

FAP44

1

Tt	MSDQGLNDQOOEFFONQPEVIENNQDEFGOSQAONEVDONQOOESFKLENPADPNFPVEDATTLNKKQVQEQENLAQSEEQSOOKSN
Im	-MSEEQOPIIENLSPNKLVEEKKEEVLOEEOTIETVNEQTEQYKELIEIKOHEELHIOQEITITOTINNTTQOITEQYKEVVQKRKQE
Pt	-----MDEDQKDONSETIQMKRADSOAGVLEMOPPOIGVEOTSQOVPEADQEDDDQVVOTQVVOGDOQVQK
Hs	-----MKEPDDQDIDGKSVTSKSDGKSLRSSKSESRSPVQEDNTFLEDDTDETF
Rn	-----MGKIRVKELREAFPESDSERNKWSLLCIHEAAEDITDDLF
Dr	-----
Gg	-----MSSPNEQEGADEKPAEGTPADHSSVQESE
Cc	-----MDD
Da	-----ME
Tc	-----
Cr	-----
Vc	MLVSTAQLPALSTPDLKDTGSLVEGMAVDVRVLQDYRAPEDGPEGTDPGTGASSSRATDVSPPEADNVRPQDDIVAADPASTVT
Tb	-----
Lm	-----

88

Tt	IKGSASSOMEQSVAGQNLPLDNLGNASIIKOOQENQOEIDEMOEVEQEIPIKIPDDFFYEENHVETQIADSE---ISKNAAQFYEC
Im	DEYEEVLVEEHIIEQEKNHQVEQDNTFONEEYAKNKVENQETPKPEGSODHLTDOFFYDENELESTVTDSD---ITROTVOYHKV
Pt	SGAONGMNSQSNIHQSAIINKHVQDMLDQSVYQVPKNDEVDPKEDAPNPILDLPEDYPPDDWQENQDQTPPLIHPDITIQFHDC
Hs	TKGEGSYLEEDSDEERLEGLSSFOYGDLOSTIVPQOTPAVAVEEAEEVKKKISEFFYDYMELASMPFVTLDSNIPDLDLLTLVHS
Rn	IDGAESFLDDDLLEDMNESSHSSQ---EYFHTPVVSOEPPPELKEEPEEVKKKLSETFYDYLELIS TPYVSSPDRIPLYFLALNHS
Dr	-----MDASETQDPEPSVKGVFDEDDDDAAAGGADEEHRLIPDQHYYSYEELRSRASVTEHSHLPQDLLQLSHV
Gg	TGLPKESPAGGEQEDVEQVETDTESSIADDLQDNTQVSLKEGKSPEKEEKKISETFFYSYEDIYSRPFVTEDSGIPINLLTLKYS
Cc	TDEDIENVENLPEDPESNIRVSETSIAIATRSEIFTTETSTEFQDEIESHEDKODIPPIHYDSQDIYISGPORTENGTVPMNILEFHHS
Da	VDQLKPTNGLFPEDDDD-----GENRSEFOSQVQDKNNYISGPERVENGSVPMNILTFDHS
Tc	MSQIDEGLEDLPEDEEE-----YEEEEEEEDHWSIYDASTFISGPYQSEKCTINEGVLFKDFDS
Cr	-----MPLMVLLLSORTGGVAOLLSV
Vc	AADELPPPSDSMAGPSTLATDFGGRAPAAPSVGPAAEAEFEFEGESEAUGVKEAEEGQELPVDGIEPVAADPAEELRAPVDSRAQILAV
Tb	-----MAAPAQAVVKEKPPIHVYPOAKIGTKIFTH
Lm	-----MASPAAAGAENRPKPLHTYPEDVPPSSKILAH

175

Tt	FGFDTAKKYNVSMLDNDNLIYSAGITYOIFNIVTREIRPYFSKDOGIGSIAVNP--KTHFAVAEKGD-----HPNIYIYEYPSF
Im	FGFDSMKKYNVSVLDNENI IYSCGVTYQILNINTLQTOVLFKDGIGSIAVHPS--KKYFAVAEKGN-----KPNIYIYEYPTL
Pt	FGMDSNKKSNLWLIDSQTFVYASSISYHFYFVQGTNEIFFSRDGGGIGSVAVHPS--RKYYSVAEKGS-----FPNVYIYDA-SH
Hs	FGYDCRKRANLQLLDDSIAYIAGNQLIFLNLKTKEQIYLRSSSGEIGVIGVHPH--KTYFTVAEKGS-----FPDIIYIYPSL
Rn	FGYDCRKRANLQLLDEHTLLYIAGNQLVLLDFKNKTQMYLOSSSGGIGAIQVHPD--KTYFAVAEKGS-----FPKIIYIYPSL
Dr	FGYECGRRANLQLLDEHTLLYIAGNQLVLLDFKNKTQMYLOSSSGGIGAIQVHPD--KTYFAVAEKGS-----FPKIIYIYPSL
Gg	FGYDCIRSVNLMVMSOSLLYVAGNOVVILDKTKSOSYLRSSSGGIGFIVAHP--ROYFAVGEKGE-----EPNLIYIYDPSL
Cc	YAYDCQKHFNLVADPDTIIFASGNLINFNFSENKLFWRFGSTGGGIGHITKNPT--FNHIAVGENGI-----NPPIIYIYWPNL
Da	YGIDCRRHFNLVADPDTIIFASGNLINFNFSENKLFWRFGSTGGGIGHITKNPT--FNHIAVGETGD-----KPPIIYIYKWPNSM
Tc	FGYNCRKYFNLVADPDTIIFASGNLINFNFSENKLFWRFGSTGGGIGHITKNPT--FNHIAVGENGI-----NPPIIYIYWPNSM
Cr	HGLDTHRRNNLVLLEDLTAASCIAGQLVLLSLSTGARRYLPGRDGGGVAVAVHPS--RTLLAVGEKARPGPASAGPAVYIYSPGL
Vc	LGMDFHRHNNALLLDEDLTLVTCIGSHVVFVSLNTHRRYLRLDGGGVAVAVHPS--RTLLAIGEAKR-----GSTGPCVYIYAYPEL
Tb	HGIHSMRYNGVCALTGSTVLMASGRFVMFVDVHKGTIESMOGPEGGVAVAVHPS--ROYVVCERKP-----SDPAIRAYSWPSPR
Lm	CGFDSRHFNAVAYLGDNTLLTSGGKFVLFVHVDGAVESQDGPLDGAAGVAVAVHPS--GTSYVVGRCPE-----ANPLLRAYGWSPR

262

Tt	KLYR-----ILRKGTELSYSSVCFSSN--GELIAAVGSYPDYTISLWNWKEVIILKAKAFSDEVYSVNFSSNYSE
Im	KLFR-----ILRKGTELSYSSVTFSSD--GIRCASVGSPPDYTISLWDWKKEMIILKAKAFSDEVYHVQFSEYSE
Pt	KLYR-----ILMKGTERSYSNSNFSSK--GDKFATVGSPPDYQICLWDWQEKILLKAKAFSDEVYKVGFSSEYNV
Hs	RPYR-----VLRDGTTEKGYAYVDFNYS--GNLLASVGSNPDYTLTIWNWKEEQPILRTKAFSDEVFKVTFNPDKE
Rn	KPYR-----ILQDGTTEKAYAYVDFNNE--GNLLASVGSNPDYTLTIWNWKEEQPILRTKAFSDEVFKVTFNPDND
Dr	RPYR-----ILRGGTGVAVSCVCFSSAD--GSLASVGSAPDYTLTLWDWRSERATLRKAFSDEVHRVDFCANGT
Gg	KPYR-----ILQGGTKGYVFGDFNHT--GTLASIGSSPDYMLTIWDWKEKIVLRKAFSDEVYRVTFSPDNE
Cc	EIVT-----ILYEGTTRSYSHLAYSPD--GLLMVSQGGDPDYTLITVWDWQKSKIMLRCKSSGQDVFNVMFSPTVE
Da	DIVT-----ILONGTKKNYSHLAYSPD--GKLLLSQSSPDYSITVWNWIKSMPLLRCKSYEQEIYNAIFSPVTP
Tc	EINC-----VLKGGSSRLYSHLDFSPD--GLLLVSOGGEPDYTLITVWNWPKRRILLRCKSYVNDVHRVKFSPYCP
Cr	EVVK-----VLRGGTERAYSALAFDGER--GDTLASVGHFPDFLLTLWDWRQEAIVLRAKAFSDEVYGVAFSPYFE
Vc	KCIKICIFLVIAANRVYRPRASTLFGQCTVMAFTRMFIILRLIGDTLASVGSFPDFLLTLWDWRSEIIVLRAKAFSDEVYVAFSPYFE
Tb	TEVG-----EFVKGATKGFSAFANKD--GSMATVGMYPDFLLTVWDWESRGMVLRSKCHNTDVTYVLFSPFDS
Lm	APSK-----TFAGGAEVGYSSTLAFNVD--GSRLASVASAPDYTLAIWDWENTSLLLRCKSFNSDVYSVAFSRFDD

349

Tt NILATSGLGHIKFWKVAETFTGLKLGKGEIAKFGVVELSDVIGYYIHODGKVLSTGEYGTLLWEGNLIKCVIYIDEETQT-----
 Im NILATSGLAHIKFWKVAETFTGLKLGKGEIAKFGVVELSDVIGYYIHPDGKVLSTGEYGNLLLWEGNLIKCVIFIDEON-----
 Pt NQLATSGMGHIKFWKVAETFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGRLLWEGNVIKVVIIGISEEE-----
 Hs EQLTTSGSGHIKFWEMAFTFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCRGTSK-----
 Rn EQLTTSGSGHIKFWEMAFTFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCRGTGMK-----
 Dr GQLTTGSGHIRFWNLAFTFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCRGTGMK-----
 Gg EQLTTAGVGHIRFWKMAHTFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCRAGHK-----
 Cc GHLTSCGSGHIKFWKMAETFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCKKKNKK-----
 Da GHLVTSGSGHIKFWKMAETFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCRKNNR-----
 Tc GQLTSCGSHIKFWKMAETFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELCRKNNR-----
 Cr GQLTTSGOGHIRFWRMASTFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELTRPGSR-----
 Vc GQLTTSGOGHIRFWRMASTFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELTRPGSR-----
 Tb GLLVSGGAGHIKFWTMAETFTGLKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELTRPGSR-----
 Lm ALLVTGGAGHIKFWMMADFTGKLGKGEIAKFGVVELSDVYAFYFPFDGKVLSTGEYGNMMLLWEGGLIKVELTRPGSR-----

436

Tt -----KCHNGCINVVFKH--GDDIVTAADDGYIRFWDYATIDNSEDDFGNFYMKPNSEILIKTDD-----DRPA
 Im -----KCHDGCINAIFKI--DNNIITAGEDGYIRFWDYATIDNSEDDFGNFYMKPNSEILIKTDE-----NRNA
 Pt -----PCHKGAIESIFLY--KDCIISGGKDGFLRSWKLTDELDAEADDLNYYTQPIKSLELVDDG-----ENA
 Hs -----SCHNGPINQIMLY--EGEVITVGS DG YVRIWDFETIDTADVIDETGLLEIEPINELQVDKN-----VNLFSM
 Rn -----SCHNGSINOIMLD--EGEVITAGSDGSVRWDFETIDTADVIDETGLLEIEPINELHVDKS-----VNLFSM
 Dr -----VCHSGAVQOISVE--EEELITVGS DG AVRSWSLESDAADAADDGVCIEIPMNEILLVGRN-----VSLVSV
 Gg -----PCHNGPVSHIVLD--EGELVTVGKDGFRVWVFEAIDTADSVDETGLEMEPMNELRVGRN-----VSLVSM
 Cc -----PCHDKOITOFEYN--NGELTSVGM DG WIRIWFYETIDQADPPEGDOFLEIEPIYEFHITTEDEDDYDAEOSSMLMCIO
 Da -----PCHSKMITOFEYC--NGDLSIGMDGWL RVWSYETIDQTDASDKGFIEIEPIEFIEINIEKNVFDTGSTSSMIMALE
 Tc -----KCHDGPVIVISYN--EGELMTVGM DG HVKVVWVYKIDQADPDDDRVIOIEPTYDFHTEGL-----MLMCMR
 Cr -----PCHDGPVIEALLDRPAGRVLSAGADGRV RMWDFGAVNDAEPREDSHSLELSPLEVVVAEG-----AAL
 Vc -----ACHDGPVEVLLHDRASGVILSAGADGYR VWFDFNOVNDAEPRDGHSLKLPDEVPVAG-----AHL
 Tb FMARSYDYTPCHEGAINVVELMEGGRVLMTAGDDGYRFRWRVSELEVAEGEGAPPLYVPECLGEILVHAG-----AFI
 Lm QPPHDIQ--PCHDGAIHVFSLQ--GRYVVTGGDDGYIRYWDLHELEVAEGTGLPPYYAPNCLHEVCVSSA-----FRV

523

Tt NITOILVQENFWIVIDANGRIOKIKISENKT-----DYEMETLLEMN--SGRLNDIIVSPIONGAITVGGDGA VRLWDYVORKE
 Im NISQILLTDNYWIVIDFNKIKIKLCKDNYT-----SSEQTILETN--SGKLNDAIVSPTQNASVTIGDDGVRLWDFVNKRE
 Pt QIIQVVTDEHFWLIGDQGRVVRVDWETGKK-----EIVYRNN--SGAYLDLAPSPQLNAAITVGGDGAITLWDYVKSEQ
 Hs IKMNE--TGNNFWLAQDANGAIWKLDLSFSNI-----TQDPECLFSFH--SGAIEAVAVSPLTYLMATTALDCSVRIYDFASKTP
 Rn IKMNE--VGNNFWLAQDANGAIWKLDLSFSNI-----TQDPECLFSFH--SGAIAALDVSPLYTYLMATTALDCSVRVYDFASKNL
 Dr VRSPV--SSIWFAQDAHGCIWKLDLSFSNM-----TQDPECVCCFH--AGPVQGMVSKSSHLMATTALDCSVRVDFVLSKRE
 Gg SKIHD--CGOPFWYAQDANGRIWKLDLTFSNV-----THDPECLCTFH--SGRIEAMSVSPM TYLMATTALDCSVRIYDFISNSO
 Cc KKNIEDAEENFWYAQDNGRLLWIDLNTFET-----PERPKIFTCH--AGPI TDMVATWGPVFVATIGRDAHLHIYNYFDKTL
 Da KKYPEDSEDKKWYGDGNGGLWIDLSTFDEAVNSDDKFPNATRLLRCH--AGPVMDTACTWNLVATIGSDCQLHVYNYANRKL
 Tc KRYP--DPKDTSYFGODGNGGLWIDLNTFET-----PKESVQLYKCH--AGKVVAIATSPNGPYLASLGEDGRIYVYAYLEKRL
 Cr SALLADSGRRVWVADKAGNVYTVLPPAGP-----VGKGA VTRVASHPAGAVAGLQLSARTH TALVASADGCLRALDYVSGAV
 Vc VSLLEW--GRRWVAVDMAGRIYVVALPVSGA-----ISKGASILCAGRHPAGAVAGLVLSPRSHVCI IASRDGQMRVLDYRTGAI
 Tb RSVTYCKDVDEWVVLDSAGVLRVPYVHPDDILNNAVTKPKEQAVPALEFN--GGSITSAALSPIDHTVVTGGEDGTIRLVYVTPRE
 Lm RSVTLDEEHRQWVILDEFGTIATLPYPLRNG-----KLDITRVRQVRLRLN--GVPLTCAAVSPVEHVVL TGGMDGVVRCIDYVYCAE

610

Tt HYHRV-----FOGKATCAEWLPYTMKNK--SARIILAGFSNGIVRWLLLNQ-----NGFHLLRATKVHNES
 Im YYSRK-----FPSKGTCEVLAHTRKN--GGRVVVVGYONGIVRYLLLNQ-----ITFTLLKSLKVHNKA
 Pt TYKRR-----FAKKATCIOWMPFTMTN--KGRVVVVGYONGIVRFLLNQ-----DTFVLLNVOKVHPHP
 Hs LAQMK-----FKGGTALVWVPRMVNF--TGAQIIVGFEDGVRILELYD--PKGLTIFAGRKKILDADIQLQVFKPHTAC
 Rn LVQMK-----FKGGTTLIWAPLTVSI--SGSQIIVGFQDGVVRIELFD--PKGLTVFAGRKKLLDAELHLKYVFKPHTEV
 Dr LTMSR-----FROGGTTLTASDAV--GGLLAVGFEDGVVRLLELYN--POGLHAVAGRVHSGDAELRLTHALKPHNAA
 Gg QSEIK-----FKGGTALAWAPHVNP--NGSVIIVGFEDGVVRIIEVYD--PKELPTFAGRANIRNAEINLKQAFKPHTTA
 Cc ILVHK-----FCDIGSKVWVPCGVEA--TGCTLVCAFSSGIRMITVSI-----LQANRTKKIKGDYVRLIQVVRPHKMP
 Da VFAGR-----FNDGGSAMIWLPCLDK--TGSTIVCGFHTGVRVVTGFI-----NDNSGHVELIQVVKPHTDE
 Tc IGHNYQ-----YPAGKTCMIWVPPKLA I--YGDELLMGFDHDTLRLSILTI-----NEDKKEVRIQTTKPHDKP
 Cr LAEAA-----IPORITAFTPLAASPACPGAMTATGYR DG VVRLHARCA-----EGLALVGVAKAHKGA
 Vc LAEAP-----GSQPI TAVAAIPASTGV--AGMVTVAGYR DG VVRYTRSGPLVLDLADPDGVDADTSPFPONLTLAGVAKPHKGS
 Tb LYKMC-----LPOPNVVIGLRFKDP--EKKKFLACCKSGAVLLVKGGS-----TAF TLLGOWRPHNDG
 Lm RCRMEWPRHPRKDPVPVADMKVLPVPRSTA--QSVLAVAGFGDGTVRLLEIGE-----GSGSIRMTGQWKAHADG

697

Tt IKFIKVS PDGSI I AIFSESGDIFLIEQ-----HPSDFOKIDPFCLETFKFKI-----NSVVWDRMGEK-----LLLACDDGNI
 Im IKYIKASPDGSI VAVLSIDGNLFLLEN-----DPSDIKKLEPICLFDTKLOI-----NSMVWDRNGEK-----LLFAAEDGKI
 Pt IQKIIVASNTNYAVLSTKGEIFFLKY-----SDSNIQDIQAYCLWETKLSI-----NDFCFDKTGTK-----VLMACKDGYL
 Hs VTALAYERDGEILATGSKDQTVFFFEV-----ERDYKPIGYINTPGPV-----COLMWSPPMSHPEST--LLIICENGYI
 Rn VTALAYERDGEVLTATGSDDKTVFFFDV-----EKEYKPIGYFNTPGPI-----RQLMWSPPMSHPEST--LLIICENGYI
 Dr VHAVTFDSTGHTLATGSDGTVFFFAV-----GDSYRPLGFVFCVPGPV-----RSLQWAPPHTEMST--LLVFCADGHV
 Gg VTALAYERNGDVLATGSKDKTVFFFAV-----EDEYKPIGFIVHPGPV-----QALQWSPSHVASM--LLIICENGYV
 Cc ITSMSLNNTHSLLVTSGEDTIFVFFV--NTTATYPI LVP IGFVVPSPV-----TCMTWKP--NHDMT--ILVGC LRGDC
 Da ITAIVANPPAKLLITGSKDSTIFLFSI-----EVHEFINLTPIGFVEIPSAV-----TRITWKP--KNSST--ILIGCAEGHF
 Tc ITQISINPSNVLVSGGEDSTIFFFOI--KFTIHVELVPIGYIRVNPV-----TCLTWHC--VNPYV--ILVGC LRGEM
 Cr VAALAVSADGRLVSGAGEDSVFFFDL--TAQPOPGTGVPMPCGLLAPAFIKLPSGSGTVTCGVWEA--AEGGV--LLGTNRGTI
 Vc VLALAVSQAARLASCGEDGVFFFDL--SLGSTANGVPAAPPCGVLVPRAYVRLAQGTGTACATWS--ADGGV--VLLGTSRGTI
 Tb LALFAVDAAEHR LCTIAH--GTVFFFTI-----LDDFSSLEPIGFCKIPLPGA-----TCVAWDD--ASSC--CLIGFECGKL
 Lm LCALAVNEDASQVASISPSGHVFFFSV-----ETAPCTLDPVGYCVGPLQNP-----TSAAWDTQAVGGHGGC L L GFE G G Q L

784

Tt HEIMVPKKD--QCDTSETYLKEFR--SRSYKIRMME SOKPKTEEMELEFLLRR-----
 Im YETOIPKKE--NCDTSETYLQNFY--AKSYTIKMMFEOKPKTEEMELEFLLRR-----
 Pt YEAIVPS--DVDNSENLYOEFN--ANKYLVRMME SOKPKKEDLDLOFLMK-----
 Hs LEAPLPTIKQEEDDHDVVSYEIKDMCIKCFHFSSVSKILRLIEIEKRERQRELKKEKIREERNKLAEM
 Rn LECLCPTIK--DVDDONLVTFAIPDMLVRCFHFSSVSKILRYMEVORREKQKELREKEREERKRKLMEEK
 Dr VELOSPAAD--TOICGNSFQLTALPTMHFCFSSIKSRIRKDEAVALROARTAEROKOOERLRKLEQN
 Gg LOVPAPLPE--KODTASTYHIKNLPTIEYFHFYSIKSRILEEEIALRERKKQEKAKLEWIKOLOEMG
 Cc VEVTLDPVP--QNYTKMSYELVRCLELRFKFSVKSARRALIQAEIQKKKEEKLAKKKOALEQLRVDN
 Da GEIQVPEKF--PSNDEHRKTYRLDEYRAKFLKFRSVKSALRREMVROENEKVMKREEMRKKLDEYRSLN
 Tc VQVEVPKEP--OPYTTVSYLLDLEPKTNKFKTYKAOIRRDLLKEIEREKAQVAKRVEKELKAEN
 Cr LSVLPPPPD--LNTHHSYEWAAAGTSAVSSYQLVVPKPKRPKKKGKNDGEEGD-----KEGGEQDEGQGGEDKGGEQAD---
 Vc LOVSLPPKD--FDTHHSYEWTE--AVVHSYNECVPKPRRPPKDKGNSRKEGDDAGAGSGGQEGGDQDAEGDAAKSSPQATVAH
 Tb LAIRAPTRD--MVDQSVSYEFTCNALYVGIORKKVEKKQANVSAGEREGFVEE-----
 Lm LSIRAPAPG--SVNHDEGYEFCAYDLVAIRQRQ--LPPPKTEAEELVDDTAAT-----

871

Tt -----NKNEKKEEVEWDPE SIMNVCYYDYS
 Im -----NKNEKKEEVEWEPDSIMNACYDYS
 Pt -----LKDDKMPDVEWDPASIMNVVYGD--
 Hs -----GEDGEKEFQEEEEEK--EEEEEEEEPLPEIFIPSTPSPILCGFYSEPG--
 Rn -----EALGEQEIQEEEEEAEEEEEEEEPLPEIFTPPTPSPILCGFYSVPG--
 Dr -----PDASEELOEEEEEEEEPLPYITPSPSPILLCGFYCAAG--
 Gg -----KEVEEEEEEEEEPELPSIYIPEEPSILCGFYSAPG--
 Cc -----PGIDIDEEAFLMDS EEPVLPPEIYIPKIPNRVLMVNYTPSG--
 Da -----PGIDVDEETFL EEEVPELQLP ELYVPREPNVQININYTNAG--
 Tc -----PGLDIDEEVFLADSETEEELEPLYIPEIPNRVIWMQSTQDD--
 Cr -----GEGGSKEGGEEGRAEEEEEEEEADDEADGGAGGSPSTTGELISLTLPANEPG--
 Vc YYSPPRKCTRIRCORIP SACSLKGWEPVWRVWSAAQGDDEGAEG--GGDEEEEGDVEEDEEGNDDLAASSAELLTIALAPDDPA
 Tb -----EEEEEYLGPPVRLICPMADG--
 Lm -----ALEEEDVGPWPIAFVVQLPGE--

958

Tt TKILATVQGKFLGHIYIIDWN-----KDRPIDSLPIAKIPTVMNFVD--DDILLISFKDGSWOLRHKN--
 Im TKILATVSGKYMGCYIIDLWN-----KDRPIEAIPVKIQSLCMNFVDF--QDILLIGFKDGSWOLRHKN--
 Pt -KVFCTAEGKYLGCYIIDLN-----KDRPVEMIPISKMOTYHLDYKD--DVLITIGYKNGOWDIRHKT--
 Hs -KFWVSLGGYDSGFLYHCEFPCCDES-----SDFKEOKDEPIDVRYLADTEDNPIOTITFNINKVMMFCGMKNGAIRVYVLNO
 Rn -KFWVSLGNYDSGFLYHCOFPPHLVK-----DDFQKLENEPFDRLILENTDDNPIRTITIFSSNYTMMFCGMKNGAIRTYFLSE
 Dr -EFWLSMGGFDSGFLYRCOFSEDO-----LDPAERRDEPLSFIPOVDS E LNPITSI SFSSSGQLLVCGMQDGSIRVYPAQD
 Gg -KFWVSLGGYDSGFLYHCAFSSNEHQ-----EDPENRODEPFEVIPIEGTDDNPIHOISFCNSRLLMFCGMONGALRVYPLQD
 Cc -TIWLSMGSF DAGYIYEYDPL-----PGYINRKPTKSTMYAADTEINSLCYFKNRKYLFLGMEHGEIRICRVNP
 Da -SVWLSVGGYDAGYIYEYPSITGDDD-----EESVREAEPLRATPLRDAEDLELKC SLYSHK--DSLIFLGL EHGQLRICRVDP
 Tc -VLWLSMGGYDAGYIYEYK-----IEOKSDVPYFFKMVDEADDETEISSFVYNYNRKYLIFAMENGEIRVKNKID
 Cr -ALLVTAGG--VGHAARKAW-----RVRMGEPLAAPLLEGFASAPVTCLAHAGPE--GRLALLGSGDGLVRLQALEE
 Vc -TLLVTAGG--SGHAARKVW-----RVKLGEALATPLLEGFTSAPVTFFGYS--AD--GNTVLLGSGDGLVRVQPLDG
 Tb -DFAIGAGGV ELLYKYLHVRYEGOKELPPLPPTGIEPPDYVEEPLMNL CYRDYTP EASSMSYS--GRYLVICEGSOMLLROLDE
 Lm -GFAIGMGKEELAYVYQGSIRYANQLELPLPPTGVEPPDYVEDPALNVCYRDCVPRRAFVSPN--G--ALVVCADRNRLLREATS

1045

Tt -----DLKINMLVRTHDRDTGAIKKVVNMHEKCKVMSVGN DGTFLFIYKIDLPSIKKITRGEIIEDF--QFEFVGG--LGEHSFAEQ
 Im -----DIKIGVHLRPHDIDYGA VKNVCLNFMKNCILSVGGDGTFTYKVDMEAIKQICKGNMVENFIFADQFEGGSI SENTFSEK
 Pt -----DFSKOINKQSHMDYGRVRKVLTFDRIGVLSVSDDGT FVYKIDFONFLMOLSGNEVADFQYPEFTMG--INSGTFAEE
 Hs NDP--SLTSLVDYWHFMNDNNGCIKSIANSFDDRFLVTAGADGNI FVNFIFSEFMLRDKMK-----AKVPSPR
 Rn NDP--FLISLDYWHFNVDNNGYGVKSIFPSFDDQYLVTAGEDGNIFVDFIFSEFIIQEKAK-----AHVPSPR
 Dr L---HOGSLQAFWALSVDHNSGRVRHVHFSFDDTFVLSAGDDGNIFSFSCMTEOOIHTH-----ATVPSPR
 Gg KDL--SVNTLKAYWSLSVDHNDYQIRGICCSYDDRFLITCGDGNIFTFNLSPEDEVHEELK-----AKIPPPR
 Cc EDH---IDFSDYWILSMHDNNGYIPKILLSHDQKMLLTCGHGDNLF SFLIN--DDTPPLT-----FHIPRAKE
 Da EDY---TNFSDYLSYPAHDYRGMNKILLSQDEKYLFTCGCDGNIFSFVSGEDRVSVKI-----EFENDRN
 Tc GDY---HDFSYSWALHNDNNGFVPMCFSYDEKFFFTCGHDGNVFSYTFVQPD DDDYIPPE-----DYPIVE
 Cr PFGSAAPGALPLWEAPLHDMQSGRVSGLGLSHDGAYLVTAADGALHLLALALPPELAPPT-----TOPGDEPLP
 Vc PYG---APMGPCWESPLHDMOTGRVTAVALSYD GAYLLSAGRDSVHLLALOLF GAVEPOEP-----PAEDL
 Tb MG---RVRLEPILVASAHRDLDGPIAAACTSFDDKMLVSVGSDGLVVAQLLDGCIAPPPSP-----VAO
 Lm -----ROOVFLLGAADSTGGAVTGAFLSHNGSMVVSIGTDGLVVTQLRDGCATPRASPP--LIDAATVVEPALGMVSATAAAP

1132

Tt IELSDN--EENEIKDDSVYSIQEAKLLAEEDFKRNEAQKKKDKVKEVIKDLVROFEOLKQONSTIDEVARLTDQEMTVDFHEIEMLNK
 Im IIEEENQEEEDILDDNVYSIQEAKLLAEEDYKQAEANKKKNKILEOVONLVSLFEDQKRKNLEIDEIARLTNOELCVDPDYIEMLNQ
 Pt IAFEV---QDILDDTIYSIQOAKLLAEEDNRRNEANKKKT VKSRILOLREOF SOVRKNOTAEDA AKL TEDEL CVDPEYKOMLLD
 Hs FGIETEP IPEDIEDPKAYS IENARRKREHDKLMKEVGEIKARKQEKALRSEFCNLL EMNEKLPKHMQFKRTDFDVDSQIRAEHR
 Rn YGIEAEVADIEDDPKAYS IENARRKREHDKLMKKEV ELKAKROQIKILRNEFWKLLALNKEKLPKHMQFHRTEFNIDAKIHAIEHK
 Dr AGLEKAVQDIEDPKAYS IETAKOKLELERVCAEAERKQORRARELLEORSFQELLENORLP OHTLRSEFELDPLFLOOLEM
 Gg RGLEKEKA AEDIEDPNACNIEEVKOKREYERIMKEAERKSKKREELIALROQFLFLLOKNQELPKHMRLQREQYEMDRRVFEELNM
 Cc PLLLPNVNVEDIEEPDYP SLEEVIVKAEYNRIMTVAKHKKDR TLDVLR ELAE EFGRIME SNRYLVKSOQIPOEEFELDPRIT EDLNE
 Da ARPARKKDVEDIRDVNYPSLEQVLIITTESNRIMSLTKNRRDDVYLLRNFTKDYOGIMERNROLIKSQOIPP SDFKLD DRIVEDLNS
 Tc ERTSFPNSV PDEANYDKLSLEQASLKKEQDRIDRLAAKHREIYREKLRKLRERFFKLLKRNKLLPSQMI PVEDLEVDRKRVTDYLDY
 Cr GPAAALRPDPDLAAAYTLEEEKQOAE RDOOVREAEKLLSVORLGLIRAEFEALLAENAEALRLPRADLEVPGLRALME
 Vc PDARLLLALTDITSPTAYTLEEEKQOAE RDOOVREAEKLLSVORLGLIRAEFEALLAENAEALRLPRADLEVPGLRALME
 Tb LQPLRAEEI VEPOLAP--FSITEQKDLDDRRRAEDEKREELNLFDLKLDVHOKYARLLRENQSLALTHRLSKEEITIHPOIYRELQE
 Lm AVVACAEEAVGAVEAPALSVQEQEADDAARASTEREAKLQRFNLRLEKVRDSYAELVHANEQLPSGQRNLNKDEMQLDASLQDALDA

1219

Tt RVEEDLEETKEELKWDAAEYCKLTKKLTNYVKNELIMDTFSVKAIKKSNVIVSTFKVKKMSEFMKQNLLEIFEVIEEEERKNOEEARO
Im RVEODLEETKLELKWDAEYQYQKTKLQKLFKYMDELIVDTFTVKAIKNPNIOVSTFKVKKMSDFLRONLQEIQEKIDQI-EEERRIQE
Pt RVAEDVEETRLELEWDRTLAKMKADKLLKAYMIDELEIDKFMVKGFRN-QASVQTFKVKKLSNLFIEQLKETYRLIEEERKNOENOPQ
Hs KTAFLKIQVEKELAWEKKEKHELGLMKLKNRFRDPLESDTIVVHAILSDHKISSYRLVQPSKYSKFKRASQSERKPSKLDRFKEKEG--
Rn KTSIKIEQVEKELAWEKQYELGLKVKVDRFREPLESDTVVYAIQSDHQIASYRLVQPSKYSKLRPSQTDRRRPSKMERFEKEG--
Dr QTEORVQEVRRRELAWGEEERIGLSKLQNMFWESVVDTLTVFACRSGHKISSYRLLALPFTHTHL-----SSQSSPEEAELROE
Gg OTAORIQLVEKELAWEHKHLJGLQKLNWFRDSLEFDTVIVHAIQSNHQISTYRLVAISEKYQDK-----ERPSWKKTVLKRAWK
Cc QLKAEMLNVHKKLAFKVEKSKLGLKLLMDHFIEPITCLPFVARRILKPDTMVNSLRERKLGDEFATLDEVTRRIE---DREKAG-R
Da QLKCEMDLIDORMAFKIERNQLILRKLMDHFVLPITCLPFVARSISKPETMIHVSVEKKLSENFOAEYADVLOKLSRAKDSEK-S-T
Tc KLEEEQALVKKRLAFDVQKSELRMNKLRYFIDNLCFIPLIVSGLR-SERLVRMLRQRKVSPLNDOMLOIVDEKILEEVEKGRPP-E
Cr EALRREEVARLELAWESERORLGLAKLRRYFLDGLSERVVLHSLRGSSTVTTFRVAKLSDETRAELAAMRQAARAAAAASAAGG
Vc EALRREEVARLELAWESERORLGLAKLRSYFLDGVETERVALYSLRNGSIVTTFRVAKLSEETRAELAALRTAAAAASAAGGSGDG
Tb EMRORVEESRKPTALELARENIRTRKMRNRFVDNLADHDFLVRFSKFEFSVAFRTPYVDGSIKLFQOOIDELLGSERCSSLACDGD
Lm EKORRVREAEKEYILPTAREDVKTTLKLNCFDNLLYDRFELAAIEEGFSVASLRVDFPHESIACLEAAAHQLAESDGEDSVEKEED

1306

Tt NAMSONLNQTNFGGDOTISNKGMOETVKKDOTLQKQEDDKLKKTVMPNMGGQQG--DKKGETTHLSASKQEKLENKLEKQKIRQEM
Im EIFOKSPONNLLNDOTIKNOTFKKEVONLONTGN-----EKKGEQTHFSLSKQEKLENKLEKQKIRKIKEL
Pt IENKTOEKIQVOSQVKITAVDMKEDQOKATIOQMDPDOK-----VPOAKLERERLQEEERIKKEQ
Hs -PGRKDSORDAGGSVTIQEESIIEKGGKFRPKTLSEIIVENQ-----IEKTRKILKAERAOLKIQQRKKEW
Rn -PGKRESORDTGGSLQEEVVEKGGKARPRTLSEIMVENQ-----IEKTRKLVQQAERAOLKILORKREW
Dr HTHPHKHSSTSLQDEGPVSSAGTHTHT-----OKQSSRAAEKVERAREQIOTRROO
Gg KKEKRESIRDRKPRVVKREADKLTIVRKPPTICFIERK-----REQIRRLVEKSDKEKAKIMKRKEEW
Cc MVEVKSLOEE-----EEDEEKOKVOGIESFLKGLSPSTIOYRL-----GVKINHMLRKYRSRKARMEERYNEW
Da MADESDDQGGGAGKGDQEEKLIKIDGVASFLQDNFFSDEEKL-----TAEMKQMLRRYNDKKLQIERSKEW
Tc RAPPAPKTIQ-----PKKVKEQGLEFLVNLDPKILLESOK-----HNKLTLLNKYRDRKLLKWERREEEW
Cr GGAGGRDITDARGKGSDTGGGPGDAAAARLAEATAALEEG-----TASGKLNKADLRRLLARKRREAEW
Vc IGRDGMNSDAR-KGSDTGNPAGDAAAARLAEATAALEEG-----TASGKLNKADLRRLLSRKRREAEW
Tb RGIYSVASGEASQSPRNLSLSTAAGVVRWLNSEERKRNEGEOOKMNA-----HREAEILTTTMRQYLNKMDEREERHWRKKGY
Lm EGSDEQDAGADVAATEHTAAGDSKAAGIDAAATTAYERPDDLIGIA-----TIGASVKQQLNKMDTRRRERQERRDGY

1393

Tt EELEKKKPTKESFEPDHLRDINHAMEITLGDYKLSSTPTYNVPEENORMNES-KKKKHMFLLEDEFIYNTKMKFNNEIVSLRERKTSLID
Im EELSKKKPTKESFDPDHQKDIENAKKTLGDYKLSSTPTYDVPENORMNVS-KKKR-MFLREEFIYNMKIKMNEIIALRERKKNILE
Pt ELLEKSKP-IELAKPENAPDIOEAIKOYGDYKLSSTPNYEPDNORMNVS-KKKRHMVMLEEFTYNTKLFNQQLLNKRRKVNLI
Hs EELYKSKPGDDYEDPKDLQAIKEAQMVDGDFNLKTPADYKIP-EHMRINAAKKEEELGHLDSLHGNKRHMNKCILSLRDLKVAVVE
Rn EELYKSKPDDYEDPRDVOAIEAQTFMGDFNLKTASDYKIP-EHMRINAAKKEEELGLLDTMAHGKKRYMNCILSLRDLKLAVIE
Dr AELYASKPSEYEDPDVEGIRAARENLDCKLKSADFTVP-EHLRMNVEKKRAQLLELERKIFEQKSEMNLRVLALRDQKVALLS
Gg EKLYASKPSSDDYEDPRDVOAIEKEVENMGCYKLLKATDYRVP-OEKYMNTEKKTMLASLEVLIIKVVNMNKOIMSLRDFKVSIEE
Cc KVMNASKPDPVSNHPDDVLAIEEAKETIGNYKLLISPDFNMP-KGKRENTLTKYKQFLNSRKAHMLREDFNSKLEVRSKKVALFN
Da KIMHASKPDPNSDHPDDIRNVEIARKTIGDYKLLISSYDFMGEQERETTLISKYQLLDCRKKCHYLRSEFNDRLRFMRACKLSLKS
Tc EEFLARKPLPGVNHPPDDVALDKAKVTIGNYKLLSDITYKAS-KNORETTVKKYKELLRSRVKOSNTRHNFNEKVVWALREEKIAIRD
Cr AAFNGTRPDDTYDSPADLAAIEEARTIGDFKLSDPNYVVP-EEERLTPQRKRLAMLEEEALHDIAAAAFNAKFFALRDVKKRVL
Vc AAFNATRPDDTYDSPADLKAIELA-----
Tb EMLLAHKPDPAVEEASLNEELRRETRRRGECILRTDPSY-----HSAPSAVIKLOOLIRLEEIIFNMRNNFSNELLKLRDEKERLCG
Lm GRLLDRKPNPAIDDAALKQOIAMD LKNRGDCTFRIDAAYRGE-HQYRPTAVAKLQRMHLMEDIVRIKTAFNEDLLQLEEKRHTLA

1480

Tt KISNYNKR-ITEINKQLGINETLFTLTDKQLEAVD-QFDVTEEQIDQYEQOKNKETAQOSKKGGAQEKTOOOOOSSEKQDDKEKD-
Im KINDYNOK-IOEINKQLNINETLFQPKIDKOLEMPETFFQVTEEQIDAFIISKKNENAQNAKNTQENEQQNNNNNNNNQQ-----
Pt KVKKYNOQ-IKKINEOLGKQEOLOFOPEIDKELEDPHSFMEISDEQINEFISKLOOQQOKKDEOKRIA-----
Hs EIQCIVQE-LKNIQSTLHISKHPIPKIPQIHP-EEVPEKRFQYDEETLLNFQOQMKSKDEKSPGV-----
Rn EIQCIVQE-LKTIQSSIPPAAKHTIPOVPOIYP-EEVPERRFQYDEETLLNFQOQMKSKDEKSPGV-----
Dr ELOAOVEQ-LOAVOOTLPLOKHRPLPALVLLP-AEVPERRHRYTRATLERFNTLRLOEEODILELLEA-----
Gg EIRCLLOE-LKSVOAALDISERLPLPLIPQLHP-DEVPEKRFQYDRDILLKFKEEQAAKAKLQEQLEES-----
Cc EVIELVMK-LKEIHSEIPEERTKPLPIPIDQNIFFPEKNLELEKYTSMAERVKEAKRKKKSFIAEIVVSP-----
Da EIESSVEKKLNIAHAIKPHYIREMPERMAIDASLEFPENNLKLEKYSMGEKVKEAROKOSIIDEIMOAA-----
Tc ELOVLNEK-LDEIHKEIPDKCRKEAPVREPED-CEFPERHFEITVTVMEEEEVEYDEGRKPEVIVTESKDF-----
Cr DVRVKLAALAEALAAAAGAAATGGADPDATAAAYLAPFSGLPGLPEEPFAEAREAVTDADLAFAARKAEDE-----
Vc ---VMANSAAGGGTGVAVAGGSVDTDATAVMYLAPFASIPAALLPDEQPAEARDAVTDDDLAFAARKOEEE-----
Tb TLNVSQRIRAINKEL-KDKSFHADDVKLTPEEMPGRFEISRDLGVAFMKOROEKLEOTAKKAQORGFADLATGEPATNTDTSG
Lm RLNCMRQDYRKVLFQGLCTSPVDPDLSLTVEEPEPTLYTMDRDLKLEAYNKQKTEERAKAE-AMKAHRGFGADLAS-----

1567

Tt -----GKKEKKVDITAGFKPRKGAKVQSGSELEDELKSI
Im -----KKEKKPDPTLGYKQKRGVQVNSEQEEELKTI
Pt -----PAQISKPAEQ-----NOIKTRKGRVQOSGLEEEMKTI
Hs -----EQTSGGGVGG---FLKLSRKGDLTTRDSISRSSKASTFSLDIPKCLEFEKAEPDVELEIMKR
Rn -----KQSGSGASTGGGLGFLKLSGKEGDLTTRDSISRSSKAFAP-LLEPKATEFEKAEPDVELEIMKR
Dr -----ODTHTEEDTHTOSQDTHAVEDTHSQEELTLLEEQMREM
Gg -----PSSGAFR-----YSLKSSDKETGSLQQTASSDGMKRSSSVVIEQKIFVIEKAEPTEMELEILKR
Cc -----NDEEYEVLLFDEKSIYIGDDDMOSTVASVVPETKYSVTNAISGDVLOTLNSMDHIETPCEREMKRA
Da -----LDDEFKTIILPDESLEFYYSDLLPTSLNIKEKKRIKOVDAIPNHVQKMMQDYDRKITPWEREMKAV
Tc -----DAIEKHVLPKN-----TKKFDAKECDVALLDFESLCSFSKNEKKDITLWEHDIRTR
Cr RKAASAAAAGLGGFAGAAAGPKPAAGGAAPAGGALAGGAAGSGVAHGAGGPPAGGQGLTAAEALAKMMAAVPOSELEKGLAA
Vc RKAASAAAAGLGGFA-TAGGVKRTAGGVVAPQPHGGAGGGGAATSGSISGGP-----GLSASEEALAKMMAAVPOSELEKGLAA
Tb ADTPATRRSEGEDSRKVTISANRDSFGTAAARTSVRTGTLAASKGRPFSGGGFAAGAARERMNHELVRKHENIKLTEMEEELQI
Lm AQAPERSR-----DSSTVTTGTVPGSVIMPQKRSK-----GSHFPSYLGSGRSQAVGSLAMRERMDADLKGKLNNTLTPENEEREM

1654

Tt NQMILNAEKKRMLDEINEEIEFFDKOVNCONKCKIESDMTIAQMKFVTTYQELLILADMEEQDEKYIKDLLNHKREKADLEEQSS
Im TOMILNAEKKRMODEINEETEFOFDKDVLLKWNKKNIMESDITIAQMKLVTFQELLILADMEEQDEKLINDLLNLQKDKSELEEON
Pt QDMVLNAEKQRMIDEMOEEIVOFDKDVVKCONKKNVLESDMLIAQMKLVTTYQELIILEDMEDFDNKLIKEVLDKFKKQONLEQO
Hs DEIKHVMYQQYLVNRIKELVVTFAELRLLRHOKLKLDTQMKLSDLHHVTLFQELILLKNFEKQENILQERVNSLDKEEQYMQWKN
Rn DEVKHLMOOFLCNRIKELVTVFAELHLLRHOKLKLDTQMKLSDLHHVTLFQEMLLLNKFNKQENILQERVNSLDREEQDMQWKIN
Dr EEARGLNLOEQOLLTOMQDSVCRFDAELCVLRHEKQQLDVSLLKLADLRHVTLFEEELLLRDFQKREEKLTERRTYRQEEEDDIQGRMR
Gg EKIKNLYLOETLINKINELVTNFAELRFLRHKKLQLDVOMKYADLNITWFEEELLILKNAEKNNLQGHVNTLOSEQEAMQSKLN
Cc RVMRKIYEQDSILRHIHESYELLDNQLDELEERLEIVAESVYMDLYMLTLHQELIILKEFEAMENTLEEKVNKLERATAKQKMQ
Da RLSRKLYEQDCI IKDIESRYEDIDRELEDELESMRLQVYADGVYSDLYKLTLHQELIVLRDSERTENSRLKLNKLDKAVALDKLQ
Tc RLRKLFQEQDVIIDEMNRKITDFDDKVEKLNTERFOAEVDAKIIDIFMVTVHQELLILKEFEALEYTLQSKVNOQKMSVLDMRDID
Cr NRRRVEHMRSKLSEIITAMLDAFDDAHSALKAELGLEADVKGOMRLLVGLQELQLLREFDKRESVLLAKROAKLDDKQEIIVDKIA
Vc NRRRVEHMRNKLTDENVSMIEAFDDAHAALKAELGLEADVKGEMRLLVMLQELQLLREFDKRESVLLQKROAKLDDKQEIIVDKIT
Tb ERNRLLAERORLHTQVQAMMDEFDVRLSMYEERSRVDANLCLAHTHSLLLFRYNNILLVFRQKDFELLOSSYDEARNSRDRCLREME
Lm ORAVLERDMRRLKAAMAARTEFNDKLGSLRLRRAALDVLCLMTRCLTLFHREYQLLLIFRSQDKKLRAVLTAVKQERESVORGIA

1741

Tt KIVGELTALANKDSONEKELTEOMKVFVKELVYPEDDNKREKIHQYLYLRKYKKNKAKOLK-LRNHEE-ENEDFDEDEMSSEDDDDDDDF
Im KIVADLVTLANKDSONEKELVEOKAFKELIHPDDDVKREKIHQYLYLRKYKKNKAKOOK-LRNAAE-ENEDFEEDIESEDDDDDDDF
Pt KILENLATLOKKEQONDKDLIEQLKAWKELVHPDDEQKRNIHDYRKKFKREMLKRLKQOKEKHSDEENEDDEENEDDNDDDIV
Hs ETLKEMEKKNEITKLOEQEKALYAGFOAAIGENNFANFLMKVLKKIKRKKKVEVEGDADEDE--ESESSEEE--SSLESEDES
Rn ETLKEMEKKNEINKLOEQEKSLYSGFOSALGENNFANFLMKVLKKIKRKKKVEVE-EADEDE--ESESSEEE--SSLESEDES
Dr ECOROMELKRDRVORLQNRKESISTSFQTSIGENNFEEFLTRVFKKIRRTKKEHTHAQGDQSEDEDESDESDSDAEDDED
Gg SYLARMEDKSEIIVKLOEKEKALYASFOASLGENNFHFLTKVLKFKKNCVKKK-VERETDEKD--ESESSEEE--SSSEDEEDS
Cc AMNIKIEOKIREIAKIOEKIKDVFSEYMSMINEN-RFYEFLLRIFKVKYKPK---PKTDDESSASS--SSTTESSTDDDEAG--SIDSR
Da SMRNIDKKNRDIKNIQNKMKETAYFASATQDN-KYAKFLTRIFKVKVIGVAQRSESSSQMSS--DSSDETSTDQDSDNSSVDIH
Tc EISSKIVEHNSDIEKAQEKISITVSTNAVQDN-KFFDFLRKVFRRKYPKPKVHKDDGETESSSESSSSSTSSSTESDDDGKSIDSR
Cr ECTDKLETKRLELEGLVARRAAVVAELDAVVPESDPFR-----EALVRVFHRRIKRSKKKAGGGGGEDDYDSEDEDEDEMGGDE
Vc ECTDKLEOKRVELEGLIARRAAVIAELDAILPETDPFR-----EPLVRFHRRIKRSKKKAGG--GDDYDSDDEDEDEMGGDE
Tb ECLORLVODOTASIEKLOEQANKVFRREVEIFISNSFPAEH-----VPYITKVFRLQIKRRKHHSDMSGNDDDDITSDDDDDDDD-MGEDE
Lm SQHTDLASSEERIRQLTGOLKSTNQAAEAYIDEHCPSPDK-----LTYIKRVYYRQLKRRRRAEDGDDDDDDITSDDDDDEDGIG--

1828

Tt MDDDD---DEKPDITPVENDT-KIREII---DKICLEDQOETNRKEKADLEROKNOISVKIOSTLKELOKAEKLRAYOREKLOK-
Im LDDDE---DEKPDISPVENDS-KIREII---DKICELEDQOENRKEKSELDRQKVSILSKIANIGNNLRKAEELKNYQRKNFKKL
Pt SDDDE---EEKPDISPVEQDE-KVRDVI---EKICGLEEQDNFKQEKIQNEQOKSKLANKIAQNDIYLKRANDDLTOYQRKQLOR-
Hs ESEDE---VFDDSI CPTNCDVALFELALHLREKRLDIEEALVEEKKIVDNLKKEYDITLSKVKVIVATNLNAAEEALEAYOREKOR-
Rn GSEDE---VFDDSI CPSNCDVSLFELALQLREKRLDIEEALVEEKKVVDNLKKEYDTISKVKVIVATNLNAAEEALEAYOREKOR-
Dr YEESEAGAALDDTVCPNCDAAFENTLRLRDLRVDFVEEQLODOMKTLDTLKKDYDTLSKKEKLVQGSRRSADSDLELLNREKQOR-
Gg GSEDE---IFDISVCPENCDAKLFONTIQLREKLLDIKDALIREKKAALKRKEYNVLFKAKSIEASLNTAEKELDIFOWKKOK-
Cc EIGPI---HVDENICPLGCDKELYAMAFSMRERRYEYLOKVEEKSIELLRKEIENDTKMKKAIENNLKYNQDELEAFMKORK-
Da KIALT---VFDESVCPPDCSRELYDLAFSMRLRKHNDENEIRREEQKNVSLLEVDHDSKKIKIETAVNDCKQTLNFMHEKQCR-
Tc DFGII---KODLNVCPKGCPSVYEYTINSRSEHVEELLIKEVLMKIEVLKDDLEIHNKVKVIEKDLQCODELEKYOROKQDK-
Cr VDDDD---DGGEVCPGCDQSVYERVCDLREKRLDEEDMIAEFTKTIIEVLRKEKEALAKKQRLVEQGLAAVNADMAEFQKEKQGR-
Vc ADDDD---DGGEVCPAGCDQSVYERVCDLREKRLDEEDMIAEFOKTIIEVLRKEKEALAKKQRLVEQGLAAVNADMAEFQKEKQGR-
Tb AW-----EEICPPNCSSEERWCEVIEKREVRDLYVDAITEEROLEATEORIEEHKALADKNNAAVSTCLKAIEDFOGEKRRK-
Lm -----EEARPPNCSVEAWEGMLRCRESRLDLTEASDAAKAEVANIRKQLEQSEORLQELAEHVKQCRGEVQVLEEKRRKE-

1915

Tt VNQLDVSFC-LQVDQIKNLIEMGNOQQ-HILPEDLK--KSILFTQNERNKLRLRQEQEKEIEQSKKTLEKRKRYLQIKINKKN
Im INQMSLIEQLNIFOSIYIFIKLQEKKESYKLPDDL--RSILFTQDEFNKIAKRIKELKLEQERIKKSRANLEKKQKVLQVKLSKKN
Pt VNQLDVSFV-LKLSQVONLNEQ-----KOLPADLN--KSILFTYDFFKLCKRVVELKHEQGITKOKAKDKTKMKQEKELKLD
Hs LNELLVVIP-LKLHQIEYVVFV-----EIPSDLS--GTLVFSNHALRLQERIHLEQENSKQKLNKWEERRRKLIREKREMT
Rn LNELLVVIP-LKLHQIEYVVFV-----EIPSDLS--GTLVFSNHSLDRLQERIVOLQEENAKQKLNKWEERRRKLIREKREMA
Dr LNEVDVVP-LRLHQIEYVVFV-----LOPADLQ--SALVLSAVELORLQMRIRELOEKSOORLOYRHARQOHRQOLTPOLTDME
Gg LNDLYVVVP-LKLHQIEYVVFV-----EIPRDFS--QALVFTNQSLEYLQKRIVDLHHEKIMOREIYKKAQKQYKQLVRDCKEME
Cc LNDIDITVI-LKFHQLQHFVGS-----STVAQIQ--DCTVFDKEKLSHLYARVEELOKETSDQAKHKKNRMHLMRNVDCXHME
Da LNDIDMTL-LNFHQIEYVVFV-----DNLKSMF--NCVVFDTTRLSQLYRRVGLQOETCEQKMRHKKNTHLHRMNTDCRYMN
Tc LNEVRTTIV-LRLDMKHFAAE-----YKTSGIM--DTLIFSKEKRLSYLKRVEELOIETEHQVSRHRLNVKHYRMTQDCKYMA
Cr LNQVEVIVA-LRMHQIEYLLDG-----CLPDDL--ACLVFSASQLRRLQARVDELEEEKAGLRAAHKELRRQHAALLRDADKE
Vc LNQVEVVVS-LKMHQIEYLLDG-----CLPDDL--AALVFSATQLRRLORRVDELEDEKAALRSOHKDLKREOAGLLRDKAEKE
Tb LNMLETIVA-MRCGOVRCLDEEG-----RCPDTRFRNDLVVSDKVIITGLHDIRALAEKHDRRGKLSMVAEQOALQERSEKO
Lm LNMLYTAVP-LRLSQVRCLEENA-----RIPSHLPEQPVVVISAEQMSALRQIFDLADQKIQRREVARLTAELQPLKEARAASN

2002

Tt ALIDELSKKYNEKHMLKFGDIIDLKILDALEPTKO-----VLEMREFKKEEETSILRVEKAKQMLQEKKNVLLQ
Im AEAEQSEKREKHFLLKFGDVMDLSTIEOLEPTKO-----VLEMRERFKEEEROSI IKLERAKOOLQERKNYMLQ
Pt LKIEDLNKKYEEKHMLKFGDIIDLKILDALEPTKA-----VLDMRAOFNQEKEAQRKVSRAKEELSKVKOOLLE
Hs KTIHKMEETVROLMISKFGRVVNLEALQTLVNTT-----LEELKIRKLRKELANAKEMKMWEEKIAQMRWELMM
Rn KTIHKMEETVRELMIKSKFGRVIDLEALQTLVNTT-----LEELKIKLRKELANAKEMKMWEEKIAQMRWELMM
Dr TRIRESVRCEQLMLLKFGLKLVLELVLQTLVGNRK-----VEEMRQEVRRDARYTOELKHWHQAEVVKACAVTA
Gg ITIQORLEEKCSQMLMLKFGVVDFAVQARLVNIR-----LEELEQIMEKEYEHSQEIKECAKRIILDLEQKLM
Cc LEIKKLDKNIKEEMMKFGQEISLNALYEAVALRRM-----VYDIKVNINGMISSFEKEINSVKEAYAERVNILEN
Da SQIKRLKSCVFEEMLKFGCPI SLASLYEAVALRRM-----IYSMKANMTDNLK-YERQFKCLKERYDENILILEN
Tc TRIKYLQEVITDKMKMKFGKVIDINEIEVAMKSRTFGRDDLHDLLEEVLLKIVHDLRLSMMDIKGLYIDQLHFWEKEISQTKELTY
Cr ARVAELEARAHDVOMLKFGQVIDLELLDRVSSSRG-----TEELREDLKKQELAYARELAEWDSKIANARMDELVV
Vc KKVAELEARAHDVOMLKFGQVIDLELLDRVSSSRG-----TEDLKEELRQELAYARELAEWDSKIANARMDELVV
Tb ALHTQWEEKIYEAMLLKFGQIVNLEVLESSCGSRE-----VEQLKERLRLEELSWEKELRKRDKKIAVLRKELHE
Lm RVFEWQEKVNEVMLLRFQYVDLEMLES CGSSWA-----IETKKEELLHLELKWARSVKKVENQITELRTRLOD

2089

Tt AKKENTSIIITSITKLGODLMKLSKKLDSTNKQLFKEDNEDKKNKQDLEKERQNYKDLVRFLSKEIEDLKTEIGLFKRKGGHIYTMVT
 Im AKKENTAIITSITKLGHELMKLSKKLDLTGKQLFQEDNEEKKNKQDLEQEROQYKDLVRFLLAKEIEDLKTEIGLFKRKGGHIYTMVT
 Pt VKRENTKIFTNITKLGKQOQMDLSKKLTSGNKQLFKG--DNKEKRSDMESDRQSLLEDLVKFLGKEIEDLKNEIGLYKKKGGHIYTSIT
 Hs KTKEHTKRLYQMNDLCEKKKRLDSRLNLTQNOQGNFAFG--PREADV--AREEVTELIQLOAERISALKEEIALLRKGGSLILPPIQ
 Rn KTKEHTKRLYQMNDLCEKKKRLDSRLNLTQNOQGNFAFG--PRKADIV--AKQKVTQLVQTOSEKISALKEEIALLRKGGSLILPPIQ
 Dr VMKLNTERLQKINRLMTOKKTLDDEELDCRQRTVCQYAG---GLVDEQ--ELQRLQQLISGQSQDIAALNVEIQALSRLKDGHLPPLE
 Gg LTKENTRKARQLNQFCLEKQOQLETKLDSLKDDWGVFQFG--PRTADMK--EKARMSQLKRLAHDEAILREEINFLSRKDGHLIEOLS
 Cc LIQDNTEKLNLLTVLEEEKSKLRKILKHVPMTEEEIELS---KLTQYON--DISKLSILKSOMHOKELFRNEIRNLSLKSRL--PPIC
 Da LVRDNTEKLSVLTVLTEEQMRFHKI IKKWPETSKNIFQS---ELEWRK--DLAHLEGIIVNQKEQKEFFRSQVNRNLLKLRSL--PPVT
 Tc VLRHNTSQOELLTYLVNEKVELAQSLMSQEKKKLHIASVGDITRRYSE--EIEKLAIISEONQOIQELKDEIKLLRTKGMVL--KPKE
 Cr LTRNTACLNAVSELTAQRRLSGLTATRKGFLFADPVQQR--RAEVE--ERDALVALVNAQAQAEIDRLKQOLLALRRKDTSMYA---
 Vc LTRNTACLNAVSELTAQRRLSGLTATRKGFLFADPVQQR--RAEVE--ERDALVALVNAQAQAEIDRLKQOLLALRRKDTSMYA---
 Tb SLEYNTSLLQTIQDQESDRQSVERSLAOSTQKVVSKMYDSI--NVATEE--DRSNLRLIIAQAQEEIDALRTEVALLRTKGGHVYAAAM
 Lm KVFENTSLLOQLGDLETERQRVDSVLSQATSKTVQQYCGTT--VASKQ--ERAVLRELIAQAQEEIDALTAIEILMLKRKGGHVYSQAM

2176

Tt SNKKNFN-----
 Im SNKKNFN-----
 Pt QTNQNFVOR-----
 Hs SPREKEIQPADL-----
 Rn PMOENEMRHMDA-----
 Dr PVLRLPAHTHTASGTGAHSKLTLSSGRAVK-----
 Gg LLTRNNQFLQPSSPDLEAPDQIFPVLKP-----
 Cc SKKKSOKIRTEPHEDEOILAVIDIKTGDGYTIDKTOVKIKVDDVESNDYIEEEVELSDEEKEAEDDTKEREITDFSSSENTAMMIHR
 Da SRRKYLPSIKKICSKSDDEQASVRDETWOEKKTAISEIFKDKIHDSALRIVRNLLSKIIQOYVEREEAKSIVDQFFNEISKKHSNI
 Tc VKKEEPPEEPPVAWEHIKDWGEEIEEEEEESLRKPFSTEIVIPPTLQEKSQEVATELIQEMLEALDVKLTKRSNENFVKEILGSVMRG
 Cr -----
 Vc -----
 Tb AAGR-----
 Lm M-----

2263

Tt -----
 Im -----
 Pt -----
 Hs -----
 Rn -----
 Dr -----
 Gg -----
 Cc LLSRIIEMSLGDQAEESTQOELNEVISNLPINGNHDDLEAGIERSVENIVAMLPOGNPERMEAMROAVRESLSDIIRLDSESKQI
 Da STDFIDSFMEICEKIEKRIEEISTKAGISGKIRDIILEYANEIISOLEIESRGIGVGSVEISWNVVKPKLDEFLESMEIKKDITTEVY
 Tc LSMTELVEELVRNLPLEPDDVQRGIIETTAEQLYVVOQEPDAEAEDKFFSCREILEDIVDEILLVKGEPHSVMARLITKLVEQLPIDF
 Cr -----
 Vc -----
 Tb -----
 Lm -----

2350

Tt -----
 Im -----
 Pt -----
 Hs -----
 Rn -----
 Dr -----
 Gg -----
 Cc KSDDTDPDAKVKSKINELLENVGIETENMQIQNELVQLIKNGQGVDAVMEWLSDKLPVNMNEESKKTAEYAMVTLAEITEQIIMS
 Da IMKFLKMEMGLELATDYVLTKLSTKPDSETAIAFREHASRTLREIQKHIDGESETETTAKSSNSGL-----
 Tc LKEQSSLEYIVKRMVTSLELTKLNRSVMSLLRSKEAREILDEIQTVFDSSGLDLLYLIKDE-----
 Cr -----
 Vc -----
 Tb -----
 Lm -----

2437

Tt -----
 Im -----
 Pt -----
 Hs -----
 Rn -----
 Dr -----
 Gg -----
 Cc EPVSVQAEEVEENIVSTENQSVKDDMSVD
 Da -----
 Tc -----
 Cr -----
 Vc -----
 Tb -----
 Lm -----