochbL1 HLQ--MI-A-----A-DQL-P-YHTALRAHSL-SILYVIHSLID-S-M-D
 DpuHb1-2 KFA--NV-A-----V-DSL-P-GNADYEKQVA-LVADRLDTIIS-A-M-D
 NluHbL KFG--RC-P-----T-DIL---KNEKFSEHLKKNVMDMGNVIK-K-MGE
 BmaHbL HLH--QS-G-----KSL-Y-EGDRFQHHVVRNIMSSINKVIE-Q-L-N
 HvitHbL3 HLH--GN-S-----GSI-F-DSRTRFRSHMTERVVPKLKEVFE-A-L-D
 DmeGlob2 KDG--KI-----NLSKLGHAM-AMMKLSKLVQ-T-L-D
 DmeGlob3 NGA--EL-----NVKALHSHAL-RFINFFGLLIE-E---K
 CcaGlob2 -----S-----DGV-L-NIEFASQHQK-EVLTVFQMIIE-Q-V-D
 GauGlob2 -----RL-P-----S-GNF---QLSHLCQHSE-KMLLLYENVID-KCL-D
 LcuGlob2 NVE-----I-GKF---NLSNLHQHPG-QLMNIYGRLE-SGL-N
 MdoGlob2 NRM-----GKF---NMQQLHRHPQ-ELLQVYGNLIE-QGL-D
 HvitHbL2 HMM--DS-S-----C-DDI-F-TSPKFARHMANSLLPNLGIIR-N-L-D
 EdaHbL3 KFA--DV-P-----M-DSL-K-DNAALKAHSV-NILGKFAGCVLEN-I-K
 PhuHbL2 SFS--NV-S-----E-DDL-P-FNHCFRLHCF-AVYKAINFLMS-NWLGE
 PhuHbL3 KFEE-EL-----T-DDV---VNKRLFKHSS-AVLNFMECIVQ-F-M-N
 PspHbL2 -----PT-A-----A-ENM-C-TNPELRTVAW-QIMQKMSNLIE-S-L-D

 DmeGlob1 QDGDLEKLDIWI-TKIAVSHIPR---T---VSKESYNQLKGVILDVLT--
 GauGlob1A DNCS--HLEEIW-TKIAQSHFNR---Q---IEKQSFNELKEVILEVLV--
 GauGlob1B DDPS--QLEEIW-VKVTQSHFNR---Q---IEKHSFNELKEVILEVLT--
 LcuGlob1 HDWSPKLEEMW-SKVAVSHFNR---Q---IEKQSFNELKEVILEVLT--
 MdoGlob1 HDWAGPKLEETW-SKIATSHFNR---Q---IEKKSFNELKEVILEVLT--
 CcaGlob1 EEGGLEKIQDIW-QGIASSHVQR---H---NIPKPSYFELREAVEVLS--
 MscGlob1a TDYTDPALHEIF-SKVAISHHKR---G---ISKASYNELKEVILEVIV--
 MscGlob1b TDSTDSALQEIW-SKVALSHHKR---D---ISKSSYNELKEIIEIILV--
 MscGlob1c TENAGNILHEIF-AKVAVSHHKL---G---ITKVAHDQLKEVILIEILI--
 MscGlob1d TQNAGMVLHEIF-EKVAVSHHKR---G---ISKESHNLKEVILEVTLV--
 GinGlob1 VDFGDKKFDDVW-KKLAQTHHEK---K---VERRSYNELKDIIEVVC--
 LloGlob1 TADPVATLVEIW-TEIARTHFRR---Q---IKQKSFDELKEVVLEILT--
 PpaGlob1 TADPVGTLVEIW-TEIAKTHFKR---N---ITQTSFDELKEVILEVLT--
 MdoGlob1 KENYVEELERIW-NQIGESHNR---K---ISRQSFNELRDILVHTLI--
 BmoHbL QPE---IVAAMM-TKLGESHRRR---Q---IKEKNFHELKEVIVKLFII--
 ScyHbL QPE---VVAAMM-NKLGESHKRR---Q---IKERHFGDLKQVIVTMFI--
 AasHbL QPE---IVAAMM-NKLGESHKRR---Q---IKKKHFGELKQVIVKIFI--
 HvirHbL QPE---VVAAMM-NKLGESHGRR---K---IQEKNFQLKEVIVKMFII--
 SfrHbL1 QPE---VVAAMM-NKLGESHGRR---K---IKEQNFQDLKQVIVKMFII--
 SliHbL QPE---IVAAMM-NKLGESHGRR---K---IQEKNFLELQVIVKMFII--
 BanHbL QPE---MVAAMM-SKLGESHGKR---K---IQREHFYDLKDVLVVKMFI--

DplHbL3 QPE---VVSAMM-NKLGESHGRR---K---IQEKHFHDLKDVIIVKMFII--
DplHbL1 QPE---IVVAMM-NKLGESHGRR---K---IDEQNFHNLKGIIVKMFII--
DplHbL2 QPE---VTAALM-NKLGESHGKR---G---IREEHLLSLKDVMLEMLN--
SfrHbL2 KPE---LVVAWM-EKLGDSHRRH---R---IEKRHFHVFKDVLVTLIQ--
TcaHbL1 DGE---LIVSLL-EKLGKNNHRR---G---IKDDAYDQLKETVIEFLS--
TcaHbL2 DGE---LLVNIL-EKIGRNHHRN---T---VKPISFWHVKETMLEFFK--
DpoHbL1 DNN---LLVQIL-TKTGSSHVPR---H---VTADAFIHLKEVTIEFLS--
DceHbL NVE---VLVNLL-SKTGEAHGRR---K---IPEQSFGLKVTVLELLR--
LkoHbL DPE---VMHEML-LKIGMNHGRR---G---ITEEEFHELKIVLMLNLLK--
LmiHbL1 DPE---VLEEML-LKIGNNHGR---K---IPEDEFMVLKDVLMQLLR--
RflHbL DPE---CLKELL-IKLGKNNHGR---K---VYEKQFHDLELVLMELLK--
ZneHbL1 DPE---CLTELL-IKLGQNHDRH---G---VSEKEFNDLKVVLMKLLK--
BgeHbL1 DVE---CLIELC-SKIGENHLRR---K---VEQQAFLDVKTVLMKLLK--
BgeHbL2 DPG---CLVEML-SKIGENHHR---G---ISRQEFINLKAVVLKLLK--
LysHbL DPE---CLVETL-KKLGENHGRR---N---ITLQEFENLKAVVIKFLK--
LfuHbL3 DPG---CLVEML-RKLGQNHGQR---H---IPEQAFDLKAVLMKMLK--
LfuHbL2 DSE---CLVEML-VRIGQNHGRM---N---VQPESEFHLKSVIMGLK--
BspHbL DTE---VLVELC-EKVGKAHISR---K---VPPGAFDDLKVTALKVLS--
EdaHbL1 DTE---VLVELL-TKIGVNNAKH---S---VPPHAFSDLQAVILKLFQ--
IscHbL1 EPE---TSAELV-RKVATNHVRH---P---TISGAQFEHMGQAVVEVLA--
IscHbL3 DAE---CLVELV-RKVAVSHTRR---P---VSVTHFENLTVVIVDTLK--
CexHbL1 DVE---CLKEMV-IKIAHNHLRR---K---VDDKHFFSSLGESIISFME--
AmeHbL DPG---LMEASL-IGLVERHKKR---G---QTKEEFQNLKEVMLEVL--
BteHbL1 DPG---LMEASL-ISLGERHKKR---G---QTKEEFENLKGVVLLKVL--
NviHbL DPA---LLEANL-VAIGERHHR---G---QTKEQFLHLKEVIAEVL--
CflHbL DPE---LMQATL-INLIEKHKNR---G---QTQEQFENLRQLLAKLFP--
SinHbL DPE---LMEASV-INTEKHKNR---G---QTQKQFENLQMMMLDVFP--
BteHbL2 DVD---LMNAIL-HTTGKRHRGRR---G---QGRQEFIDLKGVVLDAMR--
MgiHbL DPD---LLEGLI-EKIVTNHARR---Q---ITKENFKNIGIVLENYLK--
SsuHbL DVE---CLKELL-TKIGENHSRR---K---VSIIEFKKLAUVVDFLE--
DviHbL DVD---TVAAIL-DKIGRNHARR---S---VDLQALKDVKRALLDIFA--
SjeHbL DAE---CFKVLV-ANVAQSHYNR---G---VTYEHFSLKGPVMLSLE--
IscHbL2 DEN---TMVELI-KKNI RNHVRR---S---VTPEHFVNINLLIEVMQ--
StuHbL DID---VLTEVV-MKVGRSHKPR---D---LTMSDLQNLAKVAQDYLA--
DpuHbH DIP---KLVNEL-KNLGKNNHGR---N---IKTENFRNLTVVVLVAFLE--
FocHbL DVP---CLDAMV-RKLADSHLKR---H---VTPEHFALGAVVMQALQ--
CmaHbL DVE---VLVELL-KTIGANHRDR---G---VPGDFELLAPVLVRFLE--
DpuHbA NPG---ALNGKL-VDLANQHKQR---G---TTRAHFDNMATVLLGFLA--
DpuHbD NPD---GLNAQL-VELAKQHKNR---G---TTRTHFDNLAKVLDVFLA--
DpoHbL2 EPL---ILEQLL-IKQSTSHVLR---N---VPDQAYWDIKTVILSIVA--
EdaHbL2 DTE---CLTAML-NKLGDNHHRH---H---VSPSAFPDFKDVLMVLEK--
ApiHbL KPE---ELEKLL-TNLGKHKHY---G---LSAKHFQVIGDVLIAMIT--
MpeHbL KPE---ELEKIL-TNLGKHKHY---G---LTAKHFQVIGDVLVAMIS--
MhiHbL NPE---QLVSIL-TTVGKNNHVKR---N---VTPEHYNSAQKIIIEVIG--
DciHbL NPN---AVLPEL-EKLGTSHQRR---N---IRPEQFEVVTNIIILKVLK--
HsaNgb DLS---SLEEYL-ASLGRKHRV---G---VKLSSFSTVGESLLYMLE--
DreNgb DLH---TLEDFL-LNLGRKHQAV---G---VNTQSFALVGESLLYMLQ--
BflGb4 DLT---AVVPVL-TELGALHHKY---G---VQPSYFDTVGAALIYILE--
BflGb1 DPE---DLKQLL-YDTGKSHLIH---D---IKPEYFDVLETVLMKSLR--
BflGb2 DPE---ALKSLL-YDTGKAHLRH---N---TKPEHFDDLEVVMMKSLK--
BflGb5 EPA---DLQQLL-YDTGKSHLRH---S---VKPEYFDALGNVLMKGLT--
BflGb9 EPA---ELRQLL-YDLGKNHAKH---Q---VGPELFDALGPILMKALP--
SkoGb1 NGA---ELVKQL-KHLGTTHIAL---K---VTEDNFNAMDSVLMYTLQ--
SkoGb3 DSS---AMVAKL-TALGTSHIAL---K---VTPANFDAMGPVLLWMLQ--
SkoGb4 DAP---ALVKQL-TALGTSHIAL---K---VTPANFDAMGPVLLWTLQ--
SkoGb2 EGE---LLVQLL-KDLGSSHSKN---K---VTSSHFALGPVI IWLLO--
SkoGb5 DGT---ILVELL-KTLGYTHVGL---N---LTPEHFALGPILISLLO--
BflGb8 DQE---VLLDLF-KDIGKKHYPA---R---VPTEYFDVITAGAILCMLQ--
AsaHbT1-9 NSI---ELGQSL-AQLGKDHVPR---K---VNRVHFKDFAEHFIPLMK--
PhuGbX EPE---KLETLL-KELGRKHVGY---G---AKQKYVELVGPQFILAIAK--
ApiGbX EPD---KLETLL-RDLGKKHYHY---G---AKQKYVDLIGPQFIMAIQ--
AgoGbX EPD---KLETLL-RDLGKKHYHY---G---AKQKYVDLIGPQFIMAIQ--
BtaGbX EPE---KLDTLL-KDLGRKHYSY---G---AKVYVDLIGPQFIQAIQ--
DciGbX EPD---KLDTLL-RDLGKKHYTY---G---AKAKYVDLIGPQFISAIQ--
PveGbX EPD---KLDTLL-RDLGKKHFTY---G---AKAKYVDLIGPQFISAIQ--
CleGbX EPE---KLEQLL-KELGKKHHGY---K---AKVQYVDLVGPQFIQAIQ--
HhaGbX EPE---KLEQLL-RELGKKHHSY---K---AKAKYVDLVGPQFIQAIQ--
OfaGbX EPE---KLEQLL-RELGKKHYGY---K---AKAKYVDLVGPQFIQAIQ--
ZneGbX EPE---KLETIL-QELGKKHYTY---G---AKQKYVDLIGPQFIQAIQ--
BgeGbX EPE---KLEKLL-QDLGKKHYAY---G---AKQKYVDLIGPQFIQAIQ--

LfuGbXa EPD---KLDVLL-RELGKKHYTY---G---AKQEYIDYIAPQFIQAIK--
LfuGbXb EPE---KLDLLL-RELGKKHYSY---G---AKQQYIDYIAPQFIQAIK--
LfuGbXc EPE---KLDVLL-RDLGKKHFSY---A---AKPEYVDLIGPQFIQAIK--
EdaGbX EPE---KLEALL-RDLGQKHIFY---G---AKPEYVELIGPQFIQAIR--
CexGbX1 QPR---KLEMLL-GELGKSHLNY---G---AKAEYIEKIGPQFIYAVK--
CexGbX2 EPE---KAEQLL-GDLGKKHVMY---G---AKPDYVDLIGPQFVYAVK--
HazGbXb EPA---QLQALL-ETCGRNHCGY---G---AALHHIDLVGPPQLLEAIK--
SmaGbX NPS---KVHALL-RQLGKNHFHY---G---VKREYIDLVGPPQFVIAIR--
SkoGb7 SDE---KIEEHL-KALAKKHVEY---G---ANSDLVRLFGPQFVIGSMK--
XtrGbX DCA---RLEELA-LELGRSHYRY---N---APPRYYQYVGTETIFSAVC--
DreGbX QLE---RLETLA-LELGKSHYRY---N---APPKYGYVGAEFICAVR--
SkoGb10 EKP---RLDAML-LDLGRRHQEY---K---ADFNLDVDFGEQFVILSVR--
SkoGb16 DKD---KFDRIL-LDLGRRHHGY---K---ADVDLIEVFGQQFIASIQ--
SkoGb9 EKNGS-QAECVL-IDLGRRHCSY---N---ADINLDVDFGQQFIASIQ--
SkoGb8 EDE---KIDQMV-VDLGKRHLGY---D---VHIPFDLDFGRQFVFAIK--
PhuHbL1 DEL---TIQREL-TALGKMHGKK---K---ISEQQFQELKICILEILD--
IscHb4 DPA---GVVALI-RKNATDHTTR---K---GVQPSHFAMLNNVVLEVC--
GgaGbE NTE---AFLGIL-NPLGQKHATQ---L---KIDPKNFRIICDIILQLM--
MgaGbE NTE---AFLGIL-NPLGQKHATQ---L---KIDPKNFRIICDIILQLM--
HsaCygb DPD---KVSSVL-ALVGKAHALK---H---KVEPVYFKILSGVILEVVA--
DreCygb1 DAD---KLNTIF-NQMGKSHALR---H---KVDPVYFKILAGVILEVLV--
XtrGbY DWD---AVCSAL-SHLAKRHQDV---H---KVEVNNFELLFLVIVSFK--
OanGbY NWK---QVCKIL-NPLAEKHKII---H---SVDVENFQFMLKCVGDVQC--
HsaMb HHE---A---EI-KPLAQSHATK---H---KIPVKYLEFISECIQVLC--
DreMb DHA-----ALL-KPLANTHANI---H---KVALNNFRLITEVLVKVMA--
HsaHbA DMP---N---AL-SALS DLHAAK---L---RVDPVNFKLLSHCLLVTLA--
DreHbA D-----LVGGL-AALSELHAFK---L---RVDPANFKILSHNVIVVIA--
HsaHbB NLK---G---TF-ATLSELHCDK---L---HVDPENFRLGNVLCVLA--
DreHbB NVK---N---TY-AALSVMHSEK---L---HVDPDNFRLADLCITVCAA--
SkoGb11 NLDG---DISILL-HNLGKRHTDF---D---EVDGAYFDIYTDMMHTWR--
SkoGb14 NLDG---DVTTLF-VLGGKHHIF---E---GFKVDYFSTYVTSMTQVWD--
SkoGb12 DLLN---ALRPLL-VKLAKTHVRF---K---GFKPDYFDFAEAMLSVWQ--
SkoGb13 NLET---SLAPLL-MNLGKSHNHF---S---GFELNYFDSFTGAMLVHWE--
AgaGbXL DLD---TFFEFI-HQVGASHRRI---P---GFKQYFWRIEPPFLSAVS--
AaeGbXL DLD---TFFEFI-HQVGASHRRL---P---GFKQYFWRIEPPFLSAVS--
PpaGbXL DLD---AFFEYL-HQVGSSHRRI---P---NFKADYFWKIEKPPFLSAVE--
BmoGbXLa DLD---NFFQYL-HQVGASHRRI---P---GFRVEYFWKIEAPFLAAVE--
SfrGbXLa DLD---NFFGYI-HQVGASHRRI---P---GFKVEYFWKIEAPFLAAVE--
DplGbXLa DLD---NFFEYI-HQVGASHRRI---P---GFKVEYFWKIEAPFLAAVE--
TcaGbXL NLD---TFFEYL-HQVGASHRRI---P---GFKVEYFWKIEKPPFLTAVE--
DpoGbXL DLD---TFFEYL-NQVGASHRRI---P---GFKAEYFWXKPPFLAVE--
ApiGbXL DLD---NFFQYL-TQVGATHKTI---P---GFNPDYFWKIEVPPFLAVK--
AgoGbXL DLD---NFFQYL-TQVGATHKTI---P---GFDPDYFWKIEVPPFLAVK--
NluGbXL NLD---TFFEYL-TQVGASHRRI---P---GFKPEYFWKIEKPPFLAVK--
HvitGbXL DLD---SFFEYL-HQIGASHRRI---P---GFKPDYFWKIEKPPFLAVK--
CleGbXL DLD---TFFTFL-TQIGQTHKKI---P---GFKPDYFWKIEKPPFLAVK--
HhaGbXL DLD---TFFTFL-TQIGQSHKKI---P---GFKPDYFWKIEKPPFLAVE--
RprGbXL DLD---TFFSFL-TQIGQSHRRI---P---GFKPDYFWKIEKPPFLAVK--
OfaGbXL QLD---NFFAFL-TGIGQSHKKI---P---GFKPEYFWKIEQPPFLAVE--
ZneGbXL NLD---SFFDFL-TQVGASHRRI---P---GFKPEYFWRIERPFLAVQ--
BgeGbXL NLD---SFFQYL-TQVGASHRRI---P---GFKPEYFWKIEKPPFLAVK--
FocGbXL DMD---AFFSYL-GQVGASHRRI---N---GFQSQYFWKIEGPFLKAVE--
MdeGbXL DLN---TFFPFL-HQVGGSHTRI---P---GFQAEYFWKIEQPPFLSAVK--
AmeGbXL NMD---DFLTCL-HQVGATHTKI---P---DFNPQYFWKIEQPPFLAVK--
BteGbXL NMD---DFLTCL-HQVGATHTKI---P---DFNPQYFWKIEQPPFLAVK--
NviGbXL NMD---AFLTFL-HQIGATHTKI---P---GFDREYFWKIESPFLAAMQ--
CflGbXL DMD---AFLTFL-HEVGASHTKI---P---GFNRQYFWKIEKPPFLDAVE--
SinGbXL DMD---AFLTFL-HEVGASHTKI---P---GFNRQYFWKIEKPPFLDAVE--
CriGbXL EID---VFFQFL-HETGAIHTRI---P---GFTSDLFWKIEKPPFLKAVS--
LfuGbXL NVE---FFLEFV-RQVGGTHHRI---P---GFHKDYFWRIETPFLDSVK--
MmoGbXL NLD---AFFDYV-HQVGFSSHRI---P---GYKSDFFLKIIEKPPFLAAR--
PhuGbXL NLD---GFFIYL-HQVGSSHRRI---P---GFKPDYFLKIEQPPFLQAVK--
EdaGbXL SLD---SLIAYL-EAVGASHRRI---P---TFERNHFHRIEKPFLDAVR--
CmaGbXL NVD---FFFDLL-HQIGASHRRI---P---GFKKEYFWKIEHPFLAVR--
HazGbXLa NVD---FFFDLL-HQIGGSHVKI---P---GFKKEYFWKIERPFLAVR--
BmoGbXLa DID---TFLAYI-QHVGATHHQV---P---GFKAEYFWKIEQPPFLQAAK--
AasGbXL DID---SFFAYV-RHVGATHHQV---P---GFKAEYFWKIEQPPFLQAAK--
SfrGbXLa DID---AFFAYI-RHVGATHHQV---P---GFKAEYFWKIEQPPFLQAAK--
DplGbXLa DMD---SFFTYV-RHVGGTHRQV---P---GFKAEYFWKIEQPPFLAAK--
SmaGbXL NVD---AFTAYL-HQVGRSHTRV---P---GFKKEYFWRIQKPPFLAVS--

CexGbXLa	NVD---YLLDYL-HSVGKLHKKI---P--GFQREYFWRIEKPFLLAAVQ--
MocGbXL	NLD---YFLEYL-HNAGGMHYKI---K--GFKKEYFWLIEKPFLEAVK--
IscGbXL	NLD---YFMSYL-HNAGRLHYKI---K--GFKKEYFWHIEGPFLLAAVS--
CexGbXLb	NMD---YFLDYL-HSVGKLRKI---Q--GFNRDLXXKIEKPFLLSAVQ--
SkoGb15	DID---FVVELL-GKIGRTHTRT---D---FNPQLFWRIEQPFLSAVK--
SkoGb6	DAD---HVINLL-TKKGRKHANY---G---VKPEFISDIEEPFLASVK--
BflGb12	DPD---YLIPAL-EKLGQMHADM---TNPIILPEDLWKLEGPFLRAVG--
BflGb3	DVD---YVIQLL-KKIGQMHADL---E---LKPDDMWKLEQPFLAAVA--
BflGb6	DLG---YLIPLL-KRLGQMHADM---K--IMDPEDIWKMERPFLESVR--
BflGb13	DLG---HVISEL-TKLGRQHSDM---N--VMTPEVDVAIEAFLAVQ--
BflGb14	DSV---FVMKVL-HDVGKMHQRY---N---VDPSVFLKVEKPFLLTAVS--
CinGb1	QPD---ELEKLL-TSLGESHARR---Q---VDPESEFYVAPVILSVIG--
CinGb2	QPE---ELKTFL-NGLGELHAGH---N---VEPEDFEYLAPVMLAVIG--
CinGb3	NGE---ELVKYL-LFLGQVHVKR---S---IPRKYFSAMGPVLLSVIS--
CinGb4	LPT---NFTDHL-VWLGQRHAYH---G---VAPVNFYDMGPVLLLETIK--
MsaLegHb	ATG---GVVLGD-ATLGAIHVRK---G---VVDPHFVVVKEALLKTIK--
LluLegHb	VTG---VVVTDATL-KNLGSVHVK---G---VADAHFPVVKEAILKTIK--
CexHbL2	DSR---VLSGIL-FELGCKHARY---N---VQEDMFDKLWDALKSGLE--
CexHbL3	DSR---VLAGIL-YDLGRRHARY---N---VQEQMFDKLWEALRYGLE--
IscHbL5	DSR---VLADIL-YELGRKHARF---N---VHEDMFDKLWHALKFGLE--
DpuHbB	KNP---KQCPHL-----NSPVFK---A---VKPDDLKLFGEVMFTVME--
DpuHbG	KNP---KNCPFIKAKGKYHH-----EDLKLGLVTLMGVLE--
DpuHbC	FQHP---ERCPAL-TDLKNKYSVV-----DLKRFVPIWMAAMQ--
DpuHbE	FDHP---ERCPAFPKHLKDKYNAV-----DLKKLGSIMWTAMQ--
DpuHbF	YDHP---ERCPSFPKQIKDNYNEV-----DVKKLGSIMMMAMQ--
DpuHbK	RSFPV-LQCPAL-KNLKTKYNQHI-----DILKSLGIWVKAMQ--
DpuHb1-1	SQE---LLANQI-NALGGAHQPR---G---ATPIMFEQFGAITEEVLA--
CriHb2B	NSANMPAMETLI-KDMAANHKAR---G---IPKAQFNEFRASLVSYLQ--
CriHb6	SDANIPAIQNLK-KELATSHKPR---G---VSKDQFTEFRTALFTYLK--
CriHbE	-----PNIGKHV-DALVATHKPR---G---VTHAQFNNFRAAFIAYLK--
CriHb3A	DMG---GAKALL-NQLGTSKAM---G---ITKDQFDQFRQALTELLG--
BflGb10	GSG-----HETV-RNVGRIHKA---G---MTNDNINLMKPILELLD--
BflGb15	NGG-----DGAV-QKVGLLHKG---G---VSHDNINLMKPVMLTLG--
BflGb7	GSG-----DEAV-KKVGMRMHKGL---G---MSNEQIDQMKGAIIEVLA--
BflGb11	GAA-----KSTGTMHKGL---G---MSNDQIGAMRGALVAVLN--
BtaHbL	NTS---EILSML-ESNGKSHGRK---N-LGLTWSHYEHLEFTLLDVID--
AgaGlob1	DPA---LLKCSL-GKLVNRHRKR---N---VTKEDVAAVGGVILMRYSL--
AaeGlob1	HPI---MYKSSL-SKMVINHKRH---G---VSKPDVAIVCAIKDYCL--
CquGlob1a	NPL---MFKCSL-SKMMKNHKKH---G---VNKEDVTIVCGIIMEYCL--
CquGlob1b	NPL---MFKCSL-SKMMKNHKKH---G---VHKKDVTIVCEVIMKYCL--
AgaGlob2	DPV---LFDATL-RKITRRHKDR---P---VYTEDIITIGEVLLNYLE--
AaeGlob2	DPE---VFRKKL-FHLVEVHKAR---G---VTPLDVQLFSEIITDYLV--
CquGlob2	TPK---MFECTL-AKLVKNHKTR---R---VTSQDVKMFGEVILMYFA--
CclHbL	ANKVI-ALVDAL-KRLATNHSRR---G---VLREQFYACRILLEYLA--
LsaHbL	TGKII-AIVNTI-KGIANSKSR---G---VLVQQFTPICDILLKYLK--
CcalHbL1	DMD---AFGELM-DKMLRHRPFPEGK---LGKDDFDKATNLLIEVLL--
CcalHbL2	DLG---ALGELM-DKMLRHKPFPEGK---LGKDDFNKATNLLIEILL--
CcalHbL3	EPE---GLIELL-ERLGRRHAPF---E---LKKEDMENATDLFSELLL--
MocHbL1	DEE---TMRELI-RKVALTHKPR---S---VNRDNFQRFEDAFILVLK--
DpuHb1-2	DKL---QLLGNL-NYMRYPHQP---R---AIPRQTFEDFARLLIDGLT--
NluHbL	DMC---EAKSMA-SDLGKHKV---C---VKPKHFENTEKIFIDVLK--
BmaHbL	SAD---SAPRTL-QEMGVRHKKL---D---VHRKHFESFVFPVVDAMV--
HvitHbL3	KPE---HLNEVM-TKLGLYHAKL---G---VSGHLVENMMLSVILDALK--
DmeGlob2	CNL---AFRLAL-DENLPTHKLN---G---IDPDYMRMLATALKSYILLAS
DmeGlob3	DPV---VFQLMI-NDNNHTHNR---H---VGSVNIGHLAQALVDYVY--
CcaGlob2	NAR---FVKTML-KELALRHEAA---S---VTNTQWQLYTNEVRKYFL--
GauGlob2	NMA---NFHGVM-AEVTVKHQRC---G---VKYEEIILKTEHVRYYIL--
LcuGlob2	DVA---FINMLL-SDVGQRHKLY---E---VTYDDVKLLTNHIRLYVI--
MdoGlob2	NMT---YMHVLM-TAISQRHRMF---G---VTGYEIKLQTDHITLYIL--
HvitHbL2	RPN---DFRSHI-LKVAWSHVER---N-LDLNSDHLIDLKGLILRTLK--
EdaHbL3	SAD---NMQGC-FKQAETHKKL---N---VGYDHAKVLSKAIQNYLS--
PhuHbL2	YEE---DDSKIL-PVIGKTHFDR---G---ITLEMMNLYKHSIVYSCN--
PhuHbL3	GNE---ETKPVL-FVLGRNHYTI---G---VNEKLFLEMKDAICSVIK--
PspHbL2	DTP---AFEDLVCQEMTELVCRY---K---IYTPDFRRLIDLFLCIMEDH
DmeGlob1	A-ACS-----LDES-----QAATWAKLVDHVY-----GI
GauGlob1A	A-ACN-----LNDQ-----QTEIWLKLLDFVY-----EI
GauGlob1B	A-ACS-----LNDQ-----QIEIWKLMDFIY-----DI
LcuGlob1	A-VCN-----LNEK-----QTAAWIKLMDIVY-----SI
MdoGlob1	A-ACN-----LNEK-----QIQAWTKLMDTVY-----SI

CcaGlob1	E-ACN-----LNER----QAEAWNKLLDIVY-----DI
MscGlob1a	A-VCE-----MNDC----QKCAWEKLMETIY-----EL
MscGlob1b	A-VCK-----MNND----QKKAWKLLICVY-----NV
MscGlob1c	E-ICG-----MNDF----QKTAFEKLMPEATF-----NV
MscGlob1d	G-VCD-----LNDF----QKGAWKVMESIF-----NV
GinGlob1	S-CVK-----LNEK----QVHAYHKFFDRAY-----DI
LloGlob1	A-ACN-----LDEV----QQTAWAVTLDTIF-----GI
PpaGlob1	A-ACK-----LDGV----QQTAWAVTLDTIF-----EI
MdeGlob1	Q-VCS-----LDDE----GKLAWNTLMDIY-----HI
BmoHbL	D-VLR-----LDDA----TLSAWGKTVEFWY-----KH
ScyHbL	E-VLH-----LDGD----TLTAWDKTVTFWY-----KH
AasHbL	E-VLN-----LDGD----TLTAWDKTVTFWY-----KH
HvirHbL	E-VLK-----LDAV----TLGAWGKTVEFWY-----KH
SfrHbL1	E-VLK-----LDDT----TLGAWGKAVDFWY-----KH
SliHbL	E-VLK-----LDDT----TLGAWGKTVEFWY-----KH
BanHbL	E-VLK-----LEGA----TLAAWGKAVEFWY-----KH
DplHbL3	E-VLK-----LDGT----TLNAWGKAVDFWY-----KH
DplHbL1	D-VLK-----LDDK----NLASWGKAVDFLY-----KH
DplHbL2	S-LLG-----LDES----ALVSWNKTIIDFIY-----KH
SfrHbL2	K-DLK-----LDPQ----VVASWDRYVEFIY-----EH
TcaHbL1	-----SF----MTKE----ELETWDKLLKQVAF-----SV
TcaHbL2	K-----M----MNDE----TLKAWDKALQVAF-----GV
DpoHbL1	T-----I----FKAD----EVAAWKKTFEVAF-----SV
DceHbL	V-GLG----SK----ITDE----GIDAWNKTLEVAI-----KV
LkoHbL	E-KLD----IH----VNSD----GEEAWSKTIDVFIY-----KS
LmiHbL1	D-ILE----IH----KSPV----GEQAWSKAIDVMY-----KN
RflHbL	E-KLG----NQ----LTPQ----GEVAVKKTIDIVY-----KG
ZneHbL1	Q-KLG----KK----LTSQ----AEAAWSKTIDVAY-----QV
BgeHbL1	E-KLG----SS----LTPQ----GEEAWNKTLDLAN-----KC
BgeHbL2	T-KLG----SK----FTSE----DEAAWNKTLDVAY-----SV
LysHbL	H-CVG----SK----FSST----AEAAWVKTLDSAV-----SV
LfuHbL3	E-KLE----GH----FTAY----EEESWDKTMDTAF-----SV
LfuHbL2	R-RLK----DR----FTPF----AEESWSKTLDVAN-----SV
BspHbL	T-KLG----NK----LSPA----AAEAWDKTLTAAF-----SL
EdaHbL1	E-KLG----DR----LSPA----AAEAWDKTLTVAN-----SV
IscHbL1	E-KLG----SA----MNHQ----AVGSWQKFFAFVV-----RV
IscHbL3	E-RLG----GK----MSFA----AVAAWEKTLRLVV-----TV
CexHbL1	E-KLG----SK----FTSH----KEAWQKFYSVVV-----TI
AmeHbL	Q-ALG----KQ----YTPE----VAEAWNKTLDMMF-----GK
BteHbL1	Q-ALG----KQ----YTPE----VAEAWSKTLDGVF-----AK
NviHbL	Q-KLG----AK----FTAE----TAEAWNKTIDAAY-----TG
CflHbL	S-LFG----KQ----YTQE----AEAAWKKLLDLMY-----SV
SinHbL	S-VFG----KQ----YTPE----VQEAWKMLGLIY-----SK
BteHbL2	G-AFG----SK----FTTE----VEVAWDKAIDVLF-----SK
MgiHbL	D-RLG----IK----LTEE----GIQAWRKLCDVVQ-----AV
SsuHbL	E-KLG----DG----FTSF----ARKAWEEVFRVMN-----SI
DviHbL	-----F----MTTA----ELAAWNKMLDYFA-----KT
SjeHbL	E-FLH----RS----LSVP----TEVAWQKFLSVLV-----AT
IscHbL2	V-KLR----SR----MTAS----VIVSWKFFAMHD-----AV
StuHbL	H-TLG----GQ----MTAA----GKEGWAKVFAVVT-----KV
DpuHbH	S-ALG----SQ----LFPE----DVKQSWIKALDVVV-----GV
FocHbL	D-LLG----AS--VMTPD----AVTAWTRTYGLVL-----QV
CmaHbL	D-NLG----SA----WSPV----AEAAWTQAMKVIN-----AV
DpuHbA	A-TLG----SA----FTPE----AKQAWTSTMQGIN-----TV
DpuHbD	A-NLG----AA----FTPD----AKQAWTATMQGIN-----TV
DpoHbL2	S-S-----MNPS----EVFVWEKFLKFAF-----RI
EdaHbL2	R-HLG----AL----FTSE----AELSWDRAMNFVN-----RT
ApiHbL	E-AIG----DS----EPE----LLDLWKSLSLTSVL-----SI
MpeHbL	E-AIG----NS----EPE----LLDLWKSLSLTSVL-----SI
MhiHbL	T-KLG----DE----NSDK----ILSSWNEVLAVAV-----ST
DciHbL	E-KVS-----DPQ----VLKTWQEILTILA-----NT
HsaNgb	K-CLG----PA----FTPA----TRAAWSQLYGAVV-----QA
DreNgb	S-SLG----PA----YTTS----LRQAWLTMYSIVV-----SA
BflGb4	T-NLG----DK----LTPN----IRQGWVLVYGIVG-----AT
BflGb1	I-VFG----SK----LTPQ----LEEAWQTAYSHLK-----VT
BflGb2	A-VLG----LK----FTES----VEEAWRTAFAFFV-----VH
BflGb5	A-VLG----KD----FTEE----VQGAWGTAWGFFV-----IH
BflGb9	I-VLD----GK----FTPE----VKTAWLTAYTFMS-----TH
SkoGb1	E-QGG----SA----FTPA----AKAAWQKAWGVMK-----SV
SkoGb3	E-KAG----GA----FTPA----AKDAWAKGWDLMK-----SH

SkoGb4	E-KAG----GA---FTPA----AKDAWAKGWDLMK-----SH
SkoGb2	K-ENG----DS---FTPA----VKNAWLKGGWVMK-----SV
SkoGb5	E-KGG----DS---FTPF----AEKAWLKGWGMK-----SV
BflGb8	Q-CLG----TG---YTAE----VDSAWTKLYGSLG-----RH
AsaHbT1-9	A-DLG----DE---YTPL----AESAWKKAFDVMI-----AT
PhuGbX	P-SLE----KQ---WDEE----LDDAWTHLFKII E-----FV
ApiGbX	P-SLV----DR---WTEE----MHSAWTALFLNMA-----YI
AgoGbX	P-SLV----DR---WTEE----MHSAWTALFLNMA-----YI
BtaGbX	P-SLK----DR---WNEE----LHQAWACLFQFMA-----YI
DciGbX	P-SLE----SR---WSPE----LNNAWIHLFGYMA-----HI
PveGbX	P-ALE----SR---WSTE----LHNAWVHLFAYMA-----HI
CleGbX	P-SLD----SE---WTEE----VADAWKLLFAHVG-----YI
HhaGbX	P-SLG----EE---WNEE----VSEAWILLFAHIN-----YT
OfaGbX	P-SLG----EE---WTDE----VSAAWVLLFANIS-----YI
ZneGbX	P-SLE----DR---WTPE----LQEAWIHLFKYMA-----YV
BgeGbX	P-SLA----EQ---WTPE----LNTAWVQLFQYMA-----FV
LfuGbXa	P-SME----DK---WTKE----LEGAWTALFNMYG-----VI
LfuGbXb	P-SLE----DR---WTGE----LQDAWIALFNMYG-----VI
LfuGbXc	P-SLE----DK---WNEE----IHEAWTTLFEYMA-----SM
EdaGbX	P-SLE----YR---WTEE----LQDTWLQLFRYIS-----DI
CexGbX1	P-MLE----DH---WNPG----VENAWLQLFRYIT-----HY
CexGbX2	P-SLE----DH---WTNE----IEEAWLQLFRFIA-----YC
HazGbXb	P-SLE----DR---WSPE----ISTAWTLLMDNIA-----YA
SmaGbX	P-LLEME--SA---WTAA----IQDSWLHLFASMS-----AI
SkoGb7	R-QLH----KS---WSDE----MQDAWTVLFDIII-----YH
XtrGbX	P-MLH----DK---WTAE----VEEAWKGLFAYIC-----TV
DreGbX	P-ILK----DR---WTPE----LEEAWKTLFQYVT-----SI
SkoGb10	P-TLK----HS---WNPD----VESAWAQLFKYIS-----YM
SkoGb16	P-TLK----DN---WNPA----VGEAWEQLFKCVS-----SR
SkoGb9	P-TLT----GS---WDKK----VEDAWIQLFKYIA-----FT
SkoGb8	P-TLH----TH---WTAN----VEEAWTQLFKYIG-----YL
PhuHbL1	N-EFK-----LPED----DLQAWSKTLNNAF-----VF
IschLb4	D-KLG----SR---FKPE----AITAWEKFIIEVGK-----LL
GgaGbE	E-KFG----GD-----CKASEKVTNEIC-----TH
MgaGbE	E-KFG----GD-----CKTSFEKVTNEIC-----TH
HsaCygb	E-EFA----SD---FPPE----TQRAWAKLRGLIY-----SH
DreCygb1	E-AFP----QC---FSPA----EVQSSWSKLMGILY-----WQ
XtrGbY	E-ALG----SG---FTPE----QSKSWEKLFSTITY-----KY
OanGbY	D-YLG----PC---YTPE----IAESFQKLQSSLY-----DQ
HsaMb	S-KHP----GD---FGAD----AQGAMNKALELFR-----KD
DreMb	E-KAG-----LDAA----GQGALRRVMDAVI-----GD
HsaHbA	A-HLP----AE---FTPA----VHASLDKFLASVS-----TV
DreHbA	M-LFP----AD---FTPE----VHVSVDKFFNNLA-----LA
HsaHbB	H-HFG----KE---FTPP----VQAAYQKVAVAGVA-----NA
DreHbB	M-KFG----QA---GFNAD----VQEAWQKFLAVVV-----SA
SkoGb11	S-SLG----NE---LFTPD----VGQVWHKLFDFII-----NC
SkoGb14	I-ALT----GHH---YDKQ----TKQSWTQIFEFVI-----TR
SkoGb12	E-ELG----QR---FTTE----VEESWKLFFFYIK-----DC
SkoGb13	L-ELQ----DR---FTPE----VMEAWKLVFDYMM-----GK
AgaGbXL	T-TLG----DR---YTQN----VEGIYKLTIKFII-----ET
AaeGbXL	N-TLG----DR---YTQN----VEGIYKLTIKFII-----ET
PpaGbXL	T-TLG----DR---YTPN----VEGIYKLTIKFII-----ET
BmoGbXLa	S-TLG----DR---YTPN----VENIYKITIKFIL-----ET
SfrGbXLa	S-TLG----DR---YTPN----VENIYKITIKFIL-----ET
DplGbXLa	S-TLG----DR---YTPN----VENIYKITIKFIL-----QT
TcaGbXL	T-TLG----DR---YTEN----VENIYKITIKFII-----ET
DpoGbXL	T-TLG----DR---YTSN----VENIYKITIKFII-----ET
ApiGbXL	T-TLG----DR---FTEN----IETIYKITIKLII-----ET
AgoGbXL	T-TLG----DR---FTEN----IETIYKITIKLII-----ET
NluGbXL	M-TLG----DR---YTEN----VENIYQITIKLII-----ET
HvitGbXL	M-TLG----DR---YTDN----VENIYKITIKLII-----ET
CleGbXL	M-TLG----DR---YSEN----VESIYKVTIKLII-----DT
HhaGbXL	M-TLG----DR---YTEN----VENIYKVTIKLII-----DT
RprGbXL	M-TLG----DR---YTEN----VENIYKVTIKLII-----ET
OfaGbXL	K-TLD----DR---YTEN----VENIYKVTIKLII-----ET
ZneGbXL	M-TLG----DR---YTEN----IESIYKITIKFII-----ET
BgeGbXL	M-TLE----DR---YTEN----VENIYKVTIKFII-----ET
FocGbXL	Q-TLG----DR---YTAN----VENIYKVTIKLII-----QT
MdeGbXL	T-TLG----DR---YTEN----VSGIYIITIKFII-----ET
AmeGbXL	R-TLE----DR---YSEN----VESTYKVTIKFII-----ET

BteGbXL	R-TLE----DR---YSEN----VESTYKVTIKFII-----ET
NviGbXL	M-TLH----DR---YTEN----VENIYKLTIKFII-----QT
CflGbXL	R-TLE----DR---YSEN----VENIYKLTIKFII-----ET
SinGbXL	R-TLE----DR---YSEN----VENIYKLTIKFII-----ET
CriGbXL	D-TLG----DR---YTEN----VEGIYKITIKFVI-----ET
LfuGbXL	T-TLG----DR---YSDN----MDTIYKVTIKFII-----CT
MmoGbXL	T-TLG----DR---YTEN----IENIYQITIKFIL-----QT
PhuGbXL	D-TLG----DR---YTEN----VERIYNITIKLII-----TT
EdaGbXL	T-TLG----DR---YTDN----VDVIYQATIKFII-----DS
CmaGbXL	L-TLG----DR---YTDN----MDNIYRITIKLLI-----ET
HazGbXL	L-TLG----DR---YTDN----MDQIYQLTIKFVL-----ET
BmoGbXLb	T-TLG----ER---YTAN----VENIYKLTIKFIL-----EN
AasGbXL	T-TLG----DR---YTPN----IENIYKLTIRFIL-----EN
SfrGbXLb	T-TLA----DR---YTPN----IEEYKKTIRFIL-----EN
DplGbXLb	T-TLG----ER---YTPN----IENIYKLTIRFIL-----EN
SmaGbXL	E-TLG----DR---YTEN----METIYTVTIQFIL-----ET
CexGbXL	E-TLG----DR---YTEN----METIYKITHIFIL-----ET
MocGbXL	L-TLG----DR---YTDN----IENIYNTTIHFIL-----ET
IscGbXL	D-TLG----DR---YTDN----IENIYKLTIRFIL-----QT
CexGbXLb	E-TLG----DR---YTDN----MDSIYKVTIRFIL-----ET
SkoGb15	E-TLE----DR---YTKN----IEEYKITFRFIV-----DA
SkoGb6	Q-LLE----DR---YSEK----IEEYKLTIKFIL-----EH
BflGb12	E-VLE----DR---FTRKYQDIYQDIYQKFIIFVL-----ES
BflGb3	E-CLE----DR---YTPK----FQEIYSKLTIFII-----EH
BflGb6	A-CLE----DR---FTYK----YEEIYSKFIIIFII-----ET
BflGb13	E-CLE----DR---FTIK----YEEIYSRFIVFVI-----ET
BflGb14	E-VLG----DR---YTKN----MEEIYTITIKFIL-----AT
CinGb1	G-HLK----LP---SNSP----TLQAWVKAYGVLR-----NG
CinGb2	G-QLN----LN---SNSS----ILQAWVKAYGVLR-----NG
CinGb3	A-VLE----KD---LDAP----VMQAWATAYGVIE-----QG
CinGb4	V-NLE----LP---SDSP----TLSAWAKAYGVIK-----NG
MsaLegHb	E-AAG----DK---WSEE----LNTAWEVAYDALA-----TA
LluLegHb	E-VVG----AK---WSEE----LNSAWTIAYDELA-----IV
CexHbL2	E-TLQ----EQ---MTKE----VTQAWFVFRYIS-----HH
CexHbL3	K-SLQ----NR---MTRE----VNQAWFAVFKYIS-----WQ
IscHbL5	D-ALQ----DR---FNRE----VAQAWFIIFRFLS-----RK
DpuHbB	E-ELG----QS---FSTE----ARKAWKDGLIACD-----VA
DpuHbG	E-ELG----KG---FTDE----TKEAWKKGLRAMN-----EA
DpuHbC	E-EMG----NA---YSNE----VRDVWKKAFSAFT-----DY
DpuHbE	E-EMG----NA---FTND----VRDVWKKAVMAVI-----EY
DpuHbF	E-EMG----SD---FTND----VRDAWKKAVMAVI-----EY
DpuHbK	E-ELD----KK---IFTDD----VRVWKKLFSVLK-----EH
DpuHb1-1	E-ELG----IA---FNAE----ARQAWKNGMRALV-----AG
CriHb2B	S-KVS-----WNSD----LGAAWTQGLDNVF-----NM
CriHb6	A-HIN-----FDGP----TETAWTLALDTTY-----AM
CriHbE	G-HVD-----YTAA----VEAAWGATFDAFF-----GA
CriHb3A	--NLG-----FGN----IGAWNATVDLMF-----HV
BflGb10	--EVG-----CGD----AKAARDKLNLFM-----TV
BflGb15	--ELG-----CSS----AAGAWENLWARFM-----DV
BflGb7	DAGFG-----DAN----YKGAWGKLWDRFM-----AI
BflGb11	-----DA---GEGG----AVPAWNKLFDFHM-----EV
BtaHbL	E-FYE----QEKRPLSSL----EKETWAKFIRSVT-----SG
AgaGlob1	K-ALE----QH---KTKT----LEEAFGAFGLGTVA-----AA
AaeGlob1	Q-TLG-----HSDE----LEDAFTALLDSVA-----NA
CquGlob1a	E-ALD----QR---GSTT----LEEAFSSFMKSIA-----DT
CquGlob1b	E-VLD----QH---HSTT----LEAAFKSLMRSIA-----DT
AgaGlob2	Q-ALG----RQ---MSDS----LPDAFWKLFQITIA-----GR
AaeGlob2	E-VLG----RQ---AANS----LADALGKLFQDQFA-----EA
CquGlob2	Q-VLG----RQ---SASS----LPTAFNRLIEQIA-----EA
CclHbL	Q-ALG----TH---LSTE----GALAWKRFLGTFV-----EL
LsaHbL	E-AFG----DQ---LSNE----GTATWKKFLDIFV-----SV
CcalHbL1	G-HSDVKCKD---NAEF----LKEAWSKA FEVIN-----SQ
CcalHbL2	A-NPGVQNCRD---NAEF----LKDAWTKTFELVN-----GQ
CcalHbL3	T-HPNLPTIEY---SKDD----VASTWEKAFKVIN-----TV
MocHbL1	K-----YG---IDRR----TEEAFHKCILYFT-----DI
DpuHb1-2	A-----SG---VSGD----DMDSWKGVLTI FV-----NG
NluHbL	K-QMG----EK---LSCD----GAKSLENIKSVF-----KQ
BmaHbL	N-VRM----SM---DKDE----VASAWTKLMDAIA-----SN
HvitHbL3	S-VMP----TK---MQPD----EETAVRTCLKSAF-----AI
DmeGlob2	S-VIE----NH---NSCS----LSNGLARLVEIVGEY-----AV

DmeGlob3 K-VFH----KV---SSPS----LEQGLSKLVEKFQNYQD-----QQ
 CcaGlob2 E-TLA----DA---ISPT----FVHALDKLMNFVCNF-----ND
 GauGlob2 E-YFA----NQ---SSPT----LVSALAKLSEHFNDRHR----PKEGESD
 LcuGlob2 E-FLD----KI---KSIT----FVNGLTKLSELINEHH-REKAEDAEQTA
 MdoGlob2 A-LLE----KI---ISPT----FVSGLEKLSRLINAYHC----EDACDEL
 HvitHbL2 D-SLG----GG---IGLD----HEVALFKIITAAF-----KI
 EdaHbL3 A-NLP----HG---YGGD----VKTGWNKVLYVMT-----EA
 PhuHbL2 N-HLK----PN-----LKRKLSWQTVFDHIFDYLL-----G-SA
 PhuHbL3 Y-KIG----TE-----NAKAWDTILQYIL-----INY
 PspHbL2 E-CVK-----RSNDC-RGAVMAWRTFRDIII-----QR

DmeGlob1 I----FKAID--DD----GNAK-----
 GauGlob1A I----FKTID--QL----EQDV-----
 GauGlob1B I----FRTID--EL----EQAA-----
 LcuGlob1 V----FNTLD--KL----KNGEQ-----
 MdoGlob1 I----FNSLD--KL----EKGEQ-----
 CcaGlob1 I----FKKYD--DL----GAQ-----
 MscGlob1a I----SRPLI--AL----KSEVG-----F-----LNILKFVCN
 MscGlob1b I----FQTID--NI----SN-----
 MscGlob1c I----YS-----ENWLL-----
 MscGlob1d I----YS-----ENWIL-----
 GinGlob1 A----FAEMA--KM----G-----
 LloGlob1 I----SKELA--NL----AESSQ-----
 PpaGlob1 I----SKELV--KL----GQTSQ-----
 MdeGlob1 V----FLKLD--EN----NQY-----
 BmoHbL I----FVTLN--SP----EETR-----
 ScyHbL I----FETLN--TA----EESR-----
 AasHbL I----FETLN--RT----EESR-----
 HvirHbL I----FETLN--RA----EQTR-----
 SfrHbL1 I----FETLN--KA----EQTR-----
 SliHbL L----FETLN--KA----EQTR-----
 BanHbL I----FGTLS--QG----DTR-----
 DplHbL3 I----FETLK--QA----EIR-----
 DplHbL1 I----FVTLK--PE----S-----
 DplHbL2 I----FQTLH-----
 SfrHbL2 L----LSRLA--S-----
 TcaHbL1 I----IKYL-----
 TcaHbL2 V----AKELD--KK----N-----
 DpoHbL1 I----IQGIE--SV----N-----
 DceHbL I----HDGMK--EY----YQKQQ-----Q-----KKAABE
 LkoHbL M----FKGMD--MTS--H-----
 LmiHbL1 I----FKGME--ET----RNK-----
 RflHbL I----FQGMR--AY----DASSV-----K-----
 ZneHbL1 I----FEGLK--TS----DVASV-----K-----
 BgeHbL1 I----FQAME--DK----KNKA-----
 BgeHbL2 I----FKGLD--KA----EEDAS-----Q-----KA-----
 LysHbL I----NKGIP-----
 LfuHbL3 I----FQGLK--DQ----ELTAT-----
 LfuHbL2 I----FKGLE--DG----QKEKI-----V-----LKSENAS--
 BspHbL I----KKELP--AE----DQE-----
 EdaHbL1 V----TKQLS--AP----EPSKP-----Q-----QQVEMKT--
 IscHbL1 S----QGVFK--KRP--FRKARS-----E-----DT-----
 IscHbL3 T----ADVYK--EQ----RK-----
 CexHbL1 V----KEVQE--EE----HYES-----
 AmeHbL I----YQVFA--S-----
 BteHbL1 I----YQVFS--S-----
 NviHbL I----FQTFs--T-----
 CflHbL I----HEVYK--N-----
 SinHbL I----YQTLK--D-----
 BteHbL2 I----FEGED--MI-----
 MgiHbL A----EEILV--K-----
 SsuHbL I----EEGLK--SAT--GR-----
 DviHbL A----IK-----
 SjeHbL A----KDIAD--RD----QNQTN-----S-----S-----
 IscHbL2 T----RQTYD--EF----RAQSA-----V-----ERAAGTSNS
 StuhbL M----DEGMR-----A-----
 DpuHbH V----ATGLP--QP----SPDDD-----A-----GSA-----
 FocHbL V----TDQMG--KA----QS-----
 CmaHbL I----FTSYD--A-----
 DpuHbA V----EASA-----

DpuHbD	V---EANA-----
DpoHbL2	M---VATAE--ET---RNN-----
EdaHbL2	V---TARLV-----
ApiHbL	I---IAACH-----
MpeHbL	I---IAACQ-----
MhiHbL	I---MKGAQ--EE---EAKYI-----
DciHbL	I---VSFMK--PTIK-----
HsaNgb	M---SRGWD--GE-----
DreNgb	M---TRGWA--KN---GEHKS-----N-----
BflGb4	M---KKGMQ--QA---MDHQN-----M---AKTRP----
BflGb1	I---KQGLE--DA---IQKRD-----Q---AD-----
BflGb2	L---KMGVE--DG---LRGRE-----K---KN-----
BflGb5	L---KQGLE--DA---VRHGA-----E---TN-----
BflGb9	L---KEGVE--EG---QRQLA-----D---SK-----
SkoGb1	I---VGALK--G-----
SkoGb3	I---VKALQ--G-----
SkoGb4	I---VKALQ--G-----
SkoGb2	I---VGSLE--EA---YAKMK-----T-----
SkoGb5	I---VGALE--NG---YQLED-----G---LGY-----
BflGb8	A---KDGLR--EA---AAMGT-----P-----
AsaHbT1-9	I---EQGQR--AR---RSVAT-----F---LTNPVA----
PhuGbX	M---VSSMD--DD---RKDQR-----T---LE-----
ApiGbX	M---KGSMA--AE---ERFKV-----K---KTAT-----
AgoGbX	M---KGSMA--AE---ERFKV-----K---KTAT-----
BtaGbX	M---KNAML--QE---EAAQK-----S-----
DciGbX	M---KESMT--AE---ELLNR-----K---S-----
PveGbX	M---KESMA--AE---ELCHK-----K---S-----
CleGbX	M---KGAMI--EA---AEEAA-----K---ESK-----
HhaGbX	M---KGAMN--EA---AEEAK-----M---KQ-----
OfaGbX	M---KNAMA--EA---AEEAA-----R---EKQ-----
ZneGbX	M---KTSMG--EE---EQRIN-----S---QQ-----
BgeGbX	M---KTSMN--EE---EQRVR-----A---QQ-----
LfuGbXa	M---KAAMD--LE---ERRAA-----A---ESLPPYN--
LfuGbXb	M---KAAMD--WE---EKRAA-----A---ATIPYALPP
LfuGbXc	M---KTEMA--YE---EKKAI-----A---NSATETR--
EdaGbX	M---MAAIK--QE---SLNHI-----S---NNPVEH---
CexGbX1	M---KVTME--RS---DKETV-----D---DDN-----
CexGbX2	M---KESMT--EC---SRPAQ-----Q-----
HazGbXb	M---KAAMR--LQ---MRQA-----
SmaGbX	M---KKSMG--IE---EEQYL-----I---TK-----
SkoGb7	M---TTNMV--PE---QPENN-----N---IAK-----
XtrGbX	M---ERGYQ--EE---ERRHS-----D---GRSLIDGLQ
DreGbX	M---REGFL--EE---ERNKR-----S---NTQTSSRER
SkoGb10	M---KKGMM--QT---DKNK-----
SkoGb16	M---KDGFL--QA---QSSPS-----N---TELLK----
SkoGb9	M---KQGLA--AE---LIDKS-----L---KL-----
SkoGb8	M---RYGYH--TK---LQQVQ-----K---KNS-----
PhuHbL1	V---FEGLA--AE-----
IscHLb4	W--------SE---EKKRF-----V---VFW-----
GgaGbE	L---TNIYK--EAG--W-----
MgaGbE	L---TNIYK--EAG-----
HsaCygb	V---TAAYK--EVG--WVQQVP-----N---ATTPP----
DreCygb1	M---NRVYA--EVG--WENSCK-----
XtrGbY	L---ESCYA--NTD--S-----
OanGbY	V---VITYL--HSGSD-----
HsaMb	M---ASNYK--ELG--FQG-----
DreMb	I---DGYYK--EIGF-----
HsaHbA	L---TSKYR-----
DreHbA	L---SEKYR-----
HsaHbB	L---AHKYH-----
DreHbB	L---CRQYH-----
SkoGb11	I---KDGyf--LA---MKNKK-----N---NSDEVKKI-
SkoGb14	M---AEGYH--IA---MDEQE-----A---KKNQLAHE
SkoGb12	L---KEGYD--IA---MNEKT-----S---GELNNSDFI
SkoGb13	M---KDGyI--TR---RDEKL-----N---ETNEQKNKI
AgaGbXL	L---VAGYE--AS---ANNNV-----D---NTTSSSTPA
AaeGbXL	L---VAGYE--SS---ANNNE-----DVNNANLSTTGSAAGP
PpaGbXL	L---ITGFN--KS---ANSAA-----P---ANSDTVNVN
BmoGbXLa	L---IEGYE--KA---GNNPS-----S---AS-----
SfrGbXLa	L---IEGYE--AA---GKHPT-----

DplGbXLa	L----VEGYE--KA----GKSNA-----N-----TT-----
TcaGbXL	L----VKGYD--NA----NAPT-----
DpoGbXL	L----VKGFE--NA----NAT-----
ApiGbXL	L----VKGYT--EA----AGP-----
AgoGbXL	L----IKGYT--EA----AGP-----
NluGbXL	L----EKGYN--T-----
HvitGbXL	L----EKGYK--GS-----
CleGbXL	L----VKGYN--S-----
HhaGbXL	L----VNGYN--T-----
RprGbXL	L----EKGYN--T-----
OfaGbXL	L----VNGYN--S-----
ZneGbXL	L----VRGYE--EK----KPDT-----
BgeGbXL	L----VRGYE--EN----KPAS-----
FocGbXL	L----VDGFE--GT----GPAAG-----S-----AGS-----
MdeGbXL	L----ITGFE--SA----NSTQS-----N-----SNSDVNKIN
AmeGbXL	L----IDGFD--KA----QNDKA-----Q-----TSTAKS---
BteGbXL	L----IDGFD--KA----QNDKA-----Q-----SGTAKS---
NviGbXL	L----IDGYD--GA----KSEKS-----A-----YYSTPFENK
CflGbXL	L----IDGFD--KA----QNDKA-----K-----S-----
SinGbXL	L----IDGFD--KA----QSDKA-----K-----S-----
CriGbXL	L----VEGFE--RG----LQNKNHVGNKGVNSTCN-----SNVNGANTT
LfuGbXL	L----VEGFE--RE----EARAK-----E-----RDAQEKKEA
MmoGbXL	L----IEGFE--QS----PNAVQ-----D-----ASSSSQAPS
PhuGbXL	L----MEGYT--DY----GKS-----
EdaGbXL	L----QAGFD--KA----EGNPEMV-----NR---PPPAHIEDIS--
CmaGbXL	V----VRGYE--LA----ELKEP-----N-----DNV-----
HazGbXLa	V----VKGYE--MA----VEREV-----N-----ENVQQLDLS
BmoGbXLb	L----VKGYE--DS----AGKEI-----GN-----NETT-----
AasGbXL	L----VXGYE--ES----SGKEN-----GS-----SQT-----
SfrGbXLb	L----VKGYE--DS----AVENG-----N-----GQS-----
DplGbXLb	L----VKGYE--EA----GEENG-----T-----TQT-----
SmaGbXL	L----VKGFE--IG----EKEKGV-----
CexGbXLa	V----IAGYD--MG----PETNQ-----N-----SL-----
MocGbXL	L----VEGFA--LA----ETKAK-----C-----SE-----
IscGbXL	L----IEGFE--EA----EKEAA-----Q-----QAR-----
CexGbXLb	V----IKGYD--MA----EDETN-----G-----TPSEENDV-
SkoGb15	L----IDGVV--AG----VNERK-----A-----EAEAEAEAK
SkoGb6	F----INGLK--ES-----
BflGb12	I----VIGFD--PF-----
BflGb3	V----VNGFD--PH-----
BflGb6	V----VIGFD--PH-----
BflGb13	M----VIGFD--PH-----
BflGb14	L----SEGAT--ME----LTEDE-----Q-----KNLGRWLWRP
CinGb1	I----VSAME--A-----
CinGb2	I----VRGMY--AY----QG-----
CinGb3	I----IDGM-----
CinGb4	I----KDAII--AT----YAEG-----
MsaLegHb	I----KKAMS-----
LluLegHb	I----KKEMN--DAA-----
CexHbL2	I----VKGMR--DY----RKRSQ-----
CexHbL3	V----IKGMR--DT----YAKGI-----D-----
IscHbL5	I----IEGML--EH----RAKMA-----E-----EKAKQEIGD
DpuHbB	F----RKSH-----
DpuHbG	V----TKRPNP--SRR-----
DpuHbC	A----STP-----
DpuHbE	A----SK-----
DpuHbF	V----SK-----
DpuHbK	V-----SE-----
DpuHb1-1	I----SKNLK--KA----EDLA-----
CriHb2B	M----FSYL-----
CriHb6	L----FSAMD-----
CriHbE	V----FAKM-----
CriHb3A	I----FNALD--GTPV-----
BflGb10	H----GDGC-----
BflGb15	H----RTCY-----
BflGb7	H----RAAY-----
BflGb11	H----KTGY-----
BtaHbL	I----YKTVQ-----IHQNAIQ-----S-----
AgaGlob1	F----E-----
AaeGlob1	F----D-----

CquGlob1a	F---DE-----
CquGlob1b	F---DE-----
AgaGlob2	F---PATPK--TP---IADEG-----G---DD---A-
AaeGlob2	F---AYQD-----
CquGlob2	F---EAAQF--T-----
CclHbL	M---QEGYA--QL---DASK-----
LsaHbL	I---NEAYD--EI---KNKK-----
CcalHbL1	F---A-----SR---M-----
CcalHbL2	F---A-----AR---M-----
CcalHbL3	I---SLIDW--SD---IMAQC-----
MocHbL1	Y---EKAED--T-----
DpuHb1-2	VS-P-KQ-----
NluHbL	L---KKGAA--ADS-----
BmaHbL	L---SKGVE-----
HvitHbL3	A---IDTINIYEK---ENKQA-----A---TDS-----
DmeGlob2	VDEARKRAMS--TALRTTVDDAG-----N---RIVKVALGT
DmeGlob3	SN---TSGYN-----RLSKV---N---FDSRPPRGN
CcaGlob2	L---TESKE--EL---HRVTRI-----K-----
GauGlob2	V---SEEGD-----
LcuGlob2	R---TQSDD--ED-----
MdoGlob2	L---EESSN--EALH-N-----
HvitHbL2	F---GEVLE--NR-----
EdaHbL3	F---K-----
PhuHbL2	YP-APIQTV--ED-----
PhuHbL3	V---FEGMTM-----
PspHbL2	LCTV-QQYGI-----MQAKE-----N---FTC-----
DmeGlob1	-----
GauGlob1A	-----
GauGlob1B	-----
LcuGlob1	-----
MdoGlob1	-----
CcaGlob1	-----
MscGlob1a	-----
MscGlob1b	-----
MscGlob1c	-----
MscGlob1d	-----
GinGlob1	-----
LloGlob1	-----
PpaGlob1	-----
MdeGlob1	-----
BmoHbL	-----
ScyHbL	-----
AasHbL	-----
HvirHbL	-----
SfrHbL1	-----
SliHbL	-----
BanHbL	-----
DplHbL3	-----
DplHbL1	-----
DplHbL2	-----
SfrHbL2	-----
TcaHbL1	-----
TcaHbL2	-----
DpoHbL1	-----
DceHbL	-----
LkoHbL	-----
LmiHbL1	-----
RflHbL	-----
ZneHbL1	-----
BgeHbL1	-----
BgeHbL2	-----
LysHbL	-----
LfuHbL3	-----
LfuHbL2	-----
BspHbL	-----
EdaHbL1	-----E-----E
IscHbL1	-----
IscHbL3	-----
CexHbL1	-----

AmeHbL	-----
BteHbL1	-----
NviHbL	-----
CflHbL	-----
SinHbL	-----
BteHbL2	-----
MgiHbL	-----
SsuHbL	-----
DviHbL	-----
SjeHbL	-----
IscHbL2	GV-----
StuHbL	-----
DpuHbH	-----
FocHbL	-----
CmaHbL	-----
DpuHbA	-----
DpuHbD	-----
DpoHbL2	-----
EdaHbL2	-----
ApiHbL	-----
MpeHbL	-----
MhiHbL	-----
DciHbL	-----
HsaNgb	-----
DreNgb	-----
BflGb4	-----
BflGb1	-----T-----S
BflGb2	-----T-----S
BflGb5	-----G-----T
BflGb9	-----
SkoGb1	-----
SkoGb3	-----
SkoGb4	-----
SkoGb2	-----
SkoGb5	-----
BflGb8	-----
AsaHbT1-9	-----
PhuGbX	-----
ApiGbX	-----
AgoGbX	-----
BtaGbX	-----
DciGbX	-----
PveGbX	-----
CleGbX	-----
HhaGbX	-----
OfaGbX	-----
ZneGbX	-----
BgeGbX	-----
LfuGbXa	-----VPLPTTQQSCSALPPTQPFAP-----SKGLLHGSRR
LfuGbXb	SSHPSKTGAPAPVNPAPPVTPAPPNTPTPPINPPPPVAAATNITKEPNR
LfuGbXc	-----VQNTNRRPTASSKTSTSSHNN-----PKN--HGSRR
EdaGbX	-----
CexGbX1	-----R
CexGbX2	-----
HazGbXb	-----
SmaGbX	-----
SkoGb7	-----R
XtrGbX	GN-----
DreGbX	PD-----K
SkoGb10	-----
SkoGb16	-----
SkoGb9	-----
SkoGb8	-----
PhuHbL1	-----
IscHLb4	-----
GgaGbE	-----
MgaGbE	-----
HsaCygb	-----AT-----L
DreCygb1	-----
XtrGbY	-----

OanGbY	-----
HsaMb	-----
DreMb	-----
HsaHbA	-----
DreHbA	-----
HsaHbB	-----
DreHbB	-----
SkoGb11	-----
SkoGb14	-----
SkoGb12	NQ-----
SkoGb13	IV-----
AgaGbXL	TKL-----SDEPNRA-----S-----
AaeGbXL	TTS-----GDKKTS-----
PpaGbXL	TKS-----
BmoGbXLa	-----
SfrGbXLa	-----
DplGbXLa	-----
TcaGbXL	-----
DpoGbXL	-----
ApiGbXL	-----
AgoGbXL	-----
NluGbXL	-----
HvitGbXL	-----
CleGbXL	-----
HhaGbXL	-----
RprGbXL	-----
OfaGbXL	-----
ZneGbXL	-----
BgeGbXL	-----
FocGbXL	-----
MdeGbXL	SKT-----DAMPAKS-----
AmeGbXL	-----
BteGbXL	-----
NviGbXL	EKS-----
CflGbXL	-----
SinGbXL	-----
CriGbXL	TTTTTQNG-----DTSCNST-----SR-SND
LfuGbXL	-----
MmoGbXL	-----
PhuGbXL	-----
EdaGbXL	-----
CmaGbXL	-----
HazGbXLa	SEPAMNNG-----SDVPAQT-----TS-AQN
BmoGbXLb	-----
AasGbXL	-----
SfrGbXLb	-----
DplGbXLb	-----
SmaGbXL	-----
CexGbXLa	-----
MocGbXL	-----
IscGbXL	-----
CexGbXLb	-----
SkoGb15	AEAEDeqD-----NEMMKKT-----MHNGDK
SkoGb6	-----VG-----
BflGb12	-----
BflGb3	-----
BflGb6	-----
BflGb13	-----
BflGb14	PGRVHK--F-----VRPEKVAAI-----VD-AQS
CinGb1	-----
CinGb2	-----
CinGb3	-----
CinGb4	-----
MsaLegHb	-----
LluLegHb	-----
CexHbL2	-----
CexHbL3	-----
IscHbL5	K-----PDKITD-----
DpuHbB	-----
DpuHbG	-----

DpuHbC -----
DpuHbE -----
DpuHbF -----
DpuHbK -----
DpuHb1-1 -----
CriHb2B -----
CriHb6 -----
CriHbE -----
CriHb3A -----
BflGb10 -----
BflGb15 -----
BflGb7 -----
BflGb11 -----
BtaHbL -----
AgaGlob1 -----
AaeGlob1 -----
CquGlob1a -----
CquGlob1b -----
AgaGlob2 -----NDPQPTT-----S
AaeGlob2 -----
CquGlob2 -----
CclHbL -----
LsaHbL -----
CcalHbL1 -----
CcalHbL2 -----
CcalHbL3 -----
MochbL1 -----
DpuHb1-2 -----
NluHbL -----
BmaHbL -----
HvitHbL3 -----
DmeGlob2 -----
DmeGlob3 -----
CcaGlob2 -----
GauGlob2 -----
LcuGlob2 -----
MdoGlob2 -----
HvitHbL2 -----
EdaHbL3 -----
PhuHbL2 -----
PhuHbL3 -----
PspHbL2 -----

DmeGlob1 -----
GauGlob1A -----
GauGlob1B -----
LcuGlob1 -----
MdoGlob1 -----
CcaGlob1 -----
MscGlob1a -----
MscGlob1b -----
MscGlob1c -----
MscGlob1d -----
GinGlob1 -----
LloGlob1 -----
PpaGlob1 -----
MdeGlob1 -----
BmoHbL -----
ScyHbL -----
AasHbL -----
HvirHbL -----
SfrHbL1 -----
SliHbL -----
BanHbL -----
DplHbL3 -----
DplHbL1 -----
DplHbL2 -----
SfrHbL2 -----
TcaHbL1 -----
TcaHbL2 -----

DpoHbL1	-----
DceHbL	-----
LkoHbL	-----
LmiHbL1	-----
RflHbL	-----
ZneHbL1	-----
BgeHbL1	-----
BgeHbL2	-----
LysHbL	-----
LfuHbL3	-----
LfuHbL2	-----
BspHbL	-----
EdaHbL1	RSQEE-----
IscHbL1	-----
IscHbL3	-----
CexHbL1	-----
AmeHbL	-----
BteHbL1	-----
NviHbL	-----
CflHbL	-----
SinHbL	-----
BteHbL2	-----
MgiHbL	-----
SsuHbL	-----
DviHbL	-----
SjeHbL	-----
IscHbL2	-----
StuHbL	-----
DpuHbH	-----M-----
FocHbL	-----
CmaHbL	-----
DpuHbA	-----
DpuHbD	-----
DpoHbL2	-----
EdaHbL2	-----
ApiHbL	-----
MpeHbL	-----
MhiHbL	-----
DciHbL	-----
HsaNgb	-----
DreNgb	-----
BflGb4	-----
BflGb1	VVVTVE-----
BflGb2	VVGdVE-----
BflGb5	AAGTDE-----
BflGb9	-----
SkoGb1	-----
SkoGb3	-----
SkoGb4	-----
SkoGb2	-----
SkoGb5	-----
BflGb8	-----
AsaHbT1-9	-----
PhuGbX	-----RYIIYI
ApiGbX	-----
AgoGbX	-----
BtaGbX	-----
DciGbX	-----
PveGbX	-----
CleGbX	-----
HhaGbX	-----
OfaGbX	-----
ZneGbX	-----
BgeGbX	-----
LfuGbXa	ASSDV-----GGdGVSAAGG-----T--SLLASKRRGTLY-
LfuGbXb	RASDVITNT----RKGTGVRTEAL-----RRGTLN-
LfuGbXc	ASSDAAT-----IGGTVAAVN-----NRRGTLH-
EdaGbX	-----
CexGbX1	KKNKMK-----IMRHSFRGKLYK
CexGbX2	-----

HazGbXb	-----
SmaGbX	-----
SkoGb7	QKSSRKSRTKYMIDNGHSQ-----
XtrGbX	-----KGLI-----
DreGbX	RSTAI-----
SkoGb10	-----
SkoGb16	-----
SkoGb9	-----NGK-----P-----
SkoGb8	-----
PhuHbL1	-----V-----
IscHbL4	-----
GgaGbE	-----
MgaGbE	-----
HsaCygb	PSSGP-----
DreCygb1	-----
XtrGbY	-----
OanGbY	-----
HsaMb	-----
DreMb	-----AG-----
HsaHbA	-----
DreHbA	-----
HsaHbB	-----
DreHbB	-----
SkoGb11	-----
SkoGb14	-----NGKII-----
SkoGb12	-----
SkoGb13	-----
AgGbXL	-----
AaeGbXL	-----
PpaGbXL	-----
BmoGbXLa	-----
SfrGbXLa	-----
DplGbXLa	-----
TcaGbXL	-----
DpoGbXL	-----
ApiGbXL	-----
AgoGbXL	-----
NluGbXL	-----
HvitGbXL	-----
CleGbXL	-----
HhaGbXL	-----
RprGbXL	-----
OfaGbXL	-----
ZneGbXL	-----
BgeGbXL	-----
FocGbXL	-----
MdeGbXL	-----
AmeGbXL	-----
BteGbXL	-----
NviGbXL	-----
CflGbXL	-----
SinGbXL	-----
CriGbXL	-----AS-----
LfuGbXL	-----
MmoGbXL	-----
PhuGbXL	-----
EdaGbXL	-----
CmaGbXL	-----
HazGbXLa	GANSAESSA--VRAQGDAAPATAGGGKCPAVCPYVSSGSLSPPTS
BmoGbXLb	-----
AasGbXL	-----
SfrGbXLb	-----
DplGbXLb	-----
SmaGbXL	-----
CexGbXLa	-----
MocGbXL	-----
IscGbXL	-----
CexGbXLb	-----
SkoGb15	EDNCIESS-----KQKDITVIA-----STKQR
SkoGb6	-----

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BflGb12 -----
BflGb3 -----
BflGb6 -----
BflGb13 -----
BflGb14 EENGVH-----
CinGb1 -----
CinGb2 -----
CinGb3 -----
CinGb4 -----
MsaLegHb -----
LluLegHb -----
CexHbL2 -----
CexHbL3 -----
IscHbL5 -----K GKPR-----
DpuHbB -----
DpuHbG -----
DpuHbC -----
DpuHbE -----
DpuHbF -----
DpuHbK ----- F-----
DpuHb1-1 -----
CriHb2B -----
CriHb6 -----S-----
CriHbE -----
CriHb3A -----
BflGb10 -----
BflGb15 -----
BflGb7 -----
BflGb11 -----
BtaHbL -----
AgaGlob1 -----
AaeGlob1 -----
CquGlob1a -----
CquGlob1b -----
AgaGlob2 QRQDRASDAP-----
AaeGlob2 -----
CquGlob2 -----
CclHbL -----
LsaHbL -----
CcalHbL1 -----
CcalHbL2 -----
CcalHbL3 -----
MochHbL1 -----
DpuHb1-2 -----
NluHbL -----CSS-----
BmaHbL -----S-----
HvitHbL3 -----
DmeGlob2 -----
DmeGlob3 ----- P-----
CcaGlob2 -----
GauGlob2 -----
LcuGlob2 -----
MdoGlob2 -----
HvitHbL2 -----VNE-----
EdaHbL3 -----
PhuHbL2 -----D-----
PhuHbL3 -----
PspHbL2 -----
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end;

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