File: /media/morpheus/disk1/fst/pep\_msa/DRCDaps: Tue Feb 1 12:00:58 2022 Page 1 of 4

Mus_musculus Rattus_norvegicus Canis_lupus_familiaris Equus_caballus Bos_taurus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Xenopus_tropicalis Rhinatrema_bivittatum Latimeria_chalumnae Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas	MSRPYDSMEPKVMDDDMLKAAVGEQGPQEEAGQLAKQEGILFKDVLSLQLDFQNILRIDN MSRPYDSMEPKVMDDDMLKVAVGEQGPQEEAGQLAKQEGILFKDVLALQLDFQNILRIDN MHRLYNSLEPRVMDEDMLKLAVGEQGPREEAGQLARQEGILFKDVLSLRLDFQNILRIDS MNRLCNSMEPRVMDDDMLKLAVGEQGPREEAGQLAKQEGILFKDVLSLQLDFQNILRIDN MNRLYD-MEPRVMDDDMLKLAVGEQGPREEAGQLAKQEGILFKDVVSLQLDFQNILRIDN MNQPCNSMEPRVMDDDMLKLAVGEQGPQEEAGQLAKQEGILFKDVLSLQLDFRNILRIDN MNRPCNSMEPRVMDDDMLKLAVGDQGPQEEAGQLAKQEGILFKDVLSLQLDFRNILRIDN MNRLCDSMEPKVMDDDMLKLAVGEQGPQEEAGQLAKQEGILFKDVLSLQLDFRNILRIDN MNRLUDSMEPRVIDDDMLKLAVGEQGPQEEAGQLAKQEGILFKDVLSLQLDFRNILRIDN MNRLYDSMEPRVIDDDMLKLAVGEQGSSQEETGELAKQEGILFKDVLSLQLDFRNILRIDN MSSLYDTMEPNVIDDDMLRNAVEEQGPKEEAGRIAKLEGIDFKHVSSLRLDFKNILKIDN MSRLYGSIEPSVVDEDMLQKAVEEQGPKEEAGRIAKAEGIDFKDVLQLRLDFRNILKIDN MSQSDNSFEPNVIDDEMLQKAVEEQWP-EDIRKLAKAEGINFKDVMELQLSFRNILQIDN MSQSDNSFEPNVIDDEMLQKAVEEQWP-EDIRKLAKAEGINFKDVMELQLSFRNILQIDN MSQSDNSFEPNVIDDEMLQKAVEEQWP-EDIRKLAKAEGINFKDVMELQLSFRNILQIDN MSQSDNSFEPNVIDDEMLQKAVEEQWP-EDIRKLAKAEGINFKDVMELQLSFRNILQIDN MSQSDNSFEPNVIDDEMLQKAVEEQWP-EDIRKLAKAEGINFKDVMELQLSFRNILQIDN MSQSDNSFEPNVIDDEMLQKAVEEQWP-EDIRKLAKAEGINFKDVMELQLSFRNILQIDN MSRLYDTIEPNVIDEELLQKAVEEQGPQEELGQLAKREGIDYKDVLELQLDFRNILKIDN 1102030405060	60 60 60 60 60 60 60 60 59 59 59 60
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Mus_musculus Rattus_norvegicus Canis_lupus_familiaris Equus_caballus Bos_taurus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Xenopus_tropicalis Rhinatrema_bivittatum Latimeria_chalumnae Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas	LWQFENLKKLQLNNNIIERIEGLTNLIHLVWLDLSFNNIEAIEGLDTLVNLEDLSLSHNR LWQFENLRKLQLNNNIIERIEGLENLTHLVWLDLSFNNIEAIEGLDTLVNLEDLSLSHNR LWQFENLRKLQLDNNIIERIEGLEQLVHLVWLDLSFNNIEAIEGLDTLVNLEDLSLSHNR LWQFENLRKLQLDNNIIERIEGLENLTHLVWLDLSFNNIEAIEGLDTLVNLEDLSLFNNR LWQFENLRKLQLDNNIIEKIEGLENLTRLVWLDLSFNNIEAIEGLDTLVNLEDLSLFNNR LWQFENLRKLQLDNNIIEKIEGLENLAHLVWLDLSFNNIETIEGLDTLVNLEDLSLFNNR LWQFENLRKLQLDNNIIEKIEGLENLTHLVWLDLSFNNIETIEGLDTLVNLEDLSLFNNR LWQFENLRKLQLDNNIIEKIEGLENLTHLVWLDLSFNNIETIEGLDTLVNLEDLSLFNNR LWQFENLRKLQLDNNIIEKIEGLENLTHLVWLDLSFNNIETIEGLDTLVNLEDLSLFNNR LWQFENLRKLQLDNNIIEKIEGLENLTHLVWLDLSFNNIETIEGLDTLVNLEDLSLFNNR LWQFFSLTKLQLDNNIIEKIEGLEMLVNLVWLDLSFNNIEVIEGLKALTKLEDLSLYNNR LWQFVNLTMLQLDNNIIEKIEGLEMLVNLVWLDLSFNNIEVIEGLDALLKLEDLTLYNNR LWQFENLTKLQLDNNIIEKIEALESLVHLVWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFENLTKLQLDNNIIEKIEALESLVHLVWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFENLTKLQLDNNIIEKIEALESLVHLVWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFENLTKLQLDNNIIEKIEALESLVHLVWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFENLTKLQLDNNIIEKIEALESLVHLVWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFENLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLDTLVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALESLVHLWWLDLSFNNIEVIEGLEALLVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALDSLVHLIWLDLSFNNIEVIEGLEALLVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALDSLVHLIWLDLSFNNIEVIEGLEALLVKLQDLSLYNNR LWQFVNLTKLQLDNNIIEKIEALDSLVHLIWLDLSFNNIEVIEGLEALLVKLQDLSLYNNR LWQFUNLTKLQLDNNIIEKIEALDSLVHLIWLDLSFNNIEVIEGLEALUKLQDLSLYNNR LWQFUNLTH	120 120 120 120 120 120 120 120 120 120
Mus_musculus Rattus_norvegicus Canis_lupus_familiaris Equus_caballus Bos_taurus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Xenopus_tropicalis Rhinatrema_bivittatum Latimeria_chalumnae Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas	* : : : * * : * * : * : * : * : * : * :	180 180 180 179 180 180 180 180 180 179 179 179

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Mus musculus		ر ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ	REMAKMKHOYSIDELKHREAOLOM	221
Rattus norvegicus			REVAKMKHQYSIDELKHREALMQI	221
Canis_lupus_familiaris			KEMAESKHQYSIDELKHRENLIQS	221
Equus caballus			KELAEMKHQYSIDELKHRENLIQA	221
Bos_taurus			KELAEMKHQYSIDELKHRENLMQA	221
Homo_sapiens			KKLAEAKHQYSIDELKHQENLMQA	221
Pan_troglodytes			KKLAEAKHQYSIDELKHRENLMQA	240
Macaca mulatta			KELAEAKHQYSIDELKHRENLMQV	221
Callithrix_jacchus			KEVAEAKHHYSIEELKHRENLMQA	221
Xenopus_tropicalis			REMATMKYQYSIDDITHNENQEKR	221
Rhinatrema bivittatum			KEIAAVKYODDIDDLKRSENLILT	221
Latimeria chalumnae	UI DDI WYI DEBI IDEN		RDVGNQQYQYAIEELRQDERAALV	134
Pavo muticus	NI DCI VVI DEVI VCDTI		REVAISNYHYLTDVLEHEEAQALA	220
Pavo cristatus	NI DCI VVI DEVI VCDTI		REVAISNYHYLTDVLEHEEAQALA	220
Gallus_gallus	UI DCI VVI DEVI VCDTI		REVAISNYHYLTDLLEHEEAQALA	220
Chelonia_mydas	HI DDI WYI DEBI I DDW		RELAEIKYQYAIDELKQGEAQALA	221
Chelonia_mydas			.220230240	221
		.200	.220230240	
	: :: ::* *.	*.** ** ***	*::::* :*: :**: *:::	
Mus musculus			SMYSEDVEGNKLSYLPGVRELLEA	275
Rattus_norvegicus			SMYSDDVEGNKLSYLPGVGELLEA	275
Canis_lupus_familiaris			SMYTEDVEGNKLAYLPGISELLQA	275
Equus_caballus			SMYAEDVEGNKLAILPGISELLOA SMYAEDVEGSKLTCLPGVSELLEA	275
Bos taurus			SMYAEDVEGSKLSHLPGVGELLEA	273
<del>_</del>			SMYAEDSEGNNLSYLPGVGELLET	274
Homo_sapiens Pan_troglodytes			SMYAEDSEGNKLSYLPGVGELLET	273
Macaca mulatta			SMYAEDSEGNKLSYLPGVSELLEA	281
<del>_</del>			SMYAEDSEGNKLSSLPGVSELLEA	275
Callithrix_jacchus			SMYADDADGTKLSGLPGVSELLEA SMYADDADGTKLSGLPGVAELMDS	275
Xenopus_tropicalis Rhinatrema bivittatum			SMYAEDVESEKLSLIPGVAGLLET	275
<del>_</del>				188
Latimeria_chalumnae			SMFAEDADGVKLACLPGVADLLEA	188 274
Pavo_muticus			SLYAEDTEAAKLAYLPGVDDLLQA	274 274
Pavo_cristatus			SLYA <mark>EDTE</mark> AA <mark>K</mark> LAYL <mark>PG</mark> VDDLL <mark>Q</mark> A SLYAEDTEAAKLAYLPGVDDLLQA	274 274
Gallus_gallus				274 275
Chelonia_mydas			SMYAEDTEAARLAYLPGMADLLET	2/5
		. 260 270	.280300	
16		** : * * : ::*		225
Mus_musculus			AIL <mark>ENQ</mark> D <mark>QGK</mark> L <mark>K</mark> VAKF <b>EEK</b> HLLNL	335
Rattus_norvegicus			AIQENQDQGKLKIAKFEEKHLLNL	335
Canis_lupus_familiaris			AIQENQEQGKHRIAKFEEKHLLSL	335
Equus_caballus			ai <mark>qenqeqgk</mark> hkiakf <b>eekh</b> llsl	335
Bos_taurus			AIQENQEQGKLKIAKFEEKHLLSL	334
Homo_sapiens			AI <mark>QENQEQGKRK</mark> IAKF <mark>EEKH</mark> LSSL	335
Pan_troglodytes			AI <mark>QENQEQGKRK</mark> IAKF <mark>EEK</mark> HLSSL	354
Macaca_mulatta			AI <mark>QENQEQGKRK</mark> IAQF <mark>EEKH</mark> LSSL	341
Callithrix_jacchus			AI <mark>QENQEQGKRK</mark> IAKFK <mark>EKH</mark> LMSL	335
Xenopus_tropicalis			AIRENQEQGAKKIQELTEKNSEIL	335
Rhinatrema_bivittatum			AIN <mark>ENQE</mark> LGV <mark>QK</mark> IKDNENKAIEL <mark>Y</mark>	335
Latimeria_chalumnae			AIKD <mark>NQ</mark> DM <mark>G</mark> S <mark>KLIREFE</mark> DSKSEVF	248
Pavo_muticus			VLTA <mark>NQEEGRR</mark> IILDF <mark>E</mark> N <b>Q</b> NKTRL	334
Pavo_cristatus			VLTA <mark>NQEEGRR</mark> IILDF <mark>E</mark> N <b>Q</b> NKTRL	334
Gallus_gallus			VLTA <mark>NQEEGRR</mark> IILDF <mark>E</mark> N <mark>Q</mark> NRTRL	334
Chelonia_mydas			AIQDSQQQGTKIILDFENDNQGQL	335
	310	.320330	.340350360	

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Mus_musculus Rattus_norvegicus Canis_lupus_familiaris Equus_caballus Bos_taurus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Xenopus_tropicalis Rhinatrema_bivittatum Latimeria_chalumnae Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas	NAIREETDLSNIEKKLTECTESIGELFNTLMILEMQLVEQLEETINIFERNITDLVGLFI NAIRESDLFTMEQKLTECNESITELFNTLMILEMQLVEQLEETINVFERNITDLVGLFI NAIRDESELTNFEMKIVEYGKDITELFNVLMTLEMQLVEQLEETINMFERNIIDLVALFI SAIRDESELTKLEKKIVEYSGDITELFNVLMTLEMQLVEQLEETINMFERNIVDLVGLFI NAIREESELSSIETKIVEYSEDITELFNVLMTLEMQLVEQLEETINMFERNIVDLVGLFI NAIREESELSSIETKIVEYSEDITELFNVLMTLEMQLVEQLEETINMFERNIVDMVGLFI SAIREESELRNIEKMILECSADISELFDALMTLEMQLVEQLEETINMFERNIVDMVGLFI SAIREESELRNIEKMILECSADISELFDALMTLEMQLVEQLEETINMFERNIVDMVGLFI SAIREESELPNIEKMILECSADVSELFNELMMLEMQLVEQLEETINMFERNIVDMVGLFI SAIREELEMPNIEKMILECSTDISELFDALMMLEMQLVEQLEETISMFERNIVNLVGLFI NELSQSGNQDFLDLKISQYIDDINKLLDSLMTLELQLVDQTEEIIKEYERNVSDMVSAFL SEIQHISDTEIIAVKIEQIGTEISHLKETLMTLEIQLVDQLEEIIKDFERNISDIVAGFI HELQNITDNFILEAKIQQYCQEINQLSDDILSKELQLVDQLEEVIKDFERNISDIVAGFI DEIHHASSHDTAESMRAEYNEDILQLSETLMTLEMQMVDQLEELIKEFERNIAVIASAFT DEIHHASSHDTAESMRAEYNEDILQLSETLMTLEMQMVDQLEELIKEFERNIAVIASAFT DEIHHASSHDTAESMRAEYNEDILQLSETLMTLEMQMVDQLEELIKEFERNIAVIASAFT DEIHHASSHDTAESMRAEYNEDILQLSETLMTLEMQMVDQLEELIKEFERNIAVIASAFT DEIHHASSHDTAESMRAEYNEDILQLSETLMTLEMQMVDQLEELIKEFERNIAVITSTFI DVIQNMSNFEIADFKLVKYNEDISQLSDTLMTLEMQTVDQLEEIIKDFERNIADQVSTFI370380390400410420	395 395 395 394 395 414 401 395 395 394 394 394 395
Mus_musculus Rattus_norvegicus Canis_lupus_familiaris Equus_caballus Bos_taurus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Xenopus_tropicalis Rhinatrema_bivittatum Latimeria_chalumnae Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas	:.*:.:***:**:*******************  ENVQSLIAQCRDLENHHHEKLLEIAINTLEKILKGEMDEDLPDDVRALFVDKDTIVNAVG ENVQSLIAQCRDLENHHHEKLLEIAINTLEKILKGEMDEDLPDDVRALFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISINTLEKILKGEMDEDLPDDVRALFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISINTLEKILKGEDDEDLPDDVRSLFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISINTLEKIVKGEMDEDLPDDVRSLFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISISTLEKIVEGDLDEDLPNDLRALFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISISTLEKIVEGDLGEDLPNDLRALFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISISTLEKIVKGDLDEDLPNDLRALFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISISTLEKIVKGDLDEDLFDDLRALFVDKDTIVNAVG ENVQSLMAQCRDLENHHHEKLLEISISTLEKAVKGDLDEDLFDDIRMIFVDKDTIVNAVG ETVQGLMAQVRDLENHHHEKLLEISINLLEKVLKGEMDDEITDDIRMIFVDKDTVINAVS ETVQGYMAQIRDFENHHNEKLLEISINLLEKVLKGEMDDEITDDIRMIFVDKDTVINAVA ENVQGFVVQCRDLENHHHEKLLEISISTLEKIGKGIFDEDIPDDVRMLFIDKDTIVNAVA ENVQGFVVQCRDLENHHHEKLLEISISTLEKSLKNELDEELPDDVREFLVDKTTIVNMAN DSVKGMMTQCRDLENHHHEKLLEISISTLEKSLKNELDEELPDDVREFLVDKTTIVNMAN DSVKGMMTQCRDLENHHHEKLLEISISTLEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVKGMMTQCRDLENHHHEKLLEISISTLEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVKGMMTQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVKGMMTQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKTTIVNMAN ENVQGMMAQCRDLENHHHEKLLEISISALEKSLKNELDEELPDDVREFLVDKNTIVNMAN	455 455 455 455 455 465 455 455 455 455
Mus_musculus Rattus_norvegicus Canis_lupus_familiaris Equus_caballus Bos_taurus Homo_sapiens Pan_troglodytes Macaca_mulatta Callithrix_jacchus Xenopus_tropicalis Rhinatrema_bivittatum Latimeria_chalumnae Pavo_muticus Pavo_cristatus Gallus_gallus Chelonia_mydas	**::** **. *::: * : .* **. **:: *::::::::	515 515 515 514 515 514 515 515 428 514 514 515

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Mus_musculus	LECGDIID						523
Rattus_norvegicus	LECGDIID						523
Canis_lupus_familiaris	LECSDVID						523
Equus caballus	LECSDLID						523
Bos taurus	LECGDLLD						522
Homo sapiens	LECGDILD						523
Pan troglodytes	LECGDILD						542
Macaca mulatta	LEYSDILD						529
Callithrix jacchus	LEYSDILD						523
Xenopus tropicalis	LELHEOM-						522
Rhinatrema bivittatum	MEIARADL	IATNGLS	SRTRCFFIP	ARPGRDSG	VLCVCSTAKK	CEGL <mark>TP</mark> VQQLA <mark>GT</mark>	LL 574
Latimeria chalumnae	LDLQETV-						435
Pavo muticus							
Pavo cristatus							
Gallus gallus							
Chelonia_mydas	MESLEOME						
	~	EΛ	E60	E70	EON	EGO	