

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIF26A\_01.fasta | Laps: Tue Feb 1 13:51:16 2022

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	:	:.	::*:	:.	.	:	*	::*
Pavo_muticus	-----MEAGMEEIPVKVAVRIRPLL	SKEVLHN-----	HQVCVR	LVP-NTQQI	41			
Pavo_cristatus	-----MEAGMEEIPVKVAVRIRPLL	SKEVLHN-----	HQVCVR	LVP-NTQQI	41			
Gallus_gallus	-----MEAGMEEIPVKVAVRIRPLL	SKEVLHN-----	HQVCVR	LVP-NTQQI	41			
Anas_platyrhynchos	-----MEASMEEIPVKVAIRVRPLL	SKEVLHN-----	HQVCVR	LVP-NTQQI	41			
Chelonia_mydas	-----MEEIPVKVAIRIRPLLSK	EILHN-----	HQVCMRL	VLP-NTQQV	37			
Mus_musculus	-----MEEIPIKVAVRIRPLLCKE	VLHN-----	HQVCVRD	DIP-NTQQI	37			
Rattus_norvegicus	-----MEEIPIKVAVRIRPLLCKE	VLHN-----	HQVCVRD	DIP-KTQQI	37			
Homo_sapiens	-----MEEIPVKVAVRIRPLLCKE	ALHN-----	HQVCVRV	IP-NSQQV	37			
Macaca_mulatta	-----MEEIPVKVAVRIRPLLCKE	VLHN-----	HQVCVRV	IP-NSQQV	37			
Callithrix_jacchus	MKLNIISFPATGCQKLI	EVDDERKLRTFYEKRMATEVAADALGEWKGIVVRI	SGGNDKKQG	60				
Bos_taurus	-----MEEIPVKVAIRIRPLLCKE	VLHN-----	HQACVRV	IP-NTQQI	37			
Equus_caballus	-----MEEIPVKVAVRIRPLLCKE	VLHN-----	HQVCVRV	IP-NTQQI	37			
Canis_lupus_familiaris	-----MEEIPVKVAVRIRPLLCKE	VLHN-----	HQACVRV	IP-NTQQI	37			
Felis_catus	-----MEEIPVKVAVRIRPLLCKE	VLHN-----	HQACVRV	IP-NTQQI	37			
Xenopus_tropicalis	MKTROETPDKITMETTPVKVALRV	RPLLSSREILHN-----	HQVCVR	LVP-NTQQV	49			
Rhinatrema_bivittatum	-----MEEIPVKVAVRLRPLL	SREILHS-----	HQVCVRV	IP-NTQQV	37			
	1.....10.....20.....30.....40.....50.....60							

[illegible]

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Pavo_muticus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	I	----	A	S	I	A	E	D	E	K	111																							
Pavo_cristatus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	I	----	A	S	I	A	E	D	E	K	111																							
Gallus_gallus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	I	----	A	S	I	A	E	D	E	K	111																							
Anas_platyrhynchos	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	I	----	A	S	V	S	E	D	E	K	111																							
Chelonia_mydas	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	I	----	A	S	V	G	E	D	E	K	107																							
Mus_musculus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	----	A	S	V	V	E	G	O	K	107																							
Rattus_norvegicus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	----	A	S	V	V	D	G	O	K	107																							
Homo_sapiens	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	-	G	----	H	I	A	S	V	V	E	G	O	K	107																						
Macaca_mulatta	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	-	G	----	H	I	A	S	V	V	E	G	O	K	107																						
Callithrix_jacchus	I	L	G	L	T	D	T	T	V	P	R	R	L	G	P	K	R	A	S	R	I	R	K	L	F	N	L	S	K	E	D	D	V	C	Q	V	V	R	K	P	L	N	----	K	E	A	S	V	V	E	S	O	K	173
Bos_taurus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	----	A	S	V	V	E	G	O	K	107																							
Equus_caballus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	----	A	S	V	V	E	G	O	K	107																							
Canis_lupus_familiaris	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	D	V	L	S	F	F	K	F	L	A	S	V	V	E	G	O	K	116															
Felis_catus	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	----	A	S	V	V	E	G	O	K	107																							
Xenopus_tropicalis	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	N	V	----	A	S	V	A	D	E	E	K	119																							
Rhinatrema_bivittatum	V	F	A	Y	G	O	T	G	S	G	K	----	T	Y	T	I	G	G	G	H	V	----	A	C	V	I	D	E	E	K	107																							
	.....	130	.....	140	.....	150	.....	160	.....	170	.....	180																																										

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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****:****:* * : . . : * :*****:* *****.*.:*****
Pavo_muticus      GIIPRAIQELFQHISENHNIDFRVKVSYIEVYKEELRDLELETSVKDLHIREDEKNTV 171
Pavo_cristatus    GIIPRAIQELFQHISENHNIDFRVKVSYIEVYKEELRDLELETSVKDLHIREDEKNTV 171
Gallus_gallus     GIIPRAIQELFQHISENHNIDFRVKVSYIEVYKEELRDLELETSVKDLHIREDEKNTV 171
Anas_platyrhynchos GIIPRAIQELFQHISENHNIDFRVKVSYIEVYKEELRDLELETSVKDLHIREDEKNTV 171
Chelonia_mydas    GIIPRAIQELFQSISENHNIDFSVKVSYIEVYKEELRDLELETSMKDLHIREDEKNTV 167
Mus_musculus      GIIPRAIQEIFQSISENPSIDFKIKVSYIEVYKEDLRDLELETSMKDLHIREDEKNTV 167
Rattus_norvegicus GIIPRAIQEIFQSIISGNPNIDFKIKVSYIEVYKEDLRDLELETSMKDLHIREDEKNTV 167
Homo_sapiens      GIIPRAIQEIFQSISEHPSIDFNKVSIEVYKEDLRDLELETSMKDLHIREDEKNTV 167
Macaca_mulatta    GIIPRAIQEIFQSISEHPSIEFNKVSIEVYKEDLRDLELETSMKDLHIREDEKNTV 167
Callithrix_jacchus GIIPRAIQEIFQSISEHPSIDFNKVSIEVYKEDLRDLELETSMRDLHIREDEKNTV 233
Bos_taurus        GIIPRAIQEIFQNIISGKPSIDFNKVSIEVYKEDLRDLELETSVKDLHIREDEKNTV 167
Equus_caballus    GIIPRAIQEIFQNIISENPSIDFNKVSIEVYKEDLRDLELETSVKDLHIREDEKNTV 167
Canis_lupus_familiaris GIIPRAIQEIFQNIISENPSIDFNKVSIEVYKEDLRDLELETSMKDLHIREDEKNTV 176
Felis_catus       GIIPRAIQEIFQNIISENSSTDFNIKVSIEVYKEDLRDLELETSMKDLHIREDEKNTV 167
Xenopus_tropicalis GIIPRAIQELFQCIARHNVEFSVRVSYIEVYKEELLDLELETNMKDLHIREDEKNTV 179
Rhinatrema_bivittatum GIIPHAIQELFQSISENPNIDFSVKVSYIEVYKEELRDLELDTSIKDLHIREDEKNTV 167
.....190.....200.....210.....220.....230.....240

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****: :*: . :.:.* * .*****.:*****:*****.: * .
Pavo_muticus      IVGAKEFQVECADEVMSLLESGNAARHTGTTQMNEHSSSRSHAIFTISICQKQSAESQKNT 231
Pavo_cristatus    IVGAKEFQVECADEVMSLLESGNAARHTGTTQMNEHSSSRSHAIFTISICQKQSAESQKNT 231
Gallus_gallus     IVGAKEFQVECADEVMSLLESGNAARHTGTTQMNEHSSSRSHAIFTISICQKQSAETQKNT 231
Anas_platyrhynchos IVGAKEFQVECADEVMSLLESGNAARHTGTTQMNEHSSSRSHAIFTISICQKPSAESQKNS 231
Chelonia_mydas    IVGAKDFQVESVDEVMSLLESGNAARHTGTTQMNEHSSSRSHAIFTINICQQRPTQSLKNV 227
Mus_musculus      IVGAKECQVESVEDVMSLLQVGNAARHTGTTQMNEHSSSRSHAIFTISVCQVE-----KNA 222
Rattus_norvegicus IVGAKECQVDSVEDVMGLQVGNAARHTGTTQMNEHSSSRSHAIFTISVCQVG-----KSA 222
Homo_sapiens      IVGAKECHVESAGEVMSLLEMGNARHTGTTQMNEHSSSRSHAIFTISICQVH-----KNM 222
Macaca_mulatta    IVGAKECHVESADEVMSLLETGNAARHTGTTQMNEHSSSRSHAIFTISICQVH-----KNV 222
Callithrix_jacchus IVGAKECHVESADEVMSLLEMGNARHTSTTQMNEHSSSRSHAIFTISICQV-----KNM 288
Bos_taurus        IVGAKECQVESADEVMSLLEMGNARHTGTTQMNEHSSSRSHAIFTISLCQVD-----KNR 222
Equus_caballus    IVGAKECQVESADEVMSLLEMGNARHTGTTQMNEHSSSRSHAIFTISICQVE-----KNV 222
Canis_lupus_familiaris IVGAKECQVESADEVMSLLEMGNARHTGTTQMNEHSSSRSHAIFTISICQVE-----KNI 231
Felis_catus       IVGAKECHVENADEVMSLLEMGNARHTGTTQMNEHSSSRSHAIFTISICQVE-----KNT 222
Xenopus_tropicalis IVGAKECQVENADEVMSLLAAGSAARHTGSTQMNERSSSRSHAIFTITITICQ-----SS 232
Rhinatrema_bivittatum IVGAKECQVESADELMSLLETGNAARHTGTTQMNEHSSSRSHAIFTISIQQRPKPEPKNS 227
.....250.....260.....270.....280.....290.....300

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Pavo_muticus      DVPQDPSWKSVRMIAISKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 291
Pavo_cristatus    DVPQDPSWKSVRMIAISKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 291
Gallus_gallus     DVPQDPSWKSVRMIAISKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 291
Anas_platyrhynchos D-PQDSSWKSVQMIASKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 290
Chelonia_mydas    AAAQDLRLRSQIIASKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 287
Mus_musculus      EAAENGWYSRHRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Rattus_norvegicus EATEDGEWCSSRHRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Homo_sapiens      EAAEDGSWYSPRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Macaca_mulatta    EAAEDGSWYSPRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Callithrix_jacchus EAAEDGSWYSPQHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 348
Bos_taurus        KTAEDGSWHSRHRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Equus_caballus    EATEDGSCYSRRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Canis_lupus_familiaris EAAKDGSWYSCRQIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 291
Felis_catus       EAAEDGSWYSRHRHIVSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 282
Xenopus_tropicalis QHGDDAGTNSIQTTITSKFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 292
Rhinatrema_bivittatum ETVVDGLLSVQMISSKQFHFDLAGSERVTKTGNTGERFKESIQINSGLLALGNVISALG 287
.....310.....320.....330.....340.....350.....360

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**::*. :*****:*****.*****:*. ****:*****:*****:*.
Pavo_muticus      DPKRKS VHIPYRDAKITRILKDSLGGNAKTVMITCISPSSSDFDESLNSLKYANRAKNIR 351
Pavo_cristatus    DPKRKS VHIPYRDAKITRILKDSLGGNAKTVMITCISPSSSDFDESLNSLKYANRAKNIR 351
Gallus_gallus     DPKRKS VHIPYRDAKITRILKDSLGGNAKTVMITCISPSSSDFDESLNSLKYANRAKNIR 351
Anas_platyrhynchos DPKRKS VHIPYRDAKITRILKDSLGGNAKTVMITCISPSSSDFDESLNSLKYANRAKNIR 350
Chelonia_mydas    DPKRKS VHIPYRDAKITRILKDSLGGNAKTVMITCINPSSSDFDESLNSLKYANRAKNIR 347
Mus_musculus      DPKRKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSDFDESLNSLKYANRARNIR 342
Rattus_norvegicus DPKRKS SHVPIYRDAKITRLLKDSLGGSAKTVMITCVSPSSSDFDESLNSLKYANRARNIR 342
Homo_sapiens      DPKRKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSNFDESLNSLKYANRARNIR 342
Macaca_mulatta    DPKRKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSNFDESLNSLKYANRARNIR 342
Callithrix_jacchus DPHRKN SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSNFDESLNSLKYANRARNIR 408
Bos_taurus        DPRKKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSDFDESLNSLKYANRARNIR 342
Equus_caballus    DPRKKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSDFDESLNSLKYANRARNIR 342
Canis_lupus_familiaris DPRKKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSDFDESLNSLKYANRARNIR 351
Felis_catus       DPRKKS SHIPYRDAKITRLLKDSLGGSAKTVMITCVSPSSSDFDESLNSLKYANRARNIR 342
Xenopus_tropicalis DPKRKS AHIPYRDAKITRILKDSLGGNAKTVMITCISPSSSDFDESLNSLKYANRARNIR 352
Rhinatrema_bivittatum DPKRKS AHIPYRDAKITRILKDSLGGNAKTVMITCISPSSSDFDESLNTILKYANRARNIR 347
.....370.....380.....390.....400.....410.....420

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*** :* .*: **::**::**:: ***** :.. * : :* ****:
Pavo_muticus      NKPVVNYPDPQDRIDEMELEIRLLREALNQOQVS-----NQCSDHLDNQERIRISSLEEQL 406
Pavo_cristatus    NKPVVNYPDPQDRIDEMELEIRLLREALNQOQVS-----NQCSDHLDNQERIRISSLEEQL 406
Gallus_gallus     NKPVVNYPDPQDRIDEMELEIRLLREALNQOQVS-----NQCSDHLDNQERIRISSLEEQL 406
Anas_platyrhynchos NKPVVNYPDPQDRIDEMELEIRLLREALNQOQVG-----NQCSDHLDNQERIRISSLEEQL 405
Chelonia_mydas    NKPVVNYPDPDRIDEMELEIKLLREALNQOQVSMASHASQGSQDMSQEDRTRIHSLEEQL 407
Mus_musculus      NKPALNISPQADRMDEMEFEIKLLREALQSHQASI-SQASQASSENVPDQNRHSLEEQL 401
Rattus_norvegicus NKPTLNFSQPQADRMDEMEFEIKLLREALQSHQASI-SQTSQTASENVPDQNRHSLEEQL 401
Homo_sapiens      NKPTVNFSPESDRIDEMEFEIKLLREALQSQQAGV-SQTTQINREGSPDTRNHSLEEQL 401
Macaca_mulatta    NKPTVNFSPESDRIDEMEFEIKLLREALQSQQANV-SQTSQINREGSPDTRNHSLEEQL 401
Callithrix_jacchus NKPIVNFSPESDRIDEMEFEIKLLREALQSQQAKV-SQTNQIHREGSPDTRNHSLEEQL 467
Bos_taurus        NKPTLNFSPESDRMDEMEFEIKLLREALQSQQASS-SQTSQIHQEGTPDKNKHISLEEQL 401
Equus_caballus    NKPTLNFSPESDRMDEMEFEIKLLREALQSQQASI-SQSSQIPRETPDKNKHISLEEQL 401
Canis_lupus_familiaris NKPTLNFSPESDRMDEMEFEIKLLREALQSQQASI-GQACQTHQEGTPDKNKHISLEEQL 410
Felis_catus       NKPTLNFSPESDRMDEMEFEIKLLREALQSQQDSI-SQTSQIHQEGTPDKNKHISLEEQL 401
Xenopus_tropicalis NKPVVNYPDPDWRMDEMELEIKVLRREALNQOQSSRVSRISQVSDWSQGDKIRSLSEKQV 412
Rhinatrema_bivittatum NKPIVNYPDPDWRMDEMELEIKALREALNQOQASVMAQASQVSDWSLEKARIRSLSEQL 407
.....430.....440.....450.....460.....470.....480

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::** :* . : :*:*****:.. : .: :*.*: : :
Pavo_muticus      TQLQVQCFYSYRNCIDEAFPLVLDLNDVSLKKSQRDRLQSWITMVQEVKREALTMQQADT 466
Pavo_cristatus    TQLQVQCFYSYRNCIDEAFPLVLDLNDVSLKKSQRDRLQSWITMVQEVKREALTMQQADT 466
Gallus_gallus     TQLQVQCFYSYRNCIDEAFPLVLDLNDVSLKKSQRDRLQSWITMVQEVKREALTMQQADT 466
Anas_platyrhynchos TRLQVQCFYSYRNCIDEAFPLVLDLNDVSLKSSHDRDLQSWINTVQEVKREALTVQQIDT 465
Chelonia_mydas    SOLQVECFNYRNCIDEAFPLVELNDFASLTRHQEKLQDWINMAQELRKVALVVPRTDS 467
Mus_musculus      AOLQEECLGYQDCIEQAFALVLDLKDVLNQLKQOQHKLQEWFSRTQEVKRAVLTPLPGNQ 461
Rattus_norvegicus AOLQEECLGYQDCIEQAFALVLDLKDVLNQLKQOQHKLQEWFSRTQEVKRAVLTPLPGNQ 461
Homo_sapiens      AOLQGECLGYQCCVEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQEVKRAVLTSPFRGIG 461
Macaca_mulatta    AOLQGECLGYQCCVEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQEVKRAVLTSPFRGIG 461
Callithrix_jacchus AOLQGECLGYQCCIEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQEVKRAVLTSPFRGIG 527
Bos_taurus        TQLQGECLGYQNCLEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQEV-----TLFRGHR 456
Equus_caballus    AOLQGECLGYQNYIEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQDVRKAILTSFRGNQ 461
Canis_lupus_familiaris AOLQGECLSYQNCIEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQEVKRAVLTSPFRSH 470
Felis_catus       AOLQGECLSYQTCVEEAFTFLVLDLKDVLNQLKQOQHKLQEWFNMTQDVRKAVLTSPFRSH 461
Xenopus_tropicalis AOLQLECFNQRHCTEEAFTSLFLDLKDISGLPQSEKNRVQDWLHLAEGLR-----SPVAAD 467
Rhinatrema_bivittatum AOLQLECFNYRNCVEEAFTFLIDLKDMVKMRRSQQLRLQDWLSMAEGLRMEMPPTIPGIDS 467
.....490.....500.....510.....520.....530.....540

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Pavo_muticus      RTGT-SHEPHHITILQLKRELKKCCQALVMDEEVFSQKDHELMMLQNOIKALIQENEEHL 525
Pavo_cristatus    RTGT-SHEPHHITILQLKRELKKCCQALVMDEEVFSQKDHELMMLQNOIKALIQENEEHL 525
Gallus_gallus      RTET-SHEPHHITVLQLKRELKKCCQALVMDEELFSQKDHELMMLQNOIKALIQENEEHL 525
Anas_platyrhynchos GTGT-MQEPHHITILQLRRELKKCCQALAMDEEVFSQKDHELKILQNOIKTLIQENEEQL 524
Chelonia_mydas     GIGSDQEEPHHITILQLKRELKKCCQALATDEEVFSQKELELVQLQDQIILLTIQENQEHM 527
Mus_musculus       GIGNLEEGPQHILTVLQLKRELKKYCCALAADQVFTQKDLLEELRTQVQLMMQESKGHA 521
Rattus_norvegicus  SIGNLEEGPQHVTVLQLKRELKKYCCALAADQVFTQKELELEELRRQMQLMAQESKGHA 521
Homo_sapiens       GTASLEEGPQHVTVLQLKRELKKCCCVLAADQVFNQKELEVVELKNQVMMVOENKGHA 521
Macaca_mulatta     GTASLEEGPEHVTVLQLKRELKKCCCALAADQVFNQKELEVVELKNQVMMVOENKGHA 521
Callithrix_jacchus GTASLEEGSQHVTVLQLKRELKKCCQYALAAQVFNQKELEVVELKNQVMMVOENKGHA 587
Bos_taurus         GIGNLEEGPQHITVLQLKRELKKCCCALAADQVFNQKDLVELKNQVMMVOENKGHV 516
Equus_caballus     GNGNLEEGPQHITVLQLKRELKKCCCALAADQVFNQKELEVVELKNQVMMVOENKGHV 521
Canis_lupus_familiaris GIGSLEDGPPHITVLQLKRELKKCCCALAADQVFNQRELEVVELKNQVMMVOENKGHV 530
Felis_catus        GVGNLEEGPQHVTVLQLKRELKKCCCALAADQVFNQKELEVVELKNQVMMVOENKGHV 521
Xenopus_tropicalis AEGSSREEPHHVTILQLKRELKKCCDALATDEEVFARKKLELKLQEQIQLQEQETEYQ 527
Rhinatrema_bivittatum GIGNGREEPYHITILQLKRELKKCCDALASDEEVFSQKEQEQKNLQEQIQALIQENQEQ 527
      .....550.....560.....570.....580.....590.....600

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      .*:::. . *:
Pavo_muticus      ESLKKAETRRRLQ-----NEKMVEQQLILIDQLKEKLEKF 559
Pavo_cristatus    ESLKKAETRRRLQ-----NEKMVEQQLILIDQLKEKLEKF 559
Gallus_gallus      ESLKKAETRRRLQ-----NEKMVEQQLILIDQLKEKLEKF 559
Anas_platyrhynchos ESLKKAETRRRLQ-----NEKMVEQQLILIDQLKEKLEKF 558
Chelonia_mydas     ESLKKAETRRRLQ-----NEKMVEQQLILIDQLKEKLEKF 561
Mus_musculus       VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELAKR 555
Rattus_norvegicus  VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELAKR 555
Homo_sapiens       VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELTKL 555
Macaca_mulatta     VSLKEAQKVNRLQPPAKTTLLSTMDLPILNISYNWNHTNEKIIEQQLLVDQLSEELTKL 581
Callithrix_jacchus VSLKEAQKVNRLR-----NEKIIEQQLLVDQLSEELTKL 621
Bos_taurus         VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELTKL 550
Equus_caballus     VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELTKL 555
Canis_lupus_familiaris VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELTKL 564
Felis_catus        VSLKEAQKVNRLQ-----NEKIIEQQLLVDQLSEELAKR 555
Xenopus_tropicalis KCLQEAETTKTLQ-----TEKLVEQQLLIDELKSKKPEI 561
Rhinatrema_bivittatum LSLKKAETRRRLQ-----NEKMIEQQLLIEELQDKLVKL 561
      .....610.....620.....630.....640.....650.....660

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      : .*. :.* :
Pavo_muticus      TVVKTLDISSACEDEPAVVASARRPYSP-----LTKSLLHSLHPPSGTETRKVYTSP 612
Pavo_cristatus    TVVKTLNISSACEDEPAVVASARRPYSP-----LTKSLLHSLHPPSGTETRKVYTSP 612
Gallus_gallus      TVVKMLDITSACEDEPAVVASARRPYSP-----LTKSLLHSLHPPSGTETRKVYTSP 612
Anas_platyrhynchos MVVKTWDFSSACGDGPAVVASARRPYSP-----LTKSLLHSLYPPSGTETRKVYTSP 611
Chelonia_mydas     TVTTASVSRGACGDGPAVVASARRPYSP-----LTNSLVHSIHMATGLSRKVHTSP 614
Mus_musculus       SLSVPTSACESCGDGPDAASEKRPHTAP-----FDSHWGHYVYIPSRQDFKKVCSS 608
Rattus_norvegicus  SSSMPTSTKESCGDGPDAASEKRPHTAP-----FDSHWGHYVYIPSRQDFKKVCSS 608
Homo_sapiens       NLSVTSSAKENCGDGPDAIPEKRPYTV-----FDTHLGHYIYIPSRQDSRKVHTSP 608
Macaca_mulatta     NLSVTSSAKENCGDGPDAIPEKRPYTV-----FDTRLGHYIYIPSRQDSRKVHTSP 634
Callithrix_jacchus NLSVTSSAKENCGDGPDAIPEKRPYTV-----FDSRLGHYIYIPSRQDSRKVCTSL 674
Bos_taurus         NLSMTSSVKETCGDGPDTIRILEKRPYTV-----FDTRLGHYIYIPSRQDSRKVHTSP 603
Equus_caballus     NLSMTSSAKETCGDGPDAIPEKRPYTV-----FDTRLGHYIYIPSRQDSRKVHTSP 608
Canis_lupus_familiaris NLSMTSSATETCGDGPDAIPEKRPYTV-----FDTHLGHYIYIPSRQDSRKVHTSP 617
Felis_catus        NPSMTSSATETCGDGPDTIRIPGKRPCTVP-----FDTRLGHYIYIPSRQDSRKVHTSP 608
Xenopus_tropicalis YRQFSQENED---EEELPREISORPHTVPPSTHTQKLSS---SLQAAGQAEPRKVHTSP 615
Rhinatrema_bivittatum T--ASQQISE---DRLVPAMSFORSYSVPLTHNSQPFISILLQSIQMSAVPKSRKVHTSP 616
      .....670.....680.....690.....700.....710.....720

```



## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIF2AP1\_01.fasta | Date: Tue Feb 1 13:51:16 2022

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	.* ::	:	:	:	:	::	:::	:::
Pavo_muticus	HTWTRK----	QASLCFFPFELIDMKCOVENSNLSNKSALONDPTGEEIDSLOKSHVFNMQ						726
Pavo_cristatus	HTWTRK----	QASLCFFPFELIDMKCOVENSNLSNKSALONDPTGEEIDSLOKSHVFNMQ						726
Gallus_gallus	RTWTRK----	QSSLCCLPFELIDMKCOVENSNLSNKSALONDPTGEEIDSLOKSHVFNMQ						726
Anas_platyrhynchos	QTWTRK----	QASLCFFPFELIDMKCOVDKSSLCDSKVPOTDITATGEEIDCLOKSHVFNMQ						720
Chelonia_mydas	RTWTRK----	QT-LCSPLQLTDLQFMHKSNSNETILQTDITVTGEEIECHRKSHVINMQ						727
Mus_musculus	HSAWKK----	PGSVCSLVELSDTQAESQSYLNGDL-----					KMESLQESQELNLQ	710
Rattus_norvegicus	HSWVKK----	PGSVCSLVELSDTQAECQSYLNGDL-----					KMESLQESQELNLQ	710
Homo_sapiens	RSWIQK----	PDSVCSLVELSDTQDETQKSDLENEDL-----					KIDCLQESQELNLQ	710
Macaca_mulatta	RSWIQK----	PDSVCSLVELNDTQDETQKSNLENEDL-----					KIDYQLQESQELNLQ	736
Callithrix_jacchus	RSWIQK----	PDSVCSLVELNDTQDETQKSNLENDV-----					KIECLQESQELNLQ	776
Bos_taurus	CSWIQK----	PGSVCSLVELNDIQDTQKSGLENEDL-----					KIECLQESQELNLQ	705
Equus_caballus	HPWIQKPFKK	PGSVCSLVELNDIQDTQKSSSGNEDL-----					QIDYQLQESQELNLQ	714
Canis_lupus_familiaris	HSWIQK----	PASVCSLVELNDVQDTQKSGNEDV-----					KIECLQESQELNLQ	716
Felis_catus	RSWIQK----	RSSVCSLVELNDIQDTQKSLGNEDL-----					KIECLQESQELNLQ	709
Xenopus_tropicalis	RTWTRR----	QGSAG---AETLNSNSDRENDAN-----				SNACP	ALESRLRESQVLNVE	720
Rhinatrema_bivittatum	RTWTRK----	QAPLSPALESLTLCCQIPKHQLQNESMPPSEASR--					DIDGLRESQELNMK	730
	.....790.....	.....800.....	.....810.....	.....820.....	.....830.....	.....840		

	*:* : * : *	:**::***::**::***::****::**..*.*.:*:**::** :	::*
Pavo_muticus	KLKNS <sup>850</sup> ELRLTEAQQKMRELALN <sup>860</sup> IKMKEELIKELVRTGKDAQSVSRQYTLKISKLEQESEQ	786	
Pavo_cristatus	KLKNS <sup>850</sup> ELRLTEAQQKMRELALN <sup>860</sup> IKMKEELIKELVRTGKDAQSVSRQYTLKISKLEQESEQ	786	
Gallus_gallus	KLKNS <sup>850</sup> ELRLTEAQQKMRELALN <sup>860</sup> IKMKEELIKELVRTGKDAQSVSRQYTLKISKLEQESEQ	786	
Anas_platyrhynchos	KLKNS <sup>850</sup> ELRLTEAQKMKRELALN <sup>860</sup> IKMKEELIKELVRTGKDAESVSRYSLKITKLEQESEQ	780	
Chelonia_mydas	KLKNSELRLTEAQKMKRELALN <sup>860</sup> IKMKEELIKEIVKTGNDAESVSRHYSLKITKLEHEGEQ	787	
Mus_musculus	KLRTSEILNKAKQKMR <sup>850</sup> ELTINIRMKEDLIKELIKTGNAKSVSRQYSLKVTKLEHEAEQ	770	
Rattus_norvegicus	KLRTSEILNKAKQKMR <sup>850</sup> ELTINIRMKEDLIKELIKTGNAKSVSRQYSLKVTKLEHEAEQ	770	
Homo_sapiens	KLKNSE <sup>850</sup> RI <sup>860</sup> LTEAQKMR <sup>870</sup> ELTINIKMKEDLIKELIKTGNDAKSVSKQYSLKVTKLEHDAAEQ	770	
Macaca_mulatta	KLKNSE <sup>850</sup> RI <sup>860</sup> LTEAQKMR <sup>870</sup> ELTINIKMKEDLIKELIKTGNDAKSVSKQYSLKVTKLEHDAAEQ	796	
Callithrix_jacchus	KLKNSECILTEAQKMR <sup>850</sup> ELTINIKMKEDLIKELIKTGNDAKSVSKQYSLKVTKLEHDAAEQ	836	
Bos_taurus	KLRNSELILTEAQKMR <sup>850</sup> ELTINIKMKEDLIKELIKTGNDAKSVSKQYSLKVTKLEHEAEQ	765	
Equus_caballus	KLRNSELILTEAQKMR <sup>850</sup> ELTINIKMKEDLIKELLKTGNDAKSVSKQYSLKVTKLEHEAEQ	774	
Canis_lupus_familiaris	KLRNSELILTEAQKMR <sup>850</sup> ELTINIKMKEDLIKELIKTGNDAKSVSKQYSLKVTKLEHEAEQ	776	
Felis_catus	KLRNSELILTEAQKMR <sup>850</sup> ELTINIKMKEDLIKELIKTGNAKSVSKQYSLKVTKLEHEAEQ	769	
Xenopus_tropicalis	KLKTS <sup>850</sup> DVRLADAKQKMR <sup>860</sup> ELTINIKMKEELIKELIKTGNDQAQSVNRQYSLKIAHLEGEAEQ	780	
Rhinatrema_bivittatum	NLKHSELRLTEAQKIREITINIKMKEELIKELIKTGKDAHINKQYSLKISKLEQEAEQ	790	
	.....850.....860.....870.....880.....890.....900		

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIFMaps: Tue Feb 1 13:51:16 2022

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*: :* *:*****:*: : . *:***:* :*: *:***:*:
Pavo_muticus      ARTELAETQKQLOELESKELRDIPEKARLQKEFRKKMDAAKLKVQALQKKKODSKKLASL 846
Pavo_cristatus    ARTELAETQKQLOELESKELRDIPEKARLQKEFRKKMDAAKLKVQALQKKKODSKKLASL 846
Gallus_gallus     AKTELAETQKQLOELESKELRDIPEKARLQKEFRKKMDAAKLKVQALQKKKODSKKLASL 846
Anas_platyrhynchos AKMELAETQKQLOELENKELRELPEKAKLQREFXKKMDAAKLKVQVLOKKKODTKKLASL 840
Chelonia_mydas    AKIELAETQKQLOELENKELRDIAEKAKLQKEFRKKMDTAKLKVQVLOKKQODTKKLASL 847
Mus_musculus      AKVELTETRQKQLOELESKDLSDVALKVKLQKEFRKKMDAAKMRVQVLOKKQODSKKLASL 830
Rattus_norvegicus AKVELTETRQKQLOELGKDLSDVALKVKLQKEFRKKMDAAKLKVQVLOKKQODSKKLASL 830
Homo_sapiens      AKVELIETQKQLOELENKDLSDVAMKVKLQKEFRKKMDAAKLKVQVLOKKQODSKKLASL 830
Macaca_mulatta    AKVELTETRQKQLOELENKDLSDVAMKVKLQKEFRKKMDAAKLKVQVLOKKQODSKKLASL 856
Callithrix_jacchus AKVKLFETQKQLOELDNDKLSDVAMKVKLQKEFRKKMDAAKLKVQVLOKKQODSKKLASL 896
Bos_taurus        AKVELTETEKQLOELENKDLSDVALKVKLQKEFRKKMDAAKLKVQVLOKKHONSKKLASL 825
Equus_caballus    AKVELTETRQKQLOELENKDLSDAALKVKLQKEFRKKMDAAKLKVQVLOKKQONSKKLASL 834
Canis_lupus_familiaris AKVELTETEKQLOELENKDLSDVALKVKLQKEFRKKMDAAKLKVQVLOKKQONSKKLASL 836
Felis_catus       AKVELTETEKQLOELENKDLSDIALKVKLQKEFRKKMDAAKLKVQVLOKKQONSKKLASL 829
Xenopus_tropicalis AKSELSEAQRQLOELENKELRDVAHKTKLORDFRKKMEEAKLKMQAVQTKQODTRKLASL 840
Rhinatrema_bivittatum AKTELSETQKQLOELESKELRDVAQAKLQKDFRKKMDAAKLKVQVLOKKQODTKKLASL 850
.....910.....920.....930.....940.....950.....960

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* :****. :** .: ::: * *:::* * * :: *: : :*: :***:: : *
Pavo_muticus      SNQSEKRATELEQNIVQMKHQQTILLEKRLHEESEKKKQLEVEIQDQQQIKELQLKMEQQ 906
Pavo_cristatus    SNQSEKRATELEQNIVQMKHQQTILLEKRLHEESEKKKQLEVEIQDQQQIKELQLKMEQQ 906
Gallus_gallus     SNQSEKRATELEQNIVQMKHQQTILLEKRLHEESEKKKQLEVEIQDQQQIKELQLKMEQQ 906
Anas_platyrhynchos SNQSEKRAIELEQNVAQMKHQQTILLEKRLHEESEKKKQLEAEIQDQQLIKELQLKMEQQ 900
Chelonia_mydas    STQNEKRATELEQTVNHMRQQAQLOKRLREESEKKKILEAEIARDQQQIKELQLKTEQQ 907
Mus_musculus      SIQNEKRASELEHNVDHLKYQKVQLORRLREEGKKKQDAEIKRDQQIKELQLKAGQG 890
Rattus_norvegicus SIQNEKRASELEQNVDHLKYQKVQLORRLREESEKKKQDAEVKRDQQIKELQLNAGQG 890
Homo_sapiens      SIQNEKRANELEQSVDHMKYQKIQLQKRLREENEKRRKQDAVIKRDQQIKELQLKTGOE 890
Macaca_mulatta    SIQNEKRANELEQSVDHMKYQKIQLQKRLREENEKRRKQDAVIKRDQQIKELQLKTGOE 916
Callithrix_jacchus SIQNEKRANELEQNVDHMKYQKVQLQKRLGEENEKRRKQDAAIKRDQQIKELQSKTGOE 956
Bos_taurus        SIQNEKRANELEQNVDHMKYQKVQLQKRLREENEKRRKQDAEIKRDQQIKELQLKTEQK 885
Equus_caballus    SIQNEKRANELEQNVDHMKYQKIQLQKRLREENEKRRKQDAEIKRDQQIKELQLKTEQK 894
Canis_lupus_familiaris SIQNEKRANELEQNVDHMKYQKVQLQKRLREENEKRRKQDAEIKRDQQIKELRLKTEQK 896
Felis_catus       SIQNEKRANELEQNVDHMKYQKVQLQKRLREENEKRRKQDAEIQDQQIKELKSKTEQK 889
Xenopus_tropicalis SVRNEKRVRELEVNVEQMRQQAQLOKRLKAETEMKKRLEGTIQKEQERIKELQLKTEQQ 900
Rhinatrema_bivittatum SSQNEKRVADLEQNVDHMRQQLAQLQKRLREETEKKRKLETEIQDQQQIKELQLKTEQQ 910
.....970.....980.....990.....1000.....1010.....1020

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:      :: : :::: : : : * :*: *****:*:* ::: * *: :*
Pavo_muticus      Q-KILTTLKDKEIAAFKKRNN SAGTSQKSE-KLEEQKKWLDEEMERILQHQHROLAELEEDL 964
Pavo_cristatus    Q-KILTTLKDKEIAAFKKRNN SAGTSQKSE-KLEEQKKWLDEEMERILQHQHROLAELEEDL 964
Gallus_gallus     Q-KILTTLKDKEIAAFKKRNN SAGTSQKSE-KLEEQKKWLDEEMERILQHQHROLAELEEDL 964
Anas_platyrhynchos Q-KILTLKDKEIAAFKKKNN SGTLOKSE-KLEEQKKWLDEEMERILQHQHROLAELEEDL 958
Chelonia_mydas    Q-KILKLKNEEIAAFKKKNNLAETSQLOLQ-QEEQKKWLDEELEKVLHOROELAELEEDL 965
Mus_musculus      EGLNPKAEDQDGFNLNRRKSPFRSGDQFC-KLDEQKKWLDEEVEKVLNROELEMLEDL 949
Rattus_norvegicus EGLHPKAEDTDAFNLNRRKSPFRSVDQLO-KLDEQKKWLDEEVEKVLNROELEMLEDL 949
Homo_sapiens      EGLPKAEDLDACNLKRRKGSFSGSIDQLQ-KLDEQKKWLDEEVEKVLNROELEELEDL 949
Macaca_mulatta    EGLPKAEDLDACNLKRRKGSFSGSIDQLQ-KLDEQKKWLDEEVEKVLNROELEELEDL 975
Callithrix_jacchus DGLPKAEDLDACNLKRRKGSFSGSIDQLQ-KLDEQKKWLDEEVEKVLNROELEELEDL 1015
Bos_taurus        D-LKLKAEDLDFAFKMRRKGSFSGSIDQLQ-KLDEQKKWLDEEVEKVLNROELEELEDL 943
Equus_caballus    EGLKLKAEDLDALKMRRKGSFSGSIDQLQ-KLDEQKKWLDEEVEKVLNROELEELEDL 953
Canis_lupus_familiaris EALKLPEDPDAFKMRRKGSFSGSIDQLQ-KLDEQKKWLDEEVEKVLNROELEELEDL 955
Felis_catus       DSLTLETEDLDAFKMRRKGSFSGSIDQFC-KLDEQKKWLDEEVEKVLNROELEELEDL 948
Xenopus_tropicalis N-KILRMKNEEIAAIRRRKSIPSVSDNLQKLEEOTKWLDEEVEKVLKQALAELEEDL 959
Rhinatrema_bivittatum Q-KILKLKNEEIASIRRRKSTVSMLDQLQ-KLEEQKKWLDEEVEKVLHQRVINELEDL 968
.....1030.....1040.....1050.....1060.....1070.....1080

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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:*** : * *:***:*** ** :*****
Pavo_muticus      KKREAIVAKKEALLQEKSHLEIRKLRRSSQ-----ALNKDSMKLSSRLS 1007
Pavo_cristatus    KKREAIVAKKEALLQEKSHLEIRKLRRSSQ-----ALNKDSMKLSSRLS 1007
Gallus_gallus     KKREAIVAKKEALLQEKSHLEIRKLRRSSQ-----ALNKDSMKLSSRLS 1007
Anas_platyrhynchos KKREAIVAKKEALLQEKSHLEIKKLRRSSQ-----ALNKDSMKLSTRLS 1001
Chelonia_mydas    KKREDIINKKEALLQEKSHLEIKKLRRSSQ-----ALNKDSLKLSTRLS 1008
Mus_musculus      KKREAIVSKKEALLQEKSLLENKKLRRSSQ-----ALSTDGLKISARLN 992
Rattus_norvegicus KKREAIVSKKEALLQEKSHLENKKLRRSSQ-----ALSTDGLKISARLN 992
Homo_sapiens      KKREAIVSKKEALLQEKSHLENKKLRRSSQ-----ALNTDSLKISTRNL 992
Macaca_mulatta    KKREAIVSKKEALLQEKSHLENKKLRRSSQ-----ALNTDNLKISTRNL 1018
Callithrix_jacchus KKREAIVSKKETLLQEKSHLENKKLRRSSQ-----ALNTDSLKISTRNL 1058
Bos_taurus        KKREAIVSKKEALLQEKSHLESKKLRRSSQ-----ALNTDSLKISTRNL 986
Equus_caballus    KKREAIVSKKEALLQEKSHLENKKLRRSSQ-----ALNLDLKLSTRNL 996
Canis_lupus_familiaris KKREAIVCKKEALLQEKSHLENKKLRRSSQ-----ILNTDSLKISTRNL 998
Felis_catus       KKREAIVCKKEALLQEKSHLENKKLRRSSQ-----VLNTDSLKISTRNL 991
Xenopus_tropicalis RKREESVTKMEALLQEKSHLEMKKLRRSSQ-----AITSVVLKLSNRLN 1002
Rhinatrema_bivittatum KKRETAMAKREALLEKSHLEIKKLRRSSQGPAGIVCAATEEKTATVALNKDLLKLSRLS 1028
.....1090.....1100.....1110.....1120.....1130.....1140

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:****:*. *:..::. *::: **::: * :* .::*:*. * **::**
Pavo_muticus      MLDQELCDKSMQLQGSTTEDRTDILEKIQVLQKERDQLLTRNSVDEKLKEGKVLSTEEE 1067
Pavo_cristatus    MLDQELCDKSMQLQGSTTEDRTDILEKIQVLQKERDQLLTRNSVDEKLKEGKVLSTEEE 1067
Gallus_gallus     MLDQELCDKSLQLQGSTTEDRTDILEKIQVLQKERDQLLTRNSVDEKLKEGKVLSTEEE 1067
Anas_platyrhynchos MLDQELCDKGMQLQDSTTEDKTDILEKIQVLQKERDQLLTRNSVDEKLKEGKVLSTEEE 1061
Chelonia_mydas    MLDKELCDKSVQLQTSASEEKROIIEVQVLQKERDQLLTRNSVDEKLKDGKVLSTEEE 1068
Mus_musculus      LLDQELSEKSLQLESSTPEEKMKISEQVQALQERERDQLQRRNSVDEKLKHGRVLSPEEE 1052
Rattus_norvegicus LLDQELSEKSLLENSTPEEKVKISEQVQALQEREREQLQRRNSVDEKLKHGRVLSPEEE 1052
Homo_sapiens      LLEQELSEKNVQLQTSSTAEKTKISEQVEVLQEKDQLQRRNSVDEKLKNGRVLSPEEE 1052
Macaca_mulatta    LLEQELSEKNVQLQTSSTAEKTKISEQVEVLQEKDQLQRRNSVDEKLKNGRVLSPEEE 1078
Callithrix_jacchus LLEQELSEKNVQLQTSSTAEKTKISEQVEVLQEKDQLQRRNSVDEKLKNGRVLSPEEE 1118
Bos_taurus        LLDQELSEKNVQLQTSSTAEKTKISEQVQALQEKDQLQRRNSVDEKLKNGSVLSPEEE 1046
Equus_caballus    LLDQELSEKNVQLQTSSTAEKTKISEQVQVLQEKDQLQRRNSVDEKLKNGSVLSPEEE 1056
Canis_lupus_familiaris LLDQELCEKNAELQSTAEKTKIAEQVQALQEKDQLQRRNSVDEKLKNGSVLTPEEE 1058
Felis_catus       LLDQELSEKNVQLQTSSTAEKTKISEQVQALQEKDQLQRRNSVDEKLKNGSVLSPEEE 1051
Xenopus_tropicalis VVENELMDKSKQLFONDASDEHRKASEEVKELQKERDGLLKRRLSLDEKLKNGSVLSPEEE 1062
Rhinatrema_bivittatum LLDQELSDKSFELQSSSKKQKISEEVQVLQKERDQLLRRRSLDEKLKNGRVLSPEEE 1088
.....1150.....1160.....1170.....1180.....1190.....1200

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: *****.*****:*** *: * : : * : * : : *
Pavo_muticus      HILFQLEEGIEALEAAIDYKNESIQSRQHLLRSSQILSQSEDNIIGKLVLSAAELRAI 1127
Pavo_cristatus    HILFQLEEGIEALEAAIDYKNESIQSRQHLLRSSQILSQSEDNIIGKLVLSAAELRAI 1127
Gallus_gallus     RILFQLEEGIEALEAAIDYKNESIQSRQHLLRSSQILSQSEDNIIGKLVLSAAELRAI 1127
Anas_platyrhynchos HVLFQLEEGIEALEAAIDYKNESIQSRQYLLRSSQILSQSEDNVIGKLVLSANELRAI 1121
Chelonia_mydas    RVLFQLEEGIEALEAAIDYKNENIQNRHSLRGSSQILTSQSEANVMGKLVLSATELRAI 1128
Mus_musculus      HLLFQLEEGIEALEAAIEFKNESIQSRNSLRSFNLQSEANVLEKLVCLNITEIRAI 1112
Rattus_norvegicus HLLFQLEEGIEALEAAIEFKNESIQNRSSLKSSFNLSQSEANVLEKLVCLNIAEIRAI 1112
Homo_sapiens      HVLFQLEEGIEALEAAIEYRNESIQNRQKSLRASFNLSRGEANVLEKLACLSPEVIRTI 1112
Macaca_mulatta    HVLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSRSEANVLEQIACLSPEVIRAI 1138
Callithrix_jacchus HVLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSHSEANVLEKLVCLNITEIRAI 1178
Bos_taurus        HVLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSHSEANVLEKLVCLNITEIRAI 1106
Equus_caballus    HVLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSHSEANVLEKLVCLNITEIRAI 1116
Canis_lupus_familiaris HVLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSHSEANVLEKLVCLNITEIRAI 1118
Felis_catus       HVLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSHSEANVLEKLVCLNITEIRAI 1111
Xenopus_tropicalis HTLFQLEEGIEALEAAIEYKNESIQRRNSLRASFHNLSHSEANVLEKLVCLNITEIRAI 1122
Rhinatrema_bivittatum HNLFQLEEGIEALEAAIDFRNESIQSRQYSLKATSQILSQSEANVMEKFSLSLSPSEVRSI 1148
.....1210.....1220.....1230.....1240.....1250.....1260

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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*.:*****: *** ** : * *: : : : : *** : : : * *: : : :
Pavo_muticus      LFRYFNKIVGLRETERKLOLOTEEHMKVIEQENIIRELESALAHIKLQCDRQLTLORKE 1187
Pavo_cristatus    LFRYFNKIVGLRETERKLOLOTEEHMKVIEQENIIRELESALAHIKLQCDRQLTLORKE 1187
Gallus_gallus     LFRYFNKIVGLRETERKLOLOTEEQEMKVIEQENIIRELESALAHIKLQCDRQLTLQHK 1187
Anas_platyrhynchos LFKYFNKIVGLRESERKLOLOTEEQEMKVIDQENIIRELESALAHIKLQCDRQLTLQHR 1181
Chelonia_mydas    LFKYFNKVVSLREAERKLOLOTEELMRVIEQENIIRELESALAHILTLQCDRRLTLQOKE 1188
Mus_musculus      LFKYFNKVINLRETERKQOLQNKEMMKVLERDNNVHELESALAHILRLQCDRRLTLQOKE 1172
Rattus_norvegicus LFKYFNKVINLREAERKQOLQNKEMMKVLERDNNVHELESALAYLRLQCDRRLTLQOKE 1172
Homo_sapiens      LFRYFNKVVNLREAERKQOLYNEEMMKVLERDNNMVRELESALDHLKLQCDRRLTLQOKE 1172
Macaca_mulatta    LFRYFNKVVNLREAERKQOLYNEEMMKVLERDNNMVRELESALDHLKLQCDRRLTLQOKE 1198
Callithrix_jacchus LFRYFNKVVNLREAERKQOLYNEEMMKVLERDNNMVRELESALDHLKLQCDRRLTLQOKE 1238
Bos_taurus        LFRYFNKVVNLREVERKLLQNEEIKMKVLERDNNMVRELESALAHILKFCQCDRRLTLQOKE 1166
Equus_caballus    LFRYFNKVVNLREAERKLOLONEEIKMKVLERDDMVRELESALAHILKLQCDRRLTLQOKE 1176
Canis_lupus_familiaris LFRYFNKVVNLRETERKLOLONEESKMKVLERDNNMVCELESALAHILKLQCDRRLTLQOKE 1178
Felis_catus       LFRYFNKVVILRETERKHLLENVEVKMKILERDNNMVRELESALAHILKLQCDRRLTLQOKE 1171
Xenopus_tropicalis LVRYFNKVVSLREAERKLOLHSAELAMKVTEKENMLRELESLEHMLQNDRRLTLQOKE 1182
Rhinatrema_bivittatum LVRYFNKVVGLREAERKLOLOLEEMGMRNMEQENIVRELEFAVEHLTLQSDRRVTLQOKE 1208
.....1270.....1280.....1290.....1300.....1310.....1320

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**:: **::*:*:*:*:*:*: :. * . . ** *: :*:*:*:*:*:*:*:*:*:*:*:*:*:*:
Pavo_muticus      HEEELQLILHHFKEQDGEAGNAETSKEYEVKVQOLEKELFFYKKTSLRELKKKLKSLFGESS 1247
Pavo_cristatus    HEEELQLILHHFKEQDGEAGNAETSKEYEVKVQOLEKELFFYKKTSLRELKKKLKSLFGESS 1247
Gallus_gallus     HEKKLQLILHHFKEQDGEAGIAETLKEYEVKVQOLEKELFFYKKTSLRELKKKLKSLFGESS 1247
Anas_platyrhynchos HEKKLQLILHHFKEQDGEAGIAETLKEYEVKVQOLEKDLFFYKKTSLRELKKKLKSLFGESS 1241
Chelonia_mydas    HEQKQLILILHHFKEQDGEAGIAETLKLVEAKVEQLEKDLFFYKKTSLRELKKKLKSLVGESE 1248
Mus_musculus      HEQKMQLLLQHFKDQDGSIIETLKNYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1232
Rattus_norvegicus HEQKMQLLLHHFKEQDGEAGIETLKNYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1232
Homo_sapiens      HEQKMQLLLHHFKEQDGEAGIMETFKTYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1232
Macaca_mulatta    HEQKMQLLLHHFKEQDGEAGIMETFKTYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1258
Callithrix_jacchus HEQKTQLLLHHFKEQDGEAGIMETFKTYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1298
Bos_taurus        HEQKMQLLLHHFKEQDGEAGIVETLKNYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1226
Equus_caballus    HEQKMQLLLHHFKEQDGEAGITETLKTIEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1236
Canis_lupus_familiaris HEQKMQLLLHHFKEQDGEAGIEKLKRAYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1238
Felis_catus       HEQKLQLLLHHFKEQDGEAGIMETFKTYEDKIQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1231
Xenopus_tropicalis HEQKLQLLLQHFKDNDNEAVPESEIKAYEAKVAELEKELFFYKKTSLRELKKKLKSLVGESE 1242
Rhinatrema_bivittatum HEQKMQLLLQHFKDQDGEAGIAESIKIYETKVQOLEKDLFFYKKTSLRELKKKLKSLVGESE 1268
.....1330.....1340.....1350.....1360.....1370.....1380

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Pavo_muticus      RQLLTPSKYSSAGDKASSQDEAEVASEEFKLLK----TYSQAGKIKEAER-TNVVRVRQKS 1302
Pavo_cristatus    RQLLTPSKYSSAGDKASSQDEAEVASEEFKLLK----TYSQAGKIKEAER-TNVVRVRQKS 1302
Gallus_gallus     HQLLPSPSKYNSAGDKASSQDEADVASEEFKLLK----TYSQAGKIKEAER-TNLTLRQONS 1302
Anas_platyrhynchos HQLMAPTKCNSAGDRACSQDESQAASEEFKLLKTHNLTNCQAGKVKEADR-INTLRSRONS 1300
Chelonia_mydas    YQLVASTKYNDANRILSQ-EAGVSSEEFKLLKSKPESNKLKGLRETDSPASGLRWQONS 1307
Mus_musculus      QWQRTLTTEHHDAGDGVLPNPEETTVLSEELKWAASRTENTKLNREKEVDNSSSSSLKTPPLT 1292
Rattus_norvegicus QWQRTLTTEHHDAGDGVLPNPEEAAVLSEELKWAASRTENTKLNREKEVDNSSSSSLKTPPLT 1292
Homo_sapiens      RRQLAPSEYQEAGDGVLPKPEGGMVSEELKWAASRPESEMKLSGREREMDSSASSSLRTQPNP 1292
Macaca_mulatta    RRQLAPSEYHEAGDGVLPKPEGGMVSEELKWAASRPESEMKLSGREREMDSSASSSLRTQPNP 1318
Callithrix_jacchus RRQLAPSEHHEAGDGVLPKPEGGMVSEELKWAASRPESEMKLSGREREMDCTACSLRTQPNP 1358
Bos_taurus        RRQLLPSENHDAGDGVLPNPEKAGMVSEELKWAASRTESEMKLSGRERPLDSSSTSSSLRTQPNP 1286
Equus_caballus    RRQLVPSSEHHDAGDGVLPNPEEASMVSEELKWAASRTEHMKLSGRDRELDSSVSSSLRTKPNL 1296
Canis_lupus_familiaris RRQLVPSSEHHDAGDGVLPNPEEAGMVPEELKWAASRTESEMKLSGRERELDCSANSRLRTQSNP 1298
Felis_catus       RRQQVPSEHRDAGDGVLPNPEEAVMVPEELKWAASRTESEIKLSGRERELDSSSTSSSLRTQPNP 1291
Xenopus_tropicalis VAVLKSNNITAGVLD-----EPGSPAARKELKWTPOLESNKAAGKARESQH--PDLQRNP-- 1293
Rhinatrema_bivittatum PQQLPSVKHNGTGDGIQVQEEETGALSEAFRWISKLEHNKINGKLKETDTGAPDLRMHQH 1328
.....1390.....1400.....1410.....1420.....1430.....1440

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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      :      :  :
Pavo_muticus      YKLGEDVSEFGCNKECLSSIV-----DDRLGEDETQPSKPHSHLPVSIQRRETVTQFOG 1356
Pavo_cristatus    YKLGEDVSEFGCNKECLSSIV-----DDRLGEDETQPSKPHSHLPVSIQRRETVTQFOG 1356
Gallus_gallus     YQLGEDVSEFGCNKERSSSIV-----DDRLGEDETQPLKPHSHLPVSIQRRETVTQFOG 1356
Anas_platyrhynchos YKLGEDISECGCNKECLSSIG-----DDKIGRDEAQPSSKSHLPVSIHRRETTITQFOG 1354
Chelonia_mydas    YRLEEDVSELVHNRGCLSSST-----EDQPGPDEVHPSKSHLPQLFSSQTKETITQLOG 1361
Mus_musculus      QQIPEDGPDSPARSSSIAPSSGQLQSIADKT--EARPFTHSQSPVPHQFQPVRSIGPLQG 1350
Rattus_norvegicus QQILEDGPDSPVCGSLAPSSGQLQSSADKT--EAHAFTQSQSPPPQLQPVRSIAQLQG 1350
Homo_sapiens      QKLWEDIPELPPIHSSSLAPPSGHMLGNENKTETDDNQFTKSHSRLSSQIQVVGNVGRLHG 1352
Macaca_mulatta    QKLWEDIPELPPIHSSSLAPPSGHMLSNEDKTEIGDHQFTKSHSRLSSQILVAGNVGQLHG 1378
Callithrix_jacchus HKLWEDVPELPPIHSSSLAPPSGHMLSNEDKTEIDDNQFTKSHSRLSQIQVVGNVGQLHG 1418
Bos_taurus        QKLWEDGPELAPMYSSVAPTSGHLLSNEDKTEIDENQFTKSNRSPSSHQIPVGNVQQLHG 1346
Equus_caballus    QKPWEDGPELPPISLAPTSGLYLFSTEDKAEIDENQFTKSHSRSPQIQPVGNVQQLHG 1356
Canis_lupus_familiaris QKLWEDDPELPPICGSLAPTSGHLLNSEDK--IDENHFTKSHSESPHIQLVGNVQQLHG 1356
Felis_catus       QKLLEEAPELPPICSSLAPTSGHLLNNEDEKKEIDEYHFIKSHSRSPQIQPVGNAGQLHG 1351
Xenopus_tropicalis YRAAGDIPEGDPTSSFPRLPSRSHISR--RASSEDEEPGHIPTQSIKMEPSK----SLC 1347
Rhinatrema_bivittatum YRHWEDVSDNAQSPALVELSRRLSSSEDQLDTEETQSSKPPTHVLSSQMTENITLLOG 1388
.....1450.....1460.....1470.....1480.....1490.....1500

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      ..**:.*:***:.. .*: **..*      ..**:*
Pavo_muticus      VTPVKLSRRELRHIPPSELRLRSSLGAGVSFIAPDSIEMDKK----- 1399
Pavo_cristatus    VTPVKLSRRELRHIPPSELRLRSSLGAGVSFIAPDSIEMDKK----- 1399
Gallus_gallus     VTPVKLSRRELRHIPPSELRLRSSLGAGVSFIAPDSIEMDKK----- 1399
Anas_platyrhynchos VTSVKLSRRELRHIPPSELALRRSSLGAGVSFIAPDSIEMDKKSIITKT- 1403
Chelonia_mydas    VTPVKLSRRELRHIPASELSLRRSSLGAGVNSVAADSIEMSRKSNDFKI- 1410
Mus_musculus      VKPVKLCRRELROIASELSLRRCSLGAGGRSMTADSLEDPEEN----- 1394
Rattus_norvegicus VKPVKVCRRRELROIASELTLRRSSLGAGVRSVTADSLEEPEES----- 1394
Homo_sapiens      VTPVKLCRKELROIASELSLRRSSLGVGIGSMAADSIEVSRKPRDLKT- 1401
Macaca_mulatta    ITPVKLCRKELROIASELSLRRSSLGVGVGSMADSIEVSRKPSDLKT- 1427
Callithrix_jacchus VTPVKLCRKELRQVSALELSLRRSSLGVGGSIAADSVEVS-KPSDLKT- 1466
Bos_taurus        VTPVKLCRKELROIASELSLRRSNLGVAVGSMTADSLEVARKVSDLKT- 1395
Equus_caballus    VTPVKLCRKELROIASELSLRRSSLGVGGSMTADSIEVARKPSDLKT- 1405
Canis_lupus_familiaris VTSVKLCRKELROIASELSLRRSSLGVGGSMTADSIEVARKPSDLKT- 1405
Felis_catus       VTSVKLCRKELROIASELSLRRSSLGVGGSMTADSIEVARKPSDFKT- 1400
Xenopus_tropicalis VTPVKISRRELROIASHLSLRRSSLTST----PADSIEVARTGKDFKAQ 1393
Rhinatrema_bivittatum KTPVKVSRRELROIASELSLRRSSLGTSG--SIAADSIETSRKSTDFKT- 1436
.....1510.....1520.....1530.....1540.....1550

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