

	10	20	30	40	50	60
dmel	maskvsil	llltvhl	laaqtfa	qeliawqr	-----	
dsim	maskvsil	llltvhl	latqtfa	qeltawqr	-----	
dsec	maskvsif	llltvhl	laaqtfa	qeltawqr	-----	
dere	maskttll	llltisll	laahsfa	qefsaqr	-----	
dyak	maskatill	llltty--	ghllaa	qeyhgwsr	-----	
dana	maskcmill	allvpll	naqtfn	qpgypgfg	-----	
dpse	maskciilll	-dgplp----	rgcsi	lpgd-----	irlaspstara----	
dper	maskciilll	lmgpyl----	vaaqsy	yrgt-----	yasrlrqrpel----	
dwil	mtckysilll	lvasvs	agrqnrr	pqqpvapv	-----	arqdlvpaaaa-----
dmoj	mpnkysllll	lgs-clsl	clfltp	atngqri-----	idygnivfsrrs-----	
dvir	mllllssyl	ilslsl	clci--	gpavss	sifagv-----	iinsrlpfsiqrsrsyvgp-
dgri	msckysilll	flslcl	flflf	sgsvast	giyarvnn	vvytnnawlsnqpidirsrgarav
Consensus	Mask si	llll	l			
Prim.cons.	MASK3S	ILLLLTV2	LLAAQT	FAQELSAWQRA2	VNNVVYTNNI33	SR2P2SIRSR22222V

	70	80	90	100	110	120
dmel	--qqqqqq	qqqlql	qqqlll	qqqqhqr	nprpel	glrs-----
dsim	--qqqlql	qqqqrqqq	-----	qqqlnpr	pelglrs	rm-----
dsec	--qqqlql	qqqqrqqq	-----	qq--lnpr	pelglrs	-----
dere	--hqqlql	qqqqqlpr	-----	nprpel	glrs-----	
dyak	--ppqqqq	pr-----	ssrpel	glra-----		
dana	--lgarfg	gggq-----	vvpqqd	lqa-----		
dpse	--qqqvlp	qpqpdp	dnq----	rpleev	qpqgns	qerq-----pq
dper	--rgkscrr	prarqtn	-----	ghwrrss	rretarrds	-----pk
dwil	--aapsvp	aaaaag	andlqr	piggwd	qwnnnv	qtnq-----qy
dmoj	--sfdnqi	qsrsva	apaqnr	istvsaa	asppni	qqqq-----pve
dvir	-pdlhdl	lqrpqge	vmp	laqetws	dqriaa	ashtgqqtwnvqrnvaevptaqqqqqhqpip
dgri	kpteqd	qnpqqdp	qltaqq	swnsqrs	aqrpets	sagtvnl-----vpktqlqq---pns
Consensus	q	q		rpe		
Prim.cons.	KPQQQ4	QQQ2QQ	RQQQQAQ552	QQQR2NPRPEL	GLRSQN2QRNVAEVP33	QLQQQHQP6

	130	140	150	160	170	180
dmel	lpgnpwt	-qnnqea	isdvvav	dltkrep	vtpppnr	PP--PVFSYMDRFSSSELFKEIKSQ
dsim	ypenrwnn	qnnqea	isdvvav	dltksep	vtppptr	PP--PVFSYMDRFSSSELFKEIKSQ
dsec	lpgnrwi	-qnnqea	isdvvav	dlskrep	vtppptr	PP--PVFSYMDRFSSSELFKEIKSQ
dere	----qgt	nytkpts	sdvvmv	dltkhe	panpptr	PP--PVFSYMDRFSGQLFDQIIKSQ
dyak	-qntnprt	qdnqhpi	sdvvav	dlskpe	tnappt	PP--PAYSYMDRFSAELFKQIMKSQ
dana	-----	qedirv	saprqr	nggqsr	npaptap	trAPVIPKTSFMDRFSSKLYAKIAPAQ
dpse	npnsqip	pprqpan	vlgane	--vplpt	vsnsxpt	PP--AKQSFKDRFSSKLFQPIASRS
dper	iptaryr	prdsr	pmcwpm	r-----	crcpr-spt	vptrPP--AKQSFKDRFSSKLFQPIASRS
dwil	gptands	prvqgv	desgsgs	--glsqpp	vstspt	PP--AQKNYMEQFSSKLFQQIATRA
dmoj	apdasrt	psvtvl	gidgsa	dqsaag	qsrpgs	gpirPP--AQFNRYRERFSSTLFQPISRNN
dvir	asasas	apaaspe	vivngfn	q-aagr	passag	ptPP--AQYNYRERFSSVLFQPISRSN
dgri	apalata	pavtv-	lgvdr	pnq-asv	qpssss	sptPP--AHYNYRERFSSKLFQPIARNN
Consensus	p	p		p	PTRPP a	s%#RFSS LFq I
Prim.cons.	AP42R	WTPQ3NQE2	ISDVVA	VDL2KREP24	PPPTRPPVI2	VFSYMDRFSSKLFQPIAKSQ

	190	200	210	220	230	240
dme1	SQQNVVFPF	SVHALLALI	YGASDGKTF	RELQKAGEFS	SKNAMAVAQ	DFESVIKYK
dsim	SQQNVVFPF	SVHALLMAL	VGASDGKTY	RELKKAGEFS	SKNAMAVAQ	DFESVIKYK
dsec	SQQNVVFPF	SVHALLALV	YGASDGKTY	RELKKAGEFS	SKNAMAVAQ	DFESVIKYK
dere	GQQNVVLPF	SVHALLALI	YGASDGKTF	RELQKAGEFS	SKNAMAVAQ	DFESVIKYR
dyak	SQQNVVFPF	SVQALLALI	YGASSGKTF	RELQKAGEFS	SKNAMAVAQ	DFENVIKYK
dana	AGSNFVYSP	SVHSILALI	YGTSFGKTR	RELKSAGEFV	DDQIDVAMIF	EKLIKFRSD
dpse	QRQNLVFS	PVSVHALL	GMIYGASEG	RTAQELQQAG	EFGDPQAVG	QDFRQLIKQ
dper	QRQNLVFS	PVSVHALL	GMIYGASEG	RTAQELQQAG	EFGDPQAVG	QDFRQLIKQ
dwil	QQKNIVYS	PAMVHSQL	AMLIVSHGQ	TFEELQQAG	IFSVDTTKV	SQDFLSLLS
dmoj	ANRNVVYS	PSSVHAML	AMLIVGSAG	ETATELSAG	QFDQNLTTA	MDFQVRKLE
dvir	GQQNVVYS	PATMHAML	GLLYGVSSN	EAAELQRVG	QFGNQLDVA	IEFEQVRRT
dgri	ARKNVVFS	PASMHSM	LGLLYSVSS	QTSDELQRA	GNFDIGKIE	VAMDFKNVD
Consensus	qqNvV%SP	SVHa\$La\$	YGa\$ G T	ELq AG#F	# aVaQDFe	vik L
Prim.cons.	SQQNVVFPF	SVHALLALI	YGASDGKT2	RELQKAGEFS	SKNAMAVAQ	DFESVIKY2

	250	260	270	280	290	300
dme1	ADLTLATK	VYYNREL	GGVNHSY	DEYAKFYF	SAGTEAVDM	QNAKDTAAK
dsim	ADLTLATK	XYYNREL	GGVXPSY	DEYAKFYF	SAGTEAVDM	QNGKDTAAR
dsec	ADLTLATK	XYYNREL	GGVNPSY	DEYAKFYF	SAGTEAVDM	QNGKDTAAR
dere	ADLTLATK	VYYNQEL	GGVNPSY	DAYAKFYF	SAGTEAVDM	QNGKDTAAR
dyak	TDLTLATK	VYYNQEL	GGVNHSY	DAYAKFYF	SSDTEAVDM	QNGKDTAAR
dana	VELKMATK	LYHNQLK	GGAYPGF	PEFSQFYF	NTADEAVDM	TRAKDTSEK
dpse	AELTMASR	MFYNKNM	GGINHDY	PEYAEYYY	SSGIEPVM	MGRSRETAG
dper	AELTMASR	MFYNKNM	GGINHDY	PEYAEYYY	SSGIEPVM	MGRSRETAG
dwil	AEIIVASK	VLYNPAL	GQPNERF	PKYALTYF	NTEIETFNP	QDPRNTANA
dmoj	AQLIVANK	LFYNHEL	AMVNPDA	HYAHLYFN	SEIEGVNM	MKRSANTAS
dvir	AQLIVANK	LYNREID	ELNPRYLA	FASQYYG	SETEAVNM	MRKSRDTAA
dgri	TRLIVANK	LYNRELS	APNDRYE	FAFALEYN	SEIEAVDM	MKKPRNTAA
Consensus	a#Lt A K	%YN # \$gg	N Y %A	Y%ss EaV#M	#Taa INaW	D Trnk
Prim.cons.	ADLTLATK	VYYNREL	GGVNPSY	DEYAKFYF	SSGTEAVDM	QN2KDTAAR

	310	320	330	340	350	360
dme1	IRDLVTPT	DVDPQTQ	ALLVNAVY	FQGRWEHE	FATMDTSPY	DFQHTNGRI
dsim	IRELVTAD	VDPQTQAL	FVNAVYF	KGRWEHEF	FATMDTSPS	DFQHNGRI
dsec	IRELVTAD	VDPQTQAL	FVNAVYF	KGRWEHEF	FATMDTSPS	DFQHNGRI
dere	IRELVTGD	IDPQTQAL	LNAVYF	KSRWEHEF	AIMDTAPSD	FHHNGKTSQ
dyak	IRELVTGP	DMDPQTQ	ALLVNAVY	FQGRWEHE	FAIMDTSPY	DFHHNGRTS
dana	IRNLAAP	SDITEQTE	ALLVNAI	YFKGRWEN	EFAIMDTQPS	NFKHSDGRI
dpse	IRELVTPS	IDGQTEAM	LVNAIYF	KARWATEF	SATDTISGK	FRRGSGAP
dper	IRELVTPS	IDGQTEAM	LVNAIYF	KARWATEF	SATDTISGK	FRRGSGAP
dwil	IKQLITQ	SEIDDQT	QAILLNA	IYFKARW	ANEFSTRDT	MPAKFRMG
dmoj	IRDLVSP	NDIDDET	QALLVNA	IYFKARW	ANEFSAMDT	TPDKFRVNS
dvir	IRDLVQPS	DIDEQTQ	ALLVTAI	YFKARW	ANEFSEMDT	TAEKFRMG
dgri	IRELVSP	SIDIDEQ	TEAMVDA	IYFKARW	ANEFSEMDT	TPAKFRLNG
Consensus	IR#LVtPs	D QT#A\$	LVNAIYF	KaRWa EF	s mDT p kFr	ng s VAMM%
Prim.cons.	IRELVTPS	IDPQTQAL	LVNAIYF	KARW22EF	2TMDTSPS	KFRHSNGRI

	370	380	390	400	410	420
dme1	YGLAELPE	LGALELAY	KDSATSM	LILLPNETT	GLGKMLQQL	SRPEFDLNR
dsim	YGLAELPE	LGALELAY	KDSATSM	LILLPNQTT	GLAKMLQQL	SRPEFDLNV
dsec	YGLAELPE	LGALELAY	KDSATSM	LILLPNQTT	GLAKMLQQL	SRPEFDLNV
dere	YGLAELPE	LGALELAY	KDSATSM	LILLPNQTT	NGLAKMMQQL	SRPEFDLNR
dyak	YGLAELPE	LGALELAY	KDSATSM	LILLPNQTT	NGLAKMMQQL	SRPEFDLNR
dana	YSLADIPE	LGAALGLN	YRDSNIS	MILLPKQV	NGLRALEA	QLADPQFDL
dpse	FGYADLPD	LGALEMPY	ADSEVS	MILLPYQV	DGLAQLEQQL	LARPQNDLN
dper	FGYADLPD	LGALEMPY	ADSEVS	MILLPYQV	DGLAQLEQQL	LARPQNDLN
dwil	FDYAELPD	LHATALEMP	YAGTQIS	MILLPNQV	NGLTQLERQ	LARPEYDLN
dmoj	YAYAELPD	LDAVALELP	YAGTEVS	MFLPNQV	DGLPQLERQ	LE - -RTDL
dvir	FDIAELPE	LDALELPY	AGTPI	SMLIILPNQ	VNGLAQLE	RQLE - -RHD
dgri	FAYAQLPE	LDALELPY	VNDASML	LILLPNQV	NGLAQLE	RNLASTNHD
Consensus	%g A#LP#	LgATALE\$	pY ds	SMLIILPn	QvnGLaQ\$	eqQL rp# DLN
Prim.cons.	YGLAELPE	LGALELPY	2DSATSM	LILLPNQV	NGLAQLEQQL	2RPEFDLNR

	430	440	450	460	470	480
dme1	SVAVRLPKFQFEFEQDMTEPLKNLGVHQMFT	TPNSQVTKLMDQPVRVSKILQKAYINVGEAGTEASAAS				
dsim	PVAVRLPKFQFEFEQDMTQPLKDLGVHQMFT	TPNSQVTKLLDHPVRVSKILQKAYINVGEAGTEASAAS				
dsec	PVAVRLPKFQFEFEQDMTQPLKDLGVHQMFT	TPNSQVTKLLDHPVRVSKILQKAYINVGEAGTEATAAS				
dere	SVAVHLPKFQFEFEQDMTQPLKDLGVHQMFT	TPNSQVTKLLDHPVRVSKILQKAYINVGEAGTEASAAS				
dyak	SVAVRLPKFQFEFEQDMTQPLKDLGIHQMFT	TPNSQVTKLLDHPVRVSKILQKAYINVGEAGTEASAAS				
dana	NVLVRLPKFRIEFQDMTQPLKQMDVQEMFGPKS	QIKTMLNDRVRVEKILQKAFIDVNEAGTEAAAAS				
dpse	TVTIRIPKFRIQFEQDMTEPLQQLGVREMFTR	SSQVTKMLDRPVRVSKILQKAFLNVNEAGSEAAAAS				
dper	TVTIRIPKFRIQFEQDMTEPLQQLGVREMFTR	SSQVTKMLDRPVRVSKILQKAFLNVNEAGSEAAAAS				
dwil	TVTIRIPRFRIEFQDMTEPLQRLGVKEMFTSR	SQVDAMLDKPMVSKIQQKAFIDVNEAGSEASASS				
dmoj	MVAVRLPKFRIEFQDMTLPQLQELGVRRMFT	ANSQVNTILMRPVKVSILQKAFIDVNEAGSEAAAAT				
dvir	MVTVRLPKFRIEFELDMTGPLQQLGVRRMFT	PKSQVDAMLLQPVRVSKILQKAFIDVNEAGSEAAAAS				
dgri	MVTVRVPKFRIEFQDMSGPLQELGVRRMFT	KQSEVDAMLMQPVRVSKVLQKAFIDVNEAGSEAAAAS				
Consensus	V VRLPKFRIEFQDMT PLQ#LGV MFTp SQV k\$LD	PVRVSKILQKA%I#VnEAGSEAAaAS				
Prim.cons.	3VAVRLPKFRIEFQDMTQPL22LGVRRMFT	TPNSQVTKMLDQPVRVSKILQKAFINVNEAG2EAAAAS				

	490	500	510	520	530	540	550
dme1	YAKFVPLSLPPKPTEFVANRPFVFAVRTPASV	LFIGHVEYPTPMSV-----					
dsim	YAKFVPLSLPPKPTEFVANHPFVFAVRTPTS	SVLFIGHVEYPTPVSV-----					
dsec	YAKFVPLSLPPKPTEFVANRPFVFAVRTPTS	SVLFIGHVEYPTPVSV-----					
dere	YAKFVPLSLPPKPKEFIANRPFVFAIRTPTS	SVLFIGHVEYPTPMSVKN-KPNFDFYRN----					
dyak	YAKFVPLSLPPKPTEFVANRPFVFAIRTPTA	VLFIGHVENPTPMSVKNPEPYSDIYRN----					
dana	YAKFVPLSLPAKSPEFTADHPFVFAIRTPTS	SVLFIGHVEHPTPLTASPEGAGRGRQSFSSRQ					
dpse	YAKFVPLSLPVKSREFNADHPFVFALRTPDS	SVLFIGHVLQPTAMA-----					
dper	YAKFVPLSLPVKSREFNADHPFVFALRTPDS	SVLFIGHVLQPTAMA-----					
dwil	YAKFVPLSLPVKSHEFTADHPFIFAIRSPNAV	LFIGHVVQPTQVA-----					
dmoj	FAKFVPLLLPMKSREFIADHPFLFAIRTPES	SVLFIGHVVQPPQINARQ-----					
dvir	YAKFVPLSLPVKSREFVADHPFVFAIRTPDS	SVLFIGHVVQPPQVSGRQ-----					
dgri	YAKFVPLSLPVQSLEFTADHPFLFAIRTPET	VLFIGHVVQPLQATRSQ-----					
Consensus	YAKFVPLSLP Ks EF A#hPF!FA!RTP s	VLFIGHV qPt					
Prim.cons.	YAKFVPLSLP2KS2EFVADHPFVFAIRTPS	VLFIGHVEQPTPMSV3Q23P33D3YRNFSRQ					

Alignment annotation:

Residues conserved for 80 % or more (upper-case letters) : 195 is 35.39 %

Residues conserved for 50 % and less than 80 % (lower-case letters) : 87 is 15.79 %

Residues conserved less than 50 % (white space) : 233 is 42.29 %

IV conserved positions (!) : 5 is 0.91 %

LM conserved positions (\$) : 7 is 1.27 %

FY conserved positions (%) : 8 is 1.45 %

NDQEBZ conserved positions (#): 16 is 2.90 %

Residues of the N-terminal extension are printed in lower case, with serpin core residues in UPPER CASE. The putative scissile bond marked in bold (**rP**). The consensus flexible hinge region residues of inhibitory serpins and the PF residues at the C-terminal RCL "shutter region" are marked in **RED**. The putative protease cleavage site in the RCL, P1/P1', is marked **in green**.