

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 1 of 10

	*.:**:* **.**:***:** *	:		
Homo_sapiens	MDSYFKAAVSDLDKLLDDFEQNPDEQDYLODVQNA-	YDSNHCSVSSSELAASSRTSLLPKD		59
Pan_troglodytes	MDSYFKAAVSDLDKLLDDFEQNPDEQDYLODVQNA-	YDSNHCSVSSSELAASSRTSLLPKD		59
Macaca_mullatta	MDSYFKAAVSDLDKLLDDFEQNPDEQDYLODVQNA-	YDSNHCSVSSSELAASSPTSLLPD		59
Callithrix_jacchus	MDSYFKAAVSDLDKLLDDFEQNPDEQDCLODVQNA-	HDSNHCSVSSSELAASOLTSLLPKD		59
Equus_caballus	MDSYFKAAVSDLDKLLDDFEQNPDEQDYLODAQKA-	YDSNHCSVSSSELAASOLTSLLPKD		59
Pteropus_alecto	MDSYFKAAVSDLDKLLDDFEQNPDEQDYLODAQNA-	YESNYCSVSSSELAASOLTSLPKD		59
Bos_taurus	MDSYFKA AVS D LDRLLDDFE Q NP DE Q DY LO DA QA -	K DS KHYS V S S E L T A S O V T S L L P K D		59
Mus_musculus	MDSYFKA AVS G LDKL DD FE Q NP DKDYLP---	DA-YAFNQCSVSSESASPOLA-LLSKD		55
Ornithorhynchus_anatinus	MDSYFKA AVC DLKV LD DF EK NT GE HE H Y Q-----	-KEASCSDSSELPPSPAS LAPKI		53
Pavo_muticus	MDTYFKA AVCD LDK LL DEF EL N T DEC DLS RAP ONA-	HDSTHHSPLDLDFLQHVPYTQKL		59
Pavo_cristatus	MDTYFKA AVCD LDK LL DEF EL N T DEC DLS RTP ONA-	HDSTHHSPLDLDFLQHVPYTQKL		59
Gallus_gallus	MDTYFKA AVCD LDK LL DEF EL N T DEC DLS RAP NF-	YDSKHHSPLDLFLORVYPOTKL		59
Anas platyrhynchos	MDSYFRAAVCDLKLDDFEQNTECDFYKTQPONP-	YDSKQHSPLDDLGLGHAYTPKL		59
Chelonia_mydas	MDNIFYKA AVCD LDK LL DEF EQNTDELDCYRTAAHQ-	CDSIQHSVSSELDCLPVFLIPKV		59
Xenopus_tropicalis	MDNIFYQA AVVD LDK LL DD FE Q NA EVLENCQSSGAS-	LGSNQCSLYSGNFCHPEFSALGK		59
Latimeria_chalumnae	MESYFKA AVCD LDK LL DD FE QNTDELDCYRSTVES	TVSNYYPPVPVDFHCLEHEHPGPNA		60
Rhinatrema_bivittatum	MDSYFKA AVCD LDK LL DD FE QNTDELDCSR-TIVSLCST	AHHHFPSALHHLQAEIAPT		59
	1.....10.....20.....30.....40.....50.....60			

	*	.	.	:	:	:	:	*	*	:	:	*	.
Homo_sapiens	QECVNSCASSETSYG-TN	ESSLNEKTLKGLTS-I---	ONEKNVTGLDLLSSVDGGTSD	EI	114								
Pan_troglodytes	QECVNSCASSETSYG-TN	ESSLNEKTLKGLTS-I---	ONEKNVTGLDLLSSVDGGTSD	EM	114								
Macaca_mulatta	QQCINSCASSETSIE-IN	ESSLNEKSLKGLTS-I---	ONEKNVTGLDLLSSVDGGTSD	EI	114								
Callithrix_jacchus	QQCVNSCASSDISYE-TN	ESSLNEKTLKGLTT-I---	ONEKNVTGLDLLSSVDGGTSD	EI	114								
Equus_caballus	QQCINC-ASSETCYE-TN	QISLNKGTLEGLTS-I---	ONEKNVTGLDLLSSVDGGTSE	EI	113								
Pteropus_alecto	QQCINCFASETCYE-TN	QISLNEKTYEGLTI-M---	ONEKNVTGLDLLSSVDGGTSD	EI	114								
Bos_taurus	QQCINCCVSSETGYE-TN	QIALSEKGLGGLTS-L---	ONEKNVTGLDLLSSVDGGTSD	EI	114								
Mus_musculus	QRICISTCASSEACCE	DANETFLFGKIHEGLTS-R---	PNEKNVAGLDLLSSVDASTS	DEI	111								
Ornithorhynchus_anatinus	QQHLSNCLSSQAIFI-TN	QTAANGKNLEGVSSSV--	ONEKNVTGLDLLSAVDGGSS	VEI	109								
Pavo_muticus	QEDANSCTASEEISQASHIRPN	EG--ILNCSS----	QNERSVSGPDILTIVNSASSEGS		112								
Pavo_cristatus	QEDANSCTASEEISQASHIRPN	EG--ILNCSS----	QNERSVSGPDILTIVNSASSEGS		112								
Gallus_gallus	QENANSYTASEEISQASHTRPN	EG--ILNCSS----	QNERSVSGPDILTIVNSAFSEGS		112								
Anas_platyrhynchos	QEDA---CKATDKISLVSHTGPN	EG--ILNYPS----	QNEKSVA GPDLITVDSSSK	EI	110								
Chelonia_mydas	QEYVSSCSMSEEFSLASQAITNTAKFELNSSA	----ONEKNVTGLDLLSTVDGGASNET		114									
Xenopus_tropicalis	QLNEK----SSPQQAL-CSTD	KDVDFQTFCPEESC---	AENVTGLDLLSCVDGGGSSD-		109								
Latimeria_chalumnae	QPPLSSFYCPTPEMEF-TS	AAAAAPAHDTDSSEVDFVRTDKQLTGVDLLSTLDASASAEM		119									
Rhinatrema_bivittatum	QHGISESTTPPEPLKLQGTTANTINF	AEFLTSPAL---YERNVTGLDLLSTVDSSASDET		115									
	.....70.....80.....90.....100.....110.....120											

	:	* * : * * : * * :	:	:			
Homo_sapiens	QPLYMGRCSKPI	CDLISDMGNLVHATN	SEEDIK	IKLLPDDFKSNADSLIGLDLSSVSD	TPC 174		
Pan_troglodytes	QPLYMGRCSKPI	CDLISDMGNLVHATN	SEEDIK	IKLLPDDFKSNADSLIGLDLSSVSD	TPC 174		
Macaca_mulatta	QPLYMGRCSKPI	CDLISDMGNLVNATN	SEEDIK	IKLLSDDFKSNADSLIGLDLSSVSD	TPC 174		
Callithrix_jacchus	QPLCMGRCSKPI	CDLISDMGNLVHATN	SEEDIK	IKILPDDFKSNADSLIGLDLSSVSD	TPC 173		
Equus_caballus	QPLYVGRCSKPV	CDLIRDMGNLVHVT	TSSEDT	TKLLPEDFKSSADSLIGLDLSSVSEAP	C 173		
Pteropus_alecto	QPSYMGRCSPV	CDLISDMGNLVHVIN	NNEEDIK	NLLPDDFNSSADSLIRLDLSSVSET	LC 174		
Bos_taurus	QPLYMGRCSKPV	CDLISDMGNLVHVAN	SEEDIK	IKLLPDDLKSSADSLTGLDLSSVSET	FC 174		
Mus_musculus	QPSCMRRCSKPV	CDLISDMGNLVHATN	SEEDIK	OLLPDDPKSSADSLITLTDSSSVSEAL	T 171		
Ornithorhynchus_anatinus	QPSSQGRCSIP	VCDLVSDTGNLVLA	KSSHEDS	QALRPDDFQSGKDSLIGLDLSSLPST	TIC 169		
Pavo_muticus	QDSNLG-SSIP	MCDLVSDISNLIRS	AGANVGTQRLQ	PGDSHCSEDCLSGFGKSCIP	LPDC 171		
Pavo_cristatus	QDSNLG-SSIP	MCDLVSDISNLIRS	AGANVGTQRLQ	PGDSHCSEDCLSGFGKSCIP	LPDC 171		
Gallus_gallus	QGSNLG-SSVPM	CDLVNDISNLIRS	AGANVDTQRLQ	PGDSQCSSEDCLSVFGKSCIP	LPDD 171		
Anas_platyrhynchos	QASTPGRCSP	IPVCDLVNDTGNLI	HSAGSSEDN	QKVQPHDSQSEDCLLGFGIS	CIPVVC 170		
Chelonia_mydas	QPLSLGRCSIP	VCDLISDTGNLI	HSTSNHEDI	EKLQPPDDFQCENSLVGF	FDLSLVPATVC 174		
Xenopus_tropicalis	DVLGPGR	TSVPVCDLISDTG	SLIQKDTSE	-----PEISS	TH-LSDL	ELHSDTIH	TEN 162
Latimeria_chalumnae	ESSVPGRSSVP	VCDLISDMGSLV	PGTESPDD	AGEFQPAHSESS	-GNLID	FALPTLL	DVGA 178
Rhinatrema_bivittatum	QPSLGRCSVP	VCDLISDTGSL	ILITASKDQ	ELQPEDFQSHK	-DFVLG	FDLSSV	PATIC 174
130.....	140.....	150.....	160.....	170.....	180	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 2 of 10

Homo_sapiens	VSSTDHDSDTVREQONDIS-SELONR---EIGGIKELG----IKVDTTLSDSYNYS-GTE	225
Pan_troglodytes	ISSTDHDSNTVREQONDIS-SELONR---EIGGIKELG----IKVDTTLSDSYNYS-GRE	225
Macaca_mulatta	VSSTDHDSDTVREPONDTS-SELONR--EIGGIKELG----IKVDT-LSDSCNYS-GTE	224
Callithrix_jacchus	VSSTDHDSDTVREQONDIS-SELONR--EIRGIKELG----IKVDTT-LSDSCNYS-GTE	223
Equus_caballus	VSSTDHGNDTVREEENDVISSELONR--EISGTKELG----IKADTALSDSCNYM-GKE	225
Pteropus_alecto	VSSADHGNDTIREQNVDVN-SELONT--EISGTQELDIN-VINVDTTLSDSFNYN-GKE	228
Bos_taurus	VSSADHGNNAVREEQNDVS-LELONR--GISGTFEG---VKVDRALSDSCNYN-EKE	225
Mus_musculus	VSSVDCGSNAVREEQNINN-AGIKNR---DIS-IKELG---VKVDMALFSDSCKNY-RTE	221
Ornithorhynchus_anatinus	TSLEDGCGNAAEIKONGDH-SPLONI--EHLAARKLDFKSCNHLDTAFLDSSDPHK-IAG	224
Pavo_muticus	VFSLGCRG-VSCTEQ-NDGDSMLQHSGPLKTEESNQALKSDVFKAQEVSDLCDYHFTLK	229
Pavo_cristatus	VFSLGCRG-VSCTEQ-NDGDSMLQHSGPLKTEESNQALKSDVFKAQEVSDLCDYHFTLK	229
Gallus_gallus	LFSLGCRG-VSYTEQ-NDGDSMLQHSGPLKTEESNQALKSGVFAKAQEVSDLCDYHFNLK	229
Anas_platyrhynchos	VSVSCSGGVSTTEQ-CDGDSVLQDAGHLKTEESSPLPLKSDVFAKITTISEPCGDPHRTE	229
Chelonia_mydas	SLSVAFSG-VSGTEQQNGGDTTPQDAGHVATKELSOLDFKTHNRGKAKLSDSCDGQNRTE	233
Xenopus_tropicalis	TESSIS-----WQVIA-LDCEHRTWLPINQPNLVVISP-KDDGSNI-----SLDQVL	207
Latimeria_chalumnae	ALSTVCGQFSETQEYDDGE-LTSESAGHLAVHGLNLLDLASLYSNGND-----SGIEAE	232
Rhinatrema_bivittatum	LSSKEDGGSLGPVEOKIG-AFLPETECFTTGELSLODLETASPINTELSELYFNQSRVE	233
	.....190.....200.....210.....220.....230.....240	

Homo_sapiens	NLKDKKIFN Q LESI V DFNMSSALTR	QSSKMFHAKDKLQHSQPCGLLKDVG-LVKEEVD	283
Pan_troglodytes	NLKDEKIFNQLQSI V DFNMSSALTQ	QSSKMFD A KDKLQHSQPCGLLKDVG-LVKEEVD	283
Macaca_mulatta	NLKDKKIFNHL E P I VD F NMSSALTQ	QSSKMFD A KDKLQHSQPC E LLKDDG-LVKEEVD	282
Callithrix_jacchus	NLEDKKISNQL E PIVD F NTSSALTQ	QSSKIVDAKDKLQKSQPC E LLKDD-LVKEEVD	281
Equus_caballus	NLHDQKISNQL E PVLD F NT P SALTQ	QNSKMFD A KDSLQHKKQPC E LVEADGCSVEEIIH	284
Pteropus_alecto	NFKDIKISNLL E PV F DLNMP S ASTQ	QSSKMFD A KDIPQH N -QPCELVKADGCEVKEEVH	286
Bos_taurus	NLEDKKISNQL E SPV F DLNMP S ALTQ	QSSKAFDAKDH P QHK N QPC E LVKAVGCLVKEEEE	284
Mus_musculus	NLKDKIISN E LE-TVD F DM P SVLME	QSSSEM T KDN P QYKRL P CELLKDDGCLAEKEVA	279
Ornithorhynchus_anatinus	NLRENKIHN-LEQIAGLN--SALTQ	QNSKTLNSKDDTI P KKL P CELLKDDGCL R QEVH-	279
Pavo_muticus	IQSCIEVFDHLEQT A HPNTACVSETL	QNSNVYD P KDETACEKL P SE P Q-DGSTCSAVSKE	288
Pavo_cristatus	IQSCIEVFDHLEQT A HPNTACVSETL	QNSNVYD P KDETACEKL P SE P Q-DGST T YSAVSKE	288
Gallus_gallus	IQSCIEVFDHLEQT A HPNTACVSETL	QNSNVYD P KDETACEKL P SE P P-DGSMCS P VSEE	288
Anas_platyrhynchos	SLKCEAFDQAEQTACLN T ACVSVTS	QSPNVYSPKDETAYGKL S CEPE-DESACSAVSKE	288
Chelonia_mydas	TLKDIQIFDQLEQITGLNATSAFVTS	QSPKALSSKDDTTIEKL P CESLKD S QCCMISQE	293
Xenopus_tropicalis	ACNLDQENRA T DSV N DI V SSSNT--	STSDGY-VSDDL P YETLTLEGQ E FLGLKGEKDTQ	264
Latimeria_chalumnae	SNDLQEMDHKQLQKSFN E SCPRVES--	PSTENS-KEYDLRENCLH A PEANTNNH A VTKKA	289
Rhinatrema_bivittatum	FTKGDQEEINIIGATSGFISSGNL--	NTNLKGEIINI L SHKFLMKENANSSI S KEGN	291
	.....250.....260.....270.....280.....290.....300		

Homo sapiens	VAVITAAECLKEEGKTS--ALTCSLPKNEDLCLNDSNSRDENFKLPDF--SFQEDKTVI--	338
Pan troglodytes	VAVITAAECLKEEGKTS--ALTCSLLKNEDLCLNDSNSRDENFKLPDF--SFQEDKTVI--	338
Macaca mulatta	VAVITAAECLKEEGKTS--ALTFSLPKNEDLCLNDLNSRDENFKLPDF--SFQEDKTVIFM	339
Callithrix jacchus	VEVINAAECLKEEGKTN--ALSCSPPKTEDLCLSDLNSRVENFKLPDF--SFHEGKTVTFI	338
Equus caballus	VAVIAATECLK--GGSTS--TLPCSLPKNEGLCLSDSNSKDNENFKLPDF--SFQEDRTSIFI	340
Pteropus alecto	VAVIAATECLKESGSPN--ALRCSL-KNEGLCLSDNSDKDNFKLTDL--SFQEDRTATFI	342
Bos taurus	VPVKAATECLKEGGSTS--ALSCSLPKDGGLCLNDPNLRDENSCLPDF--SFEEDRTAVFI	341
Mus musculus	VAVN-NTCELEEGGGSNTIAMPCKLPENEGISPSDPASKDENFKLPDF--PLQENRTSVFM	337
Ornithorhynchus anatinus	-TGKTDTTDLKESVVG---VPCDLPKSKELYPPD-----RNIRLPDC--FLSP-----LK	324
Pavo muticus	IHGGNAAESVTLEDECKMESTPSDLPYRHQLDKNHGTLPESHASQGST--CQTGAEEVELEE	347
Pavo cristatus	IHGGNAAESVTLEDECKMESTPSDLPYRHQLDKNHGTLPESHASQGST--CQTGAEEVELEE	347
Gallus gallus	IHGGNAAESVTSEDECKVESTPSDLLHRHQLDKSHRTLPESHTLQGST--CQTGAEEVELEE	347
Anas platyrhynchos	MFGGNALEDEDSKDGESMPSDLPKRPQLHKSHAALPGSCVLPGST--CQAGAKVALEE	347
Chelonia mydas	APEESVNDNVDSKDDNGESLPSDLPKSSSELHKNSLKLSGKCVIPDSS--SQIEDRVVLDK	352
Xenopus tropicalis	CLPGADYEAMNGGCTIRASCKDVAQSSDVEVKGAVVCRAGRANKKPPASDQGLPVLGTIIA	324
Latimeria chalumnae	VHVKSTEEAGKMPGNVSLVLVPSALSETSECNKNKVNNSGLGGHKHDAETVLDDQLELIK	349
Rhinatrema bivittatum	VEGRDVKAEASNDGGSSTGSMPSALPKGHSLYEAHINLRLEECESPDVLLHEECVSTLEK	351
	.....310.....320.....330.....340.....350.....360	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 3 of 10

Homo_sapiens	KQSAQEDSKSLDLKDN-DVIQDSSSALHVS	SKDVPSSLSCLP-ASGSMCGSLIESKARGD	396
Pan_troglodytes	KQSAQEVSKNLDLKDN-DVIQDSSSALHVS	SEDVPPSSLSCLP-ASGSMCGSLIESKARGD	396
Macaca_mulatta	KQSAQEDSRNLDLKN-DVIQDSSSALHVS	GEDVQSSLSCLP-VSGSMCGSLIESKARGD	397
Callithrix_jacchus	KQSAQEDSRHLDLTDN-EIIQDSSSALHVS	SEDVQSSLLGLS-VSGNMCGSLIESKAQGD	396
Equus_caballus	KQSAKEDSRNLDPKDYKDVIQDSSSTLHVS	GEDTYSSLSCLP-VPGSLCGSLVESKAHGD	399
Pteropus_alecto	KQSAKEDSRNIDLKDDKDNQDSSSIHVSS	SEDIYSSLSCLP-APGSLCGSLNESKAHGN	401
Bos_taurus	KESAKEDSRNVDLNDKDVQDSSASALHVS	SENTYSSLSCLP-VPGSLCGSLIDSKGHGG	400
Mus_musculus	KQTVKEDSRNLDLKN-----NDIVHVS	GDDVPPSLSCLS-LSGSLCGSLIHNNEHSD	389
Ornithorhynchus_anatinus	EESTEENSRITLVLTNN-----NNMLQNG	ACGDVQSSLSCLP-ISMSLCGSLIETKAQGD	377
Pavo_muticus	K-ITEENVGSEKVAGT--EVPNSALPLCVS	VEDVQASLPHLPPLPVSQCGSSVVTEEKVN	404
Pavo_cristatus	K-ITEENVGSEKVAGT--EVPNSALPLCVS	VEDVQASLPHLPPLPVSQCGSSVVTEEKVN	404
Gallus_gallus	K-ITEENVGSEKVAGT--AVLNSALPLCVS	VEDVQSLPHLPPLPVSQGGSSVLTTEEVN	404
Anas_platyrhynchos	N-ITEENVNSEELAGS--EILSSIIPSCVS	VEDVQTSL-----SVCGSSVVTTEEVN	395
Chelonia_mydas	MKSAEENMCSPELNTN--EILHVSNSHVTA	EIDIQTSLSCLP-LAVSICGSLVVTEDKSD	409
Xenopus_tropicalis	SHCTGD-MSDVSTDSSVSVD-----NSQME	CSVQKGVLSS-SEINQCITPCTEKN--	372
Latimeria_chalumnae	KPTEGETVSSFEHENSETFEPHVPT---	APKADVQSSLSCLP-IAVSTCSTLVVPKDS-	403
Rhinatrema_bivittatum	EQFVDKIVCSNGKNTNEISEDASLNSCLP	AEEDQTSLSCLP-LAVSICGSLVVTDDKEC	410
	.....370.....380.....390.....400.....410.....420		

Homo_sapiens	FLPQHEHKDNIQDAVTIHEEIQ-----SVVLGGEPFKENDLLKQEKCKSILLQSLIE	449
Pan_troglodytes	FLPQHEHKDNIQDAVTIHEEIQ-----SVVLGGEPFKENDLLKQEKCKSILLQSLIE	449
Macaca_mulatta	FLPQHEHKDNIQDAVTIHEEIQ-----SVVLGGEPFKENDLLKQEKCKNIVLOPLIE	450
Callithrix_jacchus	FLPQREHKDNIQDAVTIHEEIQ-----SVALGGEPFEETDLLKEKYNILLQPLIE	449
Equus_caballus	GLPQNEHEDNIQDAVTVHKEIQ-----SVLG-GEPLKETDLLKQEKCKNVLHQLSAE	451
Pteropus_alecto	CLPQSERKDNIQ-VVTVHEEIQ-----SVILDGESLKETDLLQEECKSIFHOPLIE	453
Bos_taurus	FLPQENENKDNVQDAVTVHEEIQ-----KVTSGGSEFKETDLLKQDKCKNIIHQPLTE	453
Mus_musculus	ILPQNESEGQNNDAVTIHEEIQ-----SDVLDG---ETDLSKKEITCRSIFLOPVNE	438
Ornithorhynchus_anatinus	CVSQIGQGEDGIVEDTVHKDIPK-----SGGLHGLDFTVTVEPSELKECANRAEEKV-E	429
Pavo_muticus	SLPQNEVAEVIDSLT-----TDLSDCESCKEADLHEQEGCLTKINQIIVE	450
Pavo_cristatus	SLPQNEVAEVIDSLT-----TDLSDCESCKEADLHEQEGCLTKINQIIVE	450
Gallus_gallus	SLPQNEIAEVIDSNLT-----ADLSDCESYKETDLHEQEGYLTKIKQIIVE	450
Anas_platyrhynchos	PLPQNEMVEVIDSLTIHAGKSK-----TDASACESWKETDLHEQEYSPKINQSVVE	448
Chelonia_mydas	HIPQNEKADVISDTVIMHAGKSK-----HGFPSMESSGKMKPSEQEGYLNQINQCFVE	462
Xenopus_tropicalis	--ATQNNGMRAADSISFTVLKD-----DKGLDVDYVQAGHLPS-----	408
Latimeria_chalumnae	--KNVSQGEVVDDVVNDPVTLSGKIDKSALHGTTKSHDKTGTIDEEDTSRFLDDDSHNSPV	461
Rhinatrema_bivittatum	SVLQQKGKGRVSDTVTVPEAASN-----TGIPERVSCQETDSAVQGEQQYLKAY	460
	.....430.....440.....450.....460.....470.....480	

	:	
Homo_sapiens	GMED---RKIDPDQTVIR----AESLDGGDTSS--TVVESQEGLSGTHVPESSDCCEGFI	500
Pan_troglodytes	GMED---RKIDPDQTVIR----AESLDGGDTSS--TVVESQEGLSGTNVPESSDCCEGFI	500
Macaca_mulatta	GMED---RKIDPDQTVIR----VASLDGGDTNS--TVVESQEGLSGTNVLESDCCCEGFI	501
Callithrix_jacchus	GMEN---RKVDPDQTVIR----VESLDGGDTNS--TAVETQEGLSGTHIPESSDCCEGFI	500
Equus_caballus	KMGD---RKVDPEQMVR----VESLGYPDNTSCSVAAESQMELSGANAPESPDCGEGLA	504
Pteropus_alecto	KMGD---RKVDPDEMVR----VESLDYSDNTSSSTAVESQIELSGANAPESLDHCEGLF	506
Bos_taurus	KMGD---RKVDVNMVR----VESMDYVDNSSSYTAAESQIELSGASAPESPDHCEGLT	506
Mus_musculus	KKGE---GKVEVNEMVIS---GESLESPEDESAAAAAGSPVALSAASVPEAPGPCEGLT	491
Ornithorhynchus_anatinus	KVID---RVADHDQLVST---TEFSFCHTNLP---VAADSLEPSGCVSPLFNDHHENDT	479
Pavo_muticus	KRDG---ETCNTENVIDD---SDSDQIKAIAS--TFTEYEAEPPYG---VDIDC-----	492
Pavo_cristatus	KRDG---ETCNTENVIDD---SDSDQIKAIAS--TFTEYEAEPPYG---VDIDC-----	492
Gallus_gallus	KRDG---ETCNTENVIED---SDSGQIKAIAS--TFLEYEAEPPYG---VDIDC-----	492
Anas_platyrhynchos	ESAGG---KICDTENAADD---SDSEQIKAVAS--AFQEYEVPEPYG---VDTDSE----	491
Chelonia_mydas	EAITIDGKKRESNKNINK---GDSPQMHAAGAAG-PVGEAKIELCSDDGIQPVDS-----	511
Xenopus_tropicalis	-----LAKEVDVQEIK---NLQCKNTPY-HLPTALAPNAMESRKKEQILDIAPVSSS	457
Latimeria_chalumnae	DDRGSMTIEKSGKDTKVIS---KLEALQHQAIPSFPFITIEQDIEPAIGTNDLCDSNNINSV	518
Rhinatrema_bivittatum	QTTFVEKGKVDDEVDRKEIWGKIIVTERHKVIPSFVPVGKSESNFITSVDIHCDSYKENVS	520
	. . . . .490500510520530540	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 4 of 10

	:	*	*	*	*	*	*	:																																																					
Homo_sapiens	N	T	F	S	S	N	D	M	G	Q	D	L	D	Y	F	N	I	D	E	G	A	K	-	S	G	P	L	I	S	D	A	E	L	D	A	F	L	T	E	Q	Y	L	O	T	T	N	I	K	S	F	E	E	N	V	N	D	S	K	S	559	
Pan_troglodytes	N	T	F	S	S	N	D	M	G	Q	D	L	D	Y	F	N	I	D	E	G	A	K	-	S	G	P	L	I	S	D	A	E	L	D	A	F	L	T	E	Q	Y	L	O	T	T	N	I	K	S	F	E	E	N	V	N	D	S	K	S	559	
Macaca_mulatta	N	T	F	S	S	N	D	M	G	Q	D	L	D	Y	F	N	I	D	E	G	I	K	-	S	G	T	L	I	S	D	A	E	L	D	A	F	L	T	E	Q	Y	L	O	T	T	N	I	K	S	F	E	E	N	V	N	D	S	K	L	560	
Callithrix_jacchus	N	T	F	S	S	N	V	M	D	G	Q	D	L	D	Y	F	N	I	D	E	G	A	K	-	S	G	T	L	I	S	D	A	E	L	D	A	F	L	T	E	Q	C	L	O	T	T	N	I	K	S	F	E	E	N	V	N	D	S	K	S	559
Equus_caballus	--	F	S	S	N	D	I	D	G	Q	D	L	D	Y	F	N	I	D	E	G	M	K	-	S	G	M	L	I	S	D	A	E	L	D	A	F	L	T	E	Q	Y	L	O	T	S	N	I	K	S	F	E	E	N	V	N	D	S	K	S	561	
Pteropus_alecto	--	F	S	S	S	D	I	D	G	Q	D	L	D	Y	F	N	I	D	E	G	M	K	-	S	G	I	L	V	S	D	A	E	L	D	A	F	L	T	E	Q	Y	L	O	T	S	N	I	K	S	L	E	E	N	V	N	D	S	K	Y	563	
Bos_taurus	--	F	S	S	N	D	I	D	G	Q	D	L	D	Y	F	N	I	D	E	G	M	K	-	S	G	A	P	I	S	D	A	E	L	D	A	F	L	T	E	Q	Y	L	O	T	S	N	I	K	S	F	E	E	N	I	N	D	A	K	P	563	
Mus_musculus	--	F	P	S	S	D	M	G	Q	E	L	D	Y	F	N	I	D	E	S	M	R	-	S	G	I	L	I	S	D	A	E	L	D	A	F	L	K	E	Q	C	L	S	N	S	N	T	M	S	A	G	E	N	V	N	D	S	O	L	548		
Ornithorhynchus_anatinus	--	L	S	S	K	D	I	I	S	O	V	L	E	D	F	N	I	D	D	A	I	K	-	D	Q	A	L	I	S	D	A	E	L	D	A	F	L	T	E	Q	N	L	O	T	P	T	R	K	S	L	E	D	-	V	G	D	L	E	S	535	
Pavo_muticus	---	Y	N	N	E	S	I	S	O	T	V	A	D	F	T	V	E	S	I	I	E	S	-	N	T	L	V	S	D	A	E	L	D	E	F	L	Y	G	Q	S	H	L	S	S	S	L	N	S	L	N	-	S	N	L	M	A	548				
Pavo_cristatus	---	Y	N	N	E	S	I	S	O	T	V	A	D	F	T	V	E	S	I	I	E	S	-	N	T	L	V	S	D	A	E	L	D	E	F	L	Y	G	Q	S	H	L	S	S	S	L	N	S	L	N	-	S	N	L	M	A	548				
Gallus_gallus	---	Y	N	N	E	S	I	S	O	T	V	A	D	F	T	V	E	S	I	I	E	S	-	N	T	L	V	S	D	A	E	L	D	E	F	L	Y	G	Q	S	H	L	S	S	S	L	N	S	L	N	-	S	N	L	M	T	548				
Anas_platyrhynchos	---	Y	N	N	E	S	I	G	O	V	V	A	D	F	T	V	E	E	G	I	I	K	S	-	D	T	L	I	S	D	A	E	L	D	E	F	L	Y	G	Q	S	H	Q																		

Homo_sapiens	QMNQID	-----MKGLDDGNINNIYFNAEAGAIGESHGINIICEIVDKQNT--IE	606
Pan_troglodytes	QMNQID	-----MKGLDDGNINNIYFNAETGAIGESHGINIICETVDKQNT--IE	606
Macaca_mulatta	QMNHID	-----MKDLDDGNINNIYFNAEAGAIGESHGINIICETVDKQNA--IE	607
Callithrix_jacchus	QMNRID	-----MKGLDNGNINNIYFNAEAGAIGEGHGINIICETVDKQNT--IE	606
Equus_caballus	QMSQID	-----MKDLDDGNISNVYFNAEAGATGESPGINVICETLDKQNT--TE	608
Pteropus_alecto	PINQID	-----MKDLDDGNVNNIYFNAEAGATGESPGV-MICETVDKQNT--TE	609
Bos_taurus	QMNQID	-----MKGLDDGNIDNIYFDAEAGATRESPGINMICETIDKQNT--AE	610
Mus_musculus	QMNQIT	-----MKGLHDENAGDIYFNAEAGAAGENGCV-GNCETSDKENT--EN	594
Ornithorhynchus_anatinus	QMNEIN	-----IKEPSVEETANASLRSED--EETCDITRSGETIDAQGE--SE	579
Pavo_muticus	ADTEVN	-----LRDDNLDFAKVTEEHAQTKLEDI---TSISSNLGVSLAAHE--LK	594
Pavo_cristatus	ADTEVN	-----LRDDNLDFAKVTEEHAQTKLEDI---TSISSNLGVSLAAHE--LK	594
Gallus_gallus	ADTEVN	-----LGDENLDFTKVTEEHAQTKLEDI---TSISSDLEVSLLAAHK--VK	594
Anas_platyrhynchos	AGAEQTH	-----LTNVNLDFTETIAEEHTQTKLEDI---TSINSNPEVSLTANK--LE	592
Chelonia_mydas	PDANQA	-----NNLDFRKVNDSTQKAKLEEIGEISSINSTCRIADIEYK--LE	614
Xenopus_tropicalis	LHN	-----DCPPYDFICSNNSPAVDETAGGLGTDSSSFTADCSPAVSS---L	543
Latimeria_chalumnae	QHNLFETGLKEVDVSLDYQDLVNVGANKVLEDGELTVKDETEKGRMITDVTPSQTEVVVD	637	
Rhinatrema_bivittatum	MSD	-----ANQMSLMNMDDGDDLITDVHTKFNTGARCTTVSDDPRTFG---L	615
		.....610.....620.....630.....640.....650.....660	

		:		***** *	:
Homo_sapiens	NG-LSLGEKSTIPVQOGLPTSKSEITNQLSVSDINSQ	-----	SVGGARPKQLFSLPSR	658	
Pan_troglodytes	NG-LSLGEESTIPVQOGLPTSKSEITNQLSVSDINSQ	-----	SVGGARPKQLFSLPSR	658	
Macaca_mulatta	NG-LSLGEKSTIPIEQGLLTSKSEITNELSVSDTNSQ	-----	SIGGARPKQLFGLPSR	659	
Callithrix_jacchus	NS-LSLGEKSTILIEQGLPTSKSEITNELPVSDINSQ	-----	SVGGARPKQLFSLPSR	658	
Equus_caballus	NGGLSLGEKSTIPVELGLSSTKSEITNDLSVSDINSQS	-----	VHVGGARPKQLFSVPSR	663	
Pteropus_alecto	NGGLSLGEESTITVIEQGLSSSKSEITHLSVFDINSQS	-----	VHVGGARPKQLFGVPSR	664	
Bos_taurus	NGSLSLSEKSTVTVIEQLSSSKSEITNELSTSDSNSQS	-----	VHVGGARPKQLFSVPSR	665	
Mus_musculus	NG-LSIGEKGAIPTERELSAQPDIRDDELVPVSIKQT	-----	AVGGARPKQLLSLPPG	646	
Ornithorhynchus_anatinus	SEGLFSGEQSTILIQKDAASNIAEVANELSASSINGQT	-----	IHAGGARPKQLSNLPSI	634	
Pavo_muticus	PP---AEQSAFHQN-----VTEHDSEAQVSKLPTE	-----	GARPKLLCDSTQG	635	
Pavo_cristatus	PP---AESAFAHQN-----VTEHDSEAQVSKLPTE	-----	GARPKLLCDSTQG	635	
Gallus_gallus	PL---AESVFHQN-----VTEHDSARVSKLPTE	-----	GARPKLLCDSTQG	635	
Anas_platyrhynchos	SP---TEG---IHVCD-----VTENGSEALVSKFHTE	-----	GARPKQLFGLPQG	631	
Chelonia_mydas	SP---PEKSTYPIQEASNHITETRIEVPVPTLSHQN	-----	VHIGGARPKQLLNLSQR	665	
Xenopus_tropicalis	PSYTSKQESSVLGAQSQVKITSENSLPAAVKDGDNSS	-----	SHKGGARPKQLFNSHP	596	
Latimeria_chalumnae	SSAVSASDGSVVMVDPMTNINRHNTPVAMPVDHTAAAGPGNHYAHFGGARPKQLFNLP	-----	696		
Rhinatrema_bivittatum	MNNECKSDS---LTSQTKNTPCFNPIMETSEAQAPNVNSQAINLGGARPKLLFDLPPR	-----	672		
	-----670-----680-----690-----700-----710-----720				

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 5 of 10

Species	Sequence	Position
Homo sapiens	TRSSKDLNKPDPVDTIESEP-----STADTVVPITCAIDSTADPQVFSNYSNYIDIESN--	711
Pan troglodytes	TRSSKDLNKPDPVDTIESEP-----STADTVVPITCAIDSTADPQVFSNYSNYIDIESN--	711
Macaca mulatta	TRSSKDLNKPDPVNTIESEP-----SIADTVVPVTCADVSTADPQVFSNYSNYIDIESN--	712
Callithrix jacchus	TRSSDLNKPDPVNTIESEP-----SIADTVVPVTCADVSTVDPQVFSNYSNYIDIESN--	711
Equus caballus	TRSSKEPNKPDAPNVTESEP-----SIANTIAPTTCSTDTFTDPQGSFNSNYIDIESN--	716
Pteropus alecto	TRSSKEPNKMDVPDTPESVP-----SIITDTIAPTTCSTDTFTDPQISFNSNYIDIESN--	717
Bos taurus	TRSSKEPNKLDVNPMPESKP-----RTANTIVATCTTDSVTDVPQVFSNYSNYIDIESN--	718
Mus musculus	TRSSKELNKPDPVDVPESEP-----CTANATAVSTCSADHIPDSQVFSNYSNYIDIESN--	699
Ornithorhynchus anatinus	TIIPKESNKLKAQNRTEADD-----QLVNSTAPTVRPGEARIDPNMSTCTIPADLENN--	687
Pavo muticus	AVGQRQLIQ---THVLER-----AATPEAPFSSRSITSSENSEP---AGESG--	676
Pavo cristatus	AVGQRQLIQ---THVLER-----AATPEAPFSSRSITSSENSEP---AGESG--	676
Gallus gallus	AVGQRQLNQ---THVLER-----AVTPEAPFSSRSITSSENSEP---AGESG--	676
Anas platyrhynchos	AAGQRQVNR---TEIPEREN-----QDVNSVTPEVPLSSTSTNFDKNSEP---PGESS--	678
Chelonia mydas	TVIEREFSK---PDMPTREF-----QEVNSLPKASLSETKTSTDISKCNPSDTENS--	715
Xenopus tropicalis	KLLP-DISQNTLVNTDGGQNNKPE-QSSADVTPSSPIGIAEAQPHDLNISVVLGKS----	650
Latimeria chalumnae	TVCDSELKVSERSNCKAVPANTAEQMLNCMHPTTPPHENIENSLDQNRCDNNGTDNKMA	756
Rhinatrema bivittatum	TVSERELSTSLIQNLVETRN---EQQVNFGTPGAAPTGSKTSSDLSSCCNYSGMTIS--	727

		*	.	:		*	:	**	***	****	*****	*****	
Homo_sapiens	--	SEGG	SSFVTANE	--	DSVPENTCKEGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				766
Pan_troglodytes	--	SEGG	SSFLTANE	--	DSVPENTCKEGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				766
Macaca_mulatta	--	SEGG	SSSVTANE	--	DSLPENTCKEGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				767
Callithrix_jacchus	--	SEGG	SSFVTANE	--	DSLPENTCKEGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				766
Equus_caballus	--	FEGG	SSFVTANE	--	ESLPANTCKEGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				771
Pteropus_alecto	--	CEGG	SNLVTENK	--	ESLPANTCKEGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				772
Bos_taurus	--	FEGG	SSFVTANE	--	ESLPNTCKDGLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				773
Mus_musculus	--	FEDG	SSFVTANK	--	DSLPENKRKESLVLG	QKQPTWVPD	SEAPNCMN	COVKFT	TFTKRR				754
Ornithorhynchus_anatinus	--	LGNGENSF	STSTES	--	SLAERTCKEGMVLGHK	QPSWVPD	SEAPNCMN	COVKFT	TFTKRR				744
Pavo_muticus	--	SEAGKS	QPFQSV	-----	SLKTPAALL	QKQPLWVPD	SEAPNCMN	COVKFT	TFTKRR				726
Pavo_cristatus	--	SEAGKS	QPFQSV	-----	SLKTPAALL	QKQPLWVPD	SEAPNCMN	COVKFT	TFTKRR				726
Gallus_gallus	--	TEAGKS	QTFQSV	-----	SLKTPAALL	QKQPLWVPD	SEAPNCMN	COVKFT	TFTKRR				726
Anas_platyrhynchos	--	TEAGGS	QTSSEAE	-----	PVKTPAALS	QKQPLWVPD	SEAPNCMS	CAKFT	TFTKRR				728
Chelonia_mydas	--	LEAGGS	SCVPASV	-----	LGKEPLVLGLK	QPPWVPD	SEAPNCMN	COVKFT	TFTKRR				765
Xenopus_tropicalis	--	ANTNGS	SE-LNRKEK	-GCRSENGT	SONPVLG	QORQPTWIPD	SEAPT	CMNC	SVKFT	TFTKRR			707
Latimeria_chalumnae		GATTAGD	SQINSLEK	-VAVDEKIM	REASSLGLK	QPSWVPD	SEAPNCMN	CAKFT	TFTKRR				815
Rhinatrema_bivittatum		LETEGES	SALSTEKQ	ESAADDEST	QEGTVLGHK	QPSWVPD	DAEAPNCMN	COVRFT	TFTKRR				786
		.....790	.....800		.....810	.....820	.....830	.....840					

	***** **.* ** * :***** *. :.*.*** ***** .. :.. .	
Homo_sapiens	HHCRACGKVF CGVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGSNLKSNHS	826
Pan_troglodytes	HHCRACGKVF CGVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGSNLKSNHS	826
Macaca_mulatta	HHCRACGKVFCGVCCSRKSKLOYLEKEARVCVVCYETISKAQAFERMMSP TGSNLKSNHS	827
Callithrix_jacchus	HHCRACGKVFCGVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGSNLKSNHS	826
Equus_caballus	HHCRACGKVF CGVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGS SLKSNRS	831
Pteropus_alecto	HHCRACGKVFC TVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGS SLKSNHS	832
Bos_taurus	HHCRACGKVFCGVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGSNLKSNHS	833
Mus_musculus	HHCRACGKVF CGVCCNRKCKLOYLEKEARVCVICYETINKAQAFERMMSP GGS CLKSNHS	814
Ornithorhynchus_anatinus	HHCRACGKVFCGVCCSKKCKLOYMEKEARVCIVCHESISKAQAFERMMSP TGS KPN S GIT	804
Pavo_muticus	HHCRACGKVFCGGCCKRKCKLOYMEKEARVCTRCYDDINKAQAFERMMSP TGPVPN SSVS	786
Pavo_cristatus	HHCRACGKVFCGGCCKRKCKLOYMEKEARVCTRCYDDINKAQAFERMMSP TGPVPN SSVS	786
Gallus_gallus	HHCRACGKVFCGGCCKRKCKLOYMEKEARVCTRCYDDINKAQAFERMMSP TGPVPN SSVS	786
Anas_platyrhynchos	HHCRACGKVFCGACKRKCKLOYMEKEARVCTGCYDDINKAQAFERMMSP TGPLPN SSVS	788
Chelonia_mydas	HHCRACGKVFCGVCCNRKCKLOYTEKEARVCIGCYKSINKAQAFERMMSP TGTIPN SSVS	825
Xenopus_tropicalis	HHCRACGKVFC AVCCS QKWKLPYMDKEARVCVVFGLVSKVQAFERMMSP TGPSPNP NPV	767
Latimeria_chalumnae	HHCRACGKVFC AVCCNRKCKLOYLEKEARVCVVCYETISKAQAFERMMSP TGPSPNP NPV	875
Rhinatrema_bivittatum	HHCRACGKVFC TACCNRKCKLOYMEKEARVCVVCYDSINKAQAFARMMSP TAPSPNP NPV	846
	.....850.....860.....870.....880.....890.....900	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Faps15 15:02:39 2022

Page 6 of 10

	* * :	* :	* * * :	* :	* * * :	* :	* * * :
Homo_sapiens	DECTT	VQPPQENQTS	---	SIPSPAT	LPVVSALKQPGVEG	-----	LCSKEQKRVWFA
Pan_troglodytes	DECTT	VQPPQENQTS	---	SIPSPTT	LPVVSALKQPGVEG	-----	LCSKEQKRVWFA
Macaca_mulatta	DECTT	VQPPQENQTS	---	SIPSPTT	LPVVSALKQPNVEG	-----	LCSKEQKRVWFA
Callithrix_jacchus	DECAT	AQPPQENQTS	---	SIPSPTT	LPISALKQPSVEG	-----	LCSKEQKRVWFA
Equus_caballus	DECAT	IQPLQETHPT	---	SLTSPTA	LPISALKQPCVEG	-----	LCSKEQKRVWFA
Pteropus_alecto	DECAT	IQPLQETQTS	---	SVPSPTT	LPISALKQPNVEG	-----	LCSKEQKRVWFA
Bos_taurus	DECAT	VQPLQETQTS	---	SIPSPTT	LPISALKQPSVEG	-----	LCSKEQKRVWFA
Mus_musculus	NECAT	DQPLQETQTS	---	STPSPTT	LPISALKQPNVEG	-----	PCSKEQKRVWFA
Ornithorhynchus_anatinus	SECST	VQPLRETQPSGSPNTPSPTAS	---	LPISVLKQPSIEG	-----	LCPKEQKRVWFA	
Pavo_muticus	SENS	--APPLQEACIPGSAS	CPLFSSPLVPALKQSDNEE	-----	VCPKEQKRVWFA	836	
Pavo_cristatus	SENS	--APPLQEACIPGSAS	CPLFSSPLVPALKQSDNEE	-----	VCPKEQKRVWFA	836	
Gallus_gallus	SENS	--APPLQEACIPGSAS	CPLFSSPLVSAVKQSDNEE	-----	LCPKEQKRVWFA	837	
Anas_platyrhynchos	SECS	--AAPLQEACIPGSASTPS	SSALSPVSAVKQPGIEVLFSQPIGLGLCPKEQRRVWFA	846			
Chelonia_mydas	SEYCASTVPPLOEAQTVGTENSP	SSLLLPISVLKQPGADG	-----	LCAREQRRVWFA	877		
Xenopus_tropicalis	SEYCASTIPPLVQAQAAGTILNSPPPT	TVLVPVGSVLKQPGVQG	-----	SQ-KEPKRVWFA	818		
Latimeria_chalumnae	SEYCASTISPLQAQAAGTILCSPLPT	VMVPSVLKHPGNEG	-----	VLPREQRRVWFA	927		
Rhinatrema_bivittatum	SEYS	-AIPPLHQAQAAGTIFNSPPPT	VMVPSVLKQPGVEV	-----	TCPEQKRVWFA	897	
	.....910.....	920.....	930.....	940.....	950.....	960

	:.****	::*::::	*: * :	.	
Homo_sapiens	DGILPNGEVADTTKLSSGSKRCSEDFSP	PLSPDVPMTVNTVDHSH----	STTVEKPNNETG	929	
Pan_troglodytes	DGILPNGEVADTTKLSSGSKRCSEDFSP	PLSPDMPVTNTVDHSH----	STTVEKPNNETG	929	
Macaca_mulatta	DGILPNGEVADTTKLSSGSKRCSEDFSP	PLSPDMPVTNTVDHSH----	STTVEKPNSETG	930	
Callithrix_jacchus	DGILPNGEVADTTKLSSGSKRCSEDFSP	PLSPDRPVILNTVDHSH----	STTVEKPNNETG	929	
Equus_caballus	DGILPNGEVADTAKLSSGSKKCS	EDFSPLLPDVPLTVNTVDHAR----	STTVEKTNNEIG	934	
Pteropus_alecto	DGILPNGEVADTTKLSSGSKKCS	EDFSPLLPDLPLTVNTVDHAY----	STTVEKPNNEIG	935	
Bos_taurus	DGILPNGEVADTTKLSSGSKRCSEDFSP	PLLPDMLPMVNTVDHAY----	STTVEKPNSET-	935	
Mus_musculus	DGILPNGEVADTTKLSSGSKRCSEDFSP	LPDVPMTINKVDTRH----	SPTVEKPNNGLG	917	
Ornithorhynchus_anatinus	DGILPNGEVADTAKLSSGGKKSSP	DISPVLPLPTNISPV	DHIP-----SSVDIKPKNDIA	911	
Pavo_muticus	DGILPTGEVAYATKLSSGAKRSSQ	DT--VRPDAPELHMAANAEE	DDVPTDVNSKPKEEMD	894	
Pavo_cristatus	DGILPTGEVAYATKLSSGAKRSSQ	DT--VRPDAPELHMAANAEE	DDVPTDVNSKPKEEMD	894	
Gallus_gallus	DGILPTGEVAYTTKLSSGAKRSSQ	DA--VRPDLPELHMAANAEE	ADMLTDVNSKPKEEMD	895	
Anas_platyrhynchos	DGILPTGEVADTTKLSSGAKRSSQ	DLSPVNPDLPEMHMAANAEE	DDILTVDNSKPKEEMD	906	
Chelonia_mydas	DGILPNGEVADTTKLSSGVKKSSQ	ELSPASPDLPVHMVASPAD	DICVTDI--KPKDEIA	935	
Xenopus_tropicalis	DGILLPNGEVADTTKFSSFVKRSSQ	DLSPVSPISQELQMAQD	GNL-----	862	
Latimeria_chalumnae	DGILPNGEVADTAKLAAGGKRSTQ	DLSPVSPISQELQMAQD	GNL-----	971	
Rhinatrema_bivittatum	DGILPNGEVADTTKLSTGIKRSSQ	DVSPVSPVPIESPMA	SLVD-----	941	
	.....970.....	980.....	990.....1000.....1010.....1020	

		:	
Homo_sapiens	DITRNEIIQSPISQVPSVEKLSMNTGNEGLPTSGSFTLDD-DVFAETEEPSPTGVLVNS	988	
Pan_troglodytes	DITRNEIIQSPISQFPSVEKLSMNTGNEGLPTSGSFTLDD-DVFAETEEPSPTGVLVNS	988	
Macaca_mulatta	DITRNEIIQSPISQVPSVEKLPINTGNEGLPTSGSFTLDN-DVFAEIEEPSATVALVNS	989	
Callithrix_jacchus	EITRNEIIRSPISQVPSVEKLPIINGNEGLPTSSSFTLDD-DVFAETEESSPTGVLVNS	988	
Equus_caballus	DITRNEIIQSPISQVPSVEKPPINSGTEGLPSSSGSFTLDD-DVFAEIEEPSPTGVLVNS	993	
Pteropus_alecto	AITRNEIIQ-----IPSIKLPISIRTEGLPTSGSFTLDD-DVFAEAEELSPN-VLPNS	988	
Bos_taurus	EDTRNEIIQSPISQVPPVEKLPINTGTEGLPTSASFTLDD-DVFAETEESPGTIDLVNS	994	
Mus_musculus	DIIRSEIISQSPITCHTAPVERLPGNTGTEGLPMGPFTLED-DVFVDSEEPSIPTVVPANS	976	
Ornithorhynchus_anatinus	IAGIAEKLQSPIPIVAAAEFPITLGTGELSSPSFILPGE-ESSISSETEKSPSPVMVAP	970	
Pavo_muticus	VITRMEGLCPSVPSE--DAQQTISQSEVIDSDKSLTPDTKECSSAVESEKTSIN-LVDW	951	
Pavo_cristatus	VITRMEGLCPSVPSE--DAQQTISQSEVIDSDKSLTPDTKECSSAVESEKTSIN-LVDW	951	
Gallus_gallus	GITRMEGLCPSVPSE--DAQQTISQSEMTDGDKSLTPDTTECCSSAMESGKTSIN-LVDW	952	
Anas_platyrhynchos	VVTKMEGLGPPVPSQ--DVQQAALCGSEMAHIYRSVTPGTKESSSATEDEKTSIS-LVDR	964	
Chelonia_mydas	VSAGTEKFHCSLHVAPDDDLPTAVQTEMLHSLDSLIPAADELFFITKVEKSPSLGTVNQ	995	
Xenopus_tropicalis	-----NNLNEHEKETGLETSPVDSCMEKSLPEALS-----	892	
Latimeria_chalumnae	-----ADDINCNSAAVKPAHSPANDIPVNGKDPVSSSSSA	1005	
Rhinatrema_bivittatum	-----DDPCTADVWPKEDTNSLVAEAEQLLSPVPAISS	974	
	.....1030.....1040.....1050.....1060.....1070.....1080	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 7 of 10

		:	*	:	:	*	.	**:	:	***::	:	*	:																																															
Homo_sapiens	---	NLP	IAS	IS	SDY	RL	CD	INK	YVC	KNK	IS	SLP	PN	DE	DSLP	P	LL	V	AS	G	E	K	G	S	V	P	V	V	E	E	H	P	S	H	E	1045																									
Pan_troglodytes	---	NLP	IAS	IS	SDY	RL	CD	INK	YVC	KNK	IS	SLP	PN	DE	DSLP	P	LL	V	AS	G	E	K	G	S	V	P	V	V	E	E	H	P	S	H	E	1045																									
Macaca_mulatta	---	NLP	I	AG	IS	SDY	RL	CD	INK	YVC	KNK	IS	SLP	PN	DE	DSLP	P	LL	V	AS	G	E	K	G	S	V	P	V	V	E	E	H	P	S	H	E	1046																								
Callithrix_jacchus	---	NLP	IAS	VS	SDY	RL	CG	INK	YVC	KNK	IS	SLP	PN	DE	DSLP	P	LL	V	AS	G	E	K	G	S	V	P	V	V	E	E	H	P	S	H	E	1045																									
Equus_caballus	---	DLP	V	AS	IS	SDY	RL	CD	ID	K	H	V	C	N	K	I	N	L	L	P	S	D	E	D	SLP	P	LL	V	S	S	G	E	K	G	S	V	P	V	E	E	H	P	S	H	E	1050															
Pteropus_alecto	---	NLP	I	AS	T	SDY	RL	CG	ID	K	N	V	C	KNK	IS	SLP	PN	DE	DSLP	P	LL	V	A	T	E	E	K	G	S	V	P	V	E	E	H	P	S	H	E	1045																					
Bos_taurus	---	SLP	V	AS	T	SDY	RL	CS	ID	N	-	V	C	N	K	S	SLP	P	DD	E	D	SLP	P	LL	V	T	S	G	E	K	G	S	V	P	V	E	K	H	P	S	H	E	1050																		
Mus_musculus	---	GLP	V	AS	IS	SDY	RL	CS	V	A	K	V	C	NN	IS	SLP	DD	D	I	G	L	P	P	L	L	A	T	S	G	E	D	G	S	V	P	V	E	R	P	S	H	E	1033																		
Ornithorhynchus_anatinus	S	E	Y	N	L	L	S	S	S	S	N	Y	M	F	L	C	G	I	D	Q	C	V	S	K	E	I	T	L	I	P	D	D	E	D	E	L	P	P	L	L	L	A	V	G	E	R	G	E	D	P	M	V	E	O	C	P	A	L	G	1030	
Pavo_muticus	T	K	S	D	M	P	V	S	P	-	T	S	Y	R	A	L	C	G	V	E	N	C	V	R	K	D	I	S	L	L	P	-	D	G	D	K	L	P	P	L	L	L	A	M	G	E	K	G	K	D	P	L	V	E	E	H	L	S	H	Q	1009
Pavo_cristatus	T	K	S	D	M	P	V	S	P	-	T	S	Y	R	A	L	C	G	V	E	N	C	V	R	K	D	I	S	L	L	P	-	D	G	D	K	L	P	P	L	L	L	A	M	G	E	K	G	K	D	P	L	V	E	E	H	L	S	H	Q	1009
Gallus_gallus	T	K	S	E	M	P	V	S	P	-	T	S	Y	A	L	C	G	V	E	N	C	V	R	K	D	V	D	L	L	P	-	D	G	D	K	L	P	P	L	L	L	A	M	G	E	R	G	K	D	P	L	V	E	E	H	L	S	H	Q	1010	
Anas_platyrhynchos	T	K	S	D	P	V	S	P	-	S	S	Y	R	A	L	C	G	V	E	N	C	V	R	R	E	I	S	L	V	P	-	D	G	D	K	L	P	P	L	L	L	A	V	G	E	K	G	K	D	P	L	V	E	E	H	P	S	H	Q	1022	
Chelonia_mydas	T	N	D	D	S	L	V	S	P	-	S	D	Y	R	M	L	C	G	I	E	N	C	V	S	K	E	F	S	L	I	P	-	D	D	D	G	L	P	P	L	L	L	A	T	G	E	K	G	K	D	P	L	V	E	E	H	P	S	H	Q	1053
Xenopus_tropicalis	---	A	F	K	V	S	P	S	D	Y	S	M	L	C	G	L	D	K	V	S	R	D	V	S	L	I	P	D	D	E	E	R																													

	QI I I L L E G E S F H P V T F V L N A N L L V N V K F I F Y S S D K Y W Y F S T N G L H G L G Q A E I I I L L C L P	1105
Homo_sapiens	QI I I L L E G E G F H P V T F V L N A N L L V N V K F I F Y S S D K Y W Y F S T N G L H G L G Q A E I I I L L C L P	1105
Pan_troglodytes	QI I I L L E G E G F H P V T F V L N A N L L V N V K F I F Y S S D K Y W Y F S T N G L H G L G Q A E I I I L L C L P	1106
Macaca_mulatta	QI I I L L E G E G S P P V T F V L N A N L L V N V K F I F Y S S D K Y W Y F S T N G L H G L G Q A E I I I L L C L P	1105
Callithrix_jacchus	QI I I L L E G E G F H P V T F V L N A N L L V N V K L V F Y S S D K Y W Y F S T N G L H G L G Q A E I I I L L C L P	1110
Equus_caballus	QI I I L L E G E G F H P V T F V L N A N L L V N V K L V F Y S S D K Y W Y F S T N G L R G L G Q A E I I I L L R L P	1105
Pteropus_alecto	QI I I L L E G E G S C P V T F V L N A N L L V N V K L A F Y S S D K Y W Y F S T N G L H G L G Q A E I I I L L C L P	1110
Bos_taurus	QI I I L L E G E G F P P A T F V L N A N L L V N V K L V L Y S S E K Y W Y F S T N G L H G L G Q A E I I V L L Q C L P	1093
Mus_musculus	EM M L L L E G E G P H P L T F V L N A N L L V N V K I V S Y S S E K C W Y F S T N G L H G L G Q A E I V I L L C L P	1090
Ornithorhynchus_anatinus	Q V A L L L E K G G A S P L T F I L N A N L L V N V K L I S Y S S E K C W Y F S T N G L H G L G Q A E I V I L L Q C L P	1069
Pavo_muticus	Q V A L L L E K G G A S P L T F I L N A N L L V N V K L I S Y S S E K C W Y F S T N G L H G L G Q A E I V I L L Q C L P	1069
Pavo_cristatus	Q V A L L L E K G G A S P L T F I L N A N L L V N V K L I S Y S S E K C W Y F S T N G L H G L G Q A E I V I L L Q C L P	1070
Gallus_gallus	Q V T L L L A E G G P N P L T F I L N A N L L V N V K L I S Y S S E K C W Y F S T N G L H G L G Q A E I I I L L Q C L P	1082
Anas_platyrhynchos	Q V T L L L A E G G P N P L T F I L N A N L L V N V K L V S Y S S E K C W Y F S T N G L H G L G Q A E I I I M L L C L P	1113
Chelonia_mydas	E V L L L L E E G - L S L V T F I L N A N L L N V K I V T Y A S E K C W F F S T N G L H G L G Q A E I I I L L A C L E	1007
Xenopus_tropicalis	Q I M L L L E E G G P N P L T F V L N A N L L V N V K L V T Y S S R K C W C F T T N G L H G L G Q A E I V L L L F A S	1124
Latimeria_chalumnae	Q L M M L L E E G G P N P L T F I L N A N L L V N I K L T Y S S E K C W Y F S T N G L H G L G Q A E I I I L L Q C L P	1090
Rhinatrema_bivittatum	.....1150.....1160.....1170.....1180.....1190.....1200	

	* . * . : : * : * : * : * : : . . * : * . * . . . : * : * * *	
Homo_sapiens	NEDTIPKIDIFRLFITIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1165
Pan_troglodytes	NEDTIPKIDIFRLFITIYKDALKGKYVENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1165
Macaca_mulatta	NEDTIPKIDIFRLFITIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1166
Callithrix_jacchus	NEDTIPKIDIFRLFITIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFIPTFQKLDDL	1165
Equus_caballus	NEDTIPTDIFRLFITVYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1170
Pteropus_alecto	NEDIIPKIDIFRLFISIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1165
Bos_taurus	NEDTIPKIDIFRLFITIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1170
Mus_musculus	NEDTVPKIDIFRLFITIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFITPTFQKLDDL	1153
Ornithorhynchus_anatinus	YEDTIPKIDIFKLFISIYKDAMKGKYIENLDNITFTESFSLSSKDHGGGFLFVPTFQKLDDL	1150
Pavo_muticus	DEKSFNPNEIFRLFIDIYKNAVKGKLIIRSMENVTLSENFLGNEHDGGGFLFVSPTYQKLDDL	1129
Pavo_cristatus	DEKSFNPNEIFRLFIDIYKNAVKGKLIIRSMENVTLSENFLGNEHDGGGFLFVSPTYQKLDDL	1129
Gallus_gallus	DEKTFPNEIFKLFIDIYKNAVKGKLLRSMENVTLSENFLSNEHDGGGFLFVSPTYQKLDDL	1130
Anas_platyrhynchos	DEETFPNEMLKLFINIYKDAVKGGRFIRNMENITFTENFLDNKDHGGGFLFVSPTYQKLDDL	1142
Chelonia_mydas	NEDAVPKEIFTLFDIYKDAVKGKYIGNLENITFTESFSLSSKDHGGGFLFVAPTFQKLDDL	1173
Xenopus_tropicalis	NEDILPKDMFRVFIDIYKDAQKGKHYVGNLENITFTESFSLSSKDHGGGFLFVAPTFQKLDDL	1067
Latimeria_chalumnae	NECTVPKIDIFRLFINIYDAQKGKHYVGNLENITFTESFSLSSKDHGGGFLFVAPTFQKLDDL	1184
Rhinatrema_bivittatum	HEDSLPKDIFKLFISIYKDALKGKYIENLDNITFTESFSLSSKDHGGGFLFIAPTFQKLDDL	1150
	.....1210.....1220.....1230.....1240.....1250.....1260	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 8 of 10

	SLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGEIGHTI	
Homo_sapiens	SLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGEIGHTI	1225
Pan_troglodytes	SLPSNPFLC	GVLIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGEIGHTI	1225
Macaca_mulatta	PLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGEIGHTI	1226
Callithrix_jacchus	PLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRDRKPLFGEIGHTI	1225
Equus_caballus	PLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGEIGHTI	1230
Pteropus_alecto	PLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGEIGHTI	1225
Bos_taurus	LLPSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SIRGRKPLFGDIGHTI	1230
Mus_musculus	VPVRSNPFLC	GILIQKLEIPWAKVFP	PMRLMLRLGA	EYKAYPAPLTS	SVGRKPLFGEIGHTI	1213
Ornithorhynchus_anatinus	PLPNSPFLC	GILIQKLEIPWAKVFP	PIRLMLRLGA	EYGAYPTPITS	SIRCRKPLFGEIGHTI	1210
Pavo_muticus	MLPDNPFLC	GILIHKLEIPWAKVFP	PIRLMLRLGA	EYGVYPTPVVS	SFRHRKPLFGEIGHTI	1189
Pavo_cristatus	MLPDNPFLC	GILIHKLEIPWAKVFP	PIRLMLRLGA	EYGVYPTPVVS	SFRHRKPLFGEIGHTI	1189
Gallus_gallus	MLPDNPFLC	GILIHKLEIPWAKVFP	PIRLMLRLGA	EYGVYPTPLVS	SFRHRKPLFREIGHTI	1190
Anas_platyrhynchos	ILPDNPFLC	GILIHKMEIPWAKVFP	PIRLMLRLGA	EYGYPTPLVS	SFRHRKPLFGEIGHTV	1202
Chelonia_mydas	LLPNNPFLC	GILIQKLEIPWAKVFP	PIRLMLGLGA	EYGAYPTPVT	SIRHRKPLFGEIGHTI	1233
Xenopus_tropicalis	PLPNCNPFLC	GVIIQKMEVPWAKVFP	PIRLMLRLGA	ESGAYPCPLMS	RRHRKPLFGEIGHTI	1127
Latimeria_chalumnae	PVPNSPFLC	GILIQKPEVPWAKVFS	SIRLMLRLG	EYNTYPCPVVS	SIRQKSLFGETGHTI	1244
Rhinatrema_bivittatum	PLPSSPFLC	GILIQKLEVPWAKVFP	PIRLMLRLGA	EYGVYPSVMS	SIRHRKPLFGEIGHTI	1210
	.....1270.....	1280.....	1290.....	1300.....	1310.....1320	

	..***: :: *.:*::*: *** .. :*::*:.*:****.****.	
Homo_sapiens	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVLNSSNEHVISIGASF	1285
Pan_troglodytes	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVLNSSNEHVISIGASF	1285
Macaca_mulatta	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVLNSSNEHVISIGASF	1286
Callithrix_jacchus	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVLNSSNEHVISIGASF	1285
Equus_caballus	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVINSSNEHVISIGASF	1290
Pteropus_alecto	MNLLVDLRNYQYTLQNIIDQLLIHMEMGKSCIKIPRKKYSDVMKVINSSNEHVISIGASF	1285
Bos_taurus	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVINSSNEHVISIGASF	1290
Mus_musculus	MNLLVDLRNYQYTLHNIDQLLIHMEMGKSCIKIPRKKYSDVMKVIHSSNEHVISIGASF	1273
Ornithorhynchus_anatinus	MNLLVDLRNYQYTLHNVEQLLIHMEMGKSCIKIPRKYSDVMKVINSSNEHVISIGASF	1270
Pavo_muticus	MNLLVDLRNYQYTLHTIDNLFVHVEMGRSCIKIPLRKYNQVMKVINSSNDHVISIGASF	1249
Pavo_cristatus	MNLLVDLRNYQYTLHTIDNLFVHVEMGRSCIKIPLRKYNQVMKVINSSNDHVISIGASF	1249
Gallus_gallus	MNLLVDLRNYQYTLHTIDNLFVHVEMGRSCIKIPFGKYNQVMKVINSSNDHVISIGASF	1250
Anas_platyrhynchos	MNLLVDLRNYQYTLHTIDNLFVHVEMGRSCIKIPLRKYNEVMKVNSNDHVISIGASF	1262
Chelonia_mydas	MNLLVDLRNYQYTLHTIDNLFVHVEMGRSCIKIPLRKYDEVMKVIHSSNEHVISIGASF	1293
Xenopus_tropicalis	INLLTDLRNYQYTIPIHVDGLLIHMQVGKICIKIPSRRHNEILKVIHASNEHVISIGASF	1187
Latimeria_chalumnae	MNLLADLRNYQYTLPIEGLVIHMEMGKSYINLPKRNYSAIMKLINSSNEHVISMGASF	1304
Rhinatrema_bivittatum	MNLLADLRNFQYTLPIVDGLLIHMEMGKSCIKIPLRRYSEVLKVINSNEHVISIGASF	1270
	.....1330.....1340.....1350.....1360.....1370.....1380	

	*.***:*.*. * *.*** *. . *.:*****:*****	
Homo_sapiens	TEADSHLVCIQN-DGIYETQANSATGHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1344
Pan_troglodytes	TEADSHLVCIQN-DGIYQTQANSATGHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1344
Macaca_mulatta	TEADSHLVCIQN-DGIYQTQANSATGHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1345
Callithrix_jacchus	TEADSHLVCIQN-DGIYQTQANSATGHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1344
Equus_caballus	TEADSHLVCIQN-DGVYQTQASSATGQPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1349
Pteropus_alecto	TEADSHLVCIQN-DGVYQTQANSATGHPRKVTGASFVVFNGALKASSGFLAKSSIVEDGL	1344
Bos_taurus	TEADSHLVCIQN-DGVYQTQANSATGHPRKVTGASFVVFNGALKASSGFLAKSSIVEDGL	1349
Mus_musculus	TEADSHLVCVQS-DGVYQTQANSATGQPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1332
Ornithorhynchus_anatinus	MEADSHLVCVQN-EGVYQTQANSATGHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1329
Pavo_muticus	TEADSHFVCVQNKQGLYHTQANSTNEHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1309
Pavo_cristatus	TEADSHFVCVQNKQGLYHTQANSTNEHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1309
Gallus_gallus	TEADSHFVCVQNKQGLYHTQANSTNKHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1310
Anas_platyrhynchos	TEADSHLVCVQNKHGHYHTQANSATEHPRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1322
Chelonia_mydas	TEADSHLVCVQS-DGVYQTQANSATGHPRRITGASFVVFNGALKTSSGFLAKSSIVEDGL	1352
Xenopus_tropicalis	LEADSHLVCVQNSDGIYQTQANSAPGKDREVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1247
Latimeria_chalumnae	SEVDSHLVCVQNDEGTQYQTQACSVTGKTRKVTGASFVVFNGALKTSSGFLAKSSIVEDGL	1364
Rhinatrema_bivittatum	VEADSHLVCVQNDEGQYQTQANSATDEPRKVTGASFVVFNGALKASSGFLAKSSIVEDGL	1330
	.....1390.....1400.....1410.....1420.....1430.....1440	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/MSD_FYVE_Fepl5 15:02:39 2022

Page 9 of 10

	****	.	:	*	:	**	**	:::	**	*	:::	:	*	*	:	:::	:	*	:	*	:	*	:	*
Homo_sapiens	MVQITPETMNGRLRALREQKDFKITCGKVDAVDLREYVDICWVDAEEKGNGKVIS	SVDGI	1404																					
Pan_troglodytes	MVQITPETMNGRLRALREQKDFKITCGKVDAVDLREYVDICWVDAEEKGNGKVIS	SVDGI	1404																					
Macaca_mulatta	MVQITPETMNGRLRALREQKDFKITCGKVDAVDLREYVDICWVDAEEKGNGKVIS	SVDGM	1405																					
Callithrix_jacchus	MVQITPETMNGRLRALREQKDFKITCGKVDAVDLREYVDICWVDSSEKGNKVIS	SVDGI	1404																					
Equus_caballus	MVQITPETMEGLRLALREQKDFKITCGKVDAVDLREYVDICWVDSSEKGNKVIS	SVDGI	1409																					
Pteropus_alecto	MVQITPETMDGLRLALREQKDFKITCGKVDAVDLREYVDICWVDSSEKNGGIIIS	SVDGL	1404																					
Bos_taurus	MVQITPETMDGLRLALREQKDFKITCGKVDAVDMREYVDICWVDSSEKGNKVIS	SVDGM	1409																					
Mus_musculus	MVQITPETMEGLRLALREQKDFRIQCCKVDAVDLREYVDICWVDSSEERKNKVIS	SVDGM	1392																					
Ornithorhynchus_anatinus	MVQITPETMEGLRQALKEQKDFKITCGKVDAAGDLREYVDVCWVENEEKVNKVITS	SWIDGK	1389																					
Pavo_muticus	MVQITPETMESLRQALRDKKDFKITCGRVDGEGLKEYVDICWVEDEEKTNGKILS	SPVDGK	1369																					
Pavo_cristatus	MVQITPETMESLRQALRDKKDFKITCGRVDGEGLKEYVDICWVEDEEKTNGKILS	SPVDGK	1369																					
Gallus_gallus	MVQITPETMESLRQALRDKKDFKITCGKVDAEGLEGLKEYVDICWVDEEKTNGKILS	SPVDGK	1370																					
Anas_platyrhynchos	MVQITPETMESLRQALRNKKDFKITCGKVDAEGLKEYVDICWVENEEKTNGKILS	SPVDGK	1382																					
Chelonia_mydas	MVQITPETMEGLRQALRDKKDFKITCGKMDAEELKEYVDICWVESEEKVNQGVVS	SPVDGK	1412																					
Xenopus_tropicalis	MVQIMPDMMEALRQALRDKKDFRIPCGKIDSSDSTEETVICWVETEENKQNGIIS	PIDVQ	1307																					
Latimeria_chalumnae	MVQITPETMENLRQALRRERKDFCIACGKVDAAGDSREYVNVWCIDAGVPVNGKIKS	SPVDGR	1424																					
Rhinatrema_bivittatum	MVQITPETMEALRQALREKRDFCIACGKLDAGDLREDVNICWVETEDKVNKVISP	IDGQ	1390																					
	.....1450.....1460.....1470.....1480.....1490.....1500																						

	:::. *	*: . * ::::*	*: ::	****.* **::*	
Homo_sapiens	SLQGFPSEKIKLEADFETDEKIVKCTEVFYFLKDQDLSI	---	LSTSYQFAKEI	IAMACSA	1461
Pan_troglodytes	SLQGFPSEKIKLEADFETDEKIVKCTEVFYFLKDQDLSI	---	LSTSYQFAKEI	IAMACSA	1461
Macaca_mulatta	SLQGFPSEKIKLEADFETDEKIVKCTEVFYFLKEQDLSI	---	LSTCYQFAKEI	IAMACSA	1462
Callithrix_jacchus	SLQAFPSSEKIKLEADFESDEKIVKCTEVFYFLKDQDLSI	---	LSTCYQFAKEI	IAMACSA	1461
Equus_caballus	SLEGFPSEKIKLEEDFETDEKIVKCTEVFYFLKDQDLSV	---	SATRYQFAKEI	IAMACSA	1466
Pteropus_alecto	SLQGFPSEKIKLEADFETDEKIVKCTEVFYFLKDQDLFV	---	SATRYQFAKEI	IAMACSA	1461
Bos_taurus	SLQGFPSEKIKLEADFETDEKIVKCTEVFCFLKDQDLSI	---	SATRYQFAKEI	IAMACSA	1466
Mus_musculus	SVEGFPSEKIKLETDFETEEKIVKCTEVFYFLKDQDISI	---	LSSSYQFAKEI	IAVACSA	1449
Ornithorhynchus_anatinus	SLEGIPSERIYQADFETDEKIVKCTEVFYLLKDQDLST	---	SAAHYQFAKEI	IAIACSA	1446
Pavo_muticus	SMEGTRSERIPHTRDFERKGVKVLKCTEVYYYFLKDHELP	---	SPVHLOFAKDIAAAC	STA	1425
Pavo_cristatus	SMEGTRSERIPHTRDFERKGVKVLKCTEVYYYFLKDHELP	---	SPVHLOFAKDIAAAC	STA	1425
Gallus_gallus	SMEGTWSSEKIPHIRDFERKGVKVLKCTEVYYYFLKDHELP	---	SPVHLOFAKDIAAAC	STA	1426
Anas_platyrhynchos	ALEGTQSEKAPHSRDFEREKGVKVLKCTEVYYYFLKDHEL	---	SPVPLQFAKEI	IAIACSA	1438
Chelonia_mydas	SMEGIQSERILQG-DFDTEEKLKMKCTEVFYILKDHEL	---	SATPHQFAKEI	IAVACSA	1467
Xenopus_tropicalis	SMEGIPSERICQETDFEVNDKIVKCTEVFYLLRDHEANS	---	AMAHSQFAKEI	IATACAA	1364
Latimeria_chalumnae	SLEGIPSVSIVQETEFETDGKLIRCEVLYHLKDQELLS	PCVQA	AHMQFAKEI	IATACSA	1484
Rhinatrema_bivittatum	SMEGIPSEKIFQEADFETDDKLVKCTDVFYLLRGHDSAS	---	TATHYQFAKEI	GTACSA	1447
	.....1510.....1520.....1530.....1540.....1550.....1560				

	*****: ** :...***:* * * **: *. *:*:* ***:** ***:****. *.	
Homo_sapiens	LCPHLKTILKSNGMNKIGLRVSIIDTMVEFOAGSEGOQLLPQHYLNDLDSALIPVIHGGTSEN	1521
Pan_troglodytes	LCPHLKTILKSNGMNKIGLRVSIIDTMVEFOAGSEGOQLLPQHYLNDLDSALIPVIHGGTSEN	1521
Macaca_mulatta	LCPHLKTILKSNGMNKIGLRVSTIDTMVEFOAGSEGOQLLPQHYLNDLDSALIPVIHGGTSEN	1522
Callithrix_jacchus	LCPHLKALKSNGMNKIGLRVSIIDTMVEFOAGSEGOQLLPQHYLNDLDSALIPVIHGGTSEN	1521
Equus_caballus	LCPHLKTILKSNGMNKIGLRVSIIDTMVEFOAGSEGOQLLPQHYLNDLDSALIPVIHGGTSEN	1526
Pteropus_alecto	LCPHLKTILKSNGMNKIGLRVSIIDTMVEFOAGSEGRLLPQHYLNDLDSALIPVIHGGTSEN	1521
Bos_taurus	LCPHLKILKSSGMNKIGLRVSIIDTMVEFOAGSEGRLLPQHYLNDLDSALIPVIHGGTSEN	1526
Mus_musculus	LCPHLRLTLKSNRNMNKIGLRVSIIDTMVEFOAGCEGOQLLPQHYLNDLDSALIPVIHGGTSEN	1509
Ornithorhynchus_anatinus	FCPHVKKLKRHGMNKIGLRVSIIDTKVEFOAGSGGOQLLPQRYLNDLDSALIPVIHGGTSEN	1506
Pavo_muticus	LCPHLKTILKKNGMNKIGLRVSVSDMVEYLAGSGGHLFPQKYLNELDRALIPVIHGGMSD	1485
Pavo_cristatus	LCPHLKTILKKNGMNKIGLRVSVSDMVEYLAGSGGHLFPQKYLNELDRALIPVIHGGMSD	1485
Gallus_gallus	LCPHLKTILKKNGMNKIGLRVSVSDMVEYLAGSGGHLFPQKYLNELDKALIPVIHGGMSD	1486
Anas_platyrhynchos	LCPHLKTILKNNGMNKIGLRVSVSDMVEYLAGSGGHLFPQYYLNELDSALIPVIHGGMSD	1498
Chelonia_mydas	LCPHLKTILKNNGMNKIGLRVSIIDTMVEYQLGSGGOQLLPQHYLNDLDSALIPVIHGGTSD	1527
Xenopus_tropicalis	LCPHIKTLKNSGMNRIGLRVSMIDTMVEYRAGSRGOQLLPQLYLNDLDCALIPVIHNRITSD	1424
Latimeria_chalumnae	LCPHLRLTLKESGLNKLGLRVSIIDTMVEYQAGSGGHLLPQNYLNDLDSALIPVIHGGSSD	1544
Rhinatrema_bivittatum	LCPHLKILKENGMSKIGLRISMDIDMVEYRAGSGGOQLLPQHYLNELDSALVPVIHGRASD	1507
	.....1570.....1580.....1590.....1600.....1610.....1620	

CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /home/ceglab2/Desktop/ajinkya/pavo/MSD/ZZZYVE Reps15 15:02:39 2022

Page 10 of 10

	***:~*~*~*~*	
Homo_sapiens	S-SLPLEIEIELVFFIIIEHLF-	1539
Pan_troglodytes	S-SLPLEIEIELVFFIIIEHLF-	1539
Macaca_mulatta	S-SLPLEIEIELVFFIIIEHLF-	1540
Callithrix_jacchus	F-SLPLEIEIELVFFIIIEQLF-	1539
Equus_caballus	STSLPLEIEIELVFFIIENLF-	1545
Pteropus_alecto	STSLPLEIEIELVFFIIENLF-	1540
Bos_taurus	STSLPLEIEIELVFFIIENLFE	1546
Mus_musculus	S-SLPLEIEIELAFFIIENLSE	1528
Ornithorhynchus_anatinus	STCLPIEMELIFFLIENLF-	1525
Pavo_muticus	PASLPLKMELMFFLTEHLF-	1504
Pavo_cristatus	PASLPLKMELMFFLTEHLF-	1504
Gallus_gallus	PASLPLKMELVFFLLEHLF-	1505
Anas_platyrhynchos	PTSLPLKMELVFFIIIEHLF-	1517
Chelonia_mydas	PTSLPLEMELIFFLTEYLF-	1546
Xenopus_tropicalis	TSILPLVMELIFFLTENLN-	1443
Latimeria_chalumnae	TSNLPIEMEFIFFIIENLF-	1563
Rhinatrema_bivittatum	TSTLPLMELFFLIENLF-	1526
	.....1630.....1640	