

Section 1

	(1)	1	10	20	30	40	57
Beetle	(1)	-----					
Seaurchin	(1)	MNEA	AKKPA	ATDSV	KSTQA	KGKGI	QSVLSQ
Fly	(1)	---	MECN	LGSEI	GQKMR	SAVKA	KLLELG
Worm	(1)	-MNT	QTGT	GTSEV	SKKLA	AIKRA	KLLELG
Pufferfish	(1)	-----					
Zebrafish	(1)	---	MEIG	TEIS	KKIRT	AIKGL	QEFG
Chicken	(1)	---	MEIG	TEIS	RKIR	GAIKG	LQELG
Dog	(1)	---	MEIG	TEIS	RKIR	SAIKG	LQELG
Cow	(1)	---	MEIG	TEIS	RKIR	SAIKG	LQELG
Human	(1)	---	MEIG	TEIS	RKIR	SAIKG	LQELG
Monkey	(1)	---	MEIG	TEIS	RKIR	SAIKG	LQELG
Mouse	(1)	---	MEIG	TEIS	RKIR	SAIKG	LQELG
Rat	(1)	---	MEIG	TEIS	RKIR	SAIKG	LQELG
Consensus	(1)		MEIG	TEIS	RKIR	SAIKG	LQELG

Section 2

	(58)	58	70	80	90	100	114
Beetle	(1)	---	ATF	VDF	WLH	IVL	KKLE
Seaurchin	(58)	TPFT	VAMGG	SSRI	IQADR	PESV	PVRG
Fly	(54)	MNA	ELN	LFLG	DQTD	LFVT	WLHE
Worm	(52)	MKD	DLN	LFIG	KSTAK	FVDW	LFDF
Pufferfish	(1)	-----					
Zebrafish	(47)	MA	DDL	SFLG	NNTI	KFTV	WLHG
Chicken	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Dog	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Cow	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Human	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Monkey	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Mouse	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Rat	(47)	MTED	LSFL	GNN	TIR	FTV	WLHG
Consensus	(58)	MTED	LSFL	GNN	TIR	FTV	WLHG

Section 3

	(115)	115	120	130	140	150	160	171
Beetle	(27)	---	KPP	KRK	SDEL	P	NVNV	KKEK
Seaurchin	(103)	---	EKPR	IL	TMT	STV	VRV	PIV
Fly	(111)	KRPH	RKSG	DEL	SEP	QPS	SSD	AMP
Worm	(93)	---	EDK	RKE	LEA	TAA	AKE	HEE
Pufferfish	(1)	-----						
Zebrafish	(85)	---	PS	VVH	SETS	IPAE	NSR	RGAE
Chicken	(86)	---	SEP	N	IFES	NH	SS	SKS
Dog	(86)	---	SD	TN	IF	DN	NV	SN
Cow	(86)	---	SD	TN	IF	DN	NV	SN
Human	(86)	---	SD	TN	IF	DN	NV	SN
Monkey	(86)	---	SD	TN	IF	DN	NV	SN
Mouse	(86)	---	PD	AS	IF	DS	HV	SN
Rat	(86)	---	PD	TS	IF	DS	NV	SN
Consensus	(115)		D	IF	DS	SN	SKS	RG

	(172)	172	180	190	200	210	228	
Beetle (70)	L	TDDLP	ISANRL	SEQRKII	IMKENK	SNN	SRKVMQDNFDIPLLS	EVNMST
Seaurchin (147)	P	VVKRMAS	TVKPRR	RQPLPK	TKQNS	MALLK	KAITQAQESTSV	FPAAGQFS
Fly (168)	K	KNRK	SIEDED	ASANRAL	DVP	AVSEI	ISTTIGVNRQKDLA	EIAEIQKKIHA
Worm (138)	D	REKRA	AEK	RREEK	R--	K	EIQRSKRRRT	RSRSNTYSDEE
Pufferfish (1)								
Zebrafish (121)	R	VSSA	HENRA	SK--	R	GSSERP	SRLTSA	VKPLMEAS
Chicken (130)	R	VSTSSQE	QRNTAS	RQ	SC	EDGSAS	RLMSTVKPLREL	SPSEAV
Dog (130)	R	VSTSSQE	QKT	TNV	RQ	TYDDGAAT	RLMSTVKPLREP	APSED
Cow (130)	R	VSTSSQE	QKATNV	RQ	TYDDGAAT	RLMSTVKPLREL	APSED	VIDIKPEP
Human (130)	R	VSTSSQE	SKT	TNV	RQ	TYDDGAAT	RLMSTVKPLREP	APSED
Monkey (130)	R	VSTSSQE	SKT	TNV	RQ	TYDDGAAT	RLMSTVKPLREP	APSED
Mouse (130)	R	VSTSSQE	QKSTNV	RHSY	DDGAST	RLMSTVKPLREP	APSED	VIDIKPEP
Rat (130)	R	VSTSSQE	HKS	TNV	RHSY	DDGAST	RLMSTVKPLREP	APSED
Consensus (172)	R	VSTSSQE	K	T	R	T	DDGAATRLMSTVKPLRE	APSEDVIDIKPEP

## Section 5

	(229)	229	240	250	260	270	285	
Beetle (119)				EEEL	EDLEN		KIKSVKSRLGL	LVESDEEEDCI
Seaurchin (197)			E	PRRMI	VSASQ		P	GMTKIVARSIPADK
Fly (225)	Q	I	G	E	I	G	D	E
Worm (185)			H	D	R	H	H	K
Pufferfish (1)								
Zebrafish (164)			D	L	D	D	L	I
Chicken (179)			D	D	L	I	D	E
Dog (179)			D	D	L	I	D	E
Cow (179)			D	D	L	I	D	E
Human (179)			D	D	L	I	D	E
Monkey (179)			D	D	L	I	D	E
Mouse (179)			D	D	L	I	D	E
Rat (179)			D	D	L	I	D	E
Consensus (229)			D	D	L	I	D	E

## Section 6

	(286)	286	300	310	320	330	342
Beetle (150)	K	L	PEP	DEL	LP	T	ENENK
Seaurchin (235)	T	M	F	T	A	V	R
Fly (282)	E	K	R	P	E	A	E
Worm (217)	D	K	L	H	S	T	V
Pufferfish (1)							
Zebrafish (195)	R	Q	R	P	A	V	E
Chicken (214)	I	Y	R	P	P	A	S
Dog (214)	I	Y	R	P	P	A	S
Cow (214)	I	Y	R	P	P	A	S
Human (214)	I	Y	R	P	P	A	S
Monkey (214)	I	Y	R	P	P	A	S
Mouse (214)	I	Y	R	P	P	A	S
Rat (214)	I	Y	R	P	P	A	S
Consensus (286)	I	Y	R	P	P	A	S

Section 7

	(343)	343	350	360	370	380	399
Beetle (203)	-	I	LDRRLGKRRSGDNEEAA	SKRNRI	DLSDFRKED	SSKTRSDRREK	--RFRRDDKSKE
Seaurchin (292)	A	EEEEEVEAKELEEEVE	EERED	EQEQED	V	AENV	EEDDDVEEREIELERATADSP
Fly (339)	R	NQKELYVPTHRRSEPE	ATKERSQ	RETRERR	SSRDTS	R	DTNRN--QRQRSSPSPE
Worm (263)	-	KRSETHHEDDMSDVEAL	PSKPAST	KSPKSI	IRDRMS	RISK	TSEP--PIEEDDAVVL
Pufferfish (22)	-	NTPHMVLVLFK	--QQ	EEELS	RKRKAPVA	SSVVRVSR	TLDE--DSDDLDEDDA
Zebrafish (219)	-	QDRSERGYRSSAE	--SSRD	LSRKRKAPVA	SSVVRVHR	GHER	--GLEIEDLEEE
Chicken (265)	-	SLAESYRPTSKLSADKVG	SEEEGS	RKRRLPI	VSSVVKVK	KFCND	--GEEEEEDDY
Dog (268)	-	SLEDYSPFFRNSEKMSI	EEENF	RKRKLPV	VSSVVKVK	KFNHD	--GEEEEEDDDC
Cow (268)	-	SLEETYSPFFRNSEKMSI	EEENF	RKRKLPV	VSSVVKVK	KFSHD	--GEEEEEDDDC
Human (268)	-	SLEETYSPFFRNSEKMSM	EENF	RKRKLPV	VSSVVKVK	KFNHD	--GEEEEEDDDY
Monkey (268)	-	SLEETYSPFFRNSEKMSM	EENF	RKRKLPV	VSSVVKVK	KFNHD	--GEEEEEDDDY
Mouse (268)	-	SVEDYSPFFRNLDKMSI	EENF	RKRKLPV	VSSVVKVK	RFSHD	--GEEEEEDDY
Rat (268)	-	SVEDYSPFFRNLDKMN	IENF	RKRKLPV	VSSVVKVK	RFSHD	--GEEEEEDDY
Consensus (343)		SLEETY P FR NSEKMS	EEE	RKRKLPV	VSSVVKVK	KF D	GEEEEEDDD

Section 8

	(400)	400	410	420	430	440	456
Beetle (257)	G	VLSRVGVM	SKVSVP	VKAPE	EP--E	EPFKNREVPSVVKIKP	RVIPDAPQANKNLL
Seaurchin (349)	G	ESVEDEDDQRQI	IKIIEAD	EAE	P	-----VVVVE	PDEGDVKVVELIEED
Fly (394)	A	PSTKQRIVSQVIVAVN	KPE	PEPSD	DEDMAEKPVNSVIKVKP	RPNVSPRRQA	CKNLIL
Worm (317)	E	DFAQTGGGPQ	MILKLS	GGRE	-----	AIKKTRI	QDRIVVDDGLRRGLLK
Pufferfish (71)	G	YGGRGV	SSRVSLPS	-KPER	-----	-----	KPTLPPAKQANRNIL
Zebrafish (268)	E	EDEDYGLASKVSLPS	-KPER	-----	-----	-----	KPTLPPAKQANKNLL
Chicken (319)	G	LRTGSI	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQVKNLIL
Dog (322)	G	SRTGSI	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQANKNLL
Cow (322)	G	SRTGSI	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQANKNLL
Human (322)	G	SRTGSI	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQANKNLL
Monkey (322)	G	SRTGSI	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQANKNLL
Mouse (322)	G	TRIGSL	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQANKNLL
Rat (322)	G	TRVGS	SSSVS	VPA-KPER	-----	-----	RPSLPPSKQANKNLL
Consensus (400)	G	SR GS	SSSVS	VPA KPER	-----	-----	RPSLPPSKQANKNLL

Section 9

	(457)	457	470	480	490	500	513				
Beetle (312)	K	AVAEAQKSI	AQAPKPDALY	--TK	KYKEKRKDEPSS	GKKLPEVE	EKNK-----				
Seaurchin (393)	E	REMEIQEPVYDTRNTTIV	RPLQYDR	LTTVQKRE	RP	SQPQPQYQFS	PP-----				
Fly (451)	R	AVADAQRSTILAKTS	TQKE--	DEDVGKII	SSLGKRKS	EDKNDQI	RKRNRERKRRK				
Worm (361)	R	KIETASGASAGAAT	SEEPKSKHDR	IIIFDIT	PSRDST	PTDD	SPTMQKWN-----				
Pufferfish (106)	K	AISEAQDSITKTTSE	SSIP--	QRQTV	PVAPRTRPT	HRDEMGA	AIQL-----				
Zebrafish (304)	K	AISEAQESIN	KTTSQY	TVP--	QRQTV	PVAPRTR	SASDEMSNAIRL-----				
Chicken (354)	K	AISEAQESVTKTTNYS	AVP--	QKQTV	PVAPRTRIS	P	EE	SHLEV	I	H-----	
Dog (357)	K	AISEAQESVTKTTNYS	TVS--	QKQTL	PVAPRTRTS	Q	EEL	LAEM	R	L-----	
Cow (357)	K	AISEAQESVTKTTNYS	TVS--	QKQTL	PVAPRTRTS	Q	EDL	LAE	V	AQ-----	
Human (357)	K	AISEAQESVTKTTNYS	TVP--	QKQTL	PVAPRTRTS	Q	EEL	LAE	V	VQ-----	
Monkey (357)	K	AISEAQESVTKTTNYS	TVP--	QKQTL	PVAPRTRTS	Q	EEL	LAE	V	VQ-----	
Mouse (357)	K	AISEAQESVTKTTNYS	AVP--	QKQTL	PVAPRTRTS	Q	EEL	LAE	M	VQ-----	
Rat (357)	K	AISEAQESVTKTTNY	P	AVP--	QKQTL	PVAPRTRTS	Q	EEV	LAE	M	VQ-----
Consensus (457)	K	AISEAQESVTKTTNYS	VP	QKQTL	PVAPRTRTS	Q	EEL	A	E	V	

## Section 10

	(514)	514	520	530	540	550	560	570
Beetle (357)	----	I	KKFLAVS	DDDSKR	D	E	TEEYIPTPIKRVQ	ES
Seaurchin (441)	---	A	EDSN	PR	FIVT	MEGKKRKPPLRQDTR	G	V
Fly (505)	RS	AQGN	ELFR	RT	TREL	VVNV	TQRD	GKRERR
Worm (410)	--	GQI	EIGDDSE	E	SE	EDDE	E	AEIDAFVAEAR
Pufferfish (151)	---	V	Q	EHLHS	L	A	P	QAYAPATLP
Zebrafish (349)	---	V	Q	EHLHAL	T	P	QDTL	HNTQSRGLASRLQLEV
Chicken (398)	---	L	Q	SRL	P	A	L	C
Dog (401)	---	P	K	SHLLF	L	T	P	E
Cow (401)	---	G	H	GRV	P	R	I	S
Human (401)	---	G	Q	SRT	P	R	I	S
Monkey (401)	---	G	Q	SRT	P	R	I	S
Mouse (401)	---	G	Q	NRA	P	R	I	S
Rat (401)	---	G	Q	NRA	P	R	I	S
Consensus (514)		Q	PRISP	V	EE		G	Q

## Section 11

	(571)	571	580	590	600	610	627
Beetle (388)	-----						
Seaurchin (472)	-----						
Fly (562)	VP	QLLT	NVDEL	DLH	ISSH	DEP	SPNSGALKTQFVVTLNGDKALGGKNVKGGASRKRPS
Worm (442)	-----						
Pufferfish (170)	-----						
Zebrafish (379)	-----						
Chicken (428)	-----						
Dog (415)	-----						
Cow (431)	-----						
Human (431)	-----						
Monkey (431)	-----						
Mouse (431)	-----						
Rat (431)	-----						
Consensus (571)							

## Section 12

	(628)	628	640	650	660	670	684
Beetle (388)	-----	T	K	Y	I	P	T
Seaurchin (472)	-	Q	V	P	A	M	P
Fly (619)	NS	R	K	R	S	T	S
Worm (442)	---	R	E	S	F	R	D
Pufferfish (170)	-----						
Zebrafish (379)	---	P	E	E	D	S	R
Chicken (428)	---	K	E	L	S	S	R
Dog (415)	---						
Cow (431)	---	R	Q	L	L	S	R
Human (431)	---	R	Q	L	L	S	R
Monkey (431)	---	R	Q	L	L	S	R
Mouse (431)	---	R	Q	L	L	S	R
Rat (431)	---	R	Q	L	L	S	R
Consensus (628)		R	L	SRLQ	DPV	TL	MS

## Section 13

	(685)	685	690	700	710	720	730	741	
Beetle (407)		-----							NGK-
Seaurchin (495)		-----							
Fly (676)		IN	RNEV	RQ	PQEIKK	IIKNDT	DEDE	EMHG	
Worm (461)		-----							GP--
Pufferfish (170)		-----							
Zebrafish (403)		DT	RSF	IM	RQ	PEVE	QPPPI	RSRLSAVNQ	
Chicken (460)		DT	RSF	IL	KK	PKL	SEEIAA	Q-NQQLG	
Dog (427)		-----							
Cow (451)		-----							
Human (463)		DT	RSF	IL	KK	PKL	SEEVV	VAPNQESGMKTAD	
Monkey (463)		DT	RSF	IL	KK	PKL	SEEVV	VAPNQESGMKTAD	
Mouse (463)		DT	RSF	IL	KK	PKL	SEEVV	VTPNQDSGMKTAD	
Rat (463)		DT	RSF	IL	KK	PKL	SEEVV	VTPNQDSGMKTAD	
Consensus (685)		R	I	K	P			A S Q RD	

## Section 14

	(742)	742	750	760	770	780	798	
Beetle (410)		----	VKQQ	FIVTLDGI	ERTKYKDLA	NEE	-----	
Seaurchin (495)		--	RFLLS	RYEP	SEEM	MEMDSLEEK	SFEYE	
Fly (733)		EE	GST	TP	PLPA	KPKARA	EKKASS	
Worm (463)		--	Y	A	YHHSTA	AAPT	YIPT	
Pufferfish (170)		-----						
Zebrafish (448)		AV	GG	SSPK	FIVTLDG	VPSPL	ANRTDQ	
Chicken (507)		PE	KP	ASP	KFIVTLDG	VPSPP	GYLSDQEE	
Dog (427)		-----						VAG
Cow (451)		-----						Q
Human (510)		PDKP	ASP	KFIVTLDG	VPSPP	GYM	SDQEE	
Monkey (510)		PDKP	ASP	KFIVTLDG	VPSPP	GYM	SDQEE	
Mouse (510)		PDKP	ASP	KFIVTLDG	VPSPP	GYM	SDQEE	
Rat (510)		PDKP	ASP	KFIVTLDG	VPSPP	GYM	SDQEE	
Consensus (742)			ASP	KFIVTLDG	VPS	P G	SDQEE	

## Section 15

	(799)	799	810	820	830	840	855	
Beetle (448)		PSP	IIFDKV	ENTIKG	KPN	-----	IPDKLPL	
Seaurchin (550)		PTE	HQLVKD	SLYSP	PQPQ	-----	VAPVFTTLQESDEEH	
Fly (790)		PI	RFTL	KSE	DEPS	ASKRR	SGSPDRDVAAPERRRVSIRNPEDRKYDNL	
Worm (486)		-----						QNQMGG
Pufferfish (170)		-----						TEIMDD
Zebrafish (505)		VH	LRLG	ADLR	NACD	DEV	-----	
Chicken (563)		QM	QIV	TRQL	DS	-----	SD-----	
Dog (430)		-----						SEPVDG
Cow (452)		-----						AEMSEL
Human (565)		QL	HLLSR	QLE	DPNG	SFSN	-----	
Monkey (565)		QL	HLLSR	QLE	DPNG	SFSN	-----	
Mouse (565)		QL	HLLSR	QLE	DPDG	SFSN	-----	
Rat (565)		QL	HLLSR	QLE	DPDG	SFSN	-----	
Consensus (799)		L	L		E		AEM DL	



	(1027)	1027		1040		1050		1060		1070		1083
Beetle (549)	-	PVKLAGPVQTCKFFPNCTNVNCAFYHPKPCKFGKYCKNQADCTFSHTFV	PN	--	K	--						
Seaurchin (671)	TFKQTAANKTVCKFYPCGNTKCFIHPAPKLDTCNP											
Fly (944)	APVTSSTATMCKYYPNCSKLGCTFYHPKPCRF	GKNCVN	KL	ECIFYHPE	MQS							
Worm (663)	PDIAPLHSMVLCRYAGACRNPICHFHPKECRFGANCR	NP	SCYFYH	KPAGAA	PTPV							
Pufferfish (266)	PAAQPAKATNVCRFFPECCKVDCQFYHPKACRF	AAMCK	RAGCTFYHPT	TSVPPR								
Zebrafish (605)	TRAAPALSTVCRFFPECCKVDCQFYHPKPCRF	ATQCK	RADCTFYHP	AVVPPR								
Chicken (665)	PTQSVSSSSPLCKFFPACCKMECPFYHPKHCRF	NTQCT	RPDCTFYHPT	IAVPPR								
Dog (516)	---	APPSSSQLCRYFPACCKMECPFYHPKHCRF	NTQCT	RPDCTFYHPT	ITVPPR							
Cow (539)	TAPAPPSSSQLCRYFPACCKMECPFYHPKHCRF	NTQCT	RPDCAFYHPT	ITVPPR								
Human (671)	APPAPPSSSQLCRYFPACCKMECPFYHPKHCRF	NTQCT	RPDCTFYHPT	INVPPR								
Monkey (671)	APPAPPSSSQLCRYFPACCKMECPFYHPKHCRF	NTQCT	RPDCTFYHPT	INVPPR								
Mouse (670)	SSPAPSSNGQLCRYFPACCKMECPFYHPKHCRF	NTQCT	RPDCTFYHPT	ITVPPR								
Rat (671)	SSPAPSSNGQFCRYFPACCKMECPFYHPKHCRF	NTQCT	RPDCTFYHPT	ITVPPR								
Consensus (1027)		APASSSQLCRYFPACKKMECPFYHPKHCRFNTQCT		RPDCTFYHPTI	VPPR							

	(1084)	1084		1090		1106
Beetle (601)	-----	S	SL	TWR	RSK	----
Seaurchin (708)	-----					----
Fly (996)	-----		KFKW	VAS	LG	--
Worm (719)	AAP	IAAESAGAAKY	KW	TSAT	AN	-
Pufferfish (320)	-----		HALKWT	KAQ	SR	-
Zebrafish (659)	-----		SALKWT	KTQ	SS	-
Chicken (719)	-----		HALKWT	RTQ	TSE	
Dog (567)	-----		HALKW	IRP	QTR	-
Cow (593)	-----		HALKW	IRP	QTS	D
Human (725)	-----		HALKW	IRP	QTS	E
Monkey (725)	-----		HALKW	IRP	QTS	E
Mouse (724)	-----		HALKW	IRP	QS	SE
Rat (725)	-----		HALKW	IRP	QTS	E
Consensus (1084)			HALKW	IR	QTS	



## Section 1

	(1)	1	10	20	30	40	57
Hook1-HS	(1)	-----	-----	-----	M E E T Q P P P Q P K	-----	L P L C D S L M I W L Q T
Hook3-HS	(1)	-----	-----	-----	M F S V E S L E R	-----	A E L C E S L L T W I Q T
Hook2 HS	(1)	-----	-----	-----	M S V D K	-----	A E L C G S L L T W L Q T
ZYG-12a	(1)	M L D L T N K E S E S S D N G N S K Y E D S I D G R E	V G T S K P F K E E R	S L E D L Q	A D L A D M A V W M E G L		
Consensus	(1)				M S P S L E K		A E L C D S L L T W L Q T

## Section 2

	(58)	58	70	80	90	100	114
Hook1-HS	(25)	F N T A S P C Q D V K Q L T S G V A M A Q V L H Q I D A A W F N E S W L S R I K E D V G D N W R I K A S N V K K V					
Hook3-HS	(23)	F N V D A P C Q T V E D L T N G V V M A Q V L Q K I D P A Y F D E N W L N R I K T E V G D N W R L K I S N L K K I					
Hook2 HS	(19)	F H V P S P C A S P Q D L S S G L A V A Y V L N Q I D P S W F N E A W L Q G I S E D P G P N W K L K V S N L K M V					
ZYG-12a	(58)	D A T K L P L N D P Q L L C N G R A F S E V L H N V D K N F F T D G W L E T M P E N R T T N I M V F R S C T R K L					
Consensus	(58)	F N V S P C Q D V Q D L T S G V A M A Q V L H Q I D P A W F N E A W L N R I K E D V G D N W R L K I S N L K K V					

## Section 3

	(115)	115	120	130	140	150	160	171
Hook1-HS	(82)	L Q G I M S Y Y H E F L G Q Q I S E A L I P D L N Q I T	-----	-----	-----	E C S D P V E L G R L L Q L I L G C A I N C E K		
Hook3-HS	(80)	L K G I L D Y N H E I L G Q Q I N D F T L P D V N L I G	-----	-----	-----	E H S D A A E L G R M L Q L I L G C A V N C E Q		
Hook2 HS	(76)	L R S L V E Y S Q D V L A H P V S E E H L P D V S L I G	-----	-----	-----	E F S D P A E L G K L L Q L V L G C A I S C E K		
ZYG-12a	(115)	W R K M F D Y V N H I N R T V V S S R W T D I H E R I D G I Y E S	D L P A M V N L G M A V V T L A H I G K N A K R					
Consensus	(115)	L R G I L D Y H E I L G Q Q I S E L P D V N L I G E S D P V E L G R L L Q L I L G C A I N C E K						

## Section 4

	(172)	172	180	190	200	210	228
Hook1-HS	(134)	K Q E H I Q N I M T L E E S V Q H V V M T A I Q E L M S K E I L	-----	-----	-----	S S P P N D A V G E L E Q Q L K R A L	
Hook3-HS	(132)	K Q E Y I Q A I M M E E S V Q H V V M T A I Q E L M S K E S P	-----	-----	-----	V S A G N D A Y V D L D R Q L K K T	
Hook2 HS	(128)	K Q D H I Q R I M T L E E S V Q H V V M E A I Q E L M T K D T P	-----	-----	-----	D S L S P E T Y G N F D S Q S R R - Y	
ZYG-12a	(172)	F V D Y S K A L T S T H K S M M S N V A K M V T T V I D E M P E N P C F H E I S E L H G S Q S E L N S L S E S S G					
Consensus	(172)	K Q D H I Q A I M T L E E S V Q H V V M T A I Q E L M S K E S P I S N D A Y G E L D S Q S K R S					

## Section 5

	(229)	229	240	250	260	270	285
Hook1-HS	(185)	E E L Q E A L A E K - E E L R Q R C E E L D M Q V T T L Q D E K N S L V S E N E M M N E K L D Q L D G S F D D P N					
Hook3-HS	(183)	E E L N E A L S A K - E E I A Q R C H E L D M Q V A A L Q E E K S S L L A E N Q V L M E R I N Q S D - S I E D P N					
Hook2 HS	(178)	Y F L S E E A E E G - D E L Q Q R C L D L E R Q L M L L S E E K Q S L A Q E N A G L R E R M G R P E - G E G T P G					
ZYG-12a	(229)	K L N G N G S S E R R S N A D Q I L V D A E L E I E R L R T E T E N Q R K E I E R L T K S F E T A Q H D M S S N S					
Consensus	(229)	E E L N E A L S E K E E L Q R C L D L D M Q V L Q E E K N S L L A E N E M L E R L D Q A D S I D D P N					

## Section 6

	(286)	286	300	310	320	330	342
Hook1-HS	(241)	T - - - - V V A K K Y F H A Q L Q L E Q L Q E E N F R L E A A K D D Y R V H C E E L E K Q L I E F Q H R N D E L					
Hook3-HS	(238)	S - - - - P A G R R H L Q L Q T Q L E Q L Q E E T F R L E A A K D D Y R I R C E E L E K E I S E L R Q Q N D E L					
Hook2 HS	(233)	- - - - - L T A K K L L L L Q S Q L E Q L Q E E N F R L E S G R E D E R L R C A E L E R E V A E L Q H R N Q A L					
ZYG-12a	(286)	E S G D I S I L E K Q N E E L R Q K R R E L E E K N L E L D A A V D Q F K G I V F E L T N E N D V L R R S D K E R					
Consensus	(286)	S I L A K K H L L Q S Q L E Q L Q E E N F R L E A A K D D Y R I R C E E L E K E I A E L R H R N D E L					

## Section 7

	(343)	343	350	360	370	380	399
Hook1-HS	(293)	T S L A E E T R A L K D E I D V L R A T S D K A N K L E S T V E I Y R Q K L Q D L N D L R K Q V K T L Q E T N M M					
Hook3-HS	(290)	T T L A D E A Q S L K D E I D V L R H S S D K V S K L E G Q V E S Y K K K L E D L G D L R R Q V K L L E E K N T M					
Hook2 HS	(284)	T S L A Q E A Q A L K D E M D E L R Q S S E R A G Q L E A T L T S C R R R L G E L R E L R R Q V R Q L E E R N A G					
ZYG-12a	(343)	Q R L Q T V L D A A Q S D L D E W K T V A N - - - Q Y Q K E A E L S K Q Q D K E I K E L L S Q N K A I K S R L D H					
Consensus	(343)	T S L A D E A Q A L K D E I D V L R S S D K A Q L E A T V E S Y K Q K L D L K D L R R Q V K L E E R N M					



## Section 8

(400) 400 410 420 430 440 456  
 Hook1-HS (350) YMHNTVSLEEEELKKANAARTQLETYKRQVQDLHVKLSSESKRADTLAFEMKRLLEKH  
 Hook3-HS (347) YMQNTVSLEEEELRKANAARSQLETYKRQVVELQNRLLSEESKKADKLDFFEYKRLKEKV  
 Hook2 HS (341) HAERTRQLEDELRRAGSLRAQLEAQRQVQVELQGLQEQEAMKAEKWLFEQRNLEEKY  
 ZYG-12a (397) HVKSATLEDANKNGIAQLRTQVGGTLALNTELLKASLDSSKRCVEQLEIQLIQHKEKV  
 Consensus (400) HM NTVSLEEEELRKANALRTQLETYKRQVQELQAKLSSESKKADKLDFFELKRLKEKV

## Section 9

(457) 457 470 480 490 500 513  
 Hook1-HS (407) EALLKEKERLIEQRDTLKETNEELRCSQVQQDHLNQTDASATKS---YENLAAEIMP  
 Hook3-HS (404) DSLQKEKDRILRTERDSLKETIEELRCVQAQEGQLTQGLMPLGSEQESSDSLAAEIVT  
 Hook2 HS (398) ESVTKEKERLLAERDSLREANEELRCAQLQPRGLTQADPSLDPTSTPVDNLAAEIIP  
 ZYG-12a (454) KELEDRKDELIEERNRLENQLIFKEAVTPRSLHESMFEAGNLSF-----E  
 Consensus (457) ESL KEKDRILIEERDSLKETNEELRCVQLQ HLTQ DAS L S DNLAAEIIP

## Section 10

(514) 514 520 530 540 550 560 570  
 Hook1-HS (461) VEYREVFIRLQHENKMLRLQEGSENERIEELQEQLEQKHKRMNELETEQRLSKERI  
 Hook3-HS (461) PEIREKLRIRLQHENKMLKLNQEGSDNEKIALLOSLDDANLRKNELETENRLVNQRL  
 Hook2 HS (455) AELRETLRLRLQLENKRRCR-QEAADRERQEEQLRHLEDANRARHGLETQHRLNQQL  
 ZYG-12a (499) PFSEKNTLPLEIENK--RLTERIQELESLEPLKGEELITLKSKNVLEEEKLFATKQI  
 Consensus (514) PEIRE LIRLQHENKMLRLNQEGSDNERIEELQ LEDANRKKNELETENRLANQRI

## Section 11

(571) 571 580 590 600 610 627  
 Hook1-HS (518) REEQQIEDLQKSLQEQQSKSEGESSSKLKQKLEAHMEKLTEVHEELQKKQELIEDL  
 Hook3-HS (518) LEVQSQVEELQKSLQDQGSKAED--SVLLKKKLEEHLEKLHEANNELQKKRAIIEDL  
 Hook2 HS (511) SELRAQVEDLQKALQEQQGKTEDAISILLKRRKLEEHLQKLHEADLELQKREYIEEL  
 ZYG-12a (554) EELQQQIEDLQENLLKNQEHASG-DVVGKLIQLEKAEVEAQQMRERAKMRAETNQAQV  
 Consensus (571) ELQQQIEDLQKSLQEQQSKAEG SVLLKKKLEEHLEKLHEA EELQKKREIIEDL

## Section 12

(628) 628 640 650 660 670 684  
 Hook1-HS (575) QPDINQN-VQKINELEAALQKKDEDMKAMEERYKMYLEKARNVIKTLDPKLN---PA  
 Hook3-HS (573) EPRFNNS-SLKIEELQEALRKKKEEMKQMEERYKKYLEKAKSVIRTLDPKQN--QA  
 Hook2 HS (568) EPTDSSSTARIEELQHNLQKKDADLRAMEERYRRYVDKARMVMQTMPEPKQRPAA GA  
 ZYG-12a (610) DEILKKR-TAELEVNATALQKAKAVIDELEYNRSRPVSEDSMTSVQAFKEMKE-----  
 Consensus (628) EP INNS S KIEELQ ALQKKDEDMKAMEERYKKYLEKARSVIQTLDPKQN GA

## Section 13

(685) 685 690 700 710 720 730 741  
 Hook1-HS (628) SAEIMLLRKQLAEKERRIEILESECKVAKFR-DYEKLIIVSAWYNKSLAFQKLGMS  
 Hook3-HS (627) APEIQALKNQLQERDRLFHSLEKEYEKTQSOREMEEKYIVSAWYNMGMTLHKKAED  
 Hook2 HS (625) PPELHSLRTRLRERDVRIRHLEMDFEKSRSQREQEKKLISAWYNMGMALQQRAGEE  
 ZYG-12a (661) -----ENEKLRQKVEKLEIEELNLTVTQGFQENRLLTSASHQVQLNRSIDEVMS  
 Consensus (685) APEI ALR QL ERDRRIE LEIEFEKSKSQREQEKKLIIVSAWYNMGLALQKKAMES

## Section 14

(742) 742 750 760 770 780 792  
 Hook1-HS (684) RLVSGGACSDTGACTPARSFLAQRRIHNTNRRNLSVKVPAATSD-----  
 Hook3-HS (684) RLASTG-----SGQSFLARQRQATSSRRSYPGHVQPATAR-----  
 Hook2 HS (682) RAPAH-----AQSFLAQRRLATNSRRGPLGRLASLNLRPDTHK-  
 ZYG-12a (709) MR AHAG-----SEEPQTLTLDTQKMSGALPWRFS-----  
 Consensus (742) RLASAG AQSFLAQRQATNSRR LSGKLPATSR