

Supplementary Tables for

Evolution of the shut-off steps of vertebrate phototransduction

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Supplementary Table S1. Summary of transcripts examined

#	Comp.	Label on Figures	Accession number	aa's	Join	M	*	RPKM	RPKM -CDS
1	GRK1X	GRK1X G.australis 57773-1-1	MG063622	571		M	*	18.1	13.2
2	GRK1X	GRK1X M.mordax 42166-5-1	MG063623	569		M	*	37.1	32.5
3	GRK1A	GRK1A Western ray 41513-9-2	MG063624	564		M	*	104.7	107.5
4	GRK1A	[GRK1A Eastern ray 24652-2-1]	MG063625	564		M	*	13.8	13.3
5	GRK1A	GRK1A Bluespot ray 29212-2-1	MG063626	564		M	*	191.0	171.8
6	GRK1A	GRK1A Bamboo shark 8046-1-1	MG063627	565		M	*	270.5	315.7
7	GRK1A	GRK1A Reef shark 53758-1-1	MG063628	565		M	*	354.5	449.6
8	GRK1A	GRK1A Florida gar 24879-1-1	MG063629	563		M	*	248.2	206.8
9	GRK1A	GRK1A Bowfin 29529-1-1	MG063630	563		M	*	264.1	322.3
10	GRK1B	GRK1B Western ray 34447-1-1	MG063631	558		M	*	8.0	8.7
11	GRK1B	[GRK1B-Partial Eastern ray 22403-1-1]	MG063632	500		M		4.4	4.7
12	GRK1B	GRK1B Bluespot ray 4032-1-1	MG063633	558		M	*	37.3	41.0
13	GRK1B	GRK1B Bamboo shark 26651-1-1	MG063634	559		M	*	2.9	2.8
14	GRK1B	GRK1B Bowfin 26676-4-1	MG063635	561		M	*	21.1	21.8
15	GRK7	GRK7 Western ray 39734-1-1	MG063636	554		M	*	160.6	182.3
16	GRK7	[GRK7 Eastern ray 24666-1-1]	MG063637	554		M	*	184.0	58.1
17	GRK7	GRK7 Bluespot ray 37188-7-2	MG063638	554		M	*	62.6	75.3
18	GRK7	GRK7 Bamboo shark 35291-1-1	MG063639	552		M	*	339.8	466.6
19	GRK7	GRK7 Reef shark 15561-1-1	MG063640	555		M	*	384.3	437.0
20	GRK7	GRK7 Florida gar 30401-2-1	MG063641	550		M	*	27.2	27.2
21	GRK7	GRK7 Bowfin 27257-5-2	MG063642	551		M	*	73.6	111.4
22	GRK7-1	GRK7-1 G.australis 58623-2-1w1-2	MG063643	556	J	M	*	8.8	18.4
23	GRK7-1	GRK7-1 M.mordax 40500-6-1	MG063644	553		M	*	25.6	27.7
24	GRK7-2	GRK7-2 E.cirrhatus 127887-1-1	MG063645	549		M	*	40.7	55.0
25	GRK7-2	GRK7-2-Non-contig G.australis 26295-2-1w27699-1-1	MG063646	486	NJ			6.4	6.4
26	Arr-S1	Arr-S1 Western ray 26221-2-1	MG063647	390		M	*	1189.5	2436.4
27	Arr-S1	[Arr-S1 Eastern ray 41685-1-1]	MG063648	390		M	*	2745.4	687.7
28	Arr-S1	Arr-S1 Bluespot ray 30422-1-1	MG063649	390		M	*	3503.3	4155.8
29	Arr-S1	Arr-S1 Bamboo shark 45077-7-1	MG063650	384		M	*	2115.6	2268.8
30	Arr-S1	Arr-S1 Reef shark 55938-25-1	MG063651	383		M	*	2475.3	4997.8
31	Arr-S2	Arr-S2 Western ray 22644-1-1	MG063652	427		M	*	384.5	461.4
32	Arr-S2	[Arr-S2 Eastern ray 20756-1-1]	MG063653	427		M	*	125.2	175.0
33	Arr-S2	Arr-S2 Bluespot ray 31414-1-1	MG063654	420		M	*	746.8	852.2
34	Arr-S2	Arr-S2 Bamboo shark 28962-1-1	MG063655	422		M	*	931.8	1104.3
35	Arr-S2	Arr-S2 Reef shark 55253-10-3	MG063656	422		M	*	228.3	232.1
36	Arr-S	Arr-S Florida gar 22184-1-1	MG063657	391		M	*	1390.9	1199.4
37	Arr-S	Arr-S Bowfin 24232-1-2	MG063658	392		M	*	1527.0	2067.2
38	Arr-VY	Arr-VY E.cirrhatus 129805-1-1	MG063659	385		M	*	431.6	626.4
39	Arr-VY	Arr-VY G.australis 54008-1-2	MG063660	405		M	*	976.0	1170.1
40	Arr-VX	Arr-VX G.australis 59149-4-1	MG063661	392		M	*	988.0	1243.1
41	Arr-VX	Arr-VX M.mordax 42250-9-1	MG063662	391		M	*	921.9	1039.0
42	Arr-C	Arr-C Western ray 37242-1-1	MG063663	394		M	*	145.9	268.3
43	Arr-C	[Arr-C Eastern ray 20877-1-1]	MG063664	394		M	*	319.1	50.9
44	Arr-C	Arr-C Bluespot ray 36257-4-1	MG063665	394		M	*	198.7	205.3
45	Arr-C	Arr-C Bamboo shark 45371-8-2	MG063666	394		M	*	79.7	87.5

46	Arr-C	Arr-C Florida gar 15939-1-1	MG063667	388		M	*	1139.6	1172.2
47	Arr-C	Arr-C Bowfin 14016-1-1	MG063668	386		M	*	2604.9	3140.9
48	Arr-BX	Arr-BX-Partial G.australis 54326-4-1w1-1w2-3	MG063669	332	J		*	18.3	19.4
49	Arr-BX	Arr-BX-Partial M.mordax 41599-4-1	MG063670	243			*	46.7	49.8
50	Arr-BY	Arr-BY-Non-contig G.australis 41931-1-1w37543-2-1w1-1w53942-1-1	MG063671	354	NJ	M	*	5.5	6.1
51	Arr-BY	Arr-BY M.mordax 41599-5-1	MG063672	423		M	*	24.7	26.4
52	Arr-B1	Arr-B1 Florida gar 28267-2-1w1-11	MG063673	418	J	M	*	11.8	7.2
53	Arr-B1	Arr-B1 Bowfin 26818-1-6	MG063674	418		M	*	19.5	12.9
54	RGS9	RGS9 E.cirrhatous 137654-1-3	MG063675	498		M	*	128.9	156.7
55	RGS9	RGS9 G.australis 56905-1-2	MG063676	478		M	*	50.8	56.7
56	RGS9	RGS9 M.mordax 34174-1-2	MG063677	478		M	*	8.8	10.0
57	RGS9	RGS9 Western ray 41046-8-8	MG063678	490		M	*	23.1	25.4
58	RGS9	[RGS9-Non-contig Eastern ray 1867-2-1w1-1]	MG063679	478	NJ	M	*	3.2	3.3
59	RGS9	RGS9 Bluespot ray 37076-2-1	MG063680	490		M	*	83.9	96.6
60	RGS9	RGS9 Bamboo shark 45486-8-1	MG063681	490		M	*	51.1	56.1
61	RGS9	RGS9 Reef shark 51239-1-1	MG063682	491		M	*	70.6	81.9
62	RGS9	RGS9 Florida gar 21856-1-2	MG063683	489		M	*	112.7	85.9
63	RGS9	RGS9 Bowfin 26690-1-1	MG063684	487		M	*	74.5	60.7
64	RGS11	RGS11 E.cirrhatous 136920-1-2	MG063685	433		M	*	5.6	6.1
65	RGS11	RGS11 G.australis 47497-1-2	MG063686	419		M	*	13.0	15.7
66	RGS11	RGS11 M.mordax 39562-1-2	MG063687	413		M	*	2.8	6.2
67	RGS11	RGS11 Western ray 41178-3-3	MG063688	465		M	*	26.4	28.3
68	RGS11	[RGS11-Partial Eastern ray 22212-1-3]	MG063689	391			*	15.9	16.3
69	RGS11	RGS11 Bluespot ray 32308-1-2	MG063690	467		M	*	32.7	29.2
70	RGS11	RGS11 Bamboo shark 41815-1-3	MG063691	465		M	*	10.3	10.2
71	RGS11	RGS11 Reef shark 50711-1-1	MG063692	461			*	9.3	10.9
72	RGS11	RGS11 Florida gar 29521-1-2	MG063693	471		M	*	7.6	5.3
73	RGS11	RGS11 Bowfin 26311-1-2w1-5	MG063694	469	J	M	*	18.9	31.0
74	Gb5L	Gb5L E.cirrhatous 130391-1-2	MG063695	395		M	*	72.0	94.2
75	Gb5L	Gb5L G.australis 57438-2-2	MG063696	395		M	*	37.7	55.9
76	Gb5L	Gb5L M.mordax 41947-2-2	MG063697	395		M	*	30.5	33.2
77	Gb5L	Gb5L Western ray 37263-2-2	MG063698	395		M	*	127.0	137.6
78	Gb5L	[Gb5L Eastern ray 13249-1-1]	MG063699	395		M	*	141.0	17.3
79	Gb5L	Gb5L Bluespot ray 28709-1-1	MG063700	395		M	*	186.6	198.6
80	Gb5L	Gb5L Bamboo shark 37645-2-1	MG063701	395		M	*	90.0	95.6
81	Gb5L	Gb5L Reef shark 40872-1-1	MG063702	395		M	*	221.0	252.4
82	Gb5L	Gb5L Florida gar 16504-1-1	MG063703	395		M	*	102.4	66.4
83	Gb5L	Gb5L Bowfin 22627-1-1	MG063704	395		M	*	41.0	77.3
84	R9AP	R9AP E.cirrhatous 138946-5-1	MG063705	246		M	*	7.7	4.7
85	R9AP	R9AP G.australis 56404-2-1	MG063706	238		M	*	7.9	9.8
86	R9AP	R9AP M.mordax 41679-5-1	MG063707	243		M	*	16.0	12.7
87	R9AP	R9AP Western ray 30726-1-1	MG063708	244		M	*	19.6	30.0
88	R9AP	[R9AP Eastern ray 17388-1-1]	MG063709	244		M	*	25.9	21.9
89	R9AP	R9AP Bluespot ray 25945-2-2	MG063710	238		M	*	41.4	51.9
90	R9AP	R9AP Bamboo shark 37642-1-1	MG063711	239		M	*	8.7	9.7
91	R9AP	R9AP Reef shark 40575-1-1	MG063712	234		M	*	4.8	5.5
92	R9AP	R9AP Florida gar 28835-2-1	MG063713	238		M	*	27.3	52.3
93	R9AP	R9AP Bowfin 1668-1-1	MG063714	238		M	*	36.0	63.4

94	R9AP-B	R9AP-B Western ray 39739-1-1	MG063715	254	M	*	21.0	46.2
95	R9AP-B	[R9AP-B Eastern ray 23740-1-1]	MG063716	254	M	*	31.2	4.0
96	R9AP-B	R9AP-B Bluespot ray 37118-18-1	MG063717	254	M	*	41.7	58.7
97	R9AP-B	R9AP-B Bamboo shark 45543-9-1	MG063718	255	M	*	59.7	112.8
98	R9AP-B	R9AP-B Reef shark 612-1-1	MG063719	254	M	*	140.0	213.4
99	R9AP-B	R9AP-B Florida gar 25574-1-1	MG063720	254	M	*	44.2	41.7

Notes, and explanation of columns

Column 3, 'Label on Figures': Sequences are indicated '-Partial' if they included fewer than 95% of the expected residues. Entries in square brackets do not appear in phylogenies because the protein sequence was identical to another sequence included in the tree; for example, all entries for Eastern ray were omitted in favour of the identical protein sequences for Western ray.

Column 6, 'Join': An entry 'J' indicates that the sequence was manually joined from more than one contig. These joined sequences overlapped, except where indicated 'NJ' for a non-contiguous join.

Column 7: An entry 'M' indicates that the sequence started with a Met.

Column 8. An entry '*' indicates that sequence ended with a stop codon.

Column 9: RPKM = Reads per kilobase per million mapped reads.

Column 10: RPKM-CDS = Same, but calculated across only the coding region of the transcript.

GRK7 Human NP-631948	M	---	VDMGALDNLIA	NTAYLQARKPSDCD	---	SKELORR	-RRSLALPGL	---	QGC	-AELRQKL	---	S	---	LNPH	57								
GRK7 Cattle NP-776757	M	---	VDMGGLDNLIA	NTAYLQARKSSDAD	---	SKELORR	-RRSLMLPGP	---	QSC	-EQLRQAL	---	A	---	TDFH	57								
GRK7 Opossum XP-001364799	M	---	VDMGGLDNLIA	NTAYLQARNIGDGD	---	TKEMQKR	-RRSLALPTP	---	ENC	-TELROVL	---	P	---	PHFE	57								
GRK7 Tasmanian devil XP-003766156	M	---	LDGGLDNLIA	NTAYLQAR	---	DGD	---	TKEMQKR	-RRSLALPAR	---	EHC	---	P	---	THFE	53							
GRK7 Chicken XP-4266681	M	---	CDMGGLDNLIA	NTAYLQARKSGEGD	---	TKEMQKR	-RKSLSLPKI	---	DOC	-GEVRSQI	---	A	---	ADVE	57								
GRK7 Pigeon XP-005505950	M	---	CDMGGLDNLIA	NTAYLQARKSGEGD	---	TKEMQKR	-RKSLSLPKI	---	DOC	-GEVRSQV	---	V	---	ADVD	57								
GRK7 Ground-tit XP-005527115	M	---	CDMGGLDNLIA	NTAYLQARKSGEGD	---	TKEMQKR	-RKSLSLPKI	---	EEC	-SOHRESI	---	A	---	GDYD	57								
GRK7 Anole XP-003218299	M	---	CDMGGLDNLIA	NTAYLNARKSGVD	---	AKELQKR	-WRVLALPKI	---	EEC	-AAIKESI	---	H	---	MDYN	57								
GRK7 Gecko XP-015268958	M	---	CDMGGLDNLIA	NTAYLQARKSGDAE	---	NKEIQKR	-RKSLALPRI	---	DEF	-TELRSNI	---	K	---	VEYE	57								
GRK7 Xenopus NP-001120573	M	---	CDMGGLDNLIA	NTAYLQARKNSEGD	---	AKELQKR	-RKSLSLPPP	---	DVSRKEIKETI	---	H	---	H	---	LDYQ	58							
GRK7 Nanorana XP-018415869	M	---	CDMGGLDNLIA	NTAYLQARKSSEGD	---	LRELQKR	-RKSLSLPPT	---	DVCRKEIKDI	---	P	---	V	---	VDFQ	58							
GRK7 Florida gar 30401-2-1	M	---	CDMGGLDNLIA	NTAYLQARKSGDGD	---	TKEMQKR	-RRSLSLPKP	---	EOC	-VELRQKI	---	E	---	MNFE	57								
GRK7 Bowfin 27257-5-2	M	---	CDMGGLDNLIA	NTAYLQARKSGDGD	---	GKEMQKR	-RRSLALPKI	---	DOC	-AELRQNM	---	D	---	KNFE	57								
GRK7a Zebrafish NP-001027011	M	---	CDMGGLDNLVANT	AYLKAQGG	---	D	---	DKEMKKR	-RRSLSLPKP	---	EOC	---	D	---	KDFE	54							
GRK7a Medaka NP-001098131	M	---	CDMGGLDNLVANT	AYLKAQGG	---	D	---	DKEMKKR	-RRSLSLPKP	---	EOC	---	E	---	KDFI	54							
GRK7b Zebrafish NP-001028262	MS	---	DMGGLKLVANT	DYLLKAQSL	---	D	---	EKEIKKR	-RCSLGLPHL	---	GNC	---	S	---	KGFE	54							
GRK7b Medaka XP-004075863	MS	---	MSSSLVICLLPF	NMHPHDSPPKAD	---	PAGLES	LVVNTAYLKGQAG	---	RNEQMR	-RESLILPNI	---	KKS	---	TAPRAGA	74								
GRK7 Reef shark 15561-1-1	M	---	CDMGALDNLIA	NTVYLQARKSVDGD	---	AKEMRKR	-RKSLVLPNI	---	QOS	-ASVRDKI	---	D	---	VDFE	57								
GRK7 Bamboo shark 35291-1-1	M	---	CDMGALDNLIA	NTVYLQARKSVDGD	---	FKEMRKR	-RQSLALPSH	---	QOS	-ASVKONI	---	D	---	IITYE	57								
GRK7 Bluespot ray 37188-7-2	M	---	CDMGALDNLIA	NTIYVQARKSIDGD	---	IKEMRKR	-RQSLFLPSH	---	AQC	-VSVKQSI	---	D	---	IITYE	57								
GRK7 Western ray 39734-1-1	M	---	CDMGALDNLIA	NTVYLQARKSVDGD	---	IKEMRKR	-RQSLFLPNI	---	AQC	-VSVKONI	---	D	---	VEYE	57								
GRK7 Elephant shark XP-007891889	M	---	CDMGGLDNLIA	NTAYLQARKSVDGD	---	IKEMQKR	-RRSLSLPSR	---	DOC	-IELRQKI	---	C	---	VEYE	57								
GRK7-1 M.mordax 40500-6-1	M	---	CDMGALDNLIA	NTAYLEARKSGDGG	---	SKEAARR	-RRSLALPSP	---	TKC	-KSLYKSI	---	K	---	KDSNLEYD	60								
GRK7-1 G.australis 58623-2-1w1-2	M	---	CDMGALDNLIA	NTAYLEARKSGDGG	---	AKEMARR	-RKSLALPPP	---	AQC	-BSLRKSA	---	A	---	DDPSLDYQ	60								
GRK7-1 P.marinus S4RD08	M	---	CDMDCLDNLIA	NTAYLEARKSGDGG	---	TRD	---	KA	-RRSIVLPTL	---	TOC	---	R	---	PDSSVDYQ	58							
GRK7-2 Non-contig G.australis 26295-2-1w27699-1-1	M	---	---	LIANTAYLEARKTIGDGA	---	GGGGKKR	-RCSALPGPRGARC	---	AELRAIV	---	RGT	---	E	---	ESYA	52							
GRK7-2 P.marinus S4RL90	M	---	CDL	GALDNLIA	NTAYLEARKSGDGA	---	GGSGKKR	-RCSMVLPGPRGAC	---	ADMRTKV	---	AGT	---	QTYA	61								
GRK7-2 L.camtschaticum JL9580	M	---	---	L	GALDNLIA	NTAYLEARKSGDGA	---	GGSGKKR	-RCSMVLPGPRGAC	---	ADMRTKV	---	AGT	---	QTYA	58							
GRK7-2 E.cirrhatum 127887-1-1	M	---	CDL	GGLDNLIA	NTAYLQARKSTDAG	---	VGG	-SKR	-RRSLALPSP	---	AKC	---	H	---	LSFA	56							
GRK-Trimmed C.intestinalis XP-009860997																							
GRK-Partial C.savignyi H2YPC9																							
GRK1X M.mordax 42166-5-1			MDI	GGLET	VVANSAYVAARGD	VDD	---	GGSGGRDR	KMRARLKLPHV	---	LOI	---	E	---	EARARTLALHPEPSNPS	68							
GRK1X G.australis 57773-1-1			MDI	GGLET	VVANSAYVAARGD	VDDGG	---	GGSGGRDR	KMRARLKLPHV	---	LRI	---	E	---	EVRRARVVQTHPEPAEPA	70							
GRK1X-Partial L.camtschaticum JL8961																							
GRK1B Chicken NP-990026			MDI	GGLET	VVANSAYVSARGG	---	G	---	PGGSARDR	KHRARLKLPHI	---	SOC	---	E	---	ALRARLAGGGLONGV	AQDDGGPKODGGPKODGGKODGG	GEEH	---	ASFR	92		
GRK1B Ground-tit XP-005533433			I	GGLET	VVANSAYVSARG	---	G	---	PGGGKDRR	SARLKLPHI	---	SOC	---	E	---	ALRAQLGGAGAONG	---	GPGAPNGAPPHTODGGD	---	TSFR	79		
GRK1B Golden eagle XP-011599401			MDI	GGLET	VVANSAYVSARG	---	G	---	PGASGRDR	RQARLKLPHI	---	TOC	---	E	---	ALRARLGGGHPGGTHGAGGGGAQNGGGGGPDGVAAGGGL	---	AGED	---	ASFR	92		
GRK1B Turtle XP-006112219			MDI	GGLET	VVANSAYVSARGSDAS	---	AASTLRDK	KKMRAKLKLPHI	---	TOC	---	EHLKDDQ	---	D	---	---	---	---	---	LNFO	59		
GRK1B Anole XP-003228556			MDI	GGLET	VVANSAYVSARGD	---	G	---	GPSTGRDK	KKMRAKLKLPHI	---	TOC	---	EHLKDL	---	D	---	---	---	LDFN	56		
GRK1B Bearded dragon XP-020665279			MDI	GGLET	VVANSAYVSARGE	---	G	---	GPSGRDK	KKMRAKLKLPHI	---	TOC	---	EHLKDL	---	D	---	---	---	LSFN	56		
GRK1B Spotted gar XP-006627541			MDI	SGLET	VVANSAYVTAARGSDGG	---	MAATMRD	KKMRARLKLPHI	---	QVC	---	D	---	H	---	DMKATV	---	---	---	TGFE	59		
GRK1B Bowfin 26676-4-1			MDI	GGLET	VVANSAYVAARGSDGN	---	AAATMRD	KKMRARLKLPHI	---	TVC	---	E	---	H	---	HMKSIV	---	---	---	OSFE	59		
GRK1B Pike XP-010901292			MDM	GGLOIVANSAYVSARGSDGA	---	SASAMRD	KKFRAKLKLPHI	---	TKC	---	D	---	---	---	---	MMKTIIV	---	---	---	SAFE	59		
GRK1B Asian bonytongue XP-018581705			MDI	GGLET	VVANSAYVSARGSLDGN	---	AAATMRD	KKMRARLKLPHI	---	KQC	---	E	---	H	---	EMKTIIV	---	---	---	SVFD	59		
GRK1B Zebrafish NP-0010171711			MDI	GGLET	VVANSAYVSARGSIDGA	---	AAATMRD	KKYRSKLNLPHI	---	ROC	---	D	---	---	---	OMKTIIV	---	---	---	TSFD	59		
GRK1B Bamboo shark 26651-1-1			MDF	AGLET	VVANSAYLAARSGIDSH	---	LAFAMOD	RRMRARLKLPPV	---	SOC	---	Q	---	P	---	TEGEM	---	---	---	LTFE	59		
GRK1B Bluespot ray 4032-1-1			MDF	GGLET	VVANSAYVAARSSMDAG	---	SALAVRD	KKMRARLKLPPV	---	SRC	---	Q	---	A	---	LROEL	---	---	---	CSFR	59		
GRK1B Western ray 34447-1-1			MDF	GGLET	VVANSAYMAARSSMDSN	---	SALTMRD	KKMRARLKLPPV	---	AQC	---	D	---	---	---	QLRKEI	---	---	---	LTFQ	59		
GRK1A Human NP-002920			MDF	GSLET	VVANSAFIAARSGFDGS	---	SSQPSR	DKKYLAKLKLPLP	---	SKC	---	E	---	L	---	LRDSL	---	---	---	LEFE	59		
GRK1A Cattle NP-776598			MDF	GSLET	VVANSAFIAARSGFDAS	---	SGPASR	DRKYLAKLKLPLP	---	SKC	---	E	---	L	---	LRDSL	---	---	---	LGFE	59		
GRK1A Opossum XP-001364656			MDF	GSLET	VVANSAFIAARSGFDASGSSHL	---	SRDKKYF	SKLKLPLP	---	SKC	---	E	---	L	---	LRDSL	---	---	---	LDFE	60		
GRK1A Tasmanian devil XP-003765754			MDF	GSLET	VVANSAFIAARSGFDASGSSHL	---	ARDKKYF	SKLKLPLP	---	SKC	---	E	---	L	---	LRDSL	---	---	---	LDFE	60		
GRK1A Xenopus XP-002937018			MDF	GALET	VVANSAYITARGSDGGFN	---	POITRN	KKYRARKLKLPLP	---	SEC	---	D	---	---	---	EHLKDKL	---	---	---	LOFE	60		
GRK1A Nanorana XP-018428616			MDF	GALET	VVANSAYITARGSDGGFN	---	POITRN	KKYRARKLKLPLP	---	SDC	---	D	---	---	---	EHLKDKL	---	---	---	LEFD	60		
GRK1A Florida gar 24879-1-1			MDI	GGLET	VVANSAYISARASFDGSSNA	---	ANRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EDLKDQL	---	---	---	LEFD	60		
GRK1A Bowfin 29529-1-1			MDI	GGLET	VVANSAYISARASFDGSSNA	---	ATRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EDLTKI	---	---	---	LEFD	60		
GRK1A Zebrafish NP-001029353			MDI	GGLET	VVANSAYISARGSDGTAN	---	PANRD	KKYRSKLNLPHI	---	TVC	---	D	---	---	---	EDLRETL	---	---	---	LOFR	60		
GRK1A-1 Medaka NP-001188419			MDI	GGLET	VVANSAYISARGSDGTAN	---	PANRD	KKYRSKLNLPHI	---	TVC	---	D	---	---	---	EGLRETL	---	---	---	LGFO	60		
GRK1A-2 Medaka XP-004081538			MDI	GGLET	VVANSAYINARGSDGN	---	SNPAT	ARDKKYRSKLNLPHI	---	TVC	---	D	---	---	---	EGLKDL	---	---	---	LAPD	59		
GRK1A Reef shark 53758-1-1			MDL	GNLET	VVANSAYISARGSDGSAN	---	LOMTRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EHLKDKI	---	---	---	VEFE	60		
GRK1A Bamboo shark 8046-1-1			MDL	GSLOT	VVANSAYISARGSDGSAN	---	LOMTRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EHLKDKI	---	---	---	LEFE	60		
GRK1A Bluespot ray 29212-2-1			MDL	GSLOT	VVANSAYISARVTFDGPSSV	---	OMTRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EHLKDKI	---	---	---	LAFE	60		
GRK1A Western ray 41513-9-2			MDL	GSLOT	VVANSAYISARGSDGTAN	---	OMTRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EHLKDKI	---	---	---	LEFE	60		
GRK1A Elephant shark XP-007889799			MDI	GGLET	VVANSAYISARGSDGNTAN	---	VMTRD	KKYRAKLKLPHI	---	TOC	---	D	---	---	---	EHLKDKI	---	---	---	LEFE	60		
GRK C.intestinalis XP-009859302	M	---	MDME	-LENIVANT	VYLLKAREGGGK	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	PEYI	57	
GRK B.floridae XP-019631688			ME	-LENIVANT	VYIKAREGGGK	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	CDYI	54
GRK B.floridae XP-002608270			MK	-HEVL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	CDYI	12
GRK6 Human NP-002073			ME	-LENIVANT	VLLKAREGGGK	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	RDYI	54
GRK5 Human NP-005299			ME	-LENIVANT	VLLKAREGGGK	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	RDYI	54
GRK4 Human NP-892027			ME	-LENIVANS	LLLKAREGGYK	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	KDYS	54

1.....10.....20.....30.....40.....50.....60.....70.....80.....90.....100.....110.....120.....

GRK7 Human NP-631948
 GRK7 Cattle NP-776757
 GRK7 Opossum XP-001364799
 GRK7 Tasmanian devil XP-003766156
 GRK7 Chicken XP-246681
 GRK7 Pigeon XP-005505950
 GRK7 Ground-tit XP-005527115
 GRK7 Anole XP-003218299
 GRK7 Gecko XP-015268958
 GRK7 Xenopus NP-001120573
 GRK7 Nanorana XP-018415869
 GRK7 Florida gar 30401-2-1
 GRK7 Bowfin 27257-5-2
 GRK7a Zebrafish NP-001027011
 GRK7a Medaka NP-001098131
 GRK7b Zebrafish NP-001028262
 GRK7b Medaka XP-004075863
 GRK7 Reef shark 15561-1-1
 GRK7 Bamboo shark 35291-1-1
 GRK7 Bluespot ray 37188-7-2
 GRK7 Western ray 39734-1-1
 GRK7 Elephant shark XP-007891889
 GRK7-1 M.mordax 40500-6-1
 GRK7-1 G.australis 58623-2-1w1-2
 GRK7-1 P.marinus S4RD08
 GRK7-2 Non-contig G.australis 26295-2-1w27699-1-1
 GRK7-2 P.marinus S4RL90
 GRK7-2 L.camtschaticum JL9580
 GRK7-2 E.cirrhatum 127887-1-1
 GRK-Trimmed C.intestinalis XP-009860997
 GRK-Partial C.savignyi H2YPC9
 GRK1X M.mordax 42166-5-1
 GRK1X G.australis 57773-1-1
 GRK1X-Partial L.camtschaticum JL8961
 GRK1B Chicken NP-990026
 GRK1B Ground-tit XP-005533433
 GRK1B Golden eagle XP-011599401
 GRK1B Turtle XP-006112219
 GRK1B Anole XP-003228556
 GRK1B Bearded dragon XP-020665279
 GRK1B Spotted gar XP-006627541
 GRK1B Bowfin 26676-4-1
 GRK1B Pike XP-010901292
 GRK1B Asian bonytongue XP-018581705
 GRK1B Zebrafish NP-001017171
 GRK1B Bamboo shark 26651-1-1
 GRK1B Bluespot ray 4032-1-1
 GRK1B Western ray 34447-1-1
 GRK1A Human NP-002920
 GRK1A Cattle NP-776598
 GRK1A Opossum XP-001364656
 GRK1A Tasmanian devil XP-003765754
 GRK1A Xenopus XP-002937018
 GRK1A Nanorana XP-018428616
 GRK1A Florida gar 24879-1-1
 GRK1A Bowfin 29529-1-1
 GRK1A Zebrafish NP-001029353
 GRK1A-1 Medaka NP-001188419
 GRK1A-2 Medaka NP-004081538
 GRK1A Reef shark 53758-1-1
 GRK1A Bamboo shark 8046-1-1
 GRK1A Bluespot ray 29212-2-1
 GRK1A Western ray 41513-9-2
 GRK1A Elephant shark XP-007889799
 GRK C.intestinalis XP-009859302
 GRK B.floridiae XP-019631688
 GRK B.floridiae XP-002608270
 GRK5 Human NP-002073
 GRK5 Human NP-005299
 GRK4 Human NP-892027

SLCEOOPIGRRLFRDFLA-TVPRKAAATFLEDVQNWELAEEGP---TKDSALQGLVATCA-SAPAPGN--POPFLSQAVATKCOAA-----TTEEERVAAV-TLAKAEAMAFLO-EG 161
 SLCEOOPIGRRLFRDFLA-TVPAYQEARGFLEEVQSWELAEEGP---AKGSALQGLVITCA-AAPVPGR--PHPPFSPALVTKCOAA-----TDDDRASLV-ELAKAEVMAFLO-DC 161
 SLCEOOPIGRRLFRDFLA-TVPSYKAVDFLGEVSTWELAEEDG---TKDSTLKKLVNACA-QASAPFG--QLPFPSPALATRCQVA-----SEKHEASLV-GLAKAEMAFLO-DC 160
 SMCEOOPIGRRLFRDFLA-TVPAYKVAVDFLAEVSSWELAEEGS---TKDSTLRGLVQLCA-QAIPFG--QLPFPSPALATRCQVA-----SETEHASLV-ELAKAEMAFLO-DC 155
 SICEOOPIGKRFRDFDLE-TVPENLVARDFLEDEVSNWEL-AEDN---LKSSTMENIIVTNFL-KTGS-KN--YLSFMSSDLVSKCQAA-----HAKDEVNVV-QLARDEAKVFLR-GK 158
 SICEOOPIGKRFRDFDLE-TVPEYLVAKGFLEDEVSNWEL-AEDN---AKTSTIMENIIVDFL-KTGS-KN--YLSFMSSDLVSKCQAA-----LAKDYENIV-QLAKEETKAFILR-DK 158
 SICEOOPIGKRFRDFDLE-TVPEYLVARDFLEDEVSNWEL-AEDS---LKSSTMENIIVTNFL-KEGA-KN--YLSFMSSDLVSKCQAA-----AAKDYENIM-QLAKEETKVFVK-DK 158
 AICEOOPIVGKFFGFEGLE-TVPEYLVAKEFMDEVWEL-AEDN---VKNLSLEGTIIMNYL-KNVS-NS--FLKFLSDALSNKCOQV-----SKDDFEKIV-VLSARETINTEYLK-GK 158
 HICEOOPIGRRLFRDFEFLV-SVPEYRLASEFLDEADGWEL-AEDK---IKSSILLEGVLNMYL-KNIS-NS--YLFKFLSDLLAKKCOAA-----TKNDFEIV-FLAMEEAKAFILR-BE 158
 SICVBOPIGRRLFRDFDLE-TVPEYKLAEEFLEEVKDWEL-EGSS---AKEQLMEKLVSRFF-KEPA-GE--SLNLFKGLDLSRIQKG-----QSKDMPLEI-MLAKKAGAFILM-DA 159
 SICVBOPIGRRLFRDFDLE-TVPEYLVVQEFLEDEVNDWEL-EGSS---AKEQLLVLMIKRFF-KQDS-GB--RLLPCFSDLLSKRFQNA-----GABEIPFMV-LLAKDEANAYLIG-KE 159
 NLCEOOPIGKLLFRQFTA-TVPEYQVAIDFLELNNWDL-AEST---SKDNLRQNIITTSFL-KPDS-KN--FIAMLCALAEKCKNV-----TEKDFEEVM-EKAKEETRNFLK-GK 158
 SLCEOOPIGKLLFRQFAA-TLPPVYQVAVDFLELNNWDL-AESN---SKDNLRQNIITTSFL-KPDS-KN--FLSFLSPGLADKCOV-----TEKDFEEVT-TKAKEETRNFLK-GK 158
 SLCEOOPIGKLLFRQFLA-SGGPECTTAAEFLLDLNEWEL-ESAA---ARDKARTNIINKFC-KEGS-KS--SLTFLTGDDVATKCAV-----SKDDFEVVM-GQVKTATKFLK-GK 156
 LLCEOOPIGKLLFRQFLA-NLPEFKLAAEFLELDVWDL-AEGA---AKDKARONIINKFC-KPDS-KT--FLTFLSGEPAEKCKSV-----TDATFEEVVMKGVGVRFEFLK-GK 156
 DICCEOOPIGRACFRQFLVSSPEYLAALAEFLDELNCWNL-AEAE---AKEEARLNIINKFC-KADS-KS--FLAFLETDEAEKCKAV-----SEKDFEEVVMKGVKATQKFLR-GQ 157
 WLCELOPIGKLLFRQFLMISDPORAAAAVFLQELDDWSF-AEDA---HKEKVRQRIILAKFC-HPOS-QT--FLSYLTED-SNLCRTL-----SVKSLDEETVQKITNATKDFLK-GK 176
 NVCEOOPIGKLLFRQFTA-TVPEYQVAVDFVNAVDFQL-AENG---AKDNLRQNIIVTNFL-KADS-KN--YLSFLSQELAAKCKDA-----AEKDVEELL-ALAOSETNIFLM-GQ 158
 SVCEEROPIGKLLFRQFTA-TVPEYQGAVEFVNEVDVFL-AEDG---VKDNLRQNIIVTNFL-KPDS-KN--YLSFLSQDLADKCKDA-----TEKDFEELL-PMAQAEVRMFLA-GC 158
 TVCEOOPIGKLLFRQFLA-TVPEYRVAVDFINEVSNFYL-AENG---DKNLRQNIIVTNFL-KPDS-KN--YLSFLSQELGDKCKAA-----TEKTEEELL-PLASEAKMFLK-BH 158
 TVCEOOPIGKLLFRQFLA-TVPEYQVAVDFINEVSNFYL-AENG---VKNLRQNIIVTNFL-KPDS-KN--YLSFLSQDLVWCKTA-----AEKSEELL-ARASEAKMFLK-GQ 158
 DVCEOOPIGKLLFRQFLA-TVPEYRGIAITFDVAVSKFEL-ADDD---GSRGGLLAVVAVFL-RAGS-VK--RLIFVSNELAAKAESS-----DANEQBAAI-FLARQEMRTFLS-GA 161
 AVCEOOPIGKLLFRQFLA-SOPRYAGVITFDVAVTRFEL-AEDN---GSRGGLLGEALVFL-LADS-DT--KLAFVSNALAAKAASS-----DAGEREAAI-FLARQEMRTFLS-GA 161
 SLCEAOPIGRRLFRFLEL-SOPVYSSVAADFADAAKFL-EDDG---GGGGGARGAMLEALAAFL-RRDS-GE--RPAFVSESLAATAGSS-----DAAEREAAI-ALAKREMTFLS-GA 162
 GLCEBOPIVGRLLFRFLFAG-GVPEYRRVAFEFABEAERQFL-AEDG---AREGLAAATVAAFL-RADA-GB--FLAFVSESLAALAAVSA-----GPEBAEELV-RRAGDETRRFLT-GP 153
 GLCEBOPIVGRLLFRFQFAG-GVPEYRAVAFEFLEAEQVQL-EDDG---AREGLAGATVAAFL-RADS-ER--SLTFLSALAAVASA-----GGREAEELV-RRAREARLFLV-GQ 162
 GLCEBOPIVGRLLFRQFAG-GVPEYAAHAFEFLEAEQVQL-EDDG---AREGLAAATVAAFL-RADS-ER--SLTFLSALAAVASA-----GGVEEELV-RRAREARLFLV-GQ 159
 SECEBOPIGRLLFRHFCN-SVAEYSRALAFLDQVVELEL-AEDN---MONALLCKIVADFL-QPDS-EN--SLSFLSDAMTSAASGA-----SEVDMKELV-PRAOQETROFLM-GK 157

RVCNLEPIGRLLFRQFLD-TQKEFRPAGQLLQACEDMDM-SEDS---EKPEAAKQIVAEHMGDKNA-AS--FCPFLSAAAASARAN-----GS-----F-ABALAEITLHLR-AH 164
 RVCNLEPIGRLLFRQFLD-TNHEFRPAGQLLQACEDMDM-SEES---EKPKRAQIAVAHMDKKNP-SS--FCAPLSAAAABARAR-----GS-----F-DETLAETAEYLR-SR 166
 -----MBAARAR-----GS-----F-ABALAEITLHLR-SR 24
 WQCVBOPIGKLLFRQFLA-ATPGLAAAGALWEELEAFEC-CEEG---ERSAAAAIRKRFV-TEGG-AE--HCAFLSAAAAPPAD-----GAPDD--F-EPTRRELLAHLE-GT 190
 WQCVBOPIVGGKLLFRFLE-GAPFEAAAAGALWSEIEAFER-CEDA---EREASAKRLRSRFF-TPGG-SE--HCGFLSAAAAPPAGT-----MPGDA--F-AQARRELLAHLE-AA 178
 WQCVBOPIGKLLFRQFLA-GAPFLAAAAGALWAEIAYER-CEEA---ERSGAAAATVRRFF-TPGG-AE--HCFSLSAAAAPPAGE-----APPDT--F-GAARRELLAHLE-AV 190
 SICLRBOPIGKLLFRQFLA-DGAFKAAAAGLWKSMEEYAA-SEEN---ERTOKAQTIVNQFF-DSAS-KT--FCSELEKVVVMRKED-----AKHGRADLF-KESEQHLKHLK-DC 160
 FICVROPIGKLLFRQFLA-ETDEFKAAAGLWKSIEEDYNT-SEEA---DRPKVAQSVNKYF-DSAS-KE--FCSELEKATMRVKED-----AKNGRADLF-KESEQHLKLYLE-AN 157
 FICVROPIGKLLFRQFLA-ETDEFKAAAGLWKSIEEYNT-SEEP---ERPKAQAQSVNKYF-DSAS-KE--FCSELEKATMRVKED-----KKGHGDLF-KESEQHLKHLK-ER 157
 NMCIROPIGKLLFRQFLA-SEAFKTAGTLWKDIEDYNT-AEEK---DRPKAQAQSVNKYF-DSAS-KT--FCGFLSEKATMRVKED-----HKNGRDLF-KESEQHLKHLK-BA 160
 VMCIKMPOPIGKLLFRQFLA-SEDLKTAGNLWKDIEDYNT-AEEK---DRAKQAQSVNKYF-DSAS-KN--FCSELEKATMRVKED-----HKNRADLF-KESEQHLKHLK-NK 160
 SMCVROPIGKLLFRQFLA-SEATHKNAELWKMDEEYNT-AQET---DRMOKAQAQSVNKYF-ESQS-KN--FCGFLSEKATMRVKED-----HKNRADLF-KESEQHLKHLK-AK 160
 SMCVROPIGKLLFRQFLA-DDAVHKASAGELWKDIEDYNT-AQEK---DRLQKAQAQSVNKYF-DSAS-KN--FCSELEKATMRVKED-----HKNVGRDLF-KESEQHLKHLK-AT 160
 SMCVROPIGKLLFRQFLA-SEADYKNPVLDWKDIEDYIV-AQEN---DRAKQAQAQSVNKYF-ESSS-KN--FCDFLQKAVSRVKED-----FKNIRGDLF-KESEQHLVHLK-AK 160
 SICCOPIVGGKLLFRQHLR-STEQFKMAAGLWQVMEDYNSRLEEA---EHIPLALITVHOYV-DPDS-RD--FCSELEDAIARVHEV-----ARLGKDLF-RESEQLLSYLE-AQ 161
 SICROPIGKLLFRQFLA-ASTCFHMAASLWQVVEEYGT-MEES---GRVPKAQAQSVNKYF-EPSS-RD--FCSELEDEKTVLRVKED-----HPNGHALF-RESEQLLLAYLE-AQ 160
 SICROPIGKLLFRQFLA-GSGHFQVAARLWQDMEDYST-MEEF---GRVAKAQAQSVNKYF-ESGS-RE--FCSELEDEKTVLRVKED-----QNGGHALF-RESEQLLSYLE-SQ 160
 SMCVBOPIGKLLFRQFLA-SAEKHLPALELWKDIEDYNT-ADND---LQPKQAQILQAYL-DPQA-KL--FCSELEDEGIVAKFKEG-----PVETQDGLF-QPLQATLAHLG-GA 160
 GMCLBOPIGKLLFRQFLA-THECHGPALELWKDIEDYNT-ADDA---LRPKQAQALRAAYL-EPQA-QL--FCSELEDAETVARARAG-----AGDGLF-QPLRAVLAHLG-AQ 157
 NICSBOPIGKLLFRQFLK-SIQHVPVAVELWRDIEDYNT-ADND---FRLQKAQAAILANYL-DPKA-KL--FCSELEDEGIVAKFKEG-----HSSIFNGLF-QPLQATLAHLG-GA 161
 NICSBOPIGKLLFRQFLK-NEEQHVPVAVELWRDIEDYNT-ADND---FRLQKAQAAILANYL-DPNA-KL--FCSELEDEGIVAKFKEG-----HSSIFNGLF-QPLQATLAHLG-GA 161
 NICVROPIGKLLFRQFLA-SAE-FTHIVEIWNIDIEDYV-AEDE---DRLYKARGIINKYV-DSDS-KQ--FCHYLDEKAIKVVOD-----CNKVNMLF-QPLHKSATLDYLK-EN 160
 NICVROPIGKLLFRQFLA-TVQFVPALEIWDIEDYV-AEDE---DRLQKAVGIINKYV-ETHS-KY--FCTYLDKAIKVVOD-----CNKVPDGLF-KELLOSLLDYLK-EN 161
 SICCOBOPIGKLLFRQFLA-TVPOYKPAKLLWKDIEDYNT-AEDK---DRVQKASKIISRYM-ESDA-KQ--FCSELEGSTISKVKEE-----HOMAKDDL-FVESLEGLTAFILR-DL 161
 SICNBOPIGKLLFRQFLA-TVPEYKPAKLLWKDIEDYNT-AEDK---DRVQKASKIISRYM-VSTA-KH--YCSFLEQNTIVKVEE-----HOMAKDDL-FVESLEGLTAFILR-DL 161
 SICVBOPIGKLLFRQFLA-TVPEYKGPCLRWDRVVEEYNT-AEDK---DRTQKAAKILQRYM-EPBA-KH--FCFPLENGITKVKER-----HQAEDDLF-VETLACVDFDLK-EV 161
 TVCVOPIGKLLFRQFLA-SINEYKGPCLRWDRVVEEYNT-AEDE---DRAKKAQKILQRYM-EPDA-KH--YCPFLPENGITKVKER-----HKAEDDLF-SETMDSVMDFLK-EV 161
 SMCVBOPIGKLLFRQFLA-ANQYHGACRLWKDIEDYNT-AEDS---ERAKKASKIIVQRYM-DPBA-KH--FCFPLEDITAKVKN-----LEVVGDDL-AAAALAKTLDYLR-BA 160
 NICKBOPIGKLLFRQFLA-TVAAAYKPAVELWKGIEDYNT-AEDE---DRLQIAQSIIISKFL-ESGA-EF--FCSELEKSTISRAKED-----YKNVREDLF-KECKEATVFKLKEG-AK 162
 SICVROPIGKLLFRQFLA-SVAEYKPAVELWKAIEVYNT-AEDE---DRLEKARNIIISKFL-ESGA-EL--FCTYLDKSTISRAKED-----CENVREDLF-RECKEATVFKLKEG-AK 162
 SICIROPIGKLLFRQFLA-TLADYKPAVELWKGIEDYNT-AEDE---ERVQKAQIIISKYL-ETGA-EL--FCSELEDEKSTISRAKED-----CENVREDLF-RECKEATVFKLKEG-AK 161
 SICVROPIGKLLFRQFLA-TVAEYKPAVELWKGIEDYNT-AEDE---ERIQKARDIISKYL-ESGA-EL--FCSELEDEKSTISRAKED-----CENVREDLF-RECKEATVFKLKEG-AK 161
 SICVROPIGKLLFRQFLA-SVAEYKPAVELWKGIEDYNT-LEDE---DRVQKAQIIISKYL-ESGT-KL--YCSFLEKSTISRAKED-----YKNVREDLF-RECKEATVFKLKEG-AK 161
 SICEDBOPIGKLLFRQFLA-TQSELSIICRECLQMRNVEE-ILLE---DRVQKAQIIISKYL-KERT--SNGVLPPTVNMEDIDAEERLKAPEECDEBEL-----NQDFF-SESSSATNIFLM-GQ 168
 SICEKBOPIGKLLFRQFLA-KDDKLNRCICFLNKVEEFV-TDDD---NRKDAQ--IISKFL-ESSE-PD--VLGDIISSETISCRETIORYTPEOCESLQETPSKVVDF--NOCRESEVSKYLS-GE 168
 SVCEBOPIGKLLFRQFLA-KDAKLNRCICFLNKV-TDDD---NRKDAQ--IISKFL-ESSE-PD--VLGDIISSETISCRETIORYTPEOCESLQETPSKVVDF--NOCRESEVSKYLS-GE 101
 SLCEBOPIGKLLFRQFLA-TREPESRCVAFLDGVAEYEV-TPDD---KRAKCGKELTQNFL-SHFG-PD--LIPVAGDOLVNTCQR-----L-BOGPKDLF-QBLRSLTHEYLS-VA 156
 SLCDKBOPIGKLLFRQFLA-TREPESRCVAFLDGVAEYEV-TPDE---KRAKCGKELTQNFL-TPKS-PV--FIAVAGDOLVNTCQR-----L-LQKPKDLF-SACAQSLTHEYLS-VA 156
 SLCDKBOPIGKLLFRQFLA-TKPTLKRHIIFLDVAEYEV-ADDE---DRSDCGLSILDRFF-NDKL-AA--FLPHIIPDDVVEECLG-----LKBENCKKAF-BECTRVAHNYLR-GE 157

..130.....140.....150.....160.....170.....180.....190.....200.....210.....220.....230.....240.....250

GRK7 Human NP-631948 PFKDFV-LSAFYDKFLQWKLFEMQPVSDKYFTEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKTHLCLVMSLMNGGDLRFHYI 281
GRK7 Cattle NP-776757 PPREFL-ASPFYDKFLQWKVFEMQPVSDKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK7 Opossum XP-001364799 PFODFO-ASPFYDKFLQWKAFEQPITKDYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK7 Tasmanian devil XP-003766156 PFODFO-ASPFYDKFLQWKAFEQPITKDYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 275
GRK7 Chicken XP-426681 PFODFO-ASPFYDKFLQWKAFEQPITKDYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKTHLCLVMSLMNGGDLRFHYI 278
GRK7 Pigeon XP-005505950 PFODFO-TSPLFDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Ground-tit XP-005527115 PFODFO-NSPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKTHLCLVMSLMNGGDLRFHYI 278
GRK7 Anole XP-003218299 PFODFO-TSPPFDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Gecko XP-015268958 PFEEFO-KSQYFEKFLQWKAFEQPISERHFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKTHLCLVMSLMNGGDLRFHYI 278
GRK7 Xenopus NP-001120573 PFODFO-NSSFYDKFLQWKAFERQITDKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 279
GRK7 Nanorana XP-018415869 PFAYQ-NSDYFDFLQWKAFERQITDKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKTHLCLVMSLMNGGDLRFHYI 279
GRK7 Florida gar 30401-2-1 AFDEYO-NSPFFERFLRWKVFERQITEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Bowfin 27257-5-2 AFEEYO-NSPFFERFLRWKVFERQITEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7a Zebrafish NP-001027011 PFTEYO-ASPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 276
GRK7a Medaka NP-001098131 PFTEYO-TSPPFDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 276
GRK7b Zebrafish NP-001028262 PFEEYO-GLSFFDFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 277
GRK7b Medaka XP-004075863 PFLEYL-KSPHFYRFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 296
GRK7 Reef shark 15561-1-1 PFODFO-NSPFFSKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Bamboo shark 35291-1-1 PFODFO-NSPFFTKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Bluespot ray 37188-7-2 AFODFL-NSPFFEMFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Western ray 39734-1-1 AFODFL-NSPFFDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7 Elephant shark XP-007891889 PFODFO-NSPFFDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 278
GRK7-1 M.mordax 40500-6-1 VFHEFL-QSAYEKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK7-1 G.australis 58623-2-1w1-2 AFREFI-NSASVEKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK7-1 P.marinus S4RD08 PFRG-D-NFRYYRCLAWKTRDRTEVMQKSYFPHLKGSKTPHSECTCFVCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 285
GRK7-2 Non-contig G.australis 26295-2-1w27699-1-1 PFCEFL-ASPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 273
GRK7-2 P.marinus S4RL90 PFREFL-ASPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 282
GRK7-2 L.camtschaticum JL9580 PFCEFL-ASPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 279
GRK7-2 E.cirrhatum 127887-1-1 PFREYL-ESPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 277
GRK-Trimmed C.intestinalis XP-009860997 -----LKGKGFGE -----VYAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK-Partial C.savignyi H2YPC9 -----MAYACKIDKKMKKQHAESVVMSEKITLEAVNSPFVSLTYAYENKNNLNLVMTLMGADLRFHYI 66
GRK1X M.mordax 42166-5-1 ALAKYV-GSPHYLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 284
GRK1X G.australis 57773-1-1 SLAEYA-ESPRYLRLFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 286
GRK1X-Partial L.camtschaticum JL8961 SLAEYV-ESPRYLRLFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 144
GRK1B Chicken NP-990026 AWAPYL-SSPYFGRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACORRATGKMYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 310
GRK1B Ground-tit XP-005533433 AWAPYL-ASPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 298
GRK1B Golden eagle XP-011599401 AWTPYR-ASPFYDKFLQWKVFEMQPVTEKYFEEFRVLKGGGFGF ---VCAVOVNTGKMYACKKLDKRRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 310
GRK1B Turtle XP-006112219 ALAKYK-DSLFYRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMRATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Anole XP-003228556 UMAKYK-ESLHFRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMKATGKMYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 277
GRK1B Bearded dragon XP-020665279 ALGKYK-ESLHFRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMKATGKMYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 277
GRK1B Spotted gar XP-006627541 ALEGRF-GSLYFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Bowfin 26676-4-1 ALEGRF-GSLYFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Pike XP-010901292 ALEGRF-GSLYFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Asian bonytongue XP-018581705 AVGGRF-DSIFFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Zebrafish NP-001017171 ALTGFK-DSIFFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Bamboo shark 26651-1-1 AFEGYK-TSOFYRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMRATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1B Bluespot ray 4032-1-1 AAESYK-ESTFYLRLFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMRATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1B Western ray 34447-1-1 ATEGYK-ASAPFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VCACOMRATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1A Human NP-002920 PFCEYL-GSLYFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 277
GRK1A Cattle NP-776598 PFCEYL-GSLYFLRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1A Opossum XP-001364656 PFKEYL-ESLHFRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Tasmanian devil XP-003765754 PFREYL-ESLHFRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Xenopus XP-002937018 AFAOYK-ESKYFDFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1A Nanorana XP-018428616 AFSOYK-EGKIFSRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Florida gar 24879-1-1 PFTNYL-ETMYLKRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Bowfin 29529-1-1 PFSNYK-ETMYLKRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Zebrafish NP-001029353 PFTFYL-ETMYLKRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A-1 Medaka NP-001188419 PVTFFL-ESMYLKRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A-2 Medaka NP-004081538 PVTFFL-ESMYLKRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 280
GRK1A Reef shark 53758-1-1 AFEHYK-ESMHFRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 282
GRK1A Bamboo shark 8046-1-1 PFELYK-ESMYFMRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 282
GRK1A Bluespot ray 29212-2-1 PFAYYK-ESMYFMRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Western ray 41513-9-2 PFEGYK-ESMYFMRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK1A Elephant shark XP-007889799 PFENYK-ESMYFDRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 281
GRK C.intestinalis XP-009859302 PFKEPC-DSIFYRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 288
GRK B.floridiae XP-019631688 PFENFREDKIYFSRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 289
GRK B.floridae XP-002608270 PFENFREDKIYFSRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 282
GRK6 Human NP-002073 PFADYL-DSIFYRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 276
GRK5 Human NP-005299 PFHEYL-DSMFYRFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 276
GRK4 Human NP-892027 PFEEYO-ESSYFDFLQFKWLEMQPMGEWDFRVLKGGGFGF ---VHACOMKATGKLYANCKLKKRLLKKGGEKMALEKEILEKVNSSPFVSLAYAFESKSHLCLVMSLMNGGDLRFHYI 277

.....260.....270.....280.....290.....300.....310.....320.....330.....340.....350.....360.....370.....

GRK7_Human NP-631948	KEKVSKEKDLKQRTLEDEVKFOHNFTEBAK	---DICRFLFLAKKPEORLGS	---REKS	---DDPRKHFFFKTINFRLEAGLI	---EPPFVDPDPVVYAKDIAEIDDFSEVRGVEFDKDK	501
GRK7_Cattle NP-776757	KEKVSKEKDLKQRTLEKEVRFQHSNFTTEBAK	---DICRFLFLAKTPEORLGS	---REKS	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDINEIDDFSEVRGVEFDKDK	501
GRK7_Opossum XP-001364799	KEKVSKEKDLKQRTLEQEVKFOHEGFTTEBAK	---DICRFLFLAKKAEORLGS	---ROEG	---DDPRKHAFPTQINFRLEAGLV	---EPPFVDPDPVVYAKDIAEIDDFSEIKGVEFDKDK	500
GRK7_Tasmanian devil XP-003766156	MEKVSKEKDLKQRTLEKEVVFQHSNFTTEBAK	---DVCRFLFLAKRAEORLGS	---REVG	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDIDVIEDDFSEIKGVEFDKDK	495
GRK7_Chicken XP-246681	KEKVDKDEVKRRRTLEDEVKFEHANFTTEBK	---DICRFLFLAKKPEORLGS	---RSED	---DDPRKHFFFKTINFRLEAGLI	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Pigeon XP-005505950	KEKVGKDEVKRRRTLEDEVKFEHANFTTEBAK	---DICRFLFLAKKPEORLGS	---RNEG	---DDPRKHFFFKTINFRLEAGLI	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Ground-tit XP-005527115	KEKVNKDEVKRRRTLEDEVKFEHANFTTEBAK	---DICKLFLAKKEDRGLG	---RNED	---DDPRKHFFFKTINFRLEAGLI	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Anole XP-003218299	KEKVNKDEVKRRRTLEDDPKYEHKDFDEPTK	---NICRFLFLAKKPEORLGS	---RSND	---DDPRKHFFFKTINFRLEAGLI	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Gecko XP-015268958	KEKISKEKDLKRRRTLEDEVKFEHSGFDEAAK	---DICRMLFLAKKVENRGLG	---RSAN	---DDPRKHFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	498
GRK7_Xenopus NP-001120573	KDKTSKEKDLKRRRTLEDEVGFOHNFTEBAK	---DICRFLFLAKKPEORLGS	---RTND	---DDPRKHFFFKTINFRLEAGMV	---DPPFVDPDPVVYAKDIDVIEDDFSEIKGVEFDKDK	498
GRK7_Nanorana XP-018415869	KEKTKKDEVKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RTND	---DDPRKHFFFKTINFRLEAGMV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Florida gar 30401-2-1	KEKMNKDEVKRRRTLEEVKYDHPKDFDELTK	---DICKQFLMKKVEDRGLG	---RGTH	---DDPRKHAFVFKTINFRLEAGLI	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Bowfin 27257-5-2	KEKVNKDEVKRRRTLEDEVKFEHNFTEBAK	---DICKQFLMKKVEDRGLG	---RGAS	---DDPRKHFFFKTINFRLEAGLI	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7a_Zebrafish NP-001027011	KEKVKKEVRRRTLEDEVKFEHNFTEBAK	---DIIKQFLKKNIDERLGC	---K--N	---DDPRKHFFFKTINFRLEAGLI	---DPPWPKPNVVYAKDIDVIEDDFSEIKGVEFDKDK	496
GRK7a_Medaka NP-001098131	KEKVKKEVRRRTLEDEVKFEHNFTEBAK	---DIIKQFLKKNIDERLGC	---RNMN	---DDPRKHFFFKTINFRLEAGLV	---DPPWPKPNVVYAKDIDVIEDDFSEIKGVEFDKDK	504
GRK7b_Zebrafish NP-001028262	KEKVKKEVRRRTLEDEVKFEHNFTEBAK	---DIIKQFLKKNIDERLGC	---K--N	---DDPRKHFFFKTINFRLEAGLI	---DPPWPKPNVVYAKDIDVIEDDFSEIKGVEFDKDK	493
GRK7b_Medaka XP-004075863	REKVNQTEVTRRTLEDDCKEFDKDFDSPK	---EIIVQFLRKKVAHRLGC	---RK-G	---DDPRKHFFFKTINFRLEAGLV	---EPPWPKPNVVYAKDIDVIEDDFSEIKGVEFDKDK	514
GRK7_Reef shark 15561-1-1	KEKVNKDEVKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RGEN	---DDPRKHFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Bamboo shark 35291-1-1	KEKVSKEKDLKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RGEN	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Bluespot ray 37188-7-2	KEKVSKEKDLKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RGEN	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Western ray 39734-1-1	KEKVSKEKDLKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RGEN	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7_Elephant shark XP-007891889	KEKVSKEKDLKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RQEC	---DDPRKHFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK7-1_M.mordax 40500-6-1	KEKVNKDEVKRRRTLEDEVKFEHNFTEBAK	---DICKLFLAKKPEORLGS	---RGDD	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	501
GRK7-1_G.australis 58623-2-1w1-2	KEKVAKEVRRRTLEEDNVAYFHRNFTEBAK	---SICDQLLAKKPADRLGC	---RGDD	---DNPKRHPYFOSINFRLEAGLV	---NPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	501
GRK7-1_P.marinus S4RD08	KEKVAKEVRRRTLEEDNVAYFHRNFTEBAK	---SICDQLLAKKPADRLGC	---RGDD	---DNPKRHPYFOSINFRLEAGLV	---NPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	505
GRK7-2_Non-contig G.australis 26295-2-1w27699-1-1	REKVSKEVRRRTLEDAVAFTHPAFTDESR	---DLCALMLAKKAEORLGC	---RGPD	---DNPKRHPYFOSINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	493
GRK7-2_P.marinus S4RL90	REKVSKEVRRRTLEDAVAFTHPAFTDESR	---DLCALMLAKKAEORLGC	---RGPD	---DNPKRHPYFOSINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK7-2_L.camtschaticum JL9580	REKVSKEVRRRTLEDAVAFTHPAFTDESR	---DLCALMLAKKAEORLGC	---RGPD	---DNPKRHPYFOSINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	499
GRK7-2_E.cirrhatum 127887-1-1	HEQVSKKEELRRRVLQDKVVFVTKIAFTAETAQ	---DLCTQLLAKKACDRGLG	---RNPV	---DDPRKHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	497
GRK-Trimmed C.intestinalis XP-009860997	KGKNNRKKCVSTAEKTTINE-KHKFKKTHEPSLV	DLIDKLVKVEDRGLG	---DEKS	---AEAKRHPYFADLNWERLEAGVT	---PPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	311
GRK-Partial C.savignyi H2YPC9	KGKNNRKKCVSTAEKTTINE-KHKFKKTHEPSLV	DLIDKLVKVEDRGLG	---DEKS	---AEAKRHPYFADLNWERLEAGVT	---PPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	240
GRK1X_M.mordax 42166-5-1	GEKVENKEVRRRTLEDEVKFEHNFTEBAK	---DICEALLAKDPAKRLGF	---RDGS	---CNEKLLKHHFFAAMWGRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	506
GRK1X_G.australis 57773-1-1	GEKVENKEVRRRTLEDEVKFEHNFTEBAK	---DICEALLAKDPAKRLGF	---RDGS	---CNEKLLKHHFFAAMWGRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	508
GRK1X-Partial L.camtschaticum JL8961	GDEVNKEVRRRTLEDEVKFEHNFTEBAK	---DICEALLAKDPAKRLGF	---RDGS	---CNEKLLKHHFFAAMWGRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	366
GRK1B_Chicken NP-990026	GEKVEKKEVTRRTLEDDSVYSYS-ERFSAASR	---SLCEGLLAKDPAKRLGF	---RDGN	---CAMLRKQPVFFSALHWGSW-SGPP	---PPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	531
GRK1B_Ground-tit XP-005533433	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---SLCEGLLAKDPAKRLGF	---RDND	---CAOLKAHPFFFKTINFRLEAGLV	---PPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	519
GRK1B_Golden eagle XP-011599401	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---SLCEGLLAKDPAKRLGF	---REND	---CAOLKAHPFFFKTINFRLEAGLV	---PPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	532
GRK1B_Turtle XP-006112219	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---SLCEGLLAKDPAKRLGF	---RNDQ	---CAOLKAHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Anole XP-003228556	REKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---SLCEGLLAKDPAKRLGF	---KNNE	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	500
GRK1B_Bearded dragon XP-020665279	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---SLCEGLLAKDPAKRLGF	---KNNA	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	499
GRK1B_Spotted gar XP-006627541	GEKVKELNKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---RNGE	---CAELKQHPFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Bowfin 26676-4-1	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNNE	---CAELKQHPFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Pike XP-010901292	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNNE	---CAELKQHPFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Asian bonytongue XP-018581705	GEKVDNNEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNNS	---CDEMNKQFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Zebrafish NP-001017171	GEKVDNNEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNNE	---CAELKQHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Bamboo shark 26651-1-1	GEKVEPQEVSRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KLG	---CSEVKTIRFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1B_Bluespot ray 4032-1-1	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGN	---CSEVKNQFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1B_Western ray 34447-1-1	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KDGH	---CSEVKNQFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1A_Human NP-002920	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---RDET	---CDKLRHAPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1A_Cattle NP-776598	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---RDGS	---CDGLRTHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	499
GRK1A_Opossum XP-001364656	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGN	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Tasmanian devil XP-003765754	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGN	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Xenopus XP-002937018	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGN	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1A_Nanorana XP-018428616	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---RNGN	---CNDLRVHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Florida gar 24879-1-1	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGN	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Bowfin 29529-1-1	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGN	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Zebrafish NP-001029353	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGT	---CDEIRTHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A-1_Medaka NP-001188419	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGS	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A-2_Medaka XP-004081538	GEKVENKEVTRRTLEDDSVYSYS-ERFSAASR	---ALCEGLLAKDPAKRLGF	---KNGC	---CDEIRTHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	504
GRK1A_Reef shark 53758-1-1	GEHVENKEVTRRTLEDDSVYSYS-ERFSAASR	---LFCEALLAKDPAKRLGF	---KNGS	---CDEIRTHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	502
GRK1A_Bamboo shark 8046-1-1	GEHVENKEVTRRTLEDDSVYSYS-ERFSAASR	---LFCEALLAKDPAKRLGF	---KNGC	---CDEIRTHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	504
GRK1A_Bluespot ray 29212-2-1	GEHVENKEVTRRTLEDDSVYSYS-ERFSAASR	---LFCEALLAKDPAKRLGF	---RND	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Western ray 41513-9-2	GEHVENKEVTRRTLEDDSVYSYS-ERFSAASR	---LFCEALLAKDPAKRLGF	---RNEC	---CEELKAHVFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK1A_Elephant shark XP-007889799	GEHVENKEVTRRTLEDDSVYSYS-ERFSAASR	---LFCEALLAKDPAKRLGF	---KNGN	---CDELKNAHFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	503
GRK_C.intestinalis XP-009859302	KEKVKREEVDRRVKEDTETY-SDFSEBAK	---SICSMALLKDDVDRGLG	---KNGS	---CAGSDVKAHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	507
GRK_B.floridiae XP-019631688	KEKVKREEVDRRVKEDTETY-SDFSEBAK	---SICSMALLKDDVDRGLG	---KNGS	---CAGSDVKAHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	512
GRK_B.floridiae XP-002608270	KEKVKREEVDRRVKEDTETY-SDFSEBAK	---SICSMALLKDDVDRGLG	---KNGS	---CAGSDVKAHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	445
GRK6_Human NP-002073	KKKIKREEVDRRVKEDTETY-SDFSEBAK	---SICSMALLKDDVDRGLG	---RGS	---AREVKRHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	495
GRK5_Human NP-005299	KEKVKREEVDRRVKEDTETY-SDFSEBAK	---SICSMALLKDDVDRGLG	---QEBG	---AAEVKRHPFFFKTINFRLEAGLV	---DPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	495
GRK4_Human NP-892027	KEKVKREEVDRRVKEDTETY-SDFSEBAK	---SICSMALLKDDVDRGLG	---RBE	---AAGVKRHPFFFKTINFRLEAGLV	---EPPFVDPDPVVYAKDVIADDFSEIRGIEFDKDK	496

.....510.....520.....530.....540.....550.....560.....570.....580.....590.....600.....610.....620.....

GRK7 Human NP-631948	KOFFKNFATGAVPIAWQEEIIEETGLFEEELNDPNRPAGC--EEGN-SS--	KSGVCLLL	553
GRK7 Cattle NP-776757	KOFFQRFATGAVPIAWQEEIIEETGPFALNDPNRPAGC--GEG--SS--	RSGVCLLL	552
GRK7 Opossum XP-001364799	RKFFKFKFATGAVPIAWQEEIIEETGLFEEELNDPNRLSGC--FNGSQSS--	KSGVCLLL	553
GRK7 Tasmanian devil XP-003766156	RKFFKFKFATGAVPIAWQEEIIEETGLFEEELNDPNRSLGC--VNDST--TS--	KSGVCLLL	546
GRK7 Chicken XP-4266681	KKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--YANGGE-A-	KSGVCLLL	551
GRK7 Pigeon XP-005505950	KKFFKFKFATGAVPIAWQEEIIEETGLFEEELNDPNRVDSGG--YANGGE-A-	KSGVCLLL	551
GRK7 Ground-tit XP-005527115	KKFFKFKFATGAVPIAWQEEIIEETGLFEEELNDPNRVDSGG--YANGGE-A-	KSGVCLLL	551
GRK7 Anole XP-003218299	KKFFKFKFATGAVPIAWQEEIIEETGLFEEELNDPNRVDSGG--E-E-	KSGVCLLL	545
GRK7 Gecko XP-015268958	NKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--G	KSAVCLLL	546
GRK7 Xenopus NP-001120573	AKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GGGNSGE-	KSGVCSII	551
GRK7 Nanorana XP-018415869	AKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--TYGDGGEK-	KSGVCSII	552
GRK7 Florida gar 30401-2-1	KKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GINS-E-E-	RSGVCLLL	550
GRK7 Bowfin 27257-5-2	KKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GGGSGE-E-	KSGVCLLL	551
GRK7a Zebrafish NP-001027011	DKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GSD-D-K-	KSGVCLLL	549
GRK7a Medaka NP-001098131	DKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GDD-D-K-	KSGVCLLL	557
GRK7b Zebrafish NP-001028262	EKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GLEDEEQG-	KSKVCLLL	548
GRK7b Medaka XP-004075863	EKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--KTV---W-	ISRMCITL	565
GRK7 Reef shark 15561-1-1	NQFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--NMGANGSGE-	AKSGVCLL	555
GRK7 Bamboo shark 35291-1-1	KQFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GDIANGSGE-	AKSGVCLL	552
GRK7 Bluespot ray 37188-7-2	KQFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--AVIQNGSDE-	AKSGVCLL	554
GRK7 Western ray 39734-1-1	KQFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GMLANGTEE-	AKSGVCLL	554
GRK7 Elephant shark XP-007891889	KKFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GFSANGSDE-	AKSGVCLL	554
GRK7-1 M.mordax 40500-6-1	KQFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--DKPTKNGT-	PSSTCVLL	553
GRK7-1 G.australis 58623-2-1w1-2	QVFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--KTKTNGS-	KSSTCVLL	556
GRK7-1 P.marinus S4RD08	QVFFKFKFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--KGMNSGN-	RSSCTVLL	560
GRK7-2 Non-contig G.australis 26295-2-1w27699-1-1	RGFFARFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--		516
GRK7-2 P.marinus S4RL90	RGFFARFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GDVNGDVG-	RKSGVCHLL	559
GRK7-2 L.camtschaticum JL9580	RGFFARFATGAVSIPWQEEIIEETGLFEEELNDPNRVDSGG--GDVNGDVG-	RKSGVCHLL	556
GRK7-2 E.cirrhatum 127887-1-1	LKFHKEFATGCVPLTWQEEIIEETGLFEEELNDPNRVDSGG--GNSE-	RRSGVCLL	549
GRK-Trimmed C.intestinalis XP-009860997	LDFFHKEFATGCVPLTWQEEIIEETGLFEEELNDPNRVDSGG--VDSKSKSK-	VCALL	364
GRK-Partial C.savignyi H2YPC9			240
GRK1X M.mordax 42166-5-1	KDFYDSFSTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--NDLCKDKLPTSEAGSG	RSSACTVL	569
GRK1X G.australis 57773-1-1	KDFYDSFSTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--DDLCKDKLPTSEAGSG	RSSACTVL	571
GRK1X-Partial L.camtschaticum JL8961	KAFYDSFSTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--DDLCKDKLPTSEAGSG	RSSACTVL	429
GRK1B Chicken NP-990026	AALCDAFASGTVSIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLDPAEPPG--GGGT	RSAICGVL	593
GRK1B Ground-tit XP-005533433	AALCDAFASGTVSIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLDPAEPPG--GGGT	RSAICGVL	580
GRK1B Golden eagle XP-011599401	AALCDAFASGTVSIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLDPAEPPG--GGGT	RSAICGVL	592
GRK1B Turtle XP-006112219	KAFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--RDLDHTM-PAN-SVSS	KSGVCLLL	563
GRK1B Anole XP-003228556	KAFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--RDLDHTM-PAN-SVSS	KSGVCLLL	561
GRK1B Bearded dragon XP-020665279	KAFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--RDLDHTM-PAN-SVSS	KSGVCLLL	561
GRK1B Spotted gar XP-006627541	KAFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDLNPNY-VPP-AESA	KSGVCLLL	563
GRK1B Bowfin 26676-4-1	KAFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDLNPNY-VPP-AESA	KSGVCLLL	561
GRK1B Pike XP-010901292	NEFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDLDPNK-IP--VA	KGGACVLL	560
GRK1B Asian bonytongue XP-018581705	TEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDLDPNK-IP--VA	KGGACVLL	559
GRK1B Zebrafish NP-001017711	DEFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDLDPNK-IP--VA	KGGACVLL	559
GRK1B Bamboo shark 26651-1-1	QQFYKFEFASGKMAIPWQEEIIEETGVFGLNLWVWGGDGLP--SD--GEDPARE	KSGVCLLL	559
GRK1B Bluespot ray 4032-1-1	KDFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DE--BEDSARR	KSGVCLLL	558
GRK1B Pike 34447-1-1	KDFYDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DE--BEDSARR	KSGVCLLL	558
GRK1A Human NP-002920	TEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDMKGIS--GGG--SSSS	KSGMCLVS	563
GRK1A Cattle NP-776598	TEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDMKGIS--GGG--SSSS	KSGMCLVS	561
GRK1A Opossum XP-001364656	TEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDMKGIS--GGG--SSSS	KSGMCLVS	565
GRK1A Tasmanian devil XP-003765754	TEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--DDMKGIS--GGG--SSSS	KSGMCLVS	565
GRK1A Xenopus XP-002937018	NKLFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--SELNENNVRRES-IVN-DNSA	KSGVCLLL	559
GRK1A Nanorana XP-018428616	NKLFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--SELNENNVRRES-IVN-DNSA	KSGVCLLL	558
GRK1A Florida gar 24879-1-1	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-PPP	KSGVCLLL	563
GRK1A Bowfin 29529-1-1	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-PPP	KSGVCLLL	563
GRK1A Zebrafish NP-001029353	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-PPP	KSGVCLLL	563
GRK1A-1 Medaka NP-001188419	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-OPP	KSSTCCAS	563
GRK1A-2 Medaka XP-004081538	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-OPP	KSSTCCAS	561
GRK1A Reef shark 53758-1-1	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-OPP	KSSTCCAS	565
GRK1A Bamboo shark 8046-1-1	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-MPPS	KSGVCLLL	565
GRK1A Bluespot ray 29212-2-1	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-MPPS	KSGVCLLL	564
GRK1A Western ray 41513-9-2	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-MPPS	KSGVCLLL	564
GRK1A Elephant shark XP-007889799	KEFFDFSSGNIPWQEEIIEETGVFGLNLWVWGGDGLP--NDRRRES-ILE-MPPS	KSGVCLLL	564
GRK C.intestinalis XP-009859302	NDFYAKFSTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLPYDQOS--NPKKGFSSRLFGROVILVLVLYQE--	VLKLGH	599
GRK B.floridae XP-019631688	ESFYKFKFNTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLPYDQOS--NPKKGFSSRLFGROVILVLVLYQE--	VLKLGH	610
GRK B.floridae XP-002608270	ESFYKFKFNTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLPYDQOS--NPKKGFSSRLFGROVILVLVLYQE--	VLKLGH	525
GRK6 Human NP-002073	QDFYKFKFNTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLPYDQOS--NPKKGFSSRLFGROVILVLVLYQE--	VLKLGH	589
GRK5 Human NP-005299	DDFYKFKFNTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLPYDQOS--NPKKGFSSRLFGROVILVLVLYQE--	VLKLGH	590
GRK4 Human NP-892027	EDFYKFKFNTGSIPIPWQEEIIEETGVFGLNLWVWGGDGLP--PDLPYDQOS--NPKKGFSSRLFGROVILVLVLYQE--	VLKLGH	578

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Arr-S Human NP-000532 --GFLGDLFSSVAVLPPFRMLMHP--QPDP-AK-ES-YS--DANLVFEEFARL--NLKDAAGEEKGRRDKID--VDR-- 405
Arr-S Cattle XP-010802144 --GLLGLDLFSSVAVLPPFRMLMHP--QPDP-AK-ES-PT--DENLVFEEFARL--NLKDAAGEEKEEKTLQEA--MDR-- 404
Arr-S Tasmanian devil XP-003770202 --GFLGDLFSSVAVLPPFRMLMHP--QPDP-AK-ES-DS--GEDLVFEEFARL--NLKDAAGEEKEEKKEGFE--NDR-- 402
Arr-S Koala XP-020827934 --GFLGDLFSSVAVLPPFRMLMHP--QPDP-AK-ES-EM--GEDLVFEEFARL--NLKDIADNEEKKDKKARVVDID-- 404
Arr-S Chicken XP-015132693 --GLLGDFFSSVAVLPPFRMLMHP--KPEE-KN-SA-GKD--GDARVVEEFARL--QLKDDGEBENNVNVE-- 408
Arr-S Ground-tit XP-00529624 --GMLGDLFSSVAVLPPFRMLMHP--KPEE-KN-SA-GKD--GEBALVVEEFARL--QLKDDGEBENNVNVE-- 408
Arr-S Golden eagle XP-011575693 --GMLGDLFSSVAVLPPFRMLMHP--KPEE-KN-SA-GKD--GEBALVVEEFARL--QLKDDGEBENNVNVE-- 409
Arr-S Partial Turtle XP-007052695 --GMLGDLFSSVAVLPPFRMLMHP--KPEE-KN-SA-GKD--GEBALVVEEFARL--QLKDDGEBENNVNVE-- 375
Arr-S Anole XP-016847626 --GLLDFVSSVAVLPPFRMLMHP--KREE-TN-PI-GK--ESDLVVEEFARL--QLNDENSEDDKADPF--NDD-- 403
Arr-S Gecko XP-015282299 --GLLGDFFSSVAVLPPFRMLMHP--KPEE-VN-AR-GK--DDDVMVEEFARL--QLKDELQAEKKEEED--DERK-- 395
Arr-S Xenopus NP-989073 --GLLGDFFSSVAVLPPFRMLMHP--KPEE-VN-AR-GK--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 396
Arr-S Nanorana XP-019427475 --GLLGDFFSSVAVLPPFRMLMHP--KPEE-VN-AR-GK--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 396
Arr-S Florida gar 22184-1-1 --GIVDVGABEIGLVEIPFLMHP--KPEE-VK-ES-EL--EDEMVEEFARL--YLKGMV--EDEDGNIIPAB-- 391
Arr-S Bowfin 24232-1-2 --GIVDVGABEIGLVEIPFLMHP--KPEE-VK-ES-EL--EDEMVEEFARL--YLKGMV--EDEDGNIIPAB-- 392
Arr-Sa Zebrafish NP-956853 --GM--MGSSEVGLVEIPFLMHP--KPEE-VK-ES-EL--EDEMVEEFARL--YLKGMV--EDEDGNIIPAB-- 392
Arr-Sa Medaka NP-00116373 --GM--MGSSEVGLVEIPFLMHP--KPEE-VK-ES-EL--EDEMVEEFARL--YLKGMV--EDEDGNIIPAB-- 392
Arr-Sb Medaka NP-001098559 --GM--MGSSEVGLVEIPFLMHP--KPEE-VK-ES-EL--EDEMVEEFARL--YLKGMV--EDEDGNIIPAB-- 399
Arr-S1 Reef shark 55938-25-1 --GVLGDLFASDVAIVLPPFLMHP--KPEE-EK-EP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 397
Arr-S1 Bamboo shark 45077-7-1 --GVLGDLFASDVAIVLPPFLMHP--KPEE-EK-EP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 383
Arr-S1 Whale shark XP-020370169-XP-020368728 --GVLGDLFASDVAIVLPPFLMHP--KPEE-EK-EP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 384
Arr-S1 Bluespot ray 30422-1-1 --GMLGDLFSSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S1 Elephant shark XP-007902404 --GMLGDLFSSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S2 Reef shark 55253-10-3 --GMLGDLFSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S2 Bamboo shark 28962-1-1 --GMLGDLFSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S2 Whale shark XP-020368730 --GMLGDLFSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S2 Bluespot ray 31414-1-1 --GMLGDLFSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S2 Western ray 22644-1-1 --GMLGDLFSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-S2 Elephant shark XP-007887798 --GMLGDLFSDVAIVLPPFLMHP--KPEE-NK-NP-EP--EDLVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-VZ_E_cirrhatus 129805-1-1 --RSG--DLAVMLPFLMHP--APKE--QDAGL--R--SKNVLVEFGRK--ATSRABELDEEGEEN--R--EGD-- 385
Arr-VY_G.australis 54008-1-2 --RNGILGLIAGSDVAVLPPFLMHP--KPEE-DIVYSEVSG--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 405
Arr-VX_M.mordax 42250-9-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DIVYSEVSG--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 391
Arr-VX_G.australis 59149-4-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DIVYSEVSG--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 392
Arr-VK_L.cantschaticum BAJ83617 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DIVYSEVSG--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 393
Arr-C Human NP-004303 --CGGILGLIAGSDVAVLPPFLMHP--KPEE-EA-A--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 388
Arr-C Cattle NP-776419 --CGGILGLIAGSDVAVLPPFLMHP--KPEE-EA-A--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 392
Arr-C Opossum XP-007507671 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 390
Arr-C Koala XP-020832166 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 398
Arr-C Chicken NP-001091002 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 395
Arr-C Ground-tit XP-00529624 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 395
Arr-C Golden eagle XP-011578691 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 393
Arr-C Turtle XP-007055341 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 392
Arr-C Anole XP-008122024 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 394
Arr-C Gecko XP-015269615 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 394
Arr-C Xenopus XP-012823333 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 387
Arr-C Nanorana XP-019427475 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 389
Arr-C Florida gar 15939-1-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 388
Arr-C Bowfin 14016-1-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-DV--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 386
Arr-Ca Zebrafish NP-001002405 --GGGLLGLIAGSDVAVLPPFLMHP--KPKD--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 357
Arr-Cb Zebrafish NP-957086 --GGGLLGLIAGSDVAVLPPFLMHP--KPKD--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 362
Arr-C Medaka XP-011478269 --GGGLLGLIAGSDVAVLPPFLMHP--KPKD--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 365
Arr-C Partial Reef shark 104042-1-1w50893-1-1 --GGGLLGLIAGSDVAVLPPFLMHP--KPKD--R--GVDVVEEFARL--QLKDELQAEKKEEED--DERK-- 394
Arr-C Bamboo shark 45371-8-2 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-VN-V--C--AGDIVVEFNRP--KLDBEQQDEDEHAAE--GEN-- 394
Arr-C Whale shark XP-020383069 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-VN-V--C--AGDIVVEFNRP--KLDBEQQDEDEHAAE--GEN-- 394
Arr-C Bluespot ray 36257-4-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-VN-V--C--AGDIVVEFNRP--KLDBEQQDEDEHAAE--GEN-- 394
Arr-C Western ray 37242-1-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-VN-V--C--AGDIVVEFNRP--KLDBEQQDEDEHAAE--GEN-- 394
Arr-C1 Elephant shark XP-007892403 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-VN-V--C--AGDIVVEFNRP--KLDBEQQDEDEHAAE--GEN-- 394
Arr-B1 Human NP-004032 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 418
Arr-B1 Cattle NP-776668 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 418
Arr-B1 Tasmanian devil XP-003764705 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 429
Arr-B1 Koala XP-020845203 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 430
Arr-B1 Golden eagle XP-011583127 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 461
Arr-B1 Ground-tit XP-00529624 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 418
Arr-B1 Turtle XP-006127564 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 440
Arr-B1 Gecko XP-015269615 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 414
Arr-B1 Python XP-007440235 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 412
Arr-B1 Xenopus XP-004912283 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 461
Arr-B1 Florida gar 28267-2-1w1-11 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 418
Arr-B1 Bowfin 26818-1-6 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 418
Arr-B1 Zebrafish NP-001153294 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 418
Arr-B1 Medaka XP-011471558 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 395
Arr-B1 Partial Reef shark 38868-1-2 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 364
Arr-B1 Partial Bamboo shark c25388-1-1w2-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 354
Arr-B1 Whale shark XP-020371759 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 432
Arr-B1 Non-contig Western ray 78258-1-1w66643-1-1w83393-1-1 --RXXLGLIAGSDVAVLPPFLMHP--KPEE-EP-PH--RE--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 393
Arr-BY_M.mordax 41599-5-1 --RGGILGLIAGSDVAVLPPFLMHP--KPEE-ES-LE--RAG--VAPSDSDVVDADLVVFEINGDA--WDDIVVEEFARL--RLKGAKE--EENE--VAPSDSNGK-- 423
Arr-BY-Non-contig G.australis 41931-1-1w37543-2-1w1-1w53942-1-1 --XXXXXXXLGLIAGSDVAVLPPFLMHP--KPEE-ES-LE--RAG--VAPSDSDVVDADLVVFEINGDA--WDDIVVEEFARL--RLKGAKE--EENE--VAPSDSNGK-- 423
Arr-BX-Partial M.mordax 41599-4-1 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 242
Arr-BX-Partial G.australis 54326-4-1w1-1w2-3 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 423
Arr-BX-Partial Trimmed P. variolus ENSMPAP0000004285 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 332
Arr-BX_L.cantschaticum BAJ83616 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 175
Arr-B2 Human NP-004304 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 410
Arr-B2 Cattle NP-001192206 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 409
Arr-B2 Tasmanian devil XP-003770754 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 420
Arr-B2 Koala XP-020822087 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 409
Arr-B2 Turtle XP-006116398 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 411
Arr-B2 Python XP-007444595 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 409
Arr-B2 Gecko XP-015283361 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 484
Arr-B2 Xenopus NP-001093721 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 429
Arr-B2 Nanorana XP-018417500 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 408
Arr-B2 Partial Spotted gar XP-015195812 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 408
Arr-B2 Non-contig Bowfin 13774-1-1w18902-1-1 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 378
Arr-B2a Zebrafish NP-999846 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 327
Arr-B2b Zebrafish NP-957418 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 406
Arr-B2 Medaka XP-004076705 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 408
Arr-B2 Reef shark 51008-1-2 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 409
Arr-B2 Bamboo shark 31008-1-1 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 409
Arr-B2 Partial Bluespot ray 34441-5-1 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 310
Arr-B2 Partial Western ray 34309-2-1 --RGG--DVAVELPFLMHP--KPEE-EP-LH--RD--VPEENAPVDITLLEFDIN--DDDIVVEEFARL--RLKGMKDKKEE--DGTSGFLINDR-- 310
Arr-C.intestinalis NP-001044147 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 418
Arr-C.savignyi ENSGCVAVP00000014619 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 418
Arr-C. rosetta BAJ76419 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 419
Arr-B.Florida gar 002593261 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 418
Arr-B.belcheri XP-019616407 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 418
Arr-S.kowalevskii NP-001171767 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 441
krz_D.melanogaster NP-524988 --LGG--EVCVELPFLMHP--KPAD--VD--PIL--GSPAKV--RAG--KPA--EP--PIDHMLLLEFDINA--EP--PNDIVVEEFARL--RLOGEAA--GGDGG--NA-- 439

RGS9_Human_NP-001159405 MT-----IRH-----G---GQOYRPRMAFLQKIEALVKDMQNPET-GVRRMQRQVRLVTSVPHAMTGSVDVLOWIVQRLWISSL-EAQN LGNFIVRYGYIYPLQDPKNLILKPD-GSLY 101
RGS9_Cattle_NP-776595 MT-----IRH-----G---GQOYRPRMAFLRKIEALVKDMQDPDI-GVRVQNKQKVVVSI PHAMTGSVDVLOWISQRLWISSL-EAQN LGNFIVRYGYIYPLQDPNRNLTLPKPD-SSLY 101
RGS9_Koala_XP-020856566 MT-----IKH-----G---GQOYRPRMAFLRKIEDLVKEMQNPET-GIRMQSQRVMTINIPHAMTGNIDILQWIAQRLWTGNI-EAQN LGNFIVRYGYIYPLQDPKNLILKPDNSLSY 102
RGS9_Opossum_XP-007482817 MT-----IRH-----G---GQOYRPRMAFLRKIEALVKEMQNPET-GIRMQSQRVMTINIPHAMTGNIDILQWIAQRLWTGNI-EAQN LGNFVVKYGYIYPLQDPKNLILKPDNSLSY 102
RGS9_Pigeon_XP-013225676 -----MAFLKKIEALMMEMQNPDI-GVKTQTVQVMTINIPHAVAGNDVLOWILQRLQITQE-EALH LGDLFVKYGYIYPLQEPKNLILKTD-GSLY 88
RGS9_Quail_XP-015735540 MT-----VARL--DQ---GQRYRPRMAFLKKIEALIMEMQNPDI-GIKTQTVQVMTINIPHAVAGNDIFOWILQRLQITNE-EALH LGDLFVKYGYIYPLQEPKNLILKTD-GILY 103
RGS9_Ground-tit_XP-014111246 MT-----VTRL--DQ---GQRYRPRMAFLKKIEALMMEMQNPDI-GIKTQTVQVMTINIPHAVTGVDIMQWILQRLQITAE-EALH LGDLFVKYGYIYPLQEPKNLILKTD-GSLY 103
RGS9_Turtle_XP-014424786 -----MEMQNPDI-GIKMHTQVMTINIPHAMTGSIDILQWIMQHLKIVVEE-EALN LGNLLVRYGYIYPLQEPKNLILKTD-SSLY 77
RGS9_Python_XP-007421674 MT-----ITHT--DQ---GQRYRPRMAFLKKLEILLVEMQDPHS-GIKTIQTKIINTSINIPHAMTGSIDILKWMQRLQITSE-EALN LGSMVVKCGYIYPLQERKNLILKTD-SSLY 103
RGS9_Garter_snake_XP-013926935 MT-----IAQT--DQ---GQRYRPRMAFLKKLEVLIVEMQDPQS-GIKTQIINMPENSIPHTVVGCDMLQWIVKRLEITNE-EGLH LGSMMVKCGYIYPLQDRKNLILKGD-TSLY 103
RGS9_X.laevis_XP-018090999 MT-----VKHL--DQ---GQHFPRMAFLKKIEALLLEMDADAI-GIKTHTQRLMITTIPHAVTGHDI LEWLIQRLQITADE-EAQL HGNLMVRCGYIYPLQEPNLTNLVND-SSLY 103
RGS9_Florida_gar_21856-1-2 MT-----INKL--DY---SQHYRPRMAFLKKIESLVVEMQDPNN-GIKTQTVQRLVITTIPHAITGLDLLQWLANRLOVETE-EAQN IGNLVVYGYIYPLQDHKNLILKPD-GSLY 104
RGS9_Bowfin_26690-1-1 MT-----INKL--DH---SQKYRPRMAFLKKIESLVVEMQDPNS-GIKTQTVQRLVITTIPHAITGLDILQWIINRLOLENE-EAQN TCNLLVYGYIYPLQEHKNLILKPD-ASLY 104
RGS9_Zebrafish_NP-001314729 MT-----IRSDR--DH---GQHYRPRMTCLKKLEAMVVMQDPST-GVKGSDQKLVNTTIPHVMTDODIIAWIAKHMSMENN-EAQAFG TMLVAYGYIYPLQDHKKLVKSD-GSLY 104
RGS9_Medaka_XP-004071947 MT-----IRTVRDR--GQHFPRRMHCLKKLEATVVEMDPKI-GVKGSEQKLVNTTIPHVITAGNDIIAWITNKMKVITQE-EAGVFG TMLVAYGYIYPLQNHKKLVMCND-GSLY 105
RGS9_Reef_shark_51239-1-1 MT-----IKSF--NQ---GQHYRPRMAFLRKIEPLMMEMQDPNI-GIKTQAQRLVITTIPHAMTGHDI SEWLIQRLQITDE-EGYV LGNMIVKLGYIYPLQEPKNLILKPD-SSLY 103
RGS9_Bamboo_shark_45486-8-1 MT-----IRNF--NQ---GQOYRPRMAFLRKIEPLIEMQDPNI-GIKTQTVQRLVITTIPHAMTGDVLEWLIQRLQITDE-EGYI LGNMLVRYGYIYPLQDRPRSLVLRAD-NSLY 103
RGS9_Bluespot_ray_37076-2-1 MT-----VKSF--NQ---GQOFRPRMAFLRKIEPLIMEMQDPGT-GIKTQTVQRLMITTIPHAMTGNVLEWLIHRLOVTE-EGLS LGNLLVRYGYIYPLQEPKNLILKPD-NSLY 103
RGS9_Western_ray_41046-8-8 MT-----VKSF--NQ---GQOFRPRMAFLRKIEPLIMEMQDPGT-GIKTQTVQRLMITTIPHAMTGNVLEWLIHRLOVTE-EGLS LGNLLVRYGYIYPLQEPKNLILKPD-NSLY 103
RGS9_Elephant_shark_XP-007886905 MT-----IKSL--SQ---GQHHRPRMAFLKKIESLVVEMQDPNN-GIKTQTVQRLVITTIPHAITGLDLLQWLANRLOVETE-EAQN IGNLVVYGYIYPLQDHKNLILKPD-SSLY 103
RGS9_M.mordax_34174-1-2 MK-----IHRL--EQ---NQHRPRROHHLAKL GALVVTIMQDSEH-GVPMRDQLLDGAVIPDSTGRDLVQWLEQRLQVITAD-EAQL QGWLVLVCGFYIYPLCEPRNLVLRAD-DSFY 103
RGS9_G.australis_56905-1-2 MK-----INKL--DQ---SQOHRPROOHLTKL GALVVMQDPFER-GVPMRDQLLSDTIIIPDATTGHDLMRWIEQRLQITAD-EAL QCLWLLVACGFVYPLSEPRNLAMRPD-GSLY 103
RGS9_E.cirrhatu s_137654-1-3 MK-----INKL--DQ---GQHYRPRMAFIKKLQSLVGMQKRED-GVIFRNQRLITTIPHAMTGFDDLEWFI ELSQITYE-EAHL HGTLVICNGFYIYPLQSEPRDLTLRND-SSLY 103
RGS11_Human_NP-899180 MA-----AGP--AP--PPGPRPRAQMPHLRKMERVVSMQDPDQ-GVKMRSQRLLVTVIPHAVTGSVDVQWLAQKFCVSEE-EALH LGAVLVQHG YIYPLRDRPSLMLRPD-ETPY 103
RGS11_Cattle_NP-001069282 MA-----ASP--AP--LGGHPRVQRPPLSKMERMVVMQDPDQ-GVRRMSQRLLVTVIPHAVNGSDIV EWLMQKYSI AED-EALH LGSLLVQHG YIYPLRDRPRSLVLRAD-ETPY 103
RGS11_Koala_XP-020862219 MC-----VHKGRFWSLAWFSRSNGSLLKSFQMERVIVGMQDPDM-GVKMRNRQLLITVIPHAMTGSIDIV EWLIQKFSISEE-ESLH LGNLI VKHGYIYPLKDP RCLVLRAD-DSPY 109
RGS11_Opossum_XP-001372371 MT-----INS--LH---QGGSYKVMQPCLSKMERVIVGMQDPDM-GVKMRNRQLLITVIPHAMTGHDI VEWLIQKYSISEE-ESLH LGNLI VKHGYIYPLKDP RCLVLRAD-DSPY 103
RGS11_Chicken_XP-001231808 MT-----IGG--PR---GGGQPRLQMPCLGKMERVIVGMQDPDM-GVKMRNRQLLITVIPHAMTGHDI VEWLIQKYSISEE-ESLH LGNLI VRYGYIYPLRDRPSLVLRAD-ESPY 103
RGS11_Pigeon_XP-005508486 -----MEMVIVGMQDPDM-GIKMRNRQLLITVIPHAMTGHDI VEWLIQKYSISEE-ESLH LGNLI VRYGYIYPLRDRPSLVLRAD-ESPY 82
RGS11_Ground-tit_XP-014107999 -----MERMIVSMQDPDM-GIKMRNRQLLITVIPHAMTGHDI VEWLIQKYSISEE-ESLH LGNLI VRYGYIYPLRDRPSLVLRAD-ESPY 82
RGS11_Turtle_XP-007066592 -----MEHVIVSMQDPDM-GIKMRNRQLLITVIPHAMTGHDI VEWLIQKYSISEE-ESLH LGNLI VRYGYIYPLRDRPSLVLRAD-ESPY 82
RGS11_Alligator_XP-014457643 -----MERMIVSMQDPDM-GVKMRNRQLLITVIPHAMTGHDI VEWLIQKYSISEE-ESLH LGNLI VRYGYIYPLKDP RNLVLRAD-ESPY 82
RGS11_Anole_XP-003227697 MT-----ISA--LRPGAGGNSRLQLPCLAKMERVIVGMQDPDM-GVKVRSQRLLITVIPHALTGS DIVQWLVQKYSI AED-EALH LGNLI VRYGYIYPLKDP RSLALRPD-ETPY 105
RGS11_Nanorana_XP-018423234 -----MERLIVAMQDPDI-GIKMRNRQLLITVIPHAMTGHDI VEWLIQKLSINEE-ESLH LGNLI VRYGYIYPLKDP RNLVLRAD-ESPY 82
RGS11_Xenopus_NP-001096497 MT-----INS--LQ---PGKNCKVQMSCLAKMERLVSMQDPDM-GIKMRNRQLLITVIPHAMTGHDI VEWLIQKLSISEE-EAQL HGNLVRYGYIYPLKDP RNLVLRAD-ESPY 103
RGS11_Florida_gar_29521-1-2 MT-----INT--LQ---LSQGGNYKVMQPCFTKMERVIVAMQDPDM-GIKMRNRQLLITVIPHAVTGHDI VEWLIQKFSITEE-EALH VGNLIVRYGYIYPLKDP KTLILRPD-SSLY 103
RGS11_Bowfin_26311-1-2w1-5 MT-----INT--LQ---LQGGSYKVMQPCFTKMERVIVAMQDPDM-GIKMRNRQLLITVIPHAMTGHDI VEWLIQKFSITEE-EALH VGNLIVRYGYIYPLKDP KTLILRPD-ESPY 103
RGS11_Zebrafish_XP-005170921 MT-----INT--LQ---LSQGGVQVQMPCLTKMERMIISMQDPDM-GIKLRNRQLLITVIPHAMTGHDI VEWLIQKLSITDE-EAHL GQFLVRYGYIYPLKEPRNLVLRAD-ESAY 103
RGS11_Medaka_XP-011484761 MT-----INT--LQ---MAKGGVQVQMPCLTKMERMIISMQDPDM-GMKLRNRQLLITVIPHAMTGHDI VEWLIQKLSITDE-EALH GGLVRYGYIYPLKEPRNLVLRAD-ESAY 103
RGS11_Reef_shark_50711-1-1 -----S-----ARIHTATIQAACLNKMEKVILAMQDPDI-GIKMKYQKLLITAI PHAVTGS DVVEWLLQNL SISEE-ESLH LGNLI VRYGYIYPLKDP SKNLILRPD-DSPY 98
RGS11_Bamboo_shark_41815-1-3 MT-----IHT-----SSTHTTKIQMACLAKMEKVIVAMQDPDI-GIKMKYQKLLITAI PHAVTGHDI VEWLIQNL SISEE-ESLH LGDLIVRYGYIYPLKDP KPNFVLRAD-DSPY 102
RGS11_Bluespot_ray_32308-1-2 MT-----IHG-----TGSQLGGAQMACLAKMETLIVAMQDPDI-GIKMRIQRFLV-PIPHLTGNDIFQWLLQNVSA TEE-ESFHLGDLI IRYGYIYPLKDP RSLVLRAD-DSPY 101
RGS11_Western_ray_41178-3-3 MT-----IHN-----TRSHIGSAQMACLAKMEKVIVAMQDPDI-GIKMRIQRFLVTPIPHAMTGHDI FEWLLQNL SISEE-ESFHLGDLI IRYGYIYPLKDP KNLVLRAD-DSPY 102
RGS11_M.mordax_39562-1-2 -----MTSSKKVGCCLVRRMDDTHT-GVPLLTRHRLTFAIPN ASIGYNIADWMLRDMKITQE-ETSNLCNLLVRYGYIYPLVVPATHLGFHP--SKLY 87
RGS11_G.australis_47497-1-2 -----MASSEKVGCLICRMDDTHT-GVPLLTRHRLTFAIPN ASIGYNIADWMLRDMKITQE-ETSNLCNLLVRYGYIYPLVVPATHLGFHP--SKLY 87
RGS11-Partial-Trimmed P.marinus S4RW55 -----VECLVCRMDDKQI-GVPLLTRHRLTFAIPN ASIGYNIADWMLRDMKITQE-ETSNLCNLLVRYGYIYPLVVPATHLGFHP--SKLY 81
RGS11-Partial-Trimmed L.camtschaticum JL5627 -----MODKQI-GVPLLTRHRLTFAIPN ASIGYNIADWMLRDMKITQE-ETSNLCNLLVRYGYIYPLVVPATHLGFHP--SKLY 74
RGS11_E.cirrhatu s_136920-1-2 -----MSGFKEVEMLVGAMQDPDM-GVMNMFQRLLITVIPHAVTGHDI IIRNLTQSD E-EALNLSNLLVRYGYIYPLLEPANFSLVLRAD-DSIY 88
RGS_S.kowalevskii_XP-006813443 MYGMSSEVGGDSGMV--GECGVGGENEMVGVSEVGGENKIVGVSEVGE-SRISLIQLVYNDISIFVFTIGYDLIEWMLNLDIQDS-EALHLANLFCQYGYIYPLQDKNLVLRAD-DSTLY 116
RGS-Partial_S.purpuratus_XP-011673106 -----ASQVV-----MAQGSQ-DQRAVGV--AD--PEESSPMIVYCKIEDIITKMDDKIGGVP IRTVKSFLSKIPSVVITGTDIVQWLMKNLSIEDPVEAHLGSLIAAQGYIFPISD-HVLTMKDD-GTFY 111
RGS6_Human_NP-001191345 MAQGNNGQTSNGV--AD-----ESSNMLVYRKMDVITARMQDEKN-GPIRTVKSFLSKIPSVFSGSDIVQWLNLTIEDPVEAHLGSLIAAQGYIFPISD-HVLTMKDD-GTFY 108
RGS7_Human_NP-002915 1.....10.....20.....30.....40.....50.....60.....70.....80.....90.....100.....110.....120

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RGS9_Human_NP-001159405      RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNFLNKKMNYKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 193
RGS9_Cattle_NP-776595       RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNFLNKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 193
RGS9_Koala_XP-020856566     RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYSPFNKKINXKWFVIMQAKEQY-----KTGKERKKADRVALDCEKAYLVHRC 194
RGS9_Opossum_XP-007482817  RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYSPFNKKINXKWFVIMQAKEQY-----KTGKERKKADRVALDCEKAYLVHRC 194
RGS9_Pigeon_XP-013225676   RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKEHYNMLNKKINXKWFVIMQAKEQY-----KAGKERKKADRVALDCEKAYLVHRC 180
RGS9_Quail_XP-015735540    RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKEHYNMLNKKINXKWFVIMQAKEQY-----KAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Ground-tit_XP-014111246 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKEHYNMLNKKINXKWFVIMQAKEQY-----KAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Turtle_XP-014424786   RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKEHYNMLNKKINXKWFVIMQAKEQY-----RTGKERKKADRVALDCEKAYLVHRC 169
RGS9_Python_XP-007421674   RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKEHYNMLNKKINXKWFVIMQAKEQY-----RTGKERKKADRVALDCEKAYLVHRC 195
RGS9_Garter_snake_XP-013926935 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKEHYNMLNKKINXKWFVIMQAKEQY-----SAGKERTKEDRYTVDYOEKAYLVHRC 195
RGS9_X.laevis_XP-018090999 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYSPFNKKINXKWFVIMQAKEQY-----KAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Florida_gar_21856-1-2 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYKEDNYNMLHKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 196
RGS9_Bowfin_26690-1-1     RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYKEDNYSVLHKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 196
RGS9_Zebrafish_NP-001314729 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LDAHEQEYDYLHKKMNYKWFVIMQAKEQY-----HAGKARPKADRVALDCEKAYLVHRC 196
RGS9_Medaka_XP-004071947   RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEAYEQAHYNNHLEWLNHWDFVIMQAKEQY-----KAGKDRQKPRVVLDCOEKAYLVHRC 197
RGS9_Reef_shark_51239-1-1  RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNLLNKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Bamboo_shark_45486-8-1 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNLLNKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Bluespot_ray_37076-2-1 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNLLNKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Western_ray_41046-8-8 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNLLNKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 195
RGS9_Elephant_shark_XP-007886905 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYEKENYNLLNKKINXKWFVIMQAKEQY-----RAGKERKKADRVALDCEKAYLVHRC 195
RGS9_M.mordax_34174-1-2    RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEEYKEDNYSVLHKKINXKWFVIMQAKEQY-----RSGRERPKCDRVVLENERAHLVHRC 195
RGS9_G.australis_56905-1-2 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LDPYEQELYSTLREKINHWDFVIMQAKEQY-----RSGRERPKCDRVVLENERAHLVHRC 195
RGS9_E.cirrhatus_137654-1-3 RFOTPFYFWPFOQWPAEDDYAIYLAKRNIRKKGII--LEGEYKAYNQLHKKINHWDFVIMQAKEQY-----RAAKERRKCDRVVLENERAHLVHRC 195
RGS11_Human_NP-899180      RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVDYKEDCYDRLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Cattle_NP-001069282 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVDHEKEHYQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Koala_XP-020862219   RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIEHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAVQRKGDRLVIAEQEYIYLVNRRP 201
RGS11_Opossum_XP-001372371 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIDHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Chicken_XP-001231808 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIEHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Pigeon_XP-005508486  RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIEHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 174
RGS11_Ground-tit_XP-014107999 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIEHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 174
RGS11_Turtle_XP-007066592 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIDHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 174
RGS11_Alligator_XP-014457643 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIDHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 174
RGS11_Anole_XP-003227697   RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIGHEKDYNNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 197
RGS11_Nanorana_XP-018423234 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVEYKEDNYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 174
RGS11_Xenopus_NP-001096497 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVEYKEDNYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Florida_gar_29521-1-2 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVDYKEDNYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Bowfin_26311-1-2w1-5 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIDYKEDNYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Zebrafish_XP-005170921 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LIEYEKCYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 195
RGS11_Medaka_XP-011484761  RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LMEYEKERYSLHKKINHWDFVIMQAKEQY-----LRVYMSDQWYVSSHFTQIFQSALCFRASKQRKADRIVLECOEYIYLVNRRP 221
RGS11_Reef_shark_50711-1-1 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LFDYKEDSYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 190
RGS11_Bamboo_shark_41815-1-3 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVDYKEDSYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 194
RGS11_Bluespot_ray_32308-1-2 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LVDYKEDNYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 193
RGS11_Western_ray_41178-3-3 RFOTPFYFWTSTLRPAEELDYAIYLAKRNIRKKGII--LADYKEDSYNQLHKKINHWDFVIMQAKEQY-----RAAKQRKGDRLVIAEQEYIYLVNRRP 194
RGS11_M.mordax_39562-1-2  HFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LAEYEKMYHQLFRSEHHKWFVIMQAKEQY-----RTVQERRKGDRLVIAEQEYIYLVNRRP 179
RGS11_G.australis_47497-1-2 HFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LKEYEKMYHQLFRSEHHKWFVIMQAKEQY-----CTIQERRKGDRLVIAEQEYIYLVNRRP 179
RGS11-Partial-Trimmed P.marinus S4RW55 HFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LAEYEKMYHQLFRSEHHKWFVIMQAKEQY-----RTLKERRKGDRLVIAEQEYIYLVNRRP 173
RGS11-Partial-Trimmed L.camtschaticum JL5627 HFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LAEYEKMYHQLFRSEHHKWFVIMQAKEQY-----RTLQERRKGDRLVIAEQEYIYLVNRRP 166
RGS11_E.cirrhatus_136920-1-2 RFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LADYEKARYQHLLHKKINHWDFVIMQAKEQY-----SAVKERRKGDRLVIAEQEYIYLVNRRP 180
RGS_S.kowalevskii_XP-006813443 RFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LADYEKARYQHLLHKKINHWDFVIMQAKEQY-----RIAKQRKSDKIVLDSQERAFWVHRRP 210
RGS-Partial_S.purpuratus_XP-011673106 RFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LADYEKARYQHLLHKKINHWDFVIMQAKEQY-----RLAKQRKSDKIVLDSQERAFWVHRRP 50
RGS6_Human_NP-001191345   RFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LADYEKARYQHLLHKKINHWDFVIMQAKEQY-----KIDRKKKTERKILDSQERAFWVHRRP 205
RGS7_Human_NP-002915      RFOTPFYFWPDRRHLASDMQYAVHLVKKNVLSNGQ--LADYEKARYQHLLHKKINHWDFVIMQAKEQY-----KVDKRRKTERKILDSQERAFWVHRRP 202
.....130.....140.....150.....160.....170.....180.....190.....200.....210.....220.....230.....240

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RGS9_Human_NP-001159405 PPGMDNVLDYGLDRV--TNPNE--V-----K--KQTVVAVKKEIMYYQQALMRSTVKSSVSLGGIVKYSEQFSSNDAIMSGCLPSNPWITDDTQFWDL 280
RGS9_Cattle_NP-776595 PPGANNVLDYGLDRV--TNPNE--D-----G--KQTVVSVRKEIMYYRQALMRSTVKSSVSLGGIVKYSEQFSSNDAIMSGCLPSNPWITDDTQFWDL 280
RGS9_Koala_XP-020856566 PPGTDNVLDYGLNVR--TNPNE--D-----K--KITITLVVRKENMYYQQALMRSTVKSSVSLGGIVKYSEQFSSNDPIMSGCLPSNPWITDDTQFWEL 281
RGS9_Opossum_XP-007482817 PPGTDNVLDYGLNVR--TNPNE--V-----K--KDTITSLIRKEIMYYQQALMRSTVKSSVSLGGIVKYSEQFSSNDPIMSGCLPSNPWITDDTQFWEL 281
RGS9_Pigeon_XP-013225676 PPGMLDALEYGLDRV--TDPNE--N-----K--KKTMDVYRREIMYYQQAIMKSRVKSSVSLGGIVKYSEQFLSNDPILSGCLPSNPWITDDPFWDL 267
RGS9_Quail_XP-015735540 PPGMLDVLEYGIDRV--TDPNEDKVN-----G--KKTMDVYRREIMYYQQAIMKSRVKSSVSLGGIVKYSEQFLSNDPILSGCLPSNPWITDDPFWDL 285
RGS9_Ground-tit_XP-014111246 PPGMLDVLEYGLDRV--TDPNE--N-----K--KNTMEFYRREIMYYQQAIMKTRVKSSVSLGGIVKYSEQFLSNDPILSGCLPSNPWITDDPFWDL 282
RGS9_Turtle_XP-014424786 PPGMDVLEYGLDRV--TDPNE--N-----K--KKTIDVYRREIMYYQQAIMKSTVKSSVSLGGIVKYSEQFLSNDPIMSGCLPSNPWITDDAEVWEL 256
RGS9_Python_XP-007421674 PPGMDDALEYGLNVR--TDPCE--N-----K--KKTIDVYRREIMYYQQAIMKTRVKSSVSLGGIVKYSEQFCSNDPIISGCLPSNPWITDDVFWEL 282
RGS9_Garter_snake_XP-013926935 PPGMADTLDYGLDRA--IEPCE--N-----K--KKTIEVYRTEIMYLOQLMKTATKSSVSLGGIVKYSEQFCSNDPIISGCLPSNPWITDDVFWEL 282
RGS9_X.laevis_XP-018090999 PPGTLDVLEYGLNRA--TDPNV--V-----K--KNTVDYRRHIMYYQQALMRSTVKSSVSLGGIVKYSEQYKSHDPIISGCLPSNPWITDDAMFWEL 282
RGS9_Florida_gar_21856-1-2 PPGTVMALLEYGLNRF--TDPNA--N-----P--KKTIDVYRREIIFSQQLMKSrvkssvslgglvkyceqyknhdppmagclpsnpwitddtmfwel 283
RGS9_Bowfin_26690-1-1 PPGTINALDYGLNRF--CDPNV--D-----P--KKTIDVYRREIIFNQQLMRSrvkssvslgglvkyceqyknhdppmagclpsnpwitddtmfwel 283
RGS9_Zebrafish_NP-001314729 PPOTHSAMDYGLDRH--IDPNT--E-----E--KKTIDVYRREIIFYQQAIMSRVKSSVSLGAMLVKITFNHNDPFLVPCPLPSNPWITDDNDAYWEL 283
RGS9_Medaka_XP-004071947 PRRTHSALDSSPERL--INPKA--E-----G--KITIDVYRREIIFYQQAIMSRVKSSVSLGALVKFITFKNHDPFLAPCLPSNPWITDDHDAWTL 284
RGS9_Reef_shark_51239-1-1 APGSLDVLDYGINRA--TDPNA--D-----K--KKTIDVYRREIIFYQQALLVRSRVKSSVSLGGIVKYSEQYFTHDPIISGCLPSNPWITDDTMFWEL 282
RGS9_Bamboo_shark_45486-8-1 APGTLDVLDYGINRA--TDPNA--D-----K--KKTIDVYRREIIFYQQALVRSRVKSSVSLGGIVKYSEQYFTHDPIISGCLPSNPWITDDTMFWEL 282
RGS9_Bluespot_ray_37076-2-1 EPGSLDALDYGINRA--TDPNV--N-----K--RKYDYSRREIMYYQQALVRSRVKSSVSLGGIVKYSEQYFTHDPIISGCLPSNPWITDDTMIWEL 282
RGS9_Western_ray_41046-8-8 EPGSLDVLDYGINRA--TDPNM--N-----K--RKYDYSRREIIFYQQALVRSRVKSSVSLGGIVKYSEQYFTHDPIISGCLPSNPWITDDTMIWEL 282
RGS9_Elephant_shark_XP-007886905 PPGALDVLDYGINRA--TDPNE--N-----KVEQKMTIDVYRREIIFYQQALVRSRVKSSVSLAGIVKYSEQYFTHDPIISGCLPSNPWITDDVFWEL 285
RGS9_M.mordax_34174-1-2 PPGAFHALDCGLNRF--VKPGT--E-----E--KPSIEFYRROVMYYQQAVSRSRKSTISLGLVKVYAEAFRVYDPLLAPCLPSNPWITDDTMLWTL 282
RGS9_G.australis_56905-1-2 PPGAFHALESGLNVR--VEPGT--E-----E--KPSVEHYRROVMFYQQAAASRSRKSsvtlgsmvkytesfsvydpllatclpsnpwitddtmcwtl 282
RGS9_E.cirrhatu_137654-1-3 PLGMVNSLEYGVDPK--VDPNS--P-----G--DDTVGCVRQIMYYHSLNRSgsksslslekllkcnqvlshdpiltpclpsnpwitddtmfwel 282
RGS11_Human_NP-899180 PPGADVLEGGPGRGSCAASRVL--M-----M--TKSADFHRKEIEYFRKALGRTRVKSSVCLAYLFCGGRGPHDPLVSGCLPSNPWITDDNDAYWAM 284
RGS11_Cattle_NP-001069282 PPGAPSVLEGGPGRGPCIAGRVV--M-----M--TKTLDVYRREIEYFRALGRARVKSSVCLAYLKFSSQGHDPIMSGCLPSNPWITDDTDYWAM 284
RGS11_Koala_XP-020862219 PPGVNLVMEGGPERGNCYTSRVO--M-----M--TKNMDFYKREIEYCKKAMGRTRVKSSICLAYLKFNDQYMPHDPIMSGCLPSNPWITDDTDYWSM 290
RGS11_Opossum_XP-001372371 PPGALNVMEGGPERGNCYTSRVO--M-----M--TKNMDFYKREIEYCKKAMSRTRVKSSICLAYLKFNDQYMPHDPIMSGCLPSNPWITDDTDYWSM 284
RGS11_Chicken_XP-001231808 PPGAPNVLEGGPERRNCHTTRVO--L-----L--AKNMDYKREIEYCRKAMARTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 284
RGS11_Pigeon_XP-005508486 PPGAPNVLEGGPERRNCHTTRVO--L-----L--TKNMDYKREIEYCRKAMARTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 263
RGS11_Ground-tit_XP-014107999 PPGAPNVLEGGPERRNCHTTRVO--L-----L--TKNMDYKREIEYCRKAMARTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 283
RGS11_Turtle_XP-007066592 PP-----P-----P-----ENTDYYKREIECCRKAMGRTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 240
RGS11_Alligator_XP-014457643 P-----P-----P-----TKNMDYKREIEYCRKAMGRTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 240
RGS11_Anole_XP-003227697 PPGVSNVLEGGPERRNCHTTRVO--L-----L--EKNIDFYKREIEYFRAMVTRVKSSVCLGYIRFNQYVPHDPIISGCLPSNPWITDDTDYWSM 286
RGS11_Nanorana_XP-018423234 SPGCLNVMEYGPKEGDCYTGRCM--L-----L--GKNADYKREIEYFRKAMARTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 263
RGS11_Xenopus_NP-001096497 SPGCLNVMEYGPKEGDCYTGRCM--L-----L--GKNIDFYKREIEYFRKAMARTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 284
RGS11_Florida_gar_29521-1-2 PPGALDVLEGGPERRNCHTTRVO--L-----L--LNSYYKKEIEHRSKALSRTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 282
RGS11_Bowfin_26311-1-2w1-5 PPGAFDILEGGPERRNCHTTRVO--L-----L--LNSYYKKEIEHRSKALSRTRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTDYWSM 282
RGS11_Zebrafish_XP-005170921 PPGTLDIMNYGPERR--MNTRV--V-----V--LNAEYKKEIEHNRMSLARNRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDVFWNM 281
RGS11_Medaka_XP-011484761 PPGVHMLDVGLERONNPNLRAT--L-----L--LNSDFYKNEIEVYRRALGRNRVKSSICLEGYKFNQYVPHDPIISGCLPSNPWITDDTAHWTM 308
RGS11_Reef_shark_50711-1-1 PPGAVDIMEGAPKNNHTTRVKV--L-----L--LNSDFYKNEIEYKALTRSRVKSSISLEGYKFNQYVPHDPIISGCLPSNPWITDDTAHWTM 277
RGS11_Bamboo_shark_41815-1-3 PPGAINIMESTPRGSNIHTTRVT--L-----L--LNSAFYKREIEYKALTRSRVKSSISLEGYKFNQYVPHDPIISGCLPSNPWITDDTAHWTM 281
RGS11_Bluespot_ray_32308-1-2 PPGALNIMESGPRRNTIQARIKL--L-----L--KNSAYYKKEIEYKALTRSRVKSSISLEGYKFNQYVPHDPIISGCLPSNPWITDDTAHWTM 280
RGS11_Western_ray_41178-3-3 PPGALNIMESGPRRNTIQARIKL--L-----L--KNSAYYKKEIEYKALTRSRVKSSISLEGYKFNQYVPHDPIISGCLPSNPWITDDTAHWTM 281
RGS11_M.mordax_39562-1-2 PPGLSDALHGPVKHT--MALHRD--L-----L--OVVELYKKEIIVYCRKALGRARLKPSVSLGGLLYSEQFSPPLDPLLSGCLPNNPWITDDTDYWSM 265
RGS11_G.australis_47497-1-2 PPPEFSDALHGPVKHT--IALHRD--L-----L--OVVELYKKEIIVYCRKALGRARLKPSVSLGGLLYSEQFSPPLDPLLSGCLPNNPWITDDTDYWSM 265
RGS11-Partial-Trimmed P.marinus S4RW55 PPGLDNDALENGPVKHT--MALHRD--L-----L--O-----IVYGRKALGRARLKPSVSLGGLLYSEQFSPPLDPLLSGCLPNNPWITDDTDYWSM 251
RGS11-Partial-Trimmed L.camtschaticum JL5627 PPGLDNDALENGPVKHT--MALHRD--L-----L--O-----OVAELYKNOIVYGRKALGRARLKPSVSLGGLLYSEQFIPPLDPLLSGCLPNNPWITDDTDYWSM 252
RGS11_E.cirrhatu_136920-1-2 PPDTTCVFERDNMRMASTSLAKV--L-----L--KTAEYKKEIIVYCGKALVRARVKSSISLEGYKFNQYVPHDPIISGCLPNNPWITDDTDYWSM 267
RGS_S.kowalevskii_XP-006813443 PPGQINSLESSIKRNCRMTTYNV--K-----K--RRTLEDYKKEIIVYCGKALVRARVKSSISLEGYKFNQYVPHDPIISGCLPNNPWITDDTDYWSM 300
RGS-Partial_S.purpuratus_XP-011673106 PPGQTNCLEADIRKCKNSQAPK--L-----L--KPSPEEFKQVYIYLNRLSKMTIKTSKAIIDLIRYCFERFAEHDPFISGAQPSNPWITDDTDYWSM 140
RGS6_Human_NP-001191345 VPGCVNTEMDIRKCRRLKPKPK--VKSsvygvteesqaqspvhvlsopir--K--KITKEDIRKQVIFLNAQIDRHCLKMSKVAESLIAYTEQVVEYDPLIPAEPSNPWITDDVALWDI 319
RGS7_Human_NP-002915 VPGCVNTEVDIRKSRMRNPKH--TRKsvyglondirshspthtpetk--K--PPTBEDLQQQIKYVQIQLDRHLKMSKVAESLLSYTEQVVEYDPLIPAEPSNPWITDDTDYWSM 316
.....250.....260.....270.....280.....290.....300.....310.....320.....330.....340.....350.....360

RG9_Human_NP-001159405
RG9_Cattle_NP-776595
RG9_Koala_XP-020856566
RG9_Pigeon_XP-013225676
RG9_Quail_XP-015735540
RG9_Ground-tit_XP-014111246
RG9_Turtle_XP-014424786
RG9_Python_XP-007421674
RG9_Garter_snake_XP-013926935
RG9_X.lauevis_XP-018090999
RG9_Florida_gar_21856-1-2
RG9_Bowfin_26690-1-1
RG9_Zebrafish_NP-001314729
RG9_Medaka_XP-004071947
RG9_Reef_shark_51239-1-1
RG9_Bamboo_shark_45486-8-1
RG9_Bluespot_ray_37076-2-1
RG9_Western_ray_41046-8-8
RG9_Elephant_shark_XP-007886905
RG9_M.mordax_34174-1-2
RG9_G.australis_56905-1-2
RG9_E.cirrhatu_137654-1-3
RG11_Human_NP-899180
RG11_Cattle_NP-001069282
RG11_Koala_XP-020862219
RG11_Opossum_XP-001372371
RG11_Chicken_XP-001231808
RG11_Pigeon_XP-005508486
RG11_Ground-tit_XP-014107999
RG11_Turtle_XP-007066592
RG11_Alligator_XP-014457643
RG11_Anole_XP-003227697
RG11_Nanorana_XP-018423234
RG11_Xenopus_NP-001096497
RG11_Florida_gar_29521-1-2
RG11_Bowfin_26311-1-2w1-5
RG11_Zebrafish_XP-005170921
RG11_Medaka_XP-011484761
RG11_Reef_shark_50711-1-1
RG11_Bamboo_shark_41815-1-3
RG11_Bluespot_ray_32308-1-2
RG11_Western_ray_41178-3-3
RG11_M.mordax_39562-1-2
RG11_G.australis_47497-1-2
RG11-Partial-Trimmed P.marinu_54RW55
RG11-Partial-Trimmed L.camtschaticum_JL5627
RG11_E.cirrhatu_136920-1-2
RG_S.kowalevskii_XP-006813443
RG-Partial_S.purpuratus_XP-011673106
RG6_Human_NP-001191345
RG7_Human_NP-002915

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NAKLVEIPTKMRVERWAFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGKTMIDITVKGLKHPHRYVLDAAQTHIYMLMKKDS 400
NAKLVDIPTKMRVERWAFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGKTMIDITVKGLKHPHRYVLDAAQTHIYMLMKKDS 400
NAKLVEIPTKMRVERWAFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGKTMIDITVKGLKHPHRYVLDAAQTHIYMLMKKDS 401
NAKLVDIPTKMRVERWAFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGKTMIDITVKGLKHPHRYVLDAAQTHIYMLMKKDS 401
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NAKLVEIPTKMRVERWAFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 400
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NAKLVEIPTKMRVERWAFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 376
NAKLVEIPTKARVEKWFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 402
NAKLVEIPTKARVEKWFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 402
NAKLVEIPTKARVEKWFNFSSELIIRDPKGRQSFQYFLKKEFSGENLGFWEACEDLKYGDQSKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 402
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NTDDIEVPTKMRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 403
NMRRVEVPTKMRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 404
NIPMVDNPTKLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 402
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NIPMVDNPTKLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 402
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NAPSVDVPTKLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 402
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NAPSAVPTTLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 404
NAPTVEPTTLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 410
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NAPTVEPTTLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 360
NAPTVEPTTLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 360
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NATMVEVPTKLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 371
NATMVEVPTKLRVERWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 300
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NTVVLVDIPTERRVRRWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 260
EM--SKEPSQQRVRRWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 437
EA--SKEPSQQRVRRWTFNFSFELLDSDPRGRQDFOLFLKKEFSGENLAFWEACEDLKYGDQTKVKEKAEIYKFLAPGARRWINIDGTMGITVVRGLKHPHRYVLDAAQTHIYMLMKKDS 434
.....370.....380.....390.....400.....410.....420.....430.....440.....450.....460.....470.....480

RGS9_Human_NP-001159405 YARYLKSPIYKDLAKAIEPQETTK---KSSLPFMRRLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----QKELPP 483
RGS9_Cattle_NP-776595 YARYLKSPIYKEMLAKAIEPQETTR---KSSLPFMRRLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----RKEPPP 483
RGS9_Koala_XP-020856566 YARYLKSPIYKEMLAKAIEPQETSR---RSSLFPFRRRLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KKEIPP 484
RGS9_Opossum_XP-007482817 YARYLKSPIYKEMLAKAIEPQETSK---R-SSLFPFMRRLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KKEIPP 483
RGS9_Pigeon_XP-013225676 YGRYLKSPVYKEMLAKAVVPEQTVK---KSNFPPFRRRLRSLSSPSPVILR---OC-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----QKDP-PP 469
RGS9_Quail_XP-015735540 YGRYLKSPVYKEMLAKAVVPEQTVK---KSSFPFGRRLRSLSSPSPVILR---OC-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KQE-PP 487
RGS9_Ground-tit_XP-014111246 YGRYLKSPVYKEMLAKAVVPEGVK---KSTGL-FGRRLRSLSSPSPVILR---OC-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KREAPP 484
RGS9_Turtle_XP-014424786 YGRYLKSPVYKEMLAKAVVPEQTVK---KSSFPFARRHLRSLSSPSPVILR---OC-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KQE-PP 458
RGS9_Python_XP-007421674 YGRYLKSPVYKEMLAKAVVPEQAVK---KSSNPPFVRKHLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KREAPP 485
RGS9_Garter_snake_XP-013926935 YGRYLKSPVYKEMLAKAVVPEQVVK---KSSNPPFARKHLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KREAPP 485
RGS9_X.laevlis_XP-018090999 YARYLKSPIYKEMLAKAVVPEQTKK---SNFPFMRRLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KQETPK 483
RGS9_Florida_gar_21856-1-2 FGRYMKSPIYKEMLAKAVVPEQTKL---NEGKFGFNRKHLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KQEPPO 487
RGS9_Bowfin_26690-1-1 FGRYMKSPIYKEMLAKAVVPEQTKV---SEKFGFNRKHLRSLSSPSPVILR---OL-EEEAKAREAAAT---VDITQVM-SKLDRRSQL-----KQEPAP 487
RGS9_Zebrafish_NP-001314729 FYRYLKSPIYKEMLAKAVVPEQPHNF---TEAGLEONMRRRPSISPIITY---OK-EEEEKAKAAAAAGP-VDIKLMA-SKLDRRK--- 480
RGS9_Medaka_XP-004071947 FYRYLKSPIYKEMLAKAVVPEAHNF---SPAOLEQNAONRNPIDPIILW---OC-DEEEKAKAAAAAGP-VDVKAMM-SKIDRRK--- 481
RGS9_Reef_shark_51239-1-1 YPRFLKSDMYKEMLAKAVVPEETK---OKSNFPMRRLRSLSSPSPVILR---OL-ELEAKAKAAAAAGTKVVDITQVM-SKLDRRSQL-----KQEPK 487
RGS9_Bamboo_shark_45486-8-1 YPRFLKSDMYKEMLAKAVVPEETK---PKSNFPMRRLRSLSSPSPVILR---OL-ELEAKAKAAAAAGTKVVDITQVM-SKLDRRSQL-----KQEPK 487
RGS9_Bluespot_ray_37076-2-1 YPRFLKSDMYKEMLAKAVVPEETK---OKSNFPMRRLRSLSSPSPVILR---OL-EEEARAAAAAGTKVVDITQVM-SKLDRRSQL-----KQEPK 486
RGS9_Western_ray_41046-8-8 YPRFLKSDMYKEMLAKAVVPEETK---OKSNFPMRRLRSLSSPSPVILR---OL-EEEARAAAAAGTKVVDITQVM-SKLDRRSQL-----KQEPK 486
RGS9_Elephant_shark_XP-007886905 YPRFLKSDMYKEMLAKAVVPEQTK---OKS-FPFMRRLRSLSSPSPVILR---OL-EEEARAAAAAGTKVVDITQVM-SKLDRRSQL-----KQEPK 489
RGS9_M.mordax_34174-1-2 FYRYLKSPIYKEMLAKAVVPEQTKV---S---ARFARHTSPSPVSLR---AE-EEEARAAAAAGTKVVDITQVM-SKLDRRSQL-----AK--- 478
RGS9_G.australis_56905-1-2 FYRYLKSPIYKEMLAKAVVPEQTKV---S---ARFPRHASPSPVSLR---AA-EEEEKAKAAAAAGP-VDITQVM-SKLDRRSQL-----AK--- 478
RGS9_E.cirrhatu_137654-1-3 YPRYLKSDLYKEMLAKAVVPEQTKI---STLPPFVHPKRHSSPSPVILR---NE-EDTAPLIPLPASAEVSGFSSIF-SPRIYRGPP---AVGPGG 486
RGS11_Human_NP-899180 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 467
RGS11_Cattle_NP-001069282 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 465
RGS11_Koala_XP-020862219 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 481
RGS11_Opossum_XP-001372371 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 476
RGS11_Chicken_XP-001231808 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 473
RGS11_Pigeon_XP-005508486 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 450
RGS11_Ground-tit_XP-014107999 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 450
RGS11_Turtle_XP-007066592 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 427
RGS11_Alligator_XP-014457643 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 432
RGS11_Anole_XP-003227697 YPRFLKSDMYKEMLAKAVVPEQTKI---RVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 470
RGS11_Nanorana_XP-018423234 YPRYLKSEMYKEMLAKAVVPEQTKI---GVFPFMRRLRSLSSPSPAF-LF---PPGDESKADGDSRVNSPAAQSGE--- 452
RGS11_Xenopus_NP-001096497 YPRYLKSEMYKEMLAKAVVPEQTKI---GVFPFMRRLRSLSSPSPAF-LF---PPGDESKADGDSRVNSPAAQSGE--- 469
RGS11_Florida_gar_29521-1-2 YPRFLKSDLYKEMLAKAVVPEQTKI---SVFPFMRRLRSLSSPSPA-LVS---CPAEDDGKSKAA---PSSSGTVSQV-EE--- 471
RGS11_Bowfin_26311-1-2w1-5 YPRYLKSDLYKEMLAKAVVPEQTKI---SVFPFMRRLRSLSSPSPA-LVS---CPAEDDGKSKAA---PSSSGTVSQV-EE--- 469
RGS11_Zebrafish_XP-005170921 YPRYLKSDLYKEMLAKAVVPEQTKI---SVFPFMRRLRSLSSPSPA-LVS---CPAEDDGKSKAA---PSSSGTVSQV-EE--- 471
RGS11_Medaka_XP-011484761 YPRYLKSDLYKEMLAKAVVPEQTKI---SVFPFMRRLRSLSSPSPA-LVS---CPAEDDGKSKAA---PSSSGTVSQV-EE--- 487
RGS11_Reef_shark_50711-1-1 YPRYLKSDMYKEMLAKAVVPEQTKI---CMIPFLRWYRNSQSSA-OMF---YPKDGDGKGD---TVSQV-ON--- 461
RGS11_Bamboo_shark_41815-1-3 YPRYLKSDMYKEMLAKAVVPEQTKI---SMVPFMRWHRYNSASSV-OMF---YPKDNDGKGD---TVSQV-ON--- 465
RGS11_Bluespot_ray_32308-1-2 YPRYLKSDMYKEMLAKAVVPEQTKI---SVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 467
RGS11_Western_ray_41178-3-3 YPRYLKSDMYKEMLAKAVVPEQTKI---SVFPFTRWRHSSPSPAL-LP-TPVPEPTAACGGGGD---G-VA--- 465
RGS11_M.mordax_39562-1-2 YPRYLKSDLYKEMLAKAVVPEQTKI---HSH--- 413
RGS11_G.australis_47497-1-2 YPRYLKSDLYKEMLAKAVVPEQTKI---HPLSGTRSL--- 419
RGS11-Partial-Trimmed_P.marinus_S4RW55 YPRYLKSDLYKEMLAKAVVPEQTKI---HPLSGTRSL--- 391
RGS11-Partial-Trimmed_L.camtschaticum_JL5627 YPRYLKSDLYKEMLAKAVVPEQTKI---HPLSGTRSL--- 300
RGS11_E.cirrhatu_136920-1-2 YPRYLKSEMYKEMLAKAVVPEQTKI---RIFPLMMRRLSSPPIIT-LOG---I--- 433
RGS_S.kowalevskii_XP-006813443 YPRFLKSDAYKEMLAKAVVPEQTKI---LKTAKVTPNASPOPLRRR---GS-ANDMTHKAHNARHGLSLSTGNL---ODLDSDEKINADFLYSDVYCGGESKENSPPN-QSPTSN 531
RGS-Partial_S.purpuratus_XP-011673106 YQRFLKSDYKEMLAKAVVPEQTKI---RRTSLEKFTRSVGVKSLAGKR---LGLM-OS 363
RGS6_Human_NP-001191345 YPRFLKSDAYKEMLAKAVVPEQTKI---RRTSLEKFTRSVGVKSLAGKR---LGLM-OS 489
RGS7_Human_NP-002915 YPRFLKSDAYKEMLAKAVVPEQTKI---RRTSLEKFTRSVGVKSLAGKR---LGLM-OS 486

.....490.....500.....510.....520.....530.....540.....550.....560.....570.....580.....590.....600

RGS9_Human_NP-001159405	-K-	484
RGS9_Cattle_NP-776595	-K-	484
RGS9_Koala_XP-020856566	-K-	485
RGS9_Opossum_XP-007482817	-K-	484
RGS9_Pigeon_XP-013225676	-K-	470
RGS9_Quail_XP-015735540	-K-	488
RGS9_Ground-tit_XP-014111246	-K-	485
RGS9_Turtle_XP-014424786	-K-	459
RGS9_Python_XP-007421674	AN-	487
RGS9_Garter_snake_XP-013926935	AK-	487
RGS9_X.laevis_XP-018090999	P	485
RGS9_Florida_gar_21856-1-2	KI-	489
RGS9_Bowfin_26690-1-1		487
RGS9_Zebrafish_NP-001314729		480
RGS9_Medaka_XP-004071947		481
RGS9_Reef_shark_51239-1-1	QE--AQ-	491
RGS9_Bamboo_shark_45486-8-1	QE--A-	490
RGS9_Bluespot_ray_37076-2-1	PE--AQ-	490
RGS9_Western_ray_41046-8-8	PE--AQ-	490
RGS9_Elephant_shark_XP-007886905	EEPPKQ-	495
RGS9_M.mordax_34174-1-2		478
RGS9_G.australis_56905-1-2		478
RGS9_E.cirrhatuS_137654-1-3	SNAISCNPMON-	498
RGS11_Human_NP-899180		467
RGS11_Cattle_NP-001069282		465
RGS11_Koala_XP-020862219		481
RGS11_Opossum_XP-001372371		476
RGS11_Chicken_XP-001231808		473
RGS11_Pigeon_XP-005508486		450
RGS11_Ground-tit_XP-014107999		450
RGS11_Turtle_XP-007066592		427
RGS11_Alligator_XP-014457643		432
RGS11_Anole_XP-003227697		470
RGS11_Nanorana_XP-018423234		452
RGS11_Xenopus_NP-001096497		469
RGS11_Florida_gar_29521-1-2		471
RGS11_Bowfin_26311-1-2w1-5		469
RGS11_Zebrafish_XP-005170921		471
RGS11_Medaka_XP-011484761		487
RGS11_Reef_shark_50711-1-1		461
RGS11_Bamboo_shark_41815-1-3		465
RGS11_Bluespot_ray_32308-1-2		467
RGS11_Western_ray_41178-3-3		465
RGS11_M.mordax_39562-1-2		413
RGS11_G.australis_47497-1-2		419
RGS11-Partial-Trimmed_P.marinus_S4RW55		391
RGS11-Partial-Trimmed_L.camtschaticum_JL5627		300
RGS11_E.cirrhatuS_136920-1-2		433
RGS_S.kowalevskii_XP-006813443	KKFIIIGSPIISRKKVNFITQEHVNMSEVLPKRYPVNSPDSPEVDINSKPLSFPVPSKKSLLITPWEEODIPTDSSLN	607
RGS-Partial_S.purpuratus_XP-011673106	SRFASLQPMNSTNLKRHGSLG-	385
RGS6_Human_NP-001191345		490
RGS7_Human_NP-002915		487
610.....620.....630.....640.....650.....660.....670.....	


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Gb5L_Human_NP-057278      LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Cattle_XP-010807658 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 296
Gb5L_Opossum_XP-007480030 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Ground_tit_XP-005521542 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 296
Gb5L_Crow_XP-008638229    LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 296
Gb5L_Falcon_XP-005241495 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Turtle_XP-007056427 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Alligator_XP-019333396 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Xenopus_XP-012814636 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Nanorana_XP-018431551 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Coelacanth_XP-014351988 LSSCSFTNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Florida_gar_16504-1-1 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Bowfin_22627-1-1    LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Zebrafish_NP-957040  LSSCSFTNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Medaka_XP-011491247 VSGCFTNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Reef_shark_40872-1-1 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Bamboo_shark_37645-2-1 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Bluespot_ray_28709-1-1 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_Western_ray_37263-2-2 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5S_Elephant_shark_XP-007904318 LSACSF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 255
Gb5L_M.mordax_41947-2-2   LSACCF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L_G.australis_57438-2-2 LSACCF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5L-Partial_P.marinus_S4RZE3 LSACCF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 213
Gb5L_E.cirrhatuS_130391-1-2 LSACCF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 297
Gb5_S.kowalevskii_XP-002740524 MSCCSFTNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 254
Gb5_S.purpuratus_XP-792481  VSCCF TNSDMQ IIL TAS GDGT CALWDVES GQLLQ SFHGHG ADVLCLDLAP SETGNT FVSGGCDKKAMVWDMRSGQCVQAFETHESDINSVRYPPSGDAFA 256
.....210.....220.....230.....240.....250.....260.....270.....280.....290.....300

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Gb5L_Human_NP-057278      SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Cattle_XP-010807658 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 394
Gb5L_Opossum_XP-007480030 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Ground_tit_XP-005521542 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 394
Gb5L_Crow_XP-008638229    SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 394
Gb5L_Falcon_XP-005241495 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Turtle_XP-007056427 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Alligator_XP-019333396 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Xenopus_XP-012814636 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Nanorana_XP-018431551 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Coelacanth_XP-014351988 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Florida_gar_16504-1-1 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Bowfin_22627-1-1    SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Zebrafish_NP-957040  SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Medaka_XP-011491247 SASDDATCRFYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Reef_shark_40872-1-1 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Bamboo_shark_37645-2-1 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Bluespot_ray_28709-1-1 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_Western_ray_37263-2-2 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5S_Elephant_shark_XP-007904318 SGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 353
Gb5L_M.mordax_41947-2-2   TGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L_G.australis_57438-2-2 TGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5L-Partial_P.marinus_S4RZE3 TGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 213
Gb5L_E.cirrhatuS_130391-1-2 TGGDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 395
Gb5_S.kowalevskii_XP-002740524 TASDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 352
Gb5_S.purpuratus_XP-792481  TASDDATCRLYDLRADREVAIYSKES IIFGASSVDFSLSGRLLFAGYNDY TINVWDLVKGSRVSIILFGHENRVSTLRVSPDGTAFCSGSWDHTLRVWA 354
.....310.....320.....330.....340.....350.....360.....370.....380.....390.....

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R9AP Human NP-997274 M-----AREE CKALLDGLNKITACYHHLVLTIVGGSADSONLRELE 41
R9AP Cattle NP-001159988 M-----AKEE CKALLDALNKATACYHHLVLTIVGGSADSONLRELE 41
R9AP Degu XP-004636749 M-----AREE SKALLDAFNKTACYHHLVLTIVGGSADSONLRELE 41
R9AP Opossum XP-007474849 M-----AKEE CKALLDALNRVTACYRHMVLSVGGTSDSONLREELK 41
R9AP Tasmanian devil XP-003757239 M-----AKEE CKVLLDALNRVTACYRHMVLSVGGTADSONLREELK 41
R9AP Koala XP-020840579 M-----AKEE CKALLDALSRVTACYRHMVLSVGGTADSONLREELK 41
R9AP Ground-tit XP-014110984 M-----VKEE CKALLDALNKVTACYRHMVLTIGGTSDSONLREELK 41
R9AP Quail XP-015729517 M-----VKEE CKALLDALSRVTACYRHMVLTIGGTSDSONLREELK 41
R9AP Golden eagle XP-011572427 M-----VKEE CKALLDALNKVTACYRHMVLTIGGTSDSONLREELK 41
R9AP Turtle XP-007058713 M-----VKEE CKALLDALSKVTACYRHMVLTIGGTSDSONLREELK 41
R9AP Alligator XP-014451063 M-----VKEE CKALLDALNKVAACYRHMVLTIGGTADSONLREELR 41
R9AP Garter snake XP-013923971 M-----AKEE CKALLDALSKVTACYRHLVLTIVGGAADSOELREELK 41
R9AP Gecko XP-015270350 M-----VKEE CKALLDALNKVTACYRQLVLTIGGTSDSONLREELK 41
R9AP Anole XP-016852891 M-----AKEE CKALLDALSKVTACYRHLVLTIVGASDSONLRELE 41
R9AP Xenopus XP-004913611 M-----LKEE CKALLDALNKVTACYRHLVLTIGGTSDSONLREELK 41
R9AP Nanorana XP-018425514 M-----PAEE CRALLDALNKVTACYRHLVLTIGGTSDSONLREELK 41
R9AP Coelacanth XP-006005212 M-----VKDE CKTLLDALNKVTACYRHMVLTIGVGTSDSONLREELK 41
R9AP Florida gar 28835-2-1 M-----GKEE CKTLLDALNKVTACYRHLVAVGTTSDSONLREELK 41
R9AP Bowfin 1668-1-1 M-----GKEE CKTMLDALNKVTACYRHLVIAVGGTSDSONLREELK 41
R9AP Zebrafish XP-005169975 M-----GKDE CKTMLDALNKVTACYRHLVIALGSTSDSONLREELK 41
R9AP Asian bonytongue XP-018594265 M-----GKEE CKTMLDALNRVTACYRHLVLTIGSTSDSONLREELR 41
R9AP Reef shark 40575-1-1 M-----MKDE CKALLDALNKVSACYRHLVICAGGTSDSONLREELK 40
R9AP Bamboo shark 37642-1-1 M-----VKDE CKTLLDALNKVSACYRHLVICAGGSSDSONLREELK 41
R9AP Bluespot ray 25945-2-2 M-----VNDE CKTLLDALNKVSACYRHLVICAGGTSDSONLREELK 41
R9AP Western ray 30726-1-1 M-----VKDE CKTLLDALNKVSACYRHLVICAGGTSDSONLREELK 41
R9AP Elephant shark XP-007887765 M-----VRDE CKTLLDALNKVSACYRHLVVCVGGTSDSONLREELR 41
R9AP M.mordax 41679-5-1 MA-----GASSAETDAQ CAALVQSLNKVTACHHHLAVSLGGSADCARLREELR 48
R9AP G.australis 56404-2-1 M-----AETDAQ CAALVQSLNKVTACHHHLAVSLGGSADCARLREELR 43
R9AP L.camtschaticum JL14914 MA-----TEGAESDSC CAALVQSLNKVTACHHHLAVSLGGSADCARLREELR 48
R9AP E.cirrhatus 138946-5-1 MP-----GSVMA-ACEE CRALVQALNKVTACFRQLVMSIGGSSDSLNLREELR 47
R9AP-B Xenopus XP-002941417 MP-----LQNVKVADEGVSNFQKVKEE CTTAVEGLHKVVACYRHLALTIGGSSDSIHLRDEL 58
R9AP-B Nanorana XP-018419161 MP-----IQNNKVGNEACINSLKVKEE CSTVVEALNKVVACYRHLAVSLGSSDSKRLREELR 58
R9AP-B-Partial Coelacanth XP-006013654 MP-----IQNIKVADEGVSNSQTKKEE CRALVEALNKVIACYRHLAICVGGSSDCNLRDEL 58
R9AP-B Florida gar 25574-1-1 MP-----VSNNKIANDGNADSIKSRREE AKALVEALIKVVACYRHAAEVGGSTDSNLRDEL 58
R9AP-B Zebrafish NP-001314844 MP-----LSNNKVADDS--STOPLQE GRAMVDSLIVKVVACYRHAAECVGGTSDSSLRRLDLR 56
R9AP-B Asian bonytongue XP-018613071 MT-----LCNSKVADRGDGSQQPLEE AKTLVDTLAKVVACYRQLSSCVGGSSDVRLRDEL 58
R9AP-B Reef shark 612-1-1 MP-----IQNSKVADEGTANSKARDD CRSLVDLNLKVTGCYKHLAIVGGSSDCTNLRDEL 58
R9AP-B Bamboo shark 45543-9-1 MP-----IQSSKVADEGTANSARERDE CRALVDLNLKVTGCYRHLAIVGGSADCSNLRDEL 58
R9AP-B Bluespot ray 37118-18-1 MP-----IQNIKVADEGTVGSAKARDD CRALVDLNLKVTGCYRHLAIVGGSADSAGLRDEL 58
R9AP-B Western ray 39739-1-1 MP-----IQNIKVADEGAAGSAKARDD CRALVDLNLKVTGCYRHLAIVGGSADSVGLRDEL 58
R9AP-B Elephant shark XP-007902235 MP-----IHSTKVADEGTAKSERARGE CRALVQSLNKVI GCYKHLAVNLGGSSDSTNLRDEL 58
R9AP-like Degu XP-004636181 MQ-----RC-PG-PREPE-DAATAE SRAALDALCRFAAGYRHLAMGVGSSADGPRLRALAE 53
R9AP-like Opossum XP-007475029 MR-----GGGAG-ERAREAREAVAE CRAAYEALNRFTASYRQLVIVGGSADGRRLRRALAE 55
R9AP-like Tasmanian devil XP-003759057 MR-----GAGPG-ERAREAREAVAE CRAAYEALNRFTASYRQLVIVGGSADGRRLRRALAE 55
R9AP-like Koala XP-020821390 MR-----GAGPG-ERAREAREAVAE CRAAYEALNRFTASYRQLVIVGGSADGRRLRRALAE 55
R9AP-like Quail XP-015737481 MA-----PG-RGAASGGARGV CVATQAAALCKAAAGHRQLVQLGGSSADGPOLREERR 52
R9AP-like Ground-tit XP-005524972 MA-----PGRRDACRGRGAVGT CATACVALCKATAGHRQLVQLGGSSADSPOLREERR 53
R9AP-like Turtle XP-007067829 MS-----HA-----PDSHSGVEVRGA CAATHISLSKVTIVWHQLALQLGGTSDSPOLRDELQ 52
R9AP-like Alligator XP-014450013 MA-----SRAPVGE CAAHAALGRVTAHRQLALLLGSAAACAQLREELQ 45
R9AP-like Coelacanth XP-005986755 MP-----LLRSRSVDDAONIGELVKE TKKAQALLSKILBCFRHLVLCIGGTSDSAKLRREE 57
R9AP-like Xenopus NP-001011277 MAAPEVSSAGPNMLHPNSRTLLRGRKRGHAAEDSSQGAVSD CKKMHSLSNKVTACYRQLVLCVGGTSDCTRLREELE 77
R9AP-like Nanorana XP-018419805 MSAPEVASPAPPHLHP-SRTLLRGRIRGHATESSGGQTVSE CKKVHISLNKVTACYRQLVLCVGGTSDCTRLREELE 76
R9AP-like Spotted gar XP-006639786 MS-----PWRRSVGELPAAGGSVAE CKKAQASLTRVTACFOQLAMCVGGSTDCSRLREELE 56
R9AP-like Zebrafish NP-001018364 MN-----RWQRSVVEITQTRKRVQNE CERAOVALSKVTACFOQMSISLGSNVGDSFLREEME 56
R9AP-like Asian bonytongue XP-018611369 MN-----RWRKSVGEIQARRAVAE CTRAOVAFSRVTACFOQLAICVGGSSDCSRLREELE 56
R9AP S.kowalevskii XP-006814063 MH-----LTIFFE RMLVREFNSATAYYRNLIITLGGSHDSESLRDELIR 43
R9AP S.purpuratus XP-011683108 MG-----TWIFLLGLLGRCTPLQKRASEFVKPSSAIHSSGMNALHFGKNMIRRHNSCNRNHSDIQQDPETDEIEDCGMPLCTKLVKDFNVETARYHDLTLTLGGSSDESEYLRDELK 111
R9AP S.purpuratus XP-011666321 M-----MKKTLHVPDISEYLRDELK 19
1.....10.....20.....30.....40.....50.....60.....70.....80.....90.....100.....110.....120.....130

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R9AP Human NP-997274
R9AP Cattle NP-001159988
R9AP Degu XP-004636749
R9AP Opossum XP-007474849
R9AP Tasmanian devil XP-003757239
R9AP Koala XP-020840579
R9AP Ground-tit XP-014110984
R9AP Quail XP-015729517
R9AP Golden eagle XP-011572427
R9AP Turtle XP-007058713
R9AP Alligator XP-014451063
R9AP Garter snake XP-013923971
R9AP Gecko XP-015270350
R9AP Anole XP-016852891
R9AP Xenopus XP-004913611
R9AP Nanorana XP-018425514
R9AP Coelacanth XP-006005212
R9AP Florida gar 28835-2-1
R9AP Bowfin 1668-1-1
R9AP Zebrafish XP-005169975
R9AP Asian bonytongue XP-018594265
R9AP Reef shark 40575-1-1
R9AP Bamboo shark 37642-1-1
R9AP Bluespot ray 25945-2-2
R9AP Western ray 30726-1-1
R9AP Elephant shark XP-007887765
R9AP M. noronae 41679-5-1
R9AP G. australis 56404-2-1
R9AP L. camtschaticum JL14914
R9AP E. cirrhatous 138946-5-1
R9AP-B Xenopus XP-002941417
R9AP-B Nanorana XP-018419161
R9AP-B-Partial Coelacanth XP-006013654
R9AP-B Florida gar 25574-1-1
R9AP-B Zebrafish NP-001314844
R9AP-B Asian bonytongue XP-018613071
R9AP-B Reef shark 612-1-1
R9AP-B Bamboo shark 45543-9-1
R9AP-B Bluespot ray 37118-18-1
R9AP-B Western ray 39739-1-1
R9AP-B Elephant shark XP-007902235
R9AP-like Degu XP-004636181
R9AP-like Opossum XP-007475029
R9AP-like Tasmanian devil XP-003759057
R9AP-like Koala XP-020821390
R9AP-like Quail XP-015737481
R9AP-like Ground-tit XP-005524972
R9AP-like Turtle XP-007067829
R9AP-like Alligator XP-014450013
R9AP-like Coelacanth XP-005986755
R9AP-like Xenopus NP-001011277
R9AP-like Nanorana XP-018419805
R9AP-like Spotted gar XP-006639786
R9AP-like Zebrafish NP-001018364
R9AP-like Asian bonytongue XP-018611369
R9AP S. kowalevskii XP-006814063
R9AP S. purpuratus XP-011683108
R9AP S. purpuratus XP-011666321

.....140.....150.....160.....170.....180.....190.....200.....210.....220.....230.....240.....250.....260

R9AP Human NP-997274	VGEMIDNMEMKVNVP	PRWTVQARQAAGAE	LLSTVS	AGPSS	V--VSL	QER	GGGCD	PR	KALAAIL	216					
R9AP Cattle NP-001159988	VGEMIQDMEMKVNVP	PRWTVQARQAAGAE	LLSSAS	AGVSS	VGGVSV	EQR	TGPCD	LS	KAKAATI	218					
R9AP Degu XP-004636749	VGKMINMEMKVNVP	PRWTVQARQAAGAE	LLSSAS	AGASS	A--VSV	PER	TGPCD	LS	KALAAIV	216					
R9AP Opossum XP-007474849	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASS	GGFVSV	EEER	KVCFD	IS	KLLAAIV	218					
R9AP Tasmanian devil XP-003757239	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASS	GGFVSV	EEER	KVCFD	IS	KLLAAIV	218					
R9AP Koala XP-020840579	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASS	GGFVSV	EEER	KVCFD	IS	KLLAAIV	218					
R9AP Ground-tit XP-014110984	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASS	IGMISV	EEN	KSFCD	IS	KVLAGII	218					
R9AP Quail XP-015729517	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	VGASS	IGMISV	EEN	KSFCD	IS	KVLAGII	218					
R9AP Golden eagle XP-011572427	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	VGASS	IGMISV	EEN	KSFCD	IS	KVLAGII	218					
R9AP Turtle XP-007058713	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	VGASS	IGMISV	EEN	KSFCD	IS	KVLAGII	218					
R9AP Alligator XP-014451063	VGEMMYEMEMKVNVP	PHWTVQARQAAGAE	LLKSTIS	MGASS	MGMISV	EEN	KSFCD	IS	KVLAGVI	218					
R9AP Garter snake XP-013923971	VGEMMYEMEMKVNVP	PRWTVQARQAAGAE	LLNSNIS	GGAA	LGAVSG	VEN	KTLCD	PS	RVLAATI	218					
R9AP Gecko XP-015270350	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLNSAIS	VAA	IGMIEV	ES	KSYCN	AR	KAVAGSV	217					
R9AP Anole XP-016852891	VGEMRYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASS	LGLISA	EEF	KAFCD	VS	RVLAGII	218					
R9AP Xenopus XP-004913611	MDEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASP	GIISL	DDH	KICD	LN	KVLAGVV	217					
R9AP Nanorana XP-018425514	VGEMMYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	AGASS	PGVST	EDR	KALCD	LS	KLLAAMI	218					
R9AP Coelacanth XP-006005212	VEEMLYEMEMKVNVP	POWTVQARQAAGAE	LLKSTIS	VGASS	VGALSD	GS	KSFCD	PS	KALAGVI	218					
R9AP Florida gar 28835-2-1	VGEMMEEMEMKVNVP	VAHVMVEAKQDP	GAEKSTIS	VGASS	IGVISV	EEN	KSPCD	PT	KILAGVV	219					
R9AP Bowfin 1668-1-1	VGEMMEEMEMKVNVP	VAHVMVEAKQDP	GAEKSTIS	VGASS	IGVISV	EEN	KSGCE	PT	KVLAGVI	219					
R9AP Zebrafish XP-005169975	VDQMMEEEMEMKVNVP	QVAPWAVEAKQEA	GAEKSTIS	VGNS	VGVISICEEP		KEIVG	ENGTM	KIFAGII	224					
R9AP Asian bonytongue XP-018594265	VVQMMEEEMEMKVNVP	QVAPWAVEAKQEA	GAEKSTIS	VGNS	VGVISICEEP		KE	MDSEAGLK	KVFAGII	223					
R9AP Reef shark 40575-1-1	VKEMLIYEMEMKVNVP	PRWTVQARQAAGAE	PE	AGASS	LGMISV	HDDGN	KKLCD	TS	KVFAGAM	215					
R9AP Bamboo shark 37642-1-1	IGEMMYEMEMKVNVP	LQWTVQARQAAGAE	LLKSTAS	AGASS	FGRMPN	EGD	KRLCD	TN	KVFAGAM	220					
R9AP Bluespot ray 25945-2-2	VGEMIHHEMEMKVNVP	LQWTVQARQAAGAE	LLKSTAS	AGVSS	LAAMS	VSGDG	DKLCD	TS	KVFAGAM	219					
R9AP Western ray 30726-1-1	VGEMIIYEMEMKVNVP	LQWTVQARQAAGAE	LLKSTAS	AGASS	FAVMSV	GGGN	DKLCD	TS	KVFAGAM	225					
R9AP Elephant shark XP-007887765	VGDMLYQEMEMKVNVP	PHWTVQARQAAGAE	LLKSTAS	GRTDG	RTARPER			ASSR		206					
R9AP M.mordax 41679-5-1	LGTMLNEMEMKVNVP	PRWTVQARQAAGAE	LLKSTAS	G--SS	VAMLT	TEGARG	DPCCY	PG	RRLVAAF	224					
R9AP G.australis 56404-2-1	LGTMLNEMEMKVNVP	PRWTVQARQAAGAE	LLKSTAS	G--SS	VAMLT	TEGARG	DPCCD	PG	RRLVAAF	219					
R9AP L.camtschaticum JL14914	LGTMLNEMEMKVNVP	PRWTVQARQAAGAE	LLKSTAS	G--SS	VAMLT	TEGARG	EPCCD	PG	RRLVAAF	201					
R9AP E.cirrhatius 138946-5-1	VGELIAEMENKVNVP	PRWTVQARQAAGAE	LLKSTAS	GGGTS	TGMLNV	GARR	RRTCR	LS	RRLSALL	227					
R9AP-B Xenopus XP-002941417	VDNMITDMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS		INDELKSTH	DSS	VVLLS	EEESNS	KG--CCS	DG	QLIVSLL	236			
R9AP-B Nanorana XP-018419161	VDNMITDMELRVNVP	LRWTVQARQAAGAE	LLKSTAS	MNDE	RDNDVSS		TALLS	VDEKES	HN--CCN	GC	GLL	232			
R9AP-B-Partial Coelacanth XP-006013654												135			
R9AP-B Florida gar 25574-1-1	VDKMIDNMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	LYADPLST	ETSS		VALLS	LDEEDG	GR--CCD	RS	QFFVSVV	235			
R9AP-B Zebrafish NP-001314844	VDRITLDDMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	QYIDPVST	DSTS		LALLS	MDDEAA	QS--FCS	RS	QMFAMMM	235			
R9AP-B Asian bonytongue XP-018613071	VDQMIEDMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	RYAEP	LSAGD	SS	LALLS	SADAEP	GR--RRE	RS	QLLVVVV	236			
R9AP-B Reef shark 612-1-1	VDRMMENMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	AYHSV	ISN	DASS	VALLS	CAEEEMR	SN--CCD	RE	KCFMSML	235			
R9AP-B Bamboo shark 45543-9-1	VDEMENMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	AYYSV	LST	DASS	MALLS	SEEEEMR	RHGR	CCD	RE	KCFMSVL	236		
R9AP-B Bluespot ray 37118-18-1	VDRMVENMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	AYHSV	LSN	DTSS	VALLS	VDEEVR	GW--WCC	RS	KCLTSML	235			
R9AP-B Western ray 39739-1-1	VDRMVENMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	AYHSV	LSN	DASS	VALLS	VDEEVR	GW--WCC	RS	KCLTSML	235			
R9AP-B Elephant shark XP-007902235	VDRMAEDMEMKVNVP	LRWTVQARQAAGAE	LLKSTAS	EIHSV	VSN	DFSS	TALLS	PEDEVR	RR--ECCD	RE	KWLVVMA	235			
R9AP-like Degu XP-004636181	LAKLQLEMEKVNVP	PPWVVEAATVGG	PPG	SEAA			LFHHY	REEARA	RCQ		ANPV	CRSKG	216		
R9AP-like Opossum XP-007475029	LEEMLLEMETKVNVP	PPWVVEAATVGG	PPG	AEEPS			PEGS	ARRSPG	CCA		QAPPGTTFGLQLTNF	PSCLWRK	KO	238	
R9AP-like Tasmanian devil XP-003759057	LEEMLLEMETKVNVP	PPWVVEAATVGG	PPG	ALEHS			PESS	AGRS	PRG	CCA	RGPD		RLOS	223	
R9AP-like Koala XP-020821390	LEEMLVEMETKVNVP	PPWVVEAATVGG	PPG	AEEPS			LEGS	AGRS	PRG	CCA	RAPL		RLOS	223	
R9AP-like Quail XP-015737481	VRAMMVESTANIPLWTV	ESMHVGP		EE--G			TEPT	SHRPPG		TGSC		VL		199	
R9AP-like Ground-tit XP-005524972	VRAITLAEMESGANIP	PPWVVEAATVGG	PPG	AETSG			TTTRA	AWGGPC		AGHCCG		VL		208	
R9AP-like Turtle XP-007067829	VGAMLLEMETRVNVP	PPWVVEAATVGG	PPG	AEGSC			SERQ	AAEVAGGLG	CCGQ	CODWPALCCT		LS		234	
R9AP-like Alligator XP-014450013	VGAMLLEMETRVNVP	PPWVVEAATVGG	PPG	AE--			AEGV	GGEMPPGM		EAPGHCT		VS		218	
R9AP-like Coelacanth XP-005986755	IGKTLQEMELKANIP	PIWSVEAEEA	WAEEVTS	SAVAL	EDASS		NDVL	TMDESTN	R--HCCY	R		GCWL		229	
R9AP-like Xenopus NP-001011277	MERMLHDMQMKVSIPI	WTVQARQAAGAE	LLKSTAS	CDL	DECSD		NEIL	LAGEDITS	R--GCCA	H		GOSLPGP		260	
R9AP-like Nanorana XP-018419805	VERMLHDMQMKVSIPI	WTVQARQAAGAE	LLKSTAS	CDL	DDCSD		NEIL	LAGEDISS	R--GCCA	G		ROSLARP		258	
R9AP-like Spotted gar XP-006639786	LERMAQDLQVSVPIWS	VEAATVGG	PPG	ELDP	DDRVT	S	EELLT	VEELSQ	GAER	QAGCCR	YP		GCRLGWI	243	
R9AP-like Zebrafish NP-001018364	IDVLEEMLQVSVPIWS	VEAATVGG	PPG	VESS	ADVSHV	TF	EEMME	VEVVSQ	N--KTS	GCCH	HH		NCKVGL	240	
R9AP-like Asian bonytongue XP-018611369	LETMAQEMLRKVNVP	PPWVVEAATVGG	PPG	EQDDEEV			VEMS	VEVTVT	E	GGRLAGCCH	YP		GCR	238	
R9AP S.kowalevskii XP-006814063	LREMLLEMHRSIDIK	PPWVVEAATVGG	PPG	VESS	ADVSHV	TF	EEMME	VEVVSQ	N--KTS	GCCH	HH		NCKVGL	240	
R9AP S.purpuratus XP-011683108	LRNLMSEMHRCVDIK	PPWVVEAATVGG	PPG	VESS	ADVSHV	TF	EEMME	VEVVSQ	N--KTS	GCCH	HH		NCKVGL	240	
R9AP S.purpuratus XP-011666321	LRNLMSEMHRCVDIK	PPWVVEAATVGG	PPG	VESS	ADVSHV	TF	EEMME	VEVVSQ	N--KTS	GCCH	HH		NCKVGL	240	
															255
															291
															199

.....270.....280.....290.....300.....310.....320.....330.....340.....350.....360.....370.....380.....390

R9AP_Human_NP-997274	-----FCGAVLLAAVALAVCVAKLS-----	235
R9AP_Cattle_NP-001159988	-----FSAVLLAAVALAVCVAKLS-----	237
R9AP_Degu_XP-004636749	-----FSAVLLAAVALALCVAKLS-----	235
R9AP_Opossum_XP-007474849	-----FSAVLIIAVILAVCVVKLS-----	237
R9AP_Tasmanian_devil_XP-003757239	-----FSAVLIIAVILAVCVVKLS-----	237
R9AP_Koala_XP-020840579	-----FSAVLIIAVILAVCVVKLS-----	237
R9AP_Ground-tit_XP-014110984	-----FTAVLLIIAIVLAVCVVKLS-----	237
R9AP_Quail_XP-015729517	-----FSAVLIIAIVLAVCVVKLS-----	237
R9AP_Golden_eagle_XP-011572427	-----FSAVLIIAIVLAVCVVKLS-----	237
R9AP_Turtle_XP-007058713	-----FSAVLIIAIVLAVCVVKLS-----	237
R9AP_Alligator_XP-014451063	-----FSAVLIIAIVLAVCVVKLS-----	237
R9AP_Garter_snake_XP-013923971	-----FTAVLLIIAIGLAVCVAKLS-----	237
R9AP_Gecko_XP-015270350	-----FSAVLLIAVVLAVCVVKLS-----	236
R9AP_Anole_XP-016852891	-----FTAVLLVAIILAVCVAKLS-----	237
R9AP_Xenopus_XP-004913611	-----FSAVLIIAIIILAVCVVKLS-----	236
R9AP_Nanorana_XP-018425514	-----FSAVLLVAVILAVCVVKLS-----	237
R9AP_Coelacanth_XP-006005212	-----FTAVLMTAIVLAVCVVKLS-----	237
R9AP_Florida_gar_28835-2-1	-----FTAVLFVAIVLALCVIKLS-----	238
R9AP_Bowfin_1668-1-1	-----FTAVLLIIAIIILAFCVIKLS-----	238
R9AP_Zebrafish_XP-005169975	-----FTAVLLIIAGILGYLVINL-----	242
R9AP_Asian_bonytongue_XP-018594265	-----FTAIILMAGILAFCVIKLS-----	242
R9AP_Reef_shark_40575-1-1	-----FAAVLIFAIALAVCVVKFA-----	234
R9AP_Bamboo_shark_37642-1-1	-----FTAVLVFAIVLALCVVKFA-----	239
R9AP_Bluespot_ray_25945-2-2	-----FSAVLIIAIVLAFCAIVKFA-----	238
R9AP_Western_ray_30726-1-1	-----FSAVLIIAIVLAACIVKFA-----	244
R9AP_Elephant_shark_XP-007887765	-----FP-----TRAPTRSRRA-----	218
R9AP_M.mordax_41679-5-1	-----CGGALLLALVLAADVIFSL-----	243
R9AP_G.australis_56404-2-1	-----CGGALLLAFVLAADVVMFA-----	238
R9AP_L.camtschaticum_JL14914	-----CGGALLLALVLAADVVMFA-----	220
R9AP_E.cirrhatus_138946-5-1	-----FTMIILLAVVLSVCVAKFA-----	246
R9AP-B_Xenopus_XP-002941417	-----FCGTLVAITLYS-----IL-----	251
R9AP-B_Nanorana_XP-018419161	-----FCGTLVAITLYS-----FL-----	234
R9AP-B-Partial_Coelacanth_XP-006013654	-----FCGTLVAITLYS-----FL-----	135
R9AP-B_Florida_gar_25574-1-1	-----LCGIAMVAVVLSVCVVYLL-----	254
R9AP-B_Zebrafish_NP-001314844	-----LCGVAMFAVVLSVCVVFVLV-----	254
R9AP-B_Asian_bonytongue_XP-018613071	-----VSVAVAVATMLFVCIVVYLV-----	255
R9AP-B_Reef_shark_612-1-1	-----FCTVALIAVVLSVCVVNLA-----	254
R9AP-B_Bamboo_shark_45543-9-1	-----FCTVALIAVGLSVCVVNLS-----	255
R9AP-B_Bluespot_ray_37118-18-1	-----LCTAALAAVVLSVCAANIA-----	254
R9AP-B_Western_ray_39739-1-1	-----LCTAALTAVVLSVCAANLA-----	254
R9AP-B_Elephant_shark_XP-007902235	-----LCTAALVAVVLSVCVATFA-----	254
R9AP-like_Degu_XP-004636181	-----LCTAALVAVVLSVCVATFA-----	216
R9AP-like_Opossum_XP-007475029	-----HKNSF-----	243
R9AP-like_Tasmanian_devil_XP-003759057	-----HCIVA-----	228
R9AP-like_Koala_XP-020821390	-----HCIVA-----	228
R9AP-like_Quail_XP-015737481	-----HCIVA-----	199
R9AP-like_Ground-tit_XP-005524972	-----HCIVA-----	208
R9AP-like_Turtle_XP-007067829	-----HCIVA-----	234
R9AP-like_Alligator_XP-014450013	-----HCIVA-----	218
R9AP-like_Coelacanth_XP-005986755	-----ICVIS-----	234
R9AP-like_Xenopus_NP-001011277	-----LCMVS-----	265
R9AP-like_Nanorana_XP-018419805	-----LCMVS-----	263
R9AP-like_Spotted_gar_XP-006639786	-----LCLVN-----	248
R9AP-like_Zebrafish_NP-001018364	-----LCLLS-----	245
R9AP-like_Asian_bonytongue_XP-018611369	-----LCLMH-----	243
R9AP_S.kowalevskii_XP-006814063	-----LSGLRGAHFIDIKYLVFVKAVVPLAFDFLDQVKLPINIGSVPLQCIHAQLDQRAASLGPGCATPELSAQDDVVPVPIPPPTVEQVCGGGQVNDQEDNKL-----	354
R9AP_S.purpuratus_XP-011683108	-----V-----	292
R9AP_S.purpuratus_XP-011666321	-----LITLVFAFAAVLIICLVLLLEGK-----	220
400.....410.....420.....430.....440.....450.....460.....470.....480.....	