

H. sapiens 1 MDFPQHSQHVLEQLNQORQLGLLCDCTFVVDGVDFKAHKAVLAACSEYFKMLFVDQKDVV
M. musculus 1 MDFPQHSQHVLEQLNQORQLGLLCDCTFVVDGVDFKAHKAVLAACSEYFKMLFVDQKDVV
F. rubripes 1 MEFPWHSQKVLQDLNHQRKQGLLCDCTFVVDGVDFKAHKAVLAACSVYFRTLFLQKDVV
T. nigroviridis 1 MEFPWHSQKVLQDLNHQRKQGLLCDCTFVVDGVDFKAHKAVLAACSAVFRALFLQKDVV
D. rerio 1 MDFPQHSQKVLQDLNHQRKQGLLCDCTFVVDGVDFKAHKAVLAACSSYFRTLFLQKDVV
G. gallus 1 ----LKSLLTVLAEVSPVRESRE-LLTTELGVKEKVIIVEGKTAAAVTQGDSDKPKQVPPNQEGKE
X. tropicalis 1 -----

H. sapiens 61 HLDISNAAGLGQVLEFMYTAKLSLSPENVDDVLAVATFLQMQDIITACHALKSLAEPATS
M. musculus 61 HLDISNAAGLGQVLEFMYTAKLSLSPENVDDVLAVATFLQMQDIVTACHTLKSLAEPSSST
F. rubripes 61 HLDISNAAGLGQVLEFMYTAKLSLSPQNLLEDVLAVANFLQMQEIVNACSAVQSMATPAVS
T. nigroviridis 61 HLDISNAAGLGEVLEFMYTAKLSLSPQNLLEDVLAVANFLQMQEIVNACSAVQSMAPAVS
D. rerio 61 HLDISNAAGLEOVLEFMYTAKLITLNAQNIEDVLAVATFLQMQEIVNACSAVQSLTVSSAP
G. gallus 56 EAPVGTAAQPKFPAEQDAKEGPAEQ-----QPGVDNAEASPAAVSPS--
X. tropicalis 1 --PAGEKGAPGLAEETLAPTRVAKAET-----PAEQEVSCSQGQAGPTPP--

H. sapiens 121 PGGNAEALATEGCDKRAKEEKVAITSLSRLEQAGRSTPIGPSRDLK-----EER
M. musculus 121 TGESADASAVEGCDKRAKDEKAAATMLSRLDQARGSSSTGPGRELK-----EER
F. rubripes 121 LLT--LDFDVADGEOKEEVEINVTEVVISQSEDSHPSTSPPEEQEPKEQENTDPSAETEQP
T. nigroviridis 121 LLT--LDFDIADVEOKEEVEIDVTEVVSQTEDGHPSSVSAEDPGPKHPRETVNPPAETQPP
D. rerio 121 KP---EEDPSSHVTOKAGPEEKEAQSQSKTEETHEAVSN-----
G. gallus 102 -----RPQPAESEVGNSSPGKEKSDAPST-----
X. tropicalis 44 -----AGQIDKLGAEFG-----

H. sapiens 170 GGQAQSAASGAEOTEKADAPREPPVVELKPDPTSGMAAAEAEAALSSESSEQEMEVEPAR-
M. musculus 170 GGQAESASSGAEOTEKADAPREPPVVELKPDPTSSMAAAEAEA-LSSESSEQEMEVEPAS-
F. rubripes 179 VSQATSNKSNTEPEEESNSALASPQKAASVKKEDSCTVQVVAECYDDPCSDYLPKD---
T. nigroviridis 179 VTEATSPRSKLEPEEKSSQALALSQKTLVSVKKEASTVHVVPESCDDPSDTPYMPNNDSE
D. rerio 157 VAEKQSTKI--IRAVSKIISGPLKTRQKDSKSESEARATKELPQFODDNDADYTPINDG-
G. gallus 126 ----EAREMELEKKEE-----EGEAMVEDEEEAKIPKAAQPKSESKEN-----
X. tropicalis 57 -----EGQTEEDPGSENREATEENELAIDS-----

H. sapiens 229 -----KGEQQKEQEEQEEEGAGPAEVKKEGSQLNCEAPEENENEESAGTDS
M. musculus 228 -----KGE-----DGQEEEGAGPATVKEEGMHLNCEPPEEN--EESAGTDS
F. rubripes 236 -----AENYPEESSNATDDEEGTVKVDNNAEHHVGGGGVNSEGE
T. nigroviridis 239 DEGTTIKVRRRMTGATEGASQPEDDPEETCNAADDEESTGKVDGDTCEHVGG--VSEEE
D. rerio 215 -----EESVSKVESMVEEENEEDDGGEELEDQOTDGEEMETED
G. gallus 165 -----AEDNESGSTDSGQE-----NSGE
X. tropicalis 82 -----GID

H. sapiens 277 GQELGSEARGLRSGTYGDRTESKAYGSIHKKCEDCGKEFTHTGNFKRHRIHTG-----
M. musculus 268 GQELGMEGQNLRSPTYGDRTESKAYGSIHKKCEDCGKEFTHTGNFKRHRIHTG-----
F. rubripes 275 GRQTDSSGSL-----MSSRSESKPYSSVTHKCEDCGKFFTHTGNFKRHRRIHTG-----
T. nigroviridis 296 SRQTDSSGSL-----MSSRSESKPYSSVTHKCONCGKFFTHTGNFKRHRRIHTGSFTSGF
D. rerio 254 GEMMDSIEDRKFAL--GARTESRSYGSITHKCEVR-----DSVILWIHKTIFTA-----
G. gallus 183 TRLLRSGT-----YSDRTESKAYGSIHKKCEDCGKEFTHTGNFKRHRIHTG-----
X. tropicalis 84 SQHLGSGATP-----YSDRNESRYPYSTHKKCYCGKEFTHTGNFTRHRIHTG-----

H. sapiens 331 --EKPFSCRECSKAFSDPAACKAHEKTHSPLKPYGCEEFCGKSYRLISLLNLHKKRHSGEA
M. musculus 322 --EKPFSCRECSKAFSDPAACKAHEKTHSPLKPYGCEEFCGKSYRLISLLNLHKKRHSGEA
F. rubripes 322 --EKPFSCRDCHKAFSDPAACKAHEKTHSPLKPYTCSTCGKSYRQISLLNLHKKRHTGEA
T. nigroviridis 349 HWREFFPSCRDCKAFSDPAACKAHEKTHSPLKPYTCSTCGKSYRQISLLNLHKKRHTGEA
D. rerio 301 -----LCSFFSHEKELR--NNNNHFCSCSPVKPYCCSTCGKSYRQISLLNLHKKRHTDEA
G. gallus 230 --EKPFSCRECNKAFSDPAACKAHEKTHSPLKPYGCEEFCGKSYRLISLLNLHKKRHTGEA
X. tropicalis 133 --EKPFSCRECNKAFSDPAACKAHEKTHSPLKPYGCEFCGKSYRLISLLNLHKKRHTGEA

H. sapiens 389 RYRCEDCGKLF~~FTTSGNLKRHQLVHSGEKPYQCDYCGRS~~FS~~DP~~TSKMRHLETHD~~TD~~KEHKC
M. musculus 380 RYRCGDCGKLF~~FTTSGNLKRHQLVHSGQKPYQCDYCGRS~~FS~~DP~~TSKMRHLETHD~~TD~~KEHKC
F. rubripes 380 RYSCRLCGKTF~~FTTSGNLKRHQLVHSGEKPYQCDYCDKAF~~SD~~PA~~KMRHLETHD~~TD~~KG~~GN~~KC
T. nigroviridis 409 RYTCRLCGKTF~~FTTSGNLKRHQLVHSGEKPYQCDYCDKAF~~SD~~PA~~KMRHLETHD~~TD~~KG~~GN~~KC
D. rerio 353 RYSCEDCGKLF~~FTTSGNLKRHQLVHSGEKPYQCDHCDRA~~FSD~~PA~~KMRHLETHD~~TD~~KG~~GN~~KC
G. gallus 288 KYRCDDCGKLF~~FTTSGNLKRHQLVHSGEKPYQCDYCGRS~~FS~~DP~~TSKMRHLETHD~~TD~~KEHKC
X. tropicalis 191 RYRCTDCNKH~~FTTSGNLKRHQLVHSGEKPYHCEYCNRP~~FSD~~PA~~TSKMRHLETHD~~TD~~NKEHKC

H. sapiens 449 PHCDK~~KF~~NQVGNLKAHLKIHIADG~~PLKCRECGKQFTTSGNLKRHLRIH~~S~~GEKPYVCI~~H~~QC~~
M. musculus 440 PHCDK~~KF~~NQVGNLKAHLKIHIADG~~PLKCRECGKQFTTSGNLKRHLRIH~~S~~GEKPYVCT~~H~~QC~~
F. rubripes 440 PHCDK~~RF~~SQIG~~NL~~KAHLKIHI~~TD~~G~~PLKCKE~~CGKQFT~~SS~~GNLKRHVRVH~~S~~GEKPYICVH~~CK~~
T. nigroviridis 469 PHCDK~~RF~~SQMG~~NL~~KAHLKIHI~~TD~~G~~PLKCKE~~CGKQFT~~SS~~GNLKRHVRVH~~S~~GEKPYICVH~~CK~~
D. rerio 413 QHCDK~~KF~~NQVGNLKAHLKIHIADG~~PLKCKE~~CGKQFT~~SS~~GNLKRHLRVH~~S~~GEKPFICM~~HQC~~
G. gallus 348 PHCDK~~KF~~NQVGNLKAHLKIHIADG~~PLKCRECGKQFTTSGNLKRHLRIH~~S~~GEKPYV~~CVH~~QC~~
X. tropicalis 251 PHCDK~~KF~~NQVSG-----ASWGLKGNL~~CGG~~NGATGAQSPCYLIIG---FILYM~~NR~~S

H. sapiens 509 RQFADPGALQRHVR~~IHTGEKPCQCV~~MCGKAFTQASSLIAHVRQHTGEKPYVCERC~~GR~~FRV
M. musculus 500 RQFADPGALQRHVR~~IHTGEKPCQCV~~ICGKAFTQASSLIAHVRQHTGEKPYVCERC~~GR~~FRV
F. rubripes 500 RAFSDPGALQRHVR~~IHTGEKPCVCS~~ICGKAFTQASSLIAHVRQHTGEKPYVCDRC~~GR~~FRV
T. nigroviridis 529 RAFSDPGALQRHVR~~IHTGEKPCVCA~~ICGKAFTQASSLIAHVRQHTGEKPYVCDRC~~GR~~FRV
D. rerio 473 RAFADPGALQRHVR~~IHTGEKPCCLC~~ICGKFTQASSLIAHVRQHTGEKPYVCDRC~~GR~~FRV
G. gallus 408 RQFADPGALQRHVR~~IHTGEKPCQCL~~ICGKAFTQASSLIAHVRQHTGEKPYVCERC~~GR~~FRV
X. tropicalis 299 TOYSWQGE~~LPK~~NVQV~~NQ~~PFN~~PLN~~VLV~~VA~~-----L~~FN~~PL~~RP~~WR~~CG~~ALMPLIC~~CS~~HR~~FR~~V

H. sapiens 569 QSSQLANHIRHHDNIRPHKCS~~VCS~~SKAFVNVGDLSKHII~~IHT~~-----
M. musculus 560 QSSQLANHIRHHDNIRPHKCS~~VCS~~SKAFVNVGDLSKHII~~IHT~~-----
F. rubripes 560 QSSQLANHIRHHDNVRPHKCH~~MC~~NKAFV~~NF~~GDLSKHII~~IHT~~-----
T. nigroviridis 589 QSSQLANHIRHHDNVRPHKCH~~MC~~SKAFV~~NF~~GDLSKHII~~IHT~~GK~~HMLISYLRKGC~~SLSH~~VV~~
D. rerio 533 QSSQLANHIRHHDNIRPHK~~QCT~~CNKAFVNVGDLSKHII~~IHT~~-----
G. gallus 468 QSSQLANHIRHHDNIRPHK~~CTV~~CNKAFVNVGDLSKHII~~IHT~~-----
X. tropicalis 350 QSSQLANHIRHHDNIRPHKCS~~V~~CNKAFVNVGDLTKH~~VI~~I~~IHT~~-----

H. sapiens 610 -----GKPYLCDKCGR~~GFNRVDNLRSHVKTVH~~Q~~GKAGIKILEPE~~EGS-----
M. musculus 601 -----GKPYLCDKCGR~~GFNRVDNLRSHVKTVH~~Q~~GKAGIKILEPE~~EGG-----
F. rubripes 601 -----GKPF~~FLCDKCGRGFNRVDNLRSHVKTVH~~H~~GKAGMKRLV~~VAGDG---AEEVI
T. nigroviridis 649 DIVFFFSLSGK~~PFLCDKCGRGFNRVDNLRSHVKTVH~~H~~GKAGMKRLV~~VAGEG---AEEVI
D. rerio 574 -----GKPF~~FLCDKCGRGFNRVDNLRSHVKTVH~~H~~GKAGMKRLV~~V~~AE~~DDDXEDKLLA
G. gallus 509 -----GKPF~~FLCDKCGRGFNRVDNLRSHVKTVH~~Q~~GKAGMKILEPE~~DGS-----
X. tropicalis 391 -----VYRAGR~~VRS~~GV~~V~~YT-----

H. sapiens 653 -----E~~VS~~V~~TV~~DDM~~V~~TLATEALAATAV~~T~~Q~~LT~~V~~VP~~VGA~~AV~~TADETEVLKAEI
M. musculus 644 -----E~~VS~~V~~TV~~DDM~~V~~TLATEALAATAV~~T~~Q~~LT~~V~~VP~~VGA~~AV~~TADETEVLKAEI
F. rubripes 649 DACTEVSTSENQ~~LNIVTVTSE~~DI~~VT~~----T~~L~~NG~~VA~~Q~~LT~~V~~VP~~V~~T~~TS~~V~~SADETEALKAEI
T. nigroviridis 706 DACTEASTSENQ~~LNIVTVTSE~~DI~~VT~~----T~~L~~NG~~VA~~Q~~LT~~V~~VP~~V~~T~~AS~~V~~SADETEALKAEI
D. rerio 625 DSNPDSE~~LD~~SNE~~V~~N~~I~~V~~T~~V~~T~~DD~~I~~V~~T~~LATEALAATAV~~T~~Q~~LT~~V~~VP~~V~~V~~AA~~S~~VSADETEALKAEI
G. gallus 552 -----E~~LN~~I~~V~~T~~V~~AS~~DD~~M~~V~~TLATEALAATAV~~T~~Q~~LT~~V~~VP~~V~~V~~AA~~AV~~TADETEALKAEI
X. tropicalis 407 -----

H. sapiens 700 SKAVKQVQ~~EE~~DPNTH~~I~~LYACDSCGDKFLDAN~~SLAQHVR~~IHTAQALVMFQ~~TD~~ADFYQOYGP
M. musculus 691 SKAVKQVQ~~EE~~DPNTH~~I~~LYACDSCGDKFLDAN~~SLAQHVR~~IHTAQALVMFQ~~TD~~ADFYQOYGP
F. rubripes 705 TKAVEK~~VQ~~EADPNTQ~~I~~LYACDSCGDKFLDAS~~SLAQHVR~~IHTAQALVMFQADSDFYQYTAA
T. nigroviridis 762 TKAVEK~~VQ~~EADPNTQ~~I~~LYACDSCGDKFLDAS~~SLAQHVR~~IHTAQALVMFQADSDFYQYTAA
D. rerio 685 TKAVEK~~VQ~~EADPNTQ~~I~~LYACDSC~~GE~~KFLDAS~~SLAQHVR~~IHTAQALVMFQADSDFYQOYTG
G. gallus 601 TKAVKQVQ~~E~~ADPNTQ~~I~~LYACDSC~~GE~~KFLDAS~~SLAQHVR~~IHTAQALVMFQADTDFYQOYGA
X. tropicalis 407 ELI~~V~~PL~~IP~~PADPNTQ~~I~~LYACDSC~~GE~~KFLDAN~~SLAQHVR~~MHTAQALVMFQADTDFYQOYSA

H. sapiens	760	GGT-----WP--AGQVLQAGELVFRPRDGAEGQP	PALAE	TSPTAP-ECPPPAE
M. musculus	751	GST-----WP--AGQMLQAGELVFRPRDGT	EGQP	TLAESPTAP-DCLPPAE
F. rubripes	765	ASTDGDSATTWQPSAEQVIQEGELIFHAQN	-----	-----
T. nigroviridis	822	TATDGDSATTWPPSAEQVIQEGELIFHAQNEEGAE	-----	-----
D. rerio	745	DAT-----WQ-TTEQVIQGGELLFRTRD	-----	-----
G. gallus	661	AAAT-----WQ--TEQVIPATELLFRPRD	SPQEAP	AAPLAPVPLAGEGQAPAE
X. tropicalis	467	PTT-----WH--TEQVIQSGELIFRARD	GADEHP	QA-----

