

Human and Marmoset STING:

Human	1	MPHSSLHPSIPCPRGHGAQKAALVLLSACLVTWGLGEPPEHTLRYLVLH	50
Marmoset	1	MPHSSLHPSIPHPRGHGAQEAALVLLSVCLVTWVWLREAPEDILRFLVLH	50
Human	51	LASLQLGLLLNVCSLAEELRHIHSRYRGSYWRTVRACLGCPLRGALLL	100
Marmoset	51	LASLQLGLLLNRLCSLAEELRHVHTRYQGSYWRACLGCPIRLGAQLL	100
Human	101	LSIYFYSLPNAVGPPFTWMLALLGLSQALNILLGLKGLAPAEISAVCEK	150
Marmoset	101	LSIYFYCFLLPN--GRPFTWMLALLGLFSQALNILLGLKGLAPAEISAVCEK	148
Human	151	GNFNVAHGLAWSYYIGYLRILPELQARIRTYNQHYNNLLRGAVSQRLYI	200
		.	
Marmoset	149	RNFNVAHGLAWSYYIGYLRILPGFQARIRTYNQHNNNVLRGPASQRLYI	198
Human	201	LLPLDCGVDPNLSMADPNIRFLDKLPQQTGDHAGIKDRVYSNSIYELLEN	250
		.	
Marmoset	199	LFPLDCGVDPNLSADPNIRFLDKLPQETIDRAGIKGRVYTNSIYELLEN	248
Human	251	GQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLEQAKLFCRTLEDILA	300
Marmoset	249	GQRAGACVLEYASPLQTLFAMSQYQAGFSREDRLEQAKLFCRTLEDILA	298
Human	301	DAPESQNNCRLIAYQEPADDSSFSLSQEVLRLRQEEKEEVTVGSLKTS	350
Marmoset	299	DAPESQNNCRLIVYEEPADGSSFLLSQEVLQHLRQEEEEVTVGSLKTSE	348
Human	351	VPSTSTMSQEPPELLISGMEKPLPLRTDFS	379
Marmoset	349	VPSTSTMSQEPPELLISGMEKPLPLRSDLF	377

FIGURE 2

Human	1	MPHSSLHPSPICPRGHGAQKAALVLLSACLVTLWGLGEPPEHTLRYLVLH	50
Cattle	1	MPHSSLHPSPIQPRGLRAQKAALVLLSACLVALWGLGEPDPYTLKWLVLH	50
Human	51	LASLQLGLLLNGVCSLAEELRHHSRYRGSYWRVTVRACLGCPLRRGALLL	100
Cattle	51	LASQQMGLLIKGICSLAEELCHVHSRYHGSIWRVAVRACLCSMRCGALLL	100
Human	101	LSIYFYFSLPNAVGPPFTWMLALLGLSQALNILLGLKGLAPAEISAVCEK	150
Cattle	101	LSCYFYCSLPNMADLPFTWMLALLGLSQALNILLGLQGLAPAEVSAICEK	150
Human	151	GNFNVAHGLAWSYYIGYLRLLPELQARIRTYNQHYNNLLRGAVSQRLYI	200
Cattle	151	RNFNVAHGLAWSYYIGYLRLLPGLPARIQIYNQFHNNLTQAGAGSHRLHI	200
Human	201	LLPLDCGVPDNLMSADPNIRFLDKLPQQTGDHAGIKDRVYSNSIYELLEN	250
Cattle	201	LFPLDCGVPDDLNVADPNIRFLHELPQQSADRAGIKGRVYTNSIYELLEN	250
Human	251	GQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLQAKLFCRTLEDILA	300
Cattle	251	GQRAGVCVLEYATPLQTLFAMSQDGRAGFSREDRLQAKLFCRTLEDILA	300
Human	301	DAPESQNNCRLIAYQEPADSSFSLSQEVLRHLRQEEKEEVTVGSLKTS	350
Cattle	301	NAPESQNNCRILIVYQEPAGSSFSLSQEIQLHLRQEER-EVTMGSTETSV	349
Human	351	VPSTSTMSQEPPELLISGMEKPLPLRTDFS	379
Cattle	350	MPGSSVLSOEPELLISGLEKPLPLRSDFV	378

FIGURE 3

Human and cat STING:

Human	1	MPHSSLHPSIPCPRGHGAQKAALVLLSACLVTWGLGEPPEHTLRYLVLH	50
		 : : :	
Cat	1	MPRTGLHPSIPRPRGMGAQKAALVLLAVCLAALWRLGESPDHTLRWLVLH	50
Human	51	LASLQLGLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCPLRRGALLL	100
		 : : . : : . : .	
Cat	51	LASLQLGLLFTGVCHLTEELCHLHSRYQGSYWRAMKACLGSPVRS GALLL	100
Human	101	LSIYFYYSLPNAVGPFFTWMALLGLSQALNILLGLKGLAPAEISAVCEK	150
		. . : : . . .	
Cat	101	LSCYFYSTLP-STDLPFTWMALLGLSQALNILLDLQGLAPAEVSAVCEK	149
Human	151	GNFNVAGHLAWSYYIGYLRILPELQARIRTYNQHYNNLLRGAVSQRLYI	200
		.	
Cat	150	KNFNVAGHLAWSYYIGYLRILPGLPARVLTQNLHNNILRGTGSHRLHI	199
Human	201	LLPLDCGVDPNLSMADPNIRFLDKLPQQTGDHAGIKDRVYSNSIYELLEN	250
		.	
Cat	200	LFPLDCGVDPDDMSVADPNIRFLYELPQQSADRAGIKGRVYTNSVYALLEN	249
Human	251	GQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLAQAKLFCRTLEDILA	300
		: .	
Cat	250	GQQAGICVLEYATPLQTLFAMSQDGRAGFSREDRLAQAKLFCRILEDILA	299
Human	301	DAPESQNNCRLIAYQEPADDSSFSLSQEVLRLRLRQEEKEEVTGSLKTS	350
		. .	
Cat	300	DTPECQNNCRLIVYQEPEEGSNFSLSQEILRLRLRQEER-EVTGSGVGTSM	348
Human	351	VPSTSTMSQEPellisGMEKPLPLRTDFS	379
		 : . : . .	
Cat	349	VRNPSVLSQEPNLLISGMEQPLPLRTDVF	377

FIGURE 4

Human	1	MPHSSLHPS-----IPCPRGHGAQKAALVLLSACLVTLWGLGEPPEHTL	44
			
Ostrich	1	MAHESGTPSNPATPLIPKAREGRAQHAAYVLLALCAAALYLAGEPVVHIA	50
Human	45	RYLVLHLASLQGLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCPLR	94
		 : : : : ... : : ... : : ...	
Ostrich	51	RSFTSHFVALQIGALLKGICYLVEEIFHLETRHRGSFRRALSACL--HLR	98
Human	95	-RGALLLSIYFYYSLPNAVGPFFTWMALLGLSQALNILLGLKLAPAE	143
		... : : : :	
Ostrich	99	WHVTLLLVCGSAYVALLDGDEQPLGLHLGLACLQQLLILALGLHKPSAVE	148
Human	144	ISAVCEKGNFNVAHGLAWSYYIGYLRILPELQARIRTYNQHYNNLLRGA	193
		: : : : : : : : :	
Ostrich	149	I SEMSERSKQNVAHGLAWSYYVGYLKIVLPRLKESMENIGRTNPNNMLAHK	198
Human	194	VSQRLYILLPLDCGVDPNLSMADPNIRFLDKLPQQTGDHAGIKDRVYSNS	243
		: : : : : : : : : : : : : :	
Ostrich	199	ETWKLHILVPLSCNICDDLEKADSNIQYAMDLPETTLTRAGTKKRVRNT	248
Human	244	IYELLENGQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLQAKLFCR	293
		: : : : : : : : : : :	
Ostrich	249	LYK-IKDEDKFRFCVVEYATPLQSLYAMSQDECAAFSREDRIEQAKLFYR	297
Human	294	TLEDILADAPESQNNCRLIAYQEPADDSSFSLSQEVLRHLRQEEKEEVTV	343
		: : : : : :	
Ostrich	298	TLEEILQSAKECAGTYRLIVYEESEGAETHFLSREILRHLQQQRQEYTV	347
Human	344	--GSLKTSAPVSTSTMSQEPELLISGMEKPLPLRTDFS	379
		: . : : : :	
Ostrich	348	CDGTL-----CSTDLSLQISESDLPOPLRSDCL	375

FIGURE 5

Human and crested ibis STING:

Human	1	---MPHSSLHPS---IPCPRGHGAQKAALVLLSACLVTWLGLEPPEHTL	44
Crested	1	MSQEPQWLSHPTALLIPKARGGRAQHAYVLLLLALCAAVLYLAGEPLVPSA	50
Human	45	RYLVLHLASLQGLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCPLR	94
Crested	51	RSLISHFMALQIGVLLKGTCTYLAEEIFHLQSRHHGSFWRALSACF--PLR	98
Human	95	RGALLLSIYFYSLPNAVGPPFTWMLALLGLSQALNILLGLKGLAPAEI	144
Crested	99	WHGLMLLVCGSAYVALLEDGQPLGLHLGLASLQCQLLILALGLHKPSAVEM	148
Human	145	SAVCEKGNFNVAHGLAWSYYIGYLRILIPELQARIRTYNQHYNNLLRGAV	194
Crested	149	SEMSERSKQNVAHGLAWSYYVGYLKIVLPRVKKSMEEFSTRANPNVLARRE	198
Human	195	SQRLYIILLPLDCGVDPNLSMADPNIRFLDKLPQQTGDHAGIKDRVYSNSI	244
Crested	199	TWKLHILVPLSCDVYDDLEKADSNIQYLMDLPETTLTRAGTKKRVKYKHSI	248
Human	245	YELLENGQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLAQAKLFCRT	294
Crested	249	YTIRDEGNKLWHCAVEYATPLQSLYAMSQDEYAASFREDRLAQAKLFYRT	298
Human	295	LEDILADAPESQNNCRILAIYQEPADDSSFSLSQEVLRLHRLQEEKEEVTVG	344
Crested	299	LEEILKGSKECAGTYRLIVYEEESGEAETHSLSRDILWHLRQQCHEEYTVY	348
Human	345	SLKTSAPVSTSTMSQEPellisGMEKPLPLRTDFS	379
Crested	349	EGNQPHNPSTTLHSTELNLQISESLDPLRSDC-	382

FIGURE 6

Human and coelacanth (variant with SEQ ID NO:345) STING:

Human	1	MPHSSLHPSIPCPRGHGAQKAALVLLSACLVTWGLGEPPEHTLRYLVLH	50
			
Coelacanth	1	FGLQNMSAIIPQPRGNRANQMAYFIITVILMLLWIFRNIMDNVLEVIALH	50
Human	51	LASLQLGLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCP LRRGALLL	100
		:. .	
Coelacanth	51	ILLLQGAAIMKGICNF AE EVNHVQPRYGGSYWKALEACLNLSKYDVMKIV	100
Human	101	LS--IYFYSLPNAVGPPFTWMLALL--GLSQALNILLGLKGLAPAEISA	146
		.: : .	
Coelacanth	101	FAGVLWWHFSSSLFV---VWFLHLLVSVCLCHLLNNVLGVLKPSPEVSE	146
Human	147	VCEKGNFNVAHGLAWSYYIGYLRILPELQARIRTYNQHYNNLLRGAVSQ	196
		:. .	
Coelacanth	147	IYERNRIGVAHGLAWSYYLGYLKLVLELEDRIKSYNVSHGNLLKHKETW	196
Human	197	RLYILLPLDCGVPDNL SMADPNIRFLDKLPQQTGDHAGIKDRVYSNSIYE	246
		: . .:.	
Coelacanth	197	RLHILLPLSCSIFDNLADVDSNIEFLDNLSELQINRAGIKGRSYKHSLYQ	246
Human	247	LENGQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLEQAKLFCRTLE	296
		: .	
Coelacanth	247	VLDEDKRPHYCILEYATPLKSLEMSKEASAEFTKEDRLEQTKLFYRTLK	296
Human	297	DILADAPESQNNCR LIAY--QEPADDSSFSLSQEVLRLRLRQEEKEEVTVG	344
		: .:.	
Coelacanth	297	DILDNSQECRGRFRLVIYDGREDSGKSHF-LSKELLRLHLNQQQKEEYFMS	345
Human	345	SLKTSAVPSTSTMSQEPPELLISGMEKPLPLRTDFS	379
			
Coelacanth	346	EQTQPNSSTSLSTEPQLMISDTDAPHTLKRQVC	380

FIGURE 7

Human	1	-----MPHSSLHPSIPCPRGHGAQKAALVLLSACLVTLWGLGEPPE	41
		: :.....: :.....	
Zebrafish	1	MSVMGEDALVPRARSRLPVMCAAGLG---FLTAVAWLLDSDKFSE---	43
Human	42	HTLRYLVLHLASLQLGLLLNQ---VCSLAEELR-HIHSRYRGSYWRTVR	86
		 : :.. :	
Zebrafish	44	-----RAGIIAFGLMLERFIYCICLLAEELLFHSRQRYHGRMSEIFR	85
Human	87	ACLGCP LRRGA--LLLLSIYFYYSLPNAVGPPTWMLALLGLSQAL----	130
		. : :..: :.. . : : :	
Zebrafish	86	ACF-----RSGSILGMCAIFL-----MLMLGGVSFSVKQWS	116
Human	131	--NIL-----LGLKGLAPAEISAVCEKGNFNVAHGLAWSYYIGYLR	169
		:: : . . . : : ...	
Zebrafish	117	HFNLMCAGYMLLNSLGVLPAPVEISEICEAKMNVAHGLAWSFYIGYLK	166
Human	170	LILPELQARIRTYNQHYNNLLRGAVSQRLYIILLPLDCGVPDNLSPADPNI	219
		: : . :..: : :.. : :	
Zebrafish	167	FLLPALEVNVREYSRR----ERLSSPRLHILLPLNARVPSKPEEEDTNV	211
Human	220	RFLDKLPQQTGDHAGIKDRVYSNSIYELLENGQRAGTCVLEYATPLQTLF	269
		. : : : . : : : : : : . :. : :	
Zebrafish	212	VFHENLPDLKLDRAVGRKRSYTNVYKITHNNE-TFSCILEYATPLLTLY	260
Human	270	AMSQYSQAGFSREDRLAQAKLFCRTLEDILADAPESQNNCRLIAYQEPAD	319
		.	
Zebrafish	261	QMSQESSAGFGERERKQQVLLFYRTLSQLDNLSECRNRYRLILLNDEHT	310
Human	320	DSSFSLSQEVLRLHLRQEE-----KEEVTVGLSKTSAPVST-	354
		 :	
Zebrafish	311	GDPHYLSRELQNLKQDGEIFMDPTNEVHPVPEEGPVGNC-NGALQATF	359
Human	355	--STMSQEPellisGMEKPLPLR-----TDFS-----	379
		.	
Zebrafish	360	HEEPMSDEPTLMFS---RPSLRSEPVTETDYNPSSAMKON	398

FIGURE 8

Human and boar STING:

Human	1	MPHSSLHPSIPCPRGHGAQKAALVLLSACLVTWGLGEPPEHTLRYLVLH	50
		: 	
Boar	1	MPYSSLHPSIPQPRGLRAQVAALVLLGACLVALWGLGELPEYTLRWLVLH	50
Human	51	LASLQLGLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCPLRGALLL	100
		. : : . . . : . . . : .	
Boar	51	LASQQIGLLVKGLCSLAEELCHVHSRYQSSYWRAARACLGCPTRCGALLL	100
Human	101	LSIYFYSLPNAVGPPFTWMLALLGLSQALNILLGLKGLAPAEISAVCEK	150
		. : : :	
Boar	101	LSCYFYFSIRDKAGLPLPWMLALLGLSQALNILLGLQHLAPAEVSAICEK	150
Human	151	GNFNVAHGLAWSYYIGYLRILPELQARIRTYNQHYNNLLRGAVSQRLYI	200
		 : :	
Boar	151	RNFNVAHGLAWSYYIGYLRILPGLRARIQAYNQRHKNVLGGIGNHRLHI	200
Human	201	LLPLDCGVDPNLSMADPNIRFLDKLPQQTGDRAGIKDRVYSNSIYELLEN	250
		. : : : . : . . . :	
Boar	201	LFPLDCGVDPDDLVDPNIRFLHELPQQSADRAGIKGRVYTNSIYELLEN	250
Human	251	GQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLEQAKLFCRTLEDILA	300
			
Boar	251	GQPAGVCVLGYATPLQTLFAMSQDGRAGFSREDRLEQAKLFCRTLEDILA	300
Human	301	DAPESQNNCRLIAYQEPADDSSFSLSQEVLRLRLRQEEKEEVTGSLKTS	350
		: : : : .	
Boar	301	DAPEAQNNCRLIVYQEPTEGGSFSLSQEILRLRLRQEER-EVTMGSAETSV	349
Human	351	VPSTSTMSQEPPELLISGMEKPLPLRTDFS	379
		: : : : : ..	
Boar	350	VPTSSTLSQEPPELLISGMEQPLPLRSDIF	378

FIGURE 9

Human	1	MPHSSLHPSIPCPRGHGAQK-AALVLLSACLVTLWGLGEPPEHTLRYLVL	49
Bat	1	MSHSSLHPSVPRPRGRRARNIAAFVLLIVCLAALWLSGKPSEYTLRCLVL	50
Human	50	HLASLQLGLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCPLRRGALL	99
Bat	51	HLASQQQLGLLSNRVCYLAEELSHIHSRYQGNYWRAVRACLSCPIRFGVVL	100
Human	100	LLSIYFYYSLPNAVGPFFTWMALLGLSQALNILLGLKGLAPAEISAVCE	149
Bat	101	LVSFFFYTSLPNIDDLPLTWMLAHLGLSEALNILLGLRGLTPAEVSTVCE	150
Human	150	KGNFNVAGHLAWSYYIGYLRILPELQARIRTYNQHYNNLLRGAVSQRLY	199
Bat	151	QRHFNVAHGLAWSYYIGYLRILPGLRARIHTYNQLHGNTLQGVGSHRLY	200
Human	200	ILLPLDCGVDPNLSMADPNIRFLDKLPQQTGDRAGIKDRVYSNSIYELLE	249
Bat	201	ILFPLDCGVLDLSDAADPNIRFLRELPRQSSDRAGIKNRVYTNSVYELLE	250
Human	250	NGQRAGTCVLEYATPLQTLFAMSQYSQAGFSREDRLEQAKLFCRTLEDIL	299
Bat	251	KGKPVGTCVLEYATPLQTLFAMSQDARAGFSQEDRLEQAKLFCRTLADIL	300
Human	300	ADAPESQNNCRLIAYQEPAADDSSFSLSQEVLRHLRQEEKEEVTVGSLKTS	349
Bat	301	ADDPESQKSCRLIVYQEPTEESDFSLSQAILKHLRQEEKEEVTVGTVGTY	350
Human	350	AVPSTSTMSQEPELLISGMKPLPLRTDFS	379
Bat	351	EAPGSTLHQEPELLISGMDQPLPLRTDIF	380

FIGURE 10

Human	1	MPHSSSLHPSIPCPRGHGAQKAALVLLS--ACLVTLWLGLGEPPEHTLRYLV	48
GhostShark	1	-----MSDSIPRPRGKVATYVGLILMSGLACLYFML---TPDYHIKFIV	41
Human	49	LHLASLQL-----GLLLNGVCSLAEELRHIHSRYRGSYWRTVRACLGCPL	93
GhostShark	42	QQVAQ-QLIVSFFALCLRLCEFVEELGHKQTRYQNSWVRALNASLDWK-	89
Human	94	RRGALLLSIYFYYSLPNAVGPFFTWMALLGLSQAQALNI-----LL	134
GhostShark	90	KYGFCLLISLLFNWVLPYEKHSY---AVPTVGQTISLTCFCVLFCLKVF	135
Human	135	GLKGLAPAEISAVCEKGNFNVAHGLAWSYYIGYLRILPELQARIRTYNQ	184
GhostShark	136	QLDVLSPAQISEISETNKCENVAHGLAWSYYLGKIVLPKLEEKINQYHR	185
Human	185	HYNNLLRGAVSQRLYIILLPLDCGVPDNLMSADPNIRFLDKLPQQTGDRAG	234
GhostShark	186	EYGNVLQ-QKGKKLYILIPFSCKVLDKLEKVDTNIVFYQNLPELLVDRAG	234
Human	235	IKDRVYSNSIYELL-ENGQRAGTCVLEYATPLQTLFAMSQYSQAGFSRED	283
GhostShark	235	IKRSYKHSIYLIYDQKKQPHHCILEYATPLRSLFEMTNDSSAAAFSKEQ	284
Human	284	RLEQAKLFCRTLEDILADAPESQNNCRLLIAYQEPADDSSFS---LSQEVL	330
GhostShark	285	RLDQAKLFYRTLKSIINNVPVETGSYRLIPYDDDEGAELGPHFVSEEIL	334
Human	331	RHLRQEEKEEVTVGSLKTSAVPSTSTMSQEPELLISGMEKPLPLRTDFS	379
GhostShark	335	KHMRQELTEYPVA---EPSNANETDCMSSEPHLMIS--DDPKPLRSYCP	378

FIGURE 12

