SUPPLEMENTARY TABLES

Common name	Binomen	Clade	Accession number
Cattle	Bos taurus	Cetruminantia	NM_001014890.1
Нірро	Hippopotamus amphibius	Whippomorpha	KC676928.1
Bowhead whale	Balaena mysticetus	Balaenidae (Mysticeti)	KC676921.1
N. Atlantic right whale	Eubalaena glacialis	Balaenidae (Mysticeti)	JQ730751.1
Pygmy right whale	Caperea marginata	Neobalaenidae (Mysticeti)	KC676926.1
N. Atlantic minke whale	Balaenoptera acutorostrata acutorostrata	Balaenopteridae (Mysticeti)	KC676922.1
N. Pacific minke whale	Balaenoptera acutorostrata scammoni	Balaenopteridae (Mysticeti)	XM_007192608.1
Blue whale	Balaenoptera musculus	Balaenopteridae (Mysticeti)	KC676923.1
Fin whale	Balaenoptera physalus	Balaenopteridae (Mysticeti)	KC676924.1
Sperm whale	Physeter macrocephalus	Physeteridae (Odontoceti)	XM_007126220.1
South-Asian river dolphin	Platanista minor	Platanistidae (Odontoceti)	KC676936.1
Sowerby's beaked whale	Mesoplodon bidens	Ziphiidae (Odontoceti)	AF055316.1
Baird's beaked whale	Berardius bairdii	Ziphiidae (Odontoceti)	KC676925.1
Cuvier's beaked whale	Ziphius cavirostris	Ziphiidae (Odontoceti)	KC676938.1
Yangtze river dolphin	Lipotes vexillifer	Lipotidae (Odontoceti)	XM_007461564.1
Franciscana	Pontoporia blainvillei	Pontoporidae (Odontoceti)	KC676937.1
Amazon river dolphin	Inia geoffrensis	Iniidae (Odontoceti)	KC676929.1
Beluga	Delphinapterus leucas	Monodontidae (Odontoceti)	KC676927.1
Finless porpoise	Neophocaena phocaenoides	Phocoenidae (Odontoceti)	KC676932.1
Harbour porpoise	Phocoena phocoena	Phocoenidae (Odontoceti)	KC676933.1
Dall's porpoise	Phocoenoides dalli	Phocoenidae (Odontoceti)	KC676934.1
Killer whale	Orcinus orca	Delphinidae (Odontoceti)	XM_004284305.1
Bottlenose dolphin	Tursiops truncatus	Delphinidae (Odontoceti)	AF055456.1
Pilot whale	Globicephala melas	Delphinidae (Odontoceti)	AF055315.1
Common dolphin	Delphinus delphis	Delphinidae (Odontoceti)	AF055314.1

Supplementary Table S2. Likelihood ratio tests for random-sites models (PAML) of the cetacean RH1 Bayesian gene tree derived from only synonymous nucleotide sites

Madal		lm I			Parameters ^a		NI11	ТРТ	Jf	-
Model	пр	IN L	X	ω_0/p	ω_1/q	ω_2/ω_p	INUII	LKI	aı	р
M0	49	-3178.83	4.17	0.12						
M1a	50	-3059.13	4.34	0.02 (87.9%)	1 (12.1%)					
M2a	52	-3052.65	4.45	0.02 (87.8%)	1 (11.1%)	5.60 (1.1%)	M1a	12.96	2	0.002*
M3	53	-3052.36	4.44	0.02 (87.2%)	0.86 (11.5%)	4.80 (1.3%)	M0	252.94	4	0.000*
M7	50	-3061.69	4.33	0.01	0.03					
M8a	51	-3059.02	4.33	0.34	13.63	1 (11.3%)				
M8	52	-3053.53	4.44	0.06	0.49	4.32 (1.5%)	M7	16.32	2	0.000*
							M8a	10.98	1	0.001*

Note: np, number of parameters; ln *L*, ln likelihood; \varkappa , transition/transversion ratio; df, degrees of freedom. ^aFor models M0-M3, the ω values for each site class ($\omega_0 - \omega_2$) are shown with their proportions in parentheses. For models M7-M8, *p* and *q* describe the shape of the beta distribution, and ω_p refers to the positively selected site class (with proportion in parentheses) for models M8 and M8a (where it is constrained to one).

Supplementary 7	Table S3. PARR	IS test for positiv	e selection (HYPH	Y) on the cetacean RI	I1 species tree
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Model	ln I		Parameters		IPT	n
Widden	III L	ω_{l}	ω_2	ω_3	LKI	Р
Null	-3006.79	0.01 (82.2%)	1 (17.8%)			
Positive selection	-3003.68	0.00 (81.1%)	1 (16.9%)	2.78 (2.0%)	6.22	0.043*

						2						
Model	np	$\ln L$	x	ω_{θ}	ω_l	ω_{2a}	ω_{2b}	ΔAIC	Null	LRT	df	р
M2a_rel	52	-3047.29	4.3	0.02 (87.9%)	1.00 (11.6%)	7.13 (0.5%)		4.34				
BrS_Null	51	-3047.42	4.3	B: 0.02	B: 1.00	B: 0.02	B: 1.00	2.60				
				F: 0.02 (86.8%)	F: 1.00 (5.8%)	F: 1.00 (6.9%)	F: 1.00 (0.4%)					
BrS_Alt	52	-3047.2	4.3	B: 0.02	B: 1.00	B: 0.02	B: 1.00	4.16	BrS_Null	0.44		0.507
				F: 0.02 (87.4%)	F: 1.00 (5.7%)	F: 1.24 (6.4%)	F: 1.24 (0.4%)					
CmC	53	-3047.27	4.3	B: 0.02	B: 1.00	B : 0.10		6.30	M2a_rel	0.04	1	0.841
				F: 0.02 (87.5%)	F: 1.00 (5.1%)	F: 1.26 (7.3%)						
BrS_Null	51	-3052.55	4.3	B: 0.02	B : 1.00	B : 0.02	B: 1.00	12.86				
				F: 0.02 (87.7%)	F: 1.00 (11.2%)	F: 1.00 (0.9%)	F: 1.00 (0.1%)					
BrS_Alt	52	-3049.99	4.3	B: 0.02	B: 1.00	B : 0.02	B: 1.00	9.74	BrS_Null	5.12	-	0.024*
				F: 0.02 (87.7%)	F: 1.00 (11.6%)	F: 6.24 (0.5%)	F: 6.24 (0.1%)					
CmC	53	-3047.28	4.4	B: 0.02	B: 1.00	B: 5.89		6.32	M2a_rel	0.02	1	0.888
				F: 0.02 (87.9%)	F: 1.00 (11.2%)	F: 7.85 (0.9%)						
BrS_Null	51	-3052.82	4.3	B: 0.02	B: 1.00	B: 0.02	B: 1.00	13.40				
				F: 0.02 (88%)	F: 1.00 (12%)	F: 1.00 (0%)	F: 1.00 (0%)					
BrS_Alt	52	-3052.82	4.3	B: 0.02	B: 1.00	B : 0.02	B: 1.00	15.40	BrS_Null	0	1	1.000
				F: 0.02 (88%)	F: 1.00 (12%)	F: 1.00 (0%)	F: 1.00 (0%)					
CmC	53	-3047.22	4.3	B: 0.02	B: 1.00	B: 7.33 (0.7%)		6.20	M2a_rel	0.14	1	0.708
				F: 0.02 (87.9%)	F: 1.00 (11.4%)	F: 2.29						
BrS_Null	51	-3049.34	4.3	B: 0.02	B: 1.00	B : 0.02	B: 1.00	6.44				
				F: 0.02 (86.3%)	F: 1.00 (10.2%)	F: 1.00 (3.1%)	F: 1.00 (0.4%)					
BrS_Alt	52	-3049.31	4.3	B: 0.02	B: 1.00	B: 0.02	B: 1.00	8.38	BrS_Null	0.06	-	0.806
				F: 0.02 (86.8%)	F: 1.00 (10.2%)	F: 1.25 (2.6%)	F: 1.25 (0.3%)					
CmC	53	-3046.38	4.3	B: 0.02	B: 1.00	B : 0.40		4.52	M2a_rel	1.82	1	0.177
				F: 0.02 (87.9%)	F: 1.00 (5.7%)	F: 2.12 (6.4%)						
BrS_Null	51	-3054.04	4.3	B: 0.02	B: 1.00	B: 0.02	B: 1.00	15.84				
				F: 0.02 (85.3%)	F: 1.00 (10.7%)	F: 1.00 (3.6%)	F: 1.00 (0.5%)					
BrS_Alt	52	-3052.82	4.3	B: 0.02	B: 1.00	B: 0.02	B: 1.00	15.40	BrS_Null	2.44	1	0.118
				F: 0.02 (87.3%)	F: 1.00 (11.0%)	F: 3.19 (1.5%)	F: 3.19 (0.2%)					
CmC	53	-3047.22	4.3	B: 0.02	B: 1.00	B : 0.00		6.20	M2a_rel	0.14	1	0.708
				F: 0.02 (87.3%)	F: 1.00 (11.2%)	F: 2.41 (1.5%)						
ed indicate the	foregro	and lineages.	In all ca	uses, the background p	partition contains the r	emaining taxa. $^{b}\omega$ v	alues for each site c	lass are sho	own with the p	roportion	of each	'n.
ameters; lnL, h	n likelih	ood; κ, transi	oregrou tion/tra	nd partitions. 'Minim nsversion ratio; df, deg	um overall AIC (tora, grees of freedom; Bat	ging depth 3-partitic h, bathypelagic; Epi	on of CmC; 6194.24 , Epipelagic; Fresh,) was used Freshwate	for all compar r/estuarine.	isons. Abt	breviatio	ons np,
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view return view <threturn th="" view<=""> return view return view</threturn>

Node/terminus/clade	Assigned partition ^a	Source
Root Cetacea (Neoceti)	Mesopelagic, Oceanic	Ancestral neoceti morphology (Fordyce 2002a; Uhen 2008); diet/behaviour, dispersal (Uhen 2004; 2010); diving capacity (Mirceta et al. 2013)
Root Mysticeti	Mesopelagic, Oceanic	Ancestral odontocete and mysticete morphology (Uhen 2010; Marx 2012; Gatesy et al. 2013); dispersal (Steeman et al. 2009)
Root Odontoceti	Mesopelagic, Oceanic	Ancestral odontocete diet/behaviour (Lindberg et al. 2007; Johnston & Berta 2010)
Balaenidae	Epipelagic, Coastal	Ancestral balaenid morphology (Fordyce 2002b) Extant balaenid diet/behaviour, habitat (Curry and Brownell Jr. 2014)
<i>Caperea marginata</i> (Neobalaenidae)	Mesopelagic, Oceanic	Extant neobalaenid morphology, habitat (Kemper 2014)
Balaenopteridae	Mesopelagic, Oceanic	Ancestral balaenopterid morphology (Bisconti 2010) Extant balaenopterid diet/behaviour, habitat (Demere 2014)
Physeter macrocephalus (Physeteridae)	Bathypelagic, Oceanic	Ancestral physeterid morphology (Lambert et al. 2013a) Ancestral ziphiid morphology (Lambert et al. 2013b) Ancestral physeterid and ziphiid diving capacity (Mirceta et al. 2013)
Ziphiidae	Bathypelagic, Oceanic	Extant physeterid diet/behaviour, habitat (Watwood et al. 2006) Extant ziphiid diet/behaviour, habitat (Tyack et al. 2006)
Platanista minor (Platanistidae)	Epipelagic, Freshwater	
<i>Lipotes vexillifer</i> (Lipotidae)	Epipelagic, Freshwater	Ancestral river dolphin morphology independent freshwater invasions (Cassens et
Pontoporia blainvillei (Pontoporidae)	Epipelagic, Freshwater	al. 2000; Hamilton et al. 2001; Geisler et al. 2011)
Inia geoffrensis (Iniidae)	Epipelagic, Freshwater	
Root Delphinoidea	Mesopelagic, Oceanic	Ancestral delphinoid morphology, behaviour, habitat (Kazar et al. 2014)
Root Monodontidae + Phocoenidae	Epipelagic, Coastal	Ancestral monodontid and phocoenid morphology and habitat (Velez-Juarbe & Pyenson 2012; Lambert 2008)
Delphinapterus leucas (Monodontidae)	Mesopelagic, Coastal	Extant monodontid diet/behaviour, habitat (Richard 2014)
Root Phocoenidae	Epipelagic, Coastal	Ancestral phocoenid morphology, habitat (Lambert 2008)
Neophocaena phocaenoides	Epipelagic, Coastal	Extant N. phocaenoides diet/behaviour, habitat (Jefferson 2014)
Phocoenoides dalli	Epipelagic, Oceanic	Extant P. dalli diet/behaviour, habitat (Jefferson 2014; Fajardo-Mellor et al. 2006)
Phocoena phocoena	Epipelagic, Coastal	Extant P. phocoena diet/behaviour, habitat (Jefferson 2014)
Root Delphinidae	Mesopelagic, Oceanic	Ancestral delphinid habitat (Banguera-Hinestroza et al. 2014) Ancestral delphinid morphology (Lindberg et al. 2007)
Globicephala melas	Mesopelagic, Oceanic	Extant G. melas diet/behaviour, habitat (Wang et al. 2014)
Orcinus orca	Epipelagic, Coastal	Extant O. orca diet/behaviour, habitat (Wang et al. 2014)
Delphinus delphis	Epipelagic, Oceanic	Extant D. delphis diet/behaviour, habitat (Wang et al. 2014)
Tursiops truncatus	Mesopelagic, Coastal	Extant T. truncatus diet/behaviour, habitat (Wang et al. 2014)

Supplementary Table S5. Assignment of species and internal nodes on the cetacean species tree to foraging depth and habitat partitions for clade model analyses

^aPartitions refer to foraging depth and habitat categories: Epipelagic (0-200 m), Mesopelagic (200 - 1000 m), Bathypelagic (>1000 m), Freshwater (rivers, lakes, estuaries), Coastal (within continental shelves), Oceanic (beyond continental shelves).

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Fig. S1. Hydroxylamine (50 mM) exposure for wild-type bovine (black lines) and killer whale (blue lines) rhodopsins showing stability of the dark state peaks (487 nm, 499 nm) and retinal oxime peak (360 nm) over time.



Fig. S2. A) Cetacean rhodopsin Bayesian gene tree topology with mammalian outgroups. Bolded branches denote clades with positions that deviate from accepted species relationships for mammals (Springer et al. 2004; Bininda-Emonds et al. 2007) and cetaceans (McGowen 2011; Gatesy et al. 2013). In particular, members of Euarchonta and Glires, which are known to be monophyletic sister lineages, were spread paraphyletically among the basal branches. Within cetacea, Mysticeti was incorrectly nested within Odontoceti, *C. marginata* was incorrectly placed as the most basal mysticete, and *O. orca*, which is now known to be a basal delphinid (McGowen 2011), was not placed as such. Numbers at nodes indicate posterior probabilities.



Fig. S2 cont. B) The pruned Bayesian topology that results when nonsynonymous sites are removed from the alignment (numbers at nodes indicate posterior probabilities). Bolded branches denote clades with positions that deviate from accepted species relationships for cetaceans (McGowen 2011; Gatesy et al. 2013). Removing nonsynonymous nucleotides (79 of 1059 nucleotides) from the alignment corrected the misplacement of Mysticeti within Odontoceti (P. macrocephalus and P. minor were no longer placed as basal cetaceans). Additionally, O. orca was moved to its proper position as a basal delphinid, but incorrect placements were still present among the mysticetes. Thus, overall, when nonsynonymous nucleotides were removed from the alignment, the gene tree was a considerably better match to the accepted species topology. Accession numbers for outgroups not listed in Supplementary Table S1 are as follows: JX103830.1, XM_001366188.2, NM_001280858.1, XM_004702378.1, AF055319.1, XM 004477246.1, U49742.1, NM 001082349.1, EF457995.1, XM 004902702.1, NM 001244407.1, NM 033441.1, XM 007517079.1, XM_006083811.1, NM_001009242.1, NM_001008276.1, AF055317.1, XM_004442424.1, AF008947.1, XM_004018534.1

	. :		*10
1. B taurus	MNGTEGENFYVPFSNKTGVVRSPE	APQYYLAEPWQFSMLAAYMFLL	LIMLGFPINFLTLYVTVQHKKLRTPLNYILINLAVADLFMVGGGFTTTLYTS
2. H amphibius	MNGTEGENFYVPFSNKTGVVRSPE	Y PQYYLAEPWQFS M LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILINLAVADLFMVGGGFTTTLYTSM
 E glacialis 	MNGTEG <mark>L</mark> NFYVPFSNKTGVVRSPE	Y PQYYLAEPWQFS V LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYIIINLAVANLFMVOGGFTTTLYTSI
 B mysticetus 	MNGTEGENFYVPFSNETGVVRSPE	Y PQYYLAEPWQFS <mark>V</mark> LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYI
5. B physalus	MNGTEGENFYVPFSNKTGVVRSPE	MPQYYLAEPWQFSWLAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYIDLNLAVANLFMVDGGFTTTLYTSD - IVLGFPINFLTIVUTVQHKKLRTPLNYIDLNLAVANLFMVDGGFTTTLYTSD
7. B musculus	MNGIEGENFIVPFSNKIGVVRSPE	M POYYLAE PWOFSWLAAYMFLL	LINLGFPINFLTLYVTVOHKKLRTPLNIIGLNLAVANLFMVDGGFTTTLYTSU
8. B acutorostrata	MNGTEGENFYVPFSNKTGVVRSPE	YPQYYLAEPWQFSVLAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILINLAVANLFMVGGFTTTLYTS
9. B a scammoni	MNGTEGENFYVPFSNKTGVVRSPE	Y PQYYLAEPWQFS V LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILNLAVANLFMVEGGFTTTLYTSU
10. P macrocephalus	MNGTEGENFYVPFSNKTGVVRSPYE	Y PQYYLAEPWQFS <mark>V</mark> LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILNLAVANLFMVEGGFTTTLYTSL
11. P minor	MNGTEGENFYVPFSNKTGVVRSPE	MPQYYLAEPWQFSVLAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYIDLNLAVANLFMVBGGFTTTLYTSD - IVLGFPINFLTLYVTVQHKKLRTPLNYIDLNIAVANLFMVBGGFTTTLYTSD
12. B Dairdii 13. 7 cavirostris	MNGIEGENFIVPFSNKIGVVRSPE	Y DOVYLAE DWOFS NI. A A YMFLI.	LINLGFPINFLILYVIVQHKKLRIPLNYILLNLAVANLEMVEGGFIIILYISM
14. M bidens	MNGTEGENFIVPFSNETGVVRSPE	MPOYYLAEPWOFSWLAAYMFLL	LIMLGFPINFLTLYVTVOHKKLRTPLNYILINLAVANLFMVUGGFTTTLYTSM
15. L vexillifer	MNGTEGLNFYVPFSNATGVVRSPE	Y PQYYLAEPWQFS V LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILLNLAVANLFMVBGGFTTTLYTSM
16. P blainvillei	MNGTEGENFYVPFSNATGVVRSPE	Y PQYYLAEPWQFS <mark>V</mark> LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILNLAVADLFMVBGGFTTTLYTS
17. I geoffrensis	MNGTEGLNFYVPFSNATGVVRSPE	MPQYYLAEPWQFS LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILINLAVANLFMVGGGFTTTLYTSL
18. D leucas	MNGIEGENFYVPFSNNIGVVRSPE	POYYLAE PWQFS LAAYMFLL	LIVLGEPINELTLYVTVQHKKLRTPLNYI LNLAVADLEMVEGGETTTLYTSI.
20. P phocoena	MNGTEGENFIVPFSNKTGVVRSPE	POYYLAEPWOFS LAAYMFLL	LINLGFPINFLTLYVTVOHKKLRTPLNYIMLNLAVADLFMVMGGFTTTLYTS
21. P dalli	MNGTEGENFYVPFSNKTGVVRSPE	Y PQYYLAEPWQFS W LAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILNLAVADLFMVLGGFTTTLYTSL
22. O orca	MNGTEG <mark>L</mark> NFYVPFSN <mark>K</mark> TGVVRSPE	YPQYYLAEPWQFS <mark>V</mark> LAAYMFLL	LI V LGFPINFLTLYVTVQHKKLRTPLNYI <mark>M</mark> LNLAVA <mark>N</mark> LFMV <mark>E</mark> GGFTTTLYTS <mark>L</mark>
23. G melas	MNGTEGENFYVPFSNKTGVVRSPE	YPQYYLAE PWQFS ULAAYMFLL	LIVLGFPINFLTLYVTVQHKKLRTPLNYILNLAVANLFMVGGGFTTTLYTSL
24. T truncatus	MNGTEGENFYVPFSNKTGVVRSPE	MPQYYLAEPWQFSWLAAYMFLL	LIWLGFPINFLTLYVTVQHKKLRTPLNYIMLNLAVANLFMVBGGFTTTLYTSM I I CEDINFITIYUTUQHYYIDTDINYIMINIAVANI FMVDCCETTTIYTSM
20. D deiphis	101 :	erviibase visubaatarbb	* * 200
1. B taurus	GYFVEGPTGCNLEGFFATLGGEIA	WSLVVLAIERY <mark>V</mark> VVCKPMSNFR	RFGENHA IM G URD TW U MA L ACAAPPLVGWSRYIPEGMQCSCG I DYYT PHB ENNN
2. H amphibius	GYFIEGPTGCNLEGFFATLGGE A	WSLVVLAIERY VVCKPMSNFR	RFGENHAINGEAN TWOMADACAAPPLVGWSRYIPEGMQCSCGDYYTIKEEN N
3. E glacialis	MYFWIGPTGCN EGFFATLGGE A	WSLVVLAIERY VVCKPMSNFR	RFGENHANMGENUTWEMADACAADPLVGWSRYIPEGMQCSCGEDYYTESDEUNN
5. B physalus	AYFVEGPIGCNAEGFFATLGGE A	WSLVVLAIERYWVVCKPMSNFR	REGENHANNG MANTWIMANACAA BPLVGWSRIIPEGMQCSCG DYYTUSDEWNN REGENHANNG MAWTWIMANACAA PPLVGWSRYIPEGMOCSCCC DYYTUSDEWNN
6. C marginata	AYFIEGPTGCNLEGFFATLGGEVAL	WSLVVLAIERY	RFGENHAING LAV TWIMANACAABPLVGWSRYIPEGMQCSCGHDYYT LSD EWNN
7. B musculus	AYFVEGPTGCNAEGFFATLGGE A	WSLVVLAIERY V VVCKPMSNFR	RFGESHAIMGIAVTWIMADACAAPPLVGWSRYIPEGMQCSCGIDYYT <mark>ISP</mark> EVNN
8. B acutorostrata	MYFIEGPTGCNAEGFFATLGGEIAL	WSLVVLAIERY	RFGENHAIMGUAWTWIMALACAAPPLVGWSRYIPEGMQCSCGIDYYTLSPEWNN
9. B a scammoni 10. P macrocorbalua	MITTEGPTGCN EGFFATLGGENA	WSLVVLAIERYWVVCKPMSNFR WSLVVLAIEDYMUUCVDMCNED	KIGENHANNGUMUTWUMANAACAANPLVGWSRYIPEGMQCSCGUDYYTUSDEWN Recenhanngumutwumanacaanplvcwspytpechoceccouvytusdewn
11. P minor	AYFIEGPTGCNLEGFFATLGGENA	WSLVVLAIERYMVVCKPMSNFR	RFGENHALIGUALTWUMALACAAPPLVGWSRYIPEGMOCSCGHDYYTMDEWNN
12. B bairdii	AYFIEGPTGCNLEGFFATLGGEIA	WSLVVLAIERY <mark>W</mark> VVCKPMSNFR	RFGENHAMMGLALTWIMAMACAAPPLVGWSRYIPEGMQCSCGUDYYTPSPEUNN
 Z cavirostris 	AYFIEGPIGCN EGFFAILGGE A	WSLVVLAIERY VVCKPMSNFR	RFGENHAINGIALTWIMAMACAADPLVGWSRYIPEGMQCSCGUDYYI <mark>BSD</mark> EUNN
14. M bidens	AYFIEGPTGCNLEGFFATLGGEIAI	WSLVVLAIERYVVCKPMSNFR	RFGENHAIMGLALTWIMALACAAPPLVGWSRYIPEGMQCSCGWDYYT DSDEW NN
15. L vexillifer	MYFVEGPTGCN EGFFATLGGE A	WSLVVLAIERY WVVCKPMSNFR	RFGENHANNGUMUTWUMANACAANPLVGWSRYIPEGMQCSCGUDYYTUSDEWNN Arcenua maguna twumanacaan di ucusevidecmocscco dyytusdewn
17. I geoffrensis	AYFWEGPTGCNLEGFFATLGGETAN	WSLVVLAIERYWVVCKPMSNFR	RFGENHARWGUGUTUWWARACAAPPLVGWSRIIPEGMQCSCGUDIIIGEEWNN
18. D leucas	AYFVFGPTGCNLEGFFATLGGETA	WSLVVLAIERY <mark>V</mark> VVCKPMSNFR	RFGENHAIMGLALTWIMAMACAAPPLVGWSRYIPEGMQCSCGIDYYTPSPEVNN
19. N phocaenoides	AYFVFGPTGCNVEGFFATLGGEIAI	WSLVVLAIERY <mark>V</mark> VVCKPMSNFR	RFGENHAIMGLADTWIMAMACAAPPLVGWSRYIPEGMQCSCGIDYYT DSP EVNN
20. P phocoena	AYFVEGPTGCNLEGFFATLGGEIAI	WSLVVLAIERY <mark>V</mark> VVCKPMSNFR	RFGENHAIMGLELTWIMAMACAAPPLVGWSRYIPEGMQCSCGIDYYT DSDEV NN
21. P dalli	AYFUEGPTGCNDEGFFATLGGETAN	WSLVVLAIERY VVCKPMSNFR	REGENHALMGINGTWIMAMACAADPLVGWSRIPEGMQCSCGDYITESPEWNN DEGENHALMGINTWIMAMACAADDLVGWSRIPEGMQCSCGDYYTISPEWNN
23. G melas	AYFVEGPTGCNLEGFFATLGGEIAI	WSLVVLAIERYVVCKPMSNFR	RFGENHAIMGINITWUMAMACAAPPLVGWSRYIPEGMQCSCGUDYITSROEUNN
24. T truncatus	AYFVEGPTGCNLEGFFATLGGEIAI	WSLVVLAIERY V VVCKPMSNFR	RFGENHA IM G IRI TW I MAMACAANPLVGWSRYIPEGMQCSCG I DYYT SRO EVNN
25. D delphis	A VENE OF COMPRESSION OF TAXABLE		
	ATTWEEPIGCN EGITALLOGE A	WSLVVLAIERYWVVCKPMSNFR	RFGENHANNGERETWINANACAARPLVGWSRYIPEGMQCSCGIDYYTISBENNN
1 B taurug	201 · ESFUEVMENUMENTE FORMUTE FORCE	WSLVVLAIERY W VVCKPMSNFR	RFGENHANNGENNETNENANANACAARPLVGWSRYIPEGNQCSCGEDYYTENDENNU :300 :veutdmunetmunetltowedvenutevtfenogsnechtemtedverser
 B taurus H amphibius 	201 ESFVEYMFVVHFIJPIVISFCYGQ ESFVEYMFVVHFSIPMVIIFCYGQ	WSLVVLAIERY W VVCKPMSNFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	RFGENHANNGENNETWEMANAACAARPLVGWSRYIPEGMQCSCCHDYYTHSBEDWN :30 :kevtrmviimviaflicwe pyagvafyifehqqsbfgpifmtiphffakos :kevtrmviimviaflicwe pyagvafyifehqqsbfgpifmtiphffakosov
 B taurus H amphibius E glacialis 	ESFVIYMFVVHFIIPHVIJFCYGQ ESFVIYMFVVHFIIPHVIJFCYGQ ESFVIYMFVVHFSIPVVIJFCYGQ	WSLVVLAIERY W VVCKPMSNFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	RFGENHANNGENNTWEMANAACAADPLVGWSRYIPEGMQCSCCHDYYTUSDEDWN ;30 :Kevtrmviimviaflicwipyagvafyifuhqgsnfgpifmtipnffakosn :kevtrmviimviaflicwipyagvafyifuhqgsnfgpifmtipnffakosn :kevtrmviimvuaflicwipyagvafyifuhqgsnfgpifmtipnffakosn :kevtrmviimvuaflicwipyagvafyifuhqgsnfgpifmtipnffakosn
1. B taurus 2. H amphibius 3. E glacialis 4. B mysticetus	ESFVYYMFVVHFYIPHVISFCYGQ ESFVYYMFVVHFYIPHVISFCYGQ ESFVYYMFVVHFSIPHVIFFCYGQ ESFVYYMFVVHFSIPHVIIFFCYGQ	MSLVVLAIERY 0 VVCKPMSNFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	RFGENHA MGCMMTW MAMACAADPLVGWSRYIPEGMQCSCC DYYT SDEDW ;30 :KEVTRMVIIMVIAFLICW DYAGVAFYIF HQGSDFGPIFMT PAFFAK :KEVTRMVIIMVIAFLICW DYAGVAFYIF HQGSDFGPIFMT PAFFAK :KEVTRMVIIMVUAFLICW DYAGVAFYIF HQGSDFGPIFMT PAFFAK :KEVTRMVIIMVUAFLICW DYAGVAFYIF HQGSDFGPIFMT PAFFAK :KEVTRMVIIMVUAFLICW DYAGVAFYIF HQGSDFGPIFMT PAFFAK :KEVTRMVIIMVIAFLICW DYAGVAFYIF HQGSDFGPIFMT PAFFAK :KEVTRMVIIMVIAFLICW DYAGVAFYIF HQGSDFGPIFMT
1. B taurus 2. H amphibius 3. E glacialis 4. B mysticetus 5. B physalus 6. C marginata	I I BOLGFICK MIGFFALLGGEMAN DI ESFVIYMFVVHFSIPUVISFCYGQ ESFVIYMFVVHFSIPUVISFCYGQ ESFVIYMFVVHFSIPUVISFCYGQ ESFVIYMFVVHFSIPINIIFCYGQ ESFVIYMFVVHFSIPINIIFCYGQ	MSLVVLAIERYMVVCKPMSHFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQOOSSATTOKAE	RFGENHA MYGMMTW MAMACAADPLVGWSRYIPEGMQCSCC DYYT SDEDW :: :: :: :: :: :: :: :: :: :
 B taurus H amphibius E glacialis B mysticetus B physalus C marginata B mysculus 	I I DI GUI CU MILGI AL LGGA AL DI ESFVI YMFVUHFI I DIVI I FCYGQ ESFVI YMFVUHFSI DIVI I FCYGQ ESFVI YMFVUHFSI DIVI I FCYGQ	MSLVVLAIERYWVVCKPMSHFR LUFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	REGENHA MIGMANT WEMA A CAAD PLVGWSRYIPEGMQCSCC DYYT BIS IN IN IN IN IN IN IN IN IN IN
 B taurus H amphibius E glacialis B mysticetus B physalus C marginata B musculus B acutorostrata 	I I DI GUI CUMILGI AL LGGA AL DI ESFVI YMFVVHFI I DIVI I FCYGQ ESFVI YMFVVHFSI DIVI I FCYGQ ESFVI YMFVVHFSI DIVI I FCYGQ ESFVI YMFVVHFSI DII I FCYGQ ESFVI YMFVVHFSI DII I FCYGQ ESFVI YMFVVHFSI DII I FCYGQ ESFVI YMFVVHFSI DII I FCYGQ	MSLVVLAIERYMVVCKPMSHFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	REGENHA MIGMMET WEINA ACAAD PLVGWSRYIPEGMQCSCC DYYT BIG WIN ::::::::::::::::::::::::::::::::::::
1. B taurus 2. H amphibius 3. E glacialis 4. B mysticetus 5. B physalus 6. C marginata 7. B musculus 8. B acutorostrata 9. B a scammoni	I I BUG FICCO I CITAL LGG AA DI ESFVIYMFVVHFIPIY I FCYGQ ESFVIYMFVVHFSIPIY I FCYGQ	MSLVVLAIERY WVVCKPMSHFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	REGENHA MGMM TW MAAAAAD PLVGWSRYIPEGMQCSCC DYYT GSE M
 B taurus H amphibius E glacialis B physalus C marginata B musculus B a scammoni P macrocephalus P more 	I I BUG DI COMILGI AL LOGI AL SI ESFVI YMFVVHFI I DIVI I FCYGQ ESFVI YMFVVHFSI DIVI I FCYGQ	MSLVVLAIERY WVVCKPMSHFR LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE LVFTVKEAAAQQQESATTQKAE	REGENHA MGCMM TW MAAAAAD PLVGWSRYIPEGMQCSCC DYYT GSEEMN ::::::::::::::::::::::::::::::::::::
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