

Unconserved 0 1 2 3 4 5 6 7 8 9 10 Conserved

	10	20	30	40	50
CeUAS	-----	-----	-----	-----	-----
GrUAS	-----	-----	-----	-----	-----
XpUAS	-----	-----	-----	-----	-----
YpUAS	-----	-----	-----	-----	-----
RsU4kpxs	-----	-----	-----	-----	-----
ArnA	-----	-----	-----	-----	-----
AtUAS1	-----	-----	-----	-----	-----
ZmUAS1	-----	-----	-----	-----	-----
PpUAS	-----	-----	-----	-----	-----
NdUAS	-----	-----	-----	-----	-----
MvUAS	-----	-----	-----	-----	-----
MpUAS	-----	-----	-----	-----	-----
hUXS	MVSKALLRLV	SAVNRRRMKL	LLGIALLAYV	ASVWGNFVNM	RSIQENGELK
MmUXS	MVSKGLLRLV	SSVNRRRMKL	LLGIALFAYA	ASVWGNFVNM	RSIQENGELK
SmUXS	-----	-----	-----	-----	-----
RmUXS	-----MS	TTVGHKHVGS	DVELSYL	-----	-----
AtUXS3	-----	-----	-----	-----	-----
Consistency	0000000000	0000000000	0000000000	0000000000	0000000000

	60	70	80	90	100
CeUAS	-----	-----	-----	-----	MKILLL
GrUAS	-----	-----	-----	-----	MVIL
XpUAS	-----	MQRNPISQE	RES	-----	VLKLIIL
YpUAS	-----	MR	IGTE	NP	-----
RsU4kpxs	-----	-----	-----	-----	MKKVLIL
ArnA	-----	OTLG	LVQGSRLNSQ	FACTARR	-----
AtUAS1	-----	MANGANRVDL	DGKPIQ	-----	PLTICMI
ZmUAS1	-----	M	ANRVDL	DGRPIK	-----
PpUAS	-----	M	TARLNL	DGQEIK	-----
NdUAS	-----	MA	GGIRLDL	DGRPVA	-----
MvUAS	-----	MA	PRLDL	QGREIK	-----
MpUAS	-----	M	APRLDL	EGRCIQ	-----
hUXS	IESKIEEMVE	PLR	EKIRDL	EKSFTQKYP	PVKFLSEK
MmUXS	IESKIEEIVE	PLR	EKIRDL	EKSFTQKYP	PVKFLSEK
SmUXS	-----	MN	YFRNDF	RGTLFGTNE	ATDSLRRR
RmUXS	RDLYLPKEKN	YVE	HKDSTI	IYRHISFP	PVKQLSPS
AtUXS3	-----	MAATS	EKQNTTKPPP	SPSPLRNSKF	CQPNMRILIS
Consistency	0000000000	1110113243	0221223000	0000000000	0002458586

	110	120	130	140	150
CeUAS	GGGGFIGCHI	TQKLLQST-D	HLVNCYD	-----	LFDA RLQDSLGH-
GrUAS	GCGGFVGS	LDNLLRDESY	LIEGWD	-----	EDR KIRQHLDN-
XpUAS	GCGGFVGS	LDRLLSRSDM	EIEGWD	FD	-----AS KITKHIDF-
YpUAS	GCGGFVGS	LDRLLSRSDM	KIVGWD	PE	-----SS KIRKHLN-
RsU4kpxs	GVNGFIGHHL	SKRILESTDP	EISQWE	VY	GMDMQTE RLGDVLNHP-
ArnA	GVNGFIGNHL	TERLLREDHY	EYVGLD	IG	SD-----AISRFLNHP-
AtUAS1	GAGGFVGS	CEKLLTETPH	KVLALD	VY	NDKIKHLL EPDTEVWS-
ZmUAS1	GAGGFVGS	CEKLLMETLH	TVIAVDVYND	KI	RHLEPA ETECAWS-
PpUAS	GAGGFVGS	CEKLMETTKH	SVLAID	VC	GVKIQHL LALGQPWS-
NdUAS	GAGGFVGS	CEALMWETHH	TVIAID	-----	VSGDKIE HLLKEGSPWS
MvUAS	GAGGFVGS	CEKLMWETE	SVLAID	-----	MYGEKIQ HLLTPSQAWS
MpUAS	GAGGFVGS	CEALLWNTHE	SILAVDI	-----	FCDKIQ HLLSPGEWS
hUXS	GGAGFVGS	TDKLMMD-GH	EVTVVDN	-----	FFTGRKR NVEHWIGHE-
MmUXS	GGAGFVGS	TDKLMMD-GH	EVTVVDN	-----	FFTGRKR NVEHWIGHE-
SmUXS	GGAGFLGS	CELLLGA-GH	EVICLDN	-----	FSTGLRR NIAPLKRFD-
RmUXS	GGAGFVGS	VDRLMWM-GH	EVVVLN	-----	FFTGTKR NVQHWIGHP-
AtUXS3	GGAGFVGS	VDKLMENEKN	EVVVDN	-----	YFTGSKE NLKKWIGHP-
Consistency	*46*9*7*9	4769834336	5954481000	0001211234	4633243420

	160	170	180	190	200
CeUAS	-RFNYIHGDI	RHDHTRVEKL	IHD---ADV	VDLIAYANFS	LYVSIPLDVF
GrUAS	-RFTLHRSIA	N-APEALVEV	ERAIRECDVV	VNLAAICNPA	DYNTRPLSVI
XpUAS	-RFTLFHQVPC	I-DDVELSRL	ERLAEADAL	VNLAAICNPA	QYNTQPLDVI
YpUAS	-NFTLHQRYV	D-DVETQDDL	REAVAEGDVV	INLAAICNPS	EYNTNPLSVI
RsU4kpxs	-RMHFFEGDI	T-INKEWVEY	HVR--KCDVI	LPLVAIATPS	TYVKAFLRVF
ArnA	-HFHFVEGDI	S-IHSEWIEY	HVK--KCDVV	LPLVAIATPI	EYTRNPLRVF
AtUAS1	GRIQFHRINI	K-HDSRLEGL	VKM---ADLI	INLAAICTPA	DYNTRPLDTI
ZmUAS1	GRIQFHRLNI	K-HDSRLEGL	IKM---SDLT	INLAAICTPA	DYNTRPLDTI
PpUAS	DRIEFYKINI	K-SDTRLEGL	IKV---SDLV	INLAAICTPA	DYNTRPLDTI
NdUAS	DRISFHAFNI	R-HDSRLETF	IRV---ADLT	INLAAICTPA	DYNTRPLDTI
MvUAS	DRIEFYKINI	K-HDPRLEGL	VKL---ADVT	INLAAICTPA	DYNTRPLETI
MpUAS	NRIDFFHINI	K-HDPQTEML	IKIS---DVV	INLAAICTPA	DYNTRPLDTI
hUXS	-NFELINH DV	-----VEPL	YIEV---DQI	YHLASPASPP	NMYNPIKTL
MmUXS	-NFELINH DV	-----VEPL	YIEV---DQI	YHLASPASPP	NMYNPIKTL
SmUXS	-TFRVIAHDV	-----VEPI	DLEV---DEI	YNLACPASPP	HYQADPIQTT
RmUXS	-HFELVRHDV	-----VDPF	MVEV---SQI	YHLACPASPP	HYQYNPTKTV
AtUXS3	-RFELIRHDV	-----TEPL	LIEV---DRI	YHLACPASPI	FYKYNPVKTI
Consistency	0665644358	2012225637	3441002957	66*87566*5	4*555*8577

	210	220	230	240	250
CeUAS	NLNFTENLKI	TEYCVTHQ	-----KR	LIQFSTCEVY	GKTVASL---
GrUAS	RANLFEVYPI	VELCAKYKRW	LVSFSTSE	TYGRTIASYLP	QTYDDP----
XpUAS	RANLLDSYPI	VEACARAG	-----TW	LVYFSTSEVY	GRTLSSY---
YpUAS	KSNLFDVYPI	VELCVEYK	-----RW	LISFSTSECY	GRTLSSYV---
RsU4kpxs	ELDFEANLPI	VRSAAKYR	-----KH	LVFPSTSEVY	GMCG-----
ArnA	ELDFEENLRI	IRXCVKYR	-----KR	IIFPSTSEVY	GMC-----
AtUAS1	YSNFIDALPV	VKYCSENN	-----KR	LIHFSTCEVY	GKTIGSFLPK
ZmUAS1	YSNFIDALPV	VKYCSEYA	-----KR	VIHFSTCEVY	GKTIGSFLPK
PpUAS	YSNFVDALPV	VQQCRDNG	-----KR	LIHFSTCEIY	GKTIGSFLPR
NdUAS	HSNFVDALPV	VRMCADYN	-----KR	LIHFSTCEVY	GKTLANFLPR
MvUAS	YSNFIDALPV	VRMCADNK	-----KR	LIHFSTCEVY	GKTIGSFLPE
MpUAS	YSNFIDALPV	VRYCTDN	-----NKR	LIHFSTCEVY	GKTIGCFLPN
hUXS	KTNTIGTLNM	LGLAKRV	-----GAR	LLLASTSEVY	GDPE-----
MmUXS	KTNTIGTLNM	LGLAKRV	-----GAR	LLLASTSEVY	GDPE-----
SmUXS	KTCVIGSLNL	LDLAARR	-----GAR	IFQASTSEIY	GDPH-----
RmUXS	KTSVMGTINM	LGLAKRT	-----KAR	FLLTSTSEVY	GDPE-----
AtUXS3	KTNVIGTLNM	LGLAKRV	-----GAR	ILLTSTSEVY	GDPL-----
Consistency	4675555757	7457553100	0000000066	7744995889	*453122110

	260	270	280	290	300
CeUAS	----LQNQLP	DHDNPAHAVF	QEDNTAF	----ILGPVN	KHRWIVSCAK
GrUAS	----EL	YELREDETPL	IMGPIN	----QRWT	----YACAK
XpUAS	----VKTG	SDDPDLIELR	EEQTPLI	-MG PVS	NQRWT----YACAK
YpUAS	GDTTYENPDL	YELKEDETPL	IMGPVNV	----QRWT	----YACAK
RsU4kpxs	-----	DDDFD	PEASPLV	-YG PINK	PRWI----YACSK
ArnA	-----	SDKYF	DEDHSNL	IVG PVNK	PRWI----YSVSK
AtUAS1	DHPLRDDPAF	YVLKEDISPC	IFGSIK	----QRWS	----YACAK
ZmUAS1	DHPLRLQPEF	YVLNENETPC	IFGSIK	----QRWS	----YACAK
PpUAS	DHPLKADPAF	SVLKEDETAC	IYGSIHK	----QRWS	----YACAK
NdUAS	DSLARQDPY	FVLKEDQTPY	IYGPVEL	----QRWS	----YACAK
MvUAS	GSSLRKDKKY	YLLKEDASPC	IFGPIK	----QRWS	----YACAK
MpUAS	DSPLR-KDNF	YVLKEDESPC	IFGSIDK	----QRWS	----YCGAK
hUXS	-----	-VHPQSEDIW	GHVNPIG	----PRAC	----YDEGK
MmUXS	-----	-VHPQSEDIW	GHVNPIG	----PRAC	----YDEGK
SmUXS	-----	-VHPQVESYW	GNVNPIG	----PRSC	----YDEGK
RmUXS	-----	-EHPQKESYW	GHVNPIG	----PRAC	----YDEGK
AtUXS3	-----	-IHPQKESYW	GNVNPIG	----VRSC	----YDEGK
Consistency	1001101111	1434545543	3345433000	0000595400	00000*557*

	310	320	330	340	350
CeUAS	QLLERIIHAY	GLEDRLNYTI	IRPFNF--IG	PRIDFLP-SE	Q-----EG
GrUAS	QMTERLIYAH	HDEEGLPFTI	IRPLNF--FG	PRMDYIPTRD	G-----DG
XpUAS	QMMERIVYAH	HSTSGMPFTI	IRPLNF--FG	-----P	RM-----DYI
YpUAS	QMVERLVYAH	HKEDGLPFTV	VRPLNF--FG	-----P	RM-----DYI
RsU4kpxs	QLMDRVIWGY	-GMEGLNFTL	FRPFNW--IG	PGLDSI-HTP	K-----EG
ArnA	QLLDRVIWAY	GEKEGLQFTL	FRPFNW--MG	PRLDNL-NAA	R-----IG
AtUAS1	QLIERLVYAE	GAENGLEFTI	VRPFNW--IG	-----P	RMDFIPGIDG
ZmUAS1	QLIERLVYAE	GAENGLEFTI	VRPFNW--IG	-----P	RMDFIPGIDG
PpUAS	QLIERLIFGE	GAENGMKFTI	VRPFNW--IG	-----P	RMDFIPGIDG
NdUAS	QLIERVIYGE	SMENGLQFTI	VRPFNW--IG	-----P	RMDFIPGIDG
MvUAS	QLIERVIYAE	GMENDLAFTI	VRPFNWXLYP	-----W	C-----GW
MpUAS	QLLERLVYAE	GAENDLKFTI	VRPFNW--IG	PRMD----	FIPGVDGPSHA
hUXS	RVAETMCYAY	MKQEGVEVRV	ARIFNT--FG	-----P	R-----MH
MmUXS	RVAETMCYAY	MKQEGVEVRV	ARIFNT--FG	-----P	R-----MH
SmUXS	RCAETLFFDF	HKSHGVEIKI	VRIFNT--YG	-----P	R-----MR
RmUXS	RIAETLTYSY	MRQEGVDVVR	ARIFNT--FG	-----P	R-----MS
AtUXS3	RVAETLMFDY	HRQHGIEIRI	ARIFNT--YG	-----P	R-----MN
Consistency	8759776765	3465775668	6*68*50069	000000005	610000033

	360	370	380	390	400
CeUAS	NP-----R	VFS---HFL	D---ALKTG	EPMKLINGGH	QRRTYTYIDD
GrUAS	VP-----R	VLA---CFM	A---ALLSG	EPMQLVDGGQ	ARRTIVSIYE
XpUAS	PRSDGEGIPR	VLA---CFM	A---ALLRG	DPMKLVDGGQ	ARRTIVAIIEE
YpUAS	PQRDGDGVP	VLA---CFM	G---ALLNG	DPMKLVDGGK	ARRTIVSIYE
RsU4kpxs	SS-----R	VVT---QFL	G---HIVRG	ENIQLVDGGQ	QKRAFTYVDD
ArnA	SS-----R	AIT---QLI	L---NLVEG	SPIKLLIDGGK	QKRCFTDIRD
AtUAS1	PS-----E	GVP---RVL	ACFSNLLRR	EPLKLVDDGGE	SQRTFVYIND
ZmUAS1	PS-----E	GVP---RVL	ACFSNLLRG	EPLKLVDDGGE	SQRTFIYIKD
PpUAS	PS-----D	SIP---RVL	ACFSNLMKG	EPLKLVDDGK	SQRTFIYIKD
NdUAS	PS-----D	GVP---RVL	ACFSTNLLRG	EPLKLVDDGGR	SQRTFVYIKD
MvUAS	PQ-----R	RCTKSPSMLQ	----HYLMRG	EPLKLVDDGK	SQRTFVYIKD
MpUAS	VP-----R	VLA---CFS	M---ALMKE	EPLKLVDDGK	AQRTFCYIKD
hUXS	MND-----GR	VVS---NFI	L---QALQG	EPLTVYGS GS	QTRAFQYVSD
MmUXS	MND-----GR	VVS---NFI	L---QALQG	EPLTVYGS GS	QTRAFQYVSD
SmUXS	PDD-----GR	VVS---NFI	V---QALKG	EDITIYGDGS	QTRSFQYVED
RmUXS	PAD-----GR	VVS---NFI	M---QAIRG	ESLTLYGDGE	QTRSFQYIHD
AtUXS3	IDD-----GR	VVS---NFI	A---QALRG	EALTVQKPGT	QTRSFQYVSD
Consistency	4410000007	5750000366	4000047768	86868666*5	65*6746948

	410	420	430	440	450
CeUAS	AVDCIVRIVE	NPNOVCDKEI	FNIGSPD-N-	EISIRDLAFK	MRCIYKRRWW
GrUAS	AVDAIRRVLV	RP-ETSQNGI	FNIG-NP-NN	EVTIAELADA	MRRTYARITG
XpUAS	AVEAIIARILD	RPLE-AQNQI	FNIG-NR-NN	EVTMRGLAEL	MRDVYAEITD
YpUAS	AVDAICRMLD	NPEK-ANGHA	FNIG-NR-NN	EVTMAELADM	MRKTYAKITG
RsU4kpxs	GIDALVRIIA	NKDGVASGKI	YNIG-NP-SN	NYSVRELAEM	MLKKAGT--I
ArnA	GIEALYRIIE	NAGNRCDEI	INIG-NP-EN	EASIEELGEM	LLASFEKHPL
AtUAS1	AIEAVLLMIE	NPER-ANGHI	FNVG-NP-NN	EVTVRQLAEM	MTEVYAKVSG
ZmUAS1	AIEAVLLMIE	NPER-ANGQI	FNVG-NP-NN	EVTVRQLAEM	MTEVYSKVSG
PpUAS	AIEAVQKIIIE	NPAR-ANGHI	FNVGNPH-NE	VTIQ-ELAEL	MTDLYCKISG
NdUAS	AIKAVMLMIE	NPER-ANGHI	FNVGNPK-NE	ATIR-ELAEM	MVDVYSRVSG
MvUAS	AIEAVMLMIE	NAEE-SNGHI	FNVG-NPDNE	ASVR-ELANL	MTEIYCKVSG
MpUAS	AIDAVLRIIE	NPDR-ANMRI	FNVGNPM--N	EASVKELAEV	MTDVYCKISG
hUXS	LVNGLVALMN	S--N-VSSP	VNLG-NP--E	EHTILEFAQL	IKNLV-----
MmUXS	LVNGLVALMN	S--N-VSSP	VNLG-NP--E	EHTILEFAQL	IKNLV-----
SmUXS	LIDGFVRLMA	SPPS--LTGP	VNLG-NP--A	EFTIGELAE	VIRLTG-----
RmUXS	LVDGLILLMN	S--D-YSDP	VNLG-NP--D	EYTIKEFANT	I REMVLT PPL
AtUXS3	MVDGLIRLME	G--N-DTGP	INIG-NP--G	EFTMVELAET	VKELIN-----
Consistency	696675577460	642503454470	6*8*06503480	746628896490	744554322300

CeUAS	RGQTELP EPI	EVSGETF YGE	GYD	-----	DSDRR I	----	---	PDI TKAQ
GrUAS	DARYNDHPIV	VTADAFYGA	GYE	-----	DCDRR M	----	---	PDISKAE
XpUAS	DPRY-----	REHPIVEVSS	EEF	-----	YGKGYEDCDR	RMP	---	DLTQAN
YpUAS	DPSYEDYPII	EVSSEEFYGE	GYE	-----	DCDRR	----	---	MPDISKAK
RsU4kpxs	AEYKE-----	NAQVKLVET	TSG	AYYGKGY	QDVQNR	----	---	VPKIAN TM
ArnA	RHHFP-----	PFAGFRV VES	SSY	-----	YGKGYQDVEH	RKP	---	SIRNAH
AtUAS1	EG-AIESPTV	DVSSKEFYGE	GYD	-----	SDKRI	----	---	PDMTIIN
ZmUAS1	GK-ILDVPTI	DVSSSEEFYGE	GYD	-----	SDKRI	----	---	PDMTIIN
PpUAS	TA-RPEVTV	DVPSKEFYGV	GYD	-----	SDKRI	----	---	PMTQVR
NdUAS	EP-IPETPML	DISSQAFYGE	GYD	-----	DSDRR I	----	---	PDMVIQ
MvUAS	KPEPEIPTVD	VSSKEFYGEG	YDD	-----	SDKRIP	----	---	DMTIK
MpUAS	KS-KPNLTTI	DISSKEFYGE	GYE	-----	DSDRR I	----	---	PDMKLV T
hUXS	-----	SGSEIQFLSE	AQD	-----	DPQKRK	----	---	PDIKKAK
MmUXS	-----	SGSEIQFLSE	AQD	-----	DPQKRK	----	---	PDIKKAK
SmUXS	-----	SRSKIVRRPL	PVD	-----	DPRQRR	----	---	PDISLAT
RmUXS	-----	SPHNVDIKILPA	AED	-----	DPKRRK	----	---	PDIRAK
AtUXS3	-----	PSIEIKMVEN	TPD	-----	DPRQRR	----	---	PDISKAK
Consistency	2101110111	4355445454	446	00000000	6456630000	000	000	5875465

	..... 510 .....	520 .....	530 .....	540 .....	550	
CeUAS	QLLGWQPRYN	LDQTELEYSMG	YWFNGEEGTS	WIPQFT	----	
GrUAS	RLLGWVPRMS	LAEVLYGTMQ	SYHD TYT	APKAA	----	
XpUAS	TLLDWYPRRN	LRDILLPTMR	DYHIR	YA	ATSEPEEATQ	
YpUAS	ELLGWEPKIA	LEDVLLDTMT	YFHNE	YA	GAMKPAQVAE	
RsU4kpxs	EELGWKPTTT	MEDTLANIFE	AYREH	AA	EARSLVD	
ArnA	RCLDWEPKID	MQETIDETLD	FFLRT	VD	LTDKFS	
AtUAS1	RQLGWNPKTS	LWDLLESTLT	YQHRT	YAEAVKKATS	KPVAS	
ZmUAS1	KQLGWNPKTS	LPDLESTLT	YQHKT	YAEAIKRDIA	KSTAS	
PpUAS	KQLEWEPKTS	MYDLMEHTLK	YQYSTYA	EA	VKKAMSKSTY	
NdUAS	RQLGWEPQTP	LPDLEITLTK	HQYLYT	AA	AVKASMA	
MvUAS	RQLGWEPKTS	LPDLESTLT	YQHNT	YAHAVQQAMC	KVLAST	
MpUAS	RQLEWQPTTS	LHDLLEFTLA	YQHKT	YSQAVRECVS	KTFSTSDI	
hUXS	LMLGWEPVVP	LEEGLNKAIH	YFRKELEYQA	NNQYIPKPKP	ARIKKGRTRH	
MmUXS	LMLGWEPVVP	LEEGLNKAIH	YFRKELEYQA	NNQYIPKPKP	ARVKKGRTRH	
SmUXS	EELGWRPKVN	LAEGLAHTIR	YFDDL LSR	---	MRESAELV	
RmUXS	TYLGWEPKFS	VKHGLQETVD	WFKSQVAEGA	I	----	
AtUXS3	EVLGWEPKVK	LREGLPLMEE	DFRLRLNVPR	N	----	
Consistency	54*7*5*655	8374943764	55444	11012	2333222111	1000000000

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 CeUAS -  
 GrUAS -  
 XpUAS -  
 YpUAS -  
 RsU4kpxs -  
 ArnA -  
 AtUAS1 -  
 ZmUAS1 -  
 PpUAS -  
 NdUAS -  
 MvUAS -  
 MpUAS -  
 hUXS S  
 MmUXS S  
 SmUXS -  
 RmUXS -  
 AtUXS3 -  
 Consistency 0