

ASK18	SS	EEIVSA	GESSEIEE	AVASLTMS	SNKILLTS	SDGESFEI	DEAVARKE	LIIVHMME	DN	CAGEAI	PLENVTGD	ILSKIIIEY	AKMHVNEP	SEEEAKKN	
AlySkp08	SSS	KKSSD	GKSSSEIEE	AVASLTMP	FNKILLTS	SDGESFEI	DEAVARKE	QIIAHMIE	DDCAGKAI	PIDNVTGD	ILSKIIIEY	AKKHVVEP	-DEEAKKK		
AhaSkp07	SPS	KKSSA	GKSSSEIEE	AVASLTMS	SNKILLTS	SDGESFEI	DEAVARKE	QIIAHMIE	DDCAGKAI	PIDNVTGD	ILSKIIIEY	AKKHVVEP	-DEEAKKK		
ASK19	---	---	---	MS	SKKIVLTS	SDGESFQV	EEVVARKL	QIVGHIEE	DDCATNKI	PLPNVTGE	ILAKVIEY	CKKHVED-	DDD	KKKEK	
ASK15	---	---	---	MS	SNKIVLTS	SDGESFQV	EEVVARKL	QIVKHLLE	DDCVINEI	PLQNVGTG	ILSIVIEY	CKKHVDDV	VDDEAKQN		
AhaSkp02	---	---	---	MS	SNKIVLTS	SDGESFQV	EEVVARKL	QIVGHMIE	DDCVIKSI	PLQNVGTG	TLSMVLEY	CKKHVDDV	VDDEAKKK		
AlySkp03	---	---	---	MS	SNMIVLTS	SDGESFQV	EEVVARKL	QIVGHMLE	DDCVINAI	PLQNVGTG	TLSMVLEY	CKKHVDDV	VADEAKKK		
ASK16	---	---	---	MS	SNKIVLTS	SDDESFEV	EEAVARKL	KVIAHMID	DDCADKAI	PLENVTGN	ILALVIEY	CKKHVDDV	VDDEAKNE		
ASK17	---	---	---	MS	SKKIVLTS	SDDECFEI	DEAVARKE	QVIAHMID	DDCADKAI	RLQNVGTG	ILALVIEY	CKKHVDDV	---EAKNE		
AlySkp07	---	---	---	MS	SNKIVLTS	SDDESFEV	DEAVARKE	QIIAHMID	EDCADKAI	LLQNVGTG	ILALVIEY	CKKHVDDV	---VDAKNEL		
AhaSkp08	---	---	---	MS	SNKIVLTS	SDDESFEV	DEAVARKE	QIIAHMID	DDCANKAI	PLQNVGTG	ILAMVIEY	CKKHVDDV	DSDEAKNE		
AlySkp12	---	---	---	MS	SNKIVLTS	SDDESFEV	DEAVARKE	QIIAHMID	DDCADKAI	PLQNVGTG	ILAVVIEY	CKKHVDDV	DDSEAKKE		
ASK14	---	---	---	MS	SNKIVLSS	SDGESFEV	EEAVARKL	KIVEHMIE	DDCVVTEV	PLQNVGTG	ILSIVIEY	CKKHVDDV	---EESDE		
AlySkp15	---	---	---	MS	SNKIVLTS	SDGESFEV	EEVVARKL	QIVGHMLE	DDCVINEI	PLQNVGTG	ILSMVIEY	CKKTHVDE	---EEEAQTK		
AhaSkp10	---	---	---	MS	SNKIVLTS	SDGESFEV	EEVVARKL	QIVGHMLE	DDCVINEI	PLQNVGTG	ILSMVIEY	CKEHVDE	---EEEAQTK		
ASK6	---	---	---	---	---	---	---	MMIKGMAE	DDCADNGI	PLPNVTSK	ILLLVIEY	CKKHVVE	S---	KEED	
AlySkp02	---	---	---	---	MVILFRS	T	---	KRAVAFOS	AMIKGMAE	DDCADNGI	PLPNVTSK	ILLLVIEY	CKKHVVE	N	EEEY
AhaSkp11	---	---	---	MA	KKIIVLTS	SDGDSFQI	DEAVAFOS	AMIKGMAE	DKCADNGI	PLPNVTSK	ILLLVIEY	CKKHVVE	N	NEEED	
ASK5	---	---	---	M	STKIMLKS	SDGKSFEI	DEAVARKE	IATNHMVE	DGCADTVI	PLRNVTSK	ILKIVIDY	CKKHVVE	---	KEED	
AhaSkp09	---	---	---	MS	KKMIVLKS	SDGESFEV	DEAVALLS	KTIITQMS	VECAANEI	KLLNVTSK	ILKIVIAI	CKKHVES	---	NEED	
AlySkp10	---	---	---	MS	KKMIVLKS	SDGKSFEV	DEAVARKE	VTINNMAE	DECADNGI	PLPNVTSK	ILKIVIAI	CKKHVES	---	NEED	
AlySkp14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
AlySkp16	---	---	---	---	MISLTS	SDGOTFEI	KEDAARQC	QIINHMI	DDCADREI	PLPNVTGK	ILAMVIEY	CKKHHVD	---	DASTDED	
AhaSkp05	---	---	---	MS	TNKITLKS	SDGHSFDV	EKDAACOS	QIIAGMIE	DDCTDNGI	LLA-VTSK	ILSMVVEY	IKKHHVD	---	AASTDED	
AlySkp09	---	---	---	MS	AKIILKS	SDGESFEI	KEEAAROS	QTIFHLID	DDCTDKEI	PVPNVGTG	ILSMVVEY	LNKHHVG	---	DASTDED	
ASK10	---	---	---	MS	TKKIILKS	SDGHSFEV	EEEEAACOC	QIIAHMSE	DDCTDNGI	PLPEVTGK	ILEMVEY	CNKHHVD	---	AACSDDED	
ASK9	---	---	---	MS	TKKIILKS	SDGHSFEV	EEEEAROC	QIIAHMSE	NDCTDNGI	PLPNVTGK	ILAMVIEY	CNKHHVD	---	AACSDDED	
ASK7	---	---	---	MS	TKKIMLKS	SDGKMFIE	EEETARQC	QIIAHMIE	AECTDNVI	PVSNVTSE	ILEMVEY	CNKHHVD	---	AACSDDED	
ASK8	---	---	---	MS	TKKIMLKS	SEGKTFEI	EEETARQC	QIIAHMIE	AECTDNVI	LVLKMTSE	ILEMVEY	CNKHHVD	---	AACSDDED	
ASK13	---	---	---	M	SKMVMLLS	SDGESFQV	EEAVAVOS	QIIAHMIE	DDCVANGV	PIANVTGV	ILSKVIEY	CKKHVVS	---	DSESKDE	
AhaSkp06	---	---	---	---	---	---	---	---	MVE	DDCVGDEI	PLLNVTGA	TLSKVIEY	CKKHVVA	---	ESESKDE
AlySkp13	---	---	---	M	SKMVMLQS	SDGESFQV	EEAVAVOS	QIIAHMVE	DDCVGDEI	PVSNVTGA	TLSKVIEY	CKKHVVA	---	AEEWE	
AlySkp17	---	---	---	MA	SNKIILTS	SNGESFEI	DEAVAVES	LTIKHMIE	DDCAGNGI	PLPSVIGG	ILAKVIEC	CKKHVEI	---	AATENKE	
AlySkp11	---	---	---	MA	AKKIILKS	SDGESFEI	DEAVAVES	QTIKHMIE	DDCADNGI	PLPNVTGA	ILAKVIEY	CKKHVEA	---	AATENDE	
AlySkp04	---	---	---	MA	AKKIILKS	SDGESFEV	DEAVAVES	QTIKHMIE	DDCADNGI	PLPNVTGA	ILAKVIEY	CKKHVEA	---	AATENDE	
AhaSkp03	---	---	---	MA	AKKIILKS	SDGESFEV	DEAVAVES	QTIKHMIE	DDCADNGI	PLPNVTGA	ILAKVIEY	CKKHVEA	---	AATENDE	
ASK3	---	---	---	MAET	KKMIILKS	SDGESFEV	EEAVAVES	QTIKHMIE	DDCADNGI	PLPNVTGA	ILAKVIEY	CKKHVEA	---	AATENHE	
ASK4	---	---	---	MAET	KKMIILKS	SDGESFEI	EEAVAVKS	QTIKHMIE	DDCADNGI	PLPNVTGA	ILAKVIEY	CKKHVEA	---	AAENDE	
AlySkp06	---	---	---	MS	STMIVLMS	SDGQSFEV	EEAVAIOS	QIIAHMVE	DDCAANGI	PLANVTSK	TIAKVIEY	CKKHHVD	---	EAISEDE	
ASK12	---	---	---	MS	SKMIVLMS	SDGQSFEV	EEAVAIOS	QIIAHMVE	DDCADNGI	PLANVTSK	ILVKVIEY	CKKYHVD	---	EAISEED	
ASK11	---	---	---	MS	SKMIVLMS	SDGQSFEV	EEAVAIOS	QIIAHMVE	DDCADNGI	PLANVTSK	ILVKVIEY	CKKHHVD	---	EAISEED	
ASK2	---	---	---	MST	VRKITLKS	SDGENFEI	DEAVALES	QTIKHMIE	DDCTDNGI	PLPNVTSK	ILSKVIEY	CKRHVEA	---	AESSDED	
AhaSkp04	---	---	---	MST	VRKITLKS	SDGENFEI	DEAVALES	QTIKHMIE	DDCADNGI	PLPNVTSK	ILSKVIEY	CKKHVEA	---	AASSDED	
AlySkp05	---	---	---	MST	VRKITLKS	SDGENFEI	DEAVALES	QTIKHMIE	DDCADNGI	PLPNVTSK	ILSKVIEY	CKKHVEA	---	AASSDED	
ASK1	---	---	---	MS	AKKIVLKS	SDGESFEV	EEAVALES	QIIAHMVE	DDCADNGI	PLPNVTSK	ILAKVIEY	CKRHVEA	---	AATSDDD	
AhaSkp01	---	---	---	MS	SKKIVLKS	SDGESFEV	EEAVALES	QIIAHMVE	DDCADNGI	PLPNVTSK	ILAKVIEY	CKKHVEV	---	AATSDED	
AlySkp01	---	---	---	MS	SKKIVLKS	SDGESFEV	EEAVALES	QIIAHMVE	DDCADNGI	PLPNVTSK	ILAKVIEY	CKKHVEV	---	AATSDED	

ASK18	LDSWDAKF	MEKLDLET	IFKIILAA	NYLNFEGF	LGFSQTV	----	ADY	IKDKTPEE	VREIFNIE	NDFTPEEE	EE-IRKEN	AWTFNE--	-----
AlySkp08	LDSWDAKF	VEKLDLET	IFKIILAA	NYLNFEGF	LGFSQTV	----	ADY	IKDKTPEE	VREIFNIE	NDFTPEEE	EA-IRKEN	AWTFNG--	-----
AhaSkp07	LDSWDAKF	VEKLDLET	IFKIILAA	NYLNFEGF	LGFSQTV	----	ADY	IKDKTPEE	VREIFNIE	NDFTPEEE	EE-IRKEN	AWTFNE--	-----
ASK19	LNEWDAKF	MKDFDIKT	IFDIILAA	NYLNVQGL	FDLCSKTI	----	ADY	IKDMTPEE	VRELFNIE	NDFTPEEE	EA-IRKEN	AWTFEODG	KQOVPKP
ASK15	LDAWDAEF	MKNIDMET	IFKLILAA	NYLNVQGL	LGLTCQTV	----	ADY	IKDKTPEE	VRELFNIE	NDFTHEEE	EEAIRKEN	AWAFEADT	KHEDPKP
AhaSkp02	LDAWDAEF	MKDLNMET	IFNIILAA	NYLNVKGL	LDLTCQTV	----	ADH	IKDKTPEE	VRVIFNIE	NDFTPEEE	EA-IRKEN	AWTFGADS	KTEDPKP
AlySkp03	LDAWDAKF	MKDLNTEF	IFSIIILAA	NYLNVKGL	LDLTSQTV	----	ADY	IKDMTPEE	VRELFNIE	NDFTPEEE	EA-IRKEN	AWTFEAAS	AOEVPKP
ASK16	LRTWDAEF	MKEFDMET	VMKLLILAV	NYLNVQGL	LGLTCQTV	----	ADH	MKDMSPPEE	VRELFNIE	NDYTPEEE	DA-IRKEN	AWAFEDLK	-----
ASK17	FVTWDAEF	VKNIDMDT	LFKLLDAA	DYLVIVIGL	KNLIAQAI	----	ADY	TADKTVNE	IRELFNIE	NDYTPEEE	EE-LRKKK	EWAFN---	-----
AlySkp07	VMTWDAEF	MKNIDMET	VFKLLNAA	DYLVNVKGL	LDLTSNTI	----	ADY	IKDKKVEE	IREIFNIE	NDYTPEEE	EE-LRKQK	AWAFKDON	-----
AhaSkp08	LVAWDAEF	MKNIDMDT	IFNLLILAA	NYLNVKGL	LDLTSQTI	----	ADY	IKVMTPEK	VREFNIE	NDFTPEEE	EE-IRKEN	EWAFEDLN	-----
AlySkp12	LVTWDAEF	MKDIDMET	MFOLLILAA	NYLNVKSL	LDLTSQTI	----	ADY	IKDKTPEE	VREIFNIE	NDFTPEEE	EE-IRKEN	EWAFEDLN	-----
ASK14	FKTWDEEF	MKKFDQPT	VFQLLILAA	NYLNIKGL	LDLSAQTV	----	ADR	IKDKTPEE	IREIFNIE	NDYTPEEE	AA-VRKEN	AWAFE---	-----
AlySkp15	LKTWDEEF	MKKFDIKT	LLQIILAA	NYLNVKGL	LDLVSQTI	----	ADT	IKDYTPEQ	IREVFGVE	NDYTEEEE	AE-VRKEN	AWAFEDAD	TPKP---
AhaSkp10	LKTWDEEF	TKRFDLQT	LLKIILAA	NYLNVKGL	LDLVSQTV	----	ADS	IKDYTPEK	IREVFGIO	NDYTEEEE	AE-VRKEN	AWAFE---	-----
ASK6	LKKWDAEF	MKKMEQSI	LFDVMMAA	NYLNIQSL	LDLTFNSC	----	---	---	---	---	---	---	-----
AlySkp02	LKKWDTEF	MKKMEQSI	VFDVMMAA	NYLNIQSL	IDLTCQTV	----	ADF	LSGKTPEE	IRAYFKIE	NDFTPEEE	AE-ILREN	QWAFE---	-----
AhaSkp11	LKKWDTEF	MKKMEQSI	VFDVMMAA	NYLNIQSL	IDLTCQTV	----	ADL	LSGKTPEE	IR---	---	BE-IRKEN	QWAFE---	-----
ASK5	LKEWDADF	MKTIETTI	LFDVMMAA	NYLNIQSL	LDLTCQTV	----	SDLLQADL	LSGKTPEE	IRAHFNIE	NDLTAEV	AK-IRREN	QWAFQ---	-----
AhaSkp09	LMEWDADF	MKKIEPSI	LFDVMMAA	NYLCTQTL	LDLTCQTV	----	ADL	LSGKTPEE	IRARFNIE	NDLTPAEV	AE-IRKEN	QWAFE---	-----
AlySkp10	LKEWDADF	MKKIEPSI	LFDVMMIAA	NYLNIQSL	LDLTCQTV	----	AALLQADL	LSGKTPEE	IRTRFNIE	NDLTPAEV	AE-IRKEN	QWAFE---	-----
AlySkp14	---MGRKV	ME-KDQLT	LFDDLILAA	SYLDIQSL	LDLACQTA	----	SDM	SKAKTLDO	TREFFNIE	NDFTPEEE	KA-VLKDY	QKAFE---	-----
AlySkp16	LKKWDEEF	ME-KDQLT	LFDDLILAA	SYLDIQSL	LDLACQTA	----	SDM	SKAKTLDO	TREFFNIE	NDFTPEEE	KA-VLKDY	QKAFE---	-----
AhaSkp05	LKKWDAHF	MQ-IDQST	IFDLIMVA	NHLEIKSL	IDLTCQTV	----	ADM	IKKEEIPKO	IRERFNIE	NDFTPEEE	KA-VLKNY	QKAFE---	-----
AlySkp09	LKKWDAEF	MQ-IDQST	IFDLIMAA	NHLNIKSL	LDLTCQTV	----	ADM	IKKEEIPKO	IRORFNIE	NDFTPEEE	KA-VLKNY	QKAFE---	-----
ASK10	LKKWDEEF	ME-KYQST	IFDLIMAA	NYLNIKSL	LDLACQTV	----	ADM	IKDNTVEH	TRKFFNIE	NDYTHEEE	EA-VRREN	QWGF---	-----
ASK9	LKKWDEEF	ME-KDTST	IFDLIKAA	NYLNIKSL	FDLACQTV	----	AEI	IKGNTPEQ	IREFFNIE	NDLTPEEE	AA-IRREN	KWAFE---	-----
ASK7	LKKWDEEF	ME-KDQYT	IFHLMNAA	YDLHIKSL	LALAYQTV	----	ADM	V---	---	---	NDN	KWAFE---	-----
ASK8	LEKWDEEF	ME-KDKST	IFALTNAA	NFLNNKSL	LHLAQQTV	----	ADM	IKGNTPKO	MREFFNIE	NDLTPEEE	AA-IRREN	KWAFE---	-----
ASK13	LKKWDAEF	MKALEQST	LFDVMLAA	NYLNIKDL	LDLGCQTV	----	ADM	ITGKKPDE	IRALLGIE	NDFTPEEE	EE-IRKEN	QWAFE---	-----
AhaSkp06	LKKWDAEF	MKAMEQST	LFHVILAA	NYLNIKDL	LDLGCQTV	----	ADT	ITDKNPDE	IRALLGIR	NDFTPVEE	EE-IRQON	QWAFE---	-----
AlySkp13	LKKWDAEF	MKAMEQST	LFHVILAA	NYLNIKDL	FDLGCQTV	----	ADT	ITDKNPDE	IRALFGIR	NDFTPVEE	EE-IRQON	QWAFE---	-----
AlySkp17	LKAWDADF	VQ-VDQPT	LFDTILVA	NYLNNKSL	LDLTCQTV	----	DDM	MREKTPPEE	MRAHFNIE	NDYSAEV	EKPDKDON	VKNFKN---	-----
AlySkp11	LKAWDNDF	VK-VDQPT	LFDDLILAA	NYLNIQSL	LDLTCQTV	----	ADM	MRGKTPEQ	MREHFNIE	NDYTPEEE	EE-VRREN	KWAFE---	-----
AlySkp04	LKAWDNDF	VK-VDQPT	LFDDLILAA	NYLNIQSL	LDLTCQTV	----	ADM	MRGKTPEQ	MREHFNIE	NDYTPEEE	AE-VRREN	KWAFE---	-----
AhaSkp03	LKAWDNDF	VK-VDQPT	LFDDLILAA	NYLNIQSL	LDLTCQTV	----	ADM	MRGKTPEQ	MREHFNIE	NDYTPEEE	AE-VRREN	KWAFE---	-----
ASK3	LKTWDNDF	VK-VDHPT	LFDDLILAA	NYLNIQSL	LDLTCQTV	----	ADQ	MRGKTPEQ	MREHFNIE	NDYTPEEE	AE-VRREN	RWAFE---	-----
ASK4	LKNWDEEF	VK-VDQPT	LFDDLILAA	NYLNIQSL	LDLTCQTV	----	ADQ	MRGKTPEQ	MREHFNIE	NDYTPEEE	AE-VRREN	KWAFE---	-----
AlySkp06	LKKWDTEF	ME-IDQST	IFDLILAA	NYLNIKSL	LDLTCQTI	----	ADM	IKGKNPEE	IRTLFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----
ASK12	LKNWDEEF	MD-LEQST	IFELILAA	NYLNIKSL	FDLTCQTV	----	ADM	IKGKTPEE	IRSTFNIE	NDFTPEEE	EA-VRKEN	QWAFE---	-----
ASK11	LNNWDEEF	MD-LEQST	IFELILAA	NYLNIKSL	LDLTCQTV	----	ADM	IKGKTPEE	IRSTFNIE	NDFTPEEE	EA-VRKEN	QWAFE---	-----
ASK2	LKTWDEEF	IK-VDQGT	LFDDLILAA	NYLNIKGL	LDLTCQTV	----	ADM	IKGKTPEE	IRKTFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----
AhaSkp04	LKTWDEEF	IK-VDQGT	LFDDLILAA	NYLNIKGL	LDLTCQTV	----	ADM	IKGKTPEE	IRKTFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----
AlySkp05	LKTWDEEF	IK-VDQGT	LFDDLILAA	NYLNIKGL	LDLTCQTV	----	ADM	IKGKTPEE	IRKTFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----
ASK1	LKAWDADF	MK-IDQAT	LFELILAA	NYLNIKSL	LDLTCQTV	----	ADM	IKGKTPEE	IRTTFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----
AhaSkp01	LKAWDTEF	MK-IDQAT	LFELILAA	NYLNIKSL	LDLTCQTV	----	ADM	IKGKTPEE	IRTTFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----
AlySkp01	LKAWDTEF	MK-IDQAT	LFELILAA	NYLNIKSL	LDLTCQTV	----	ADM	IKGKTPEE	IRTTFNIE	NDFTPEEE	EE-VRREN	QWAFE---	-----