

**S20. Text Multi-species analysis of AstA-R2 PA isoforms**  
**Supporting Figure 23**

CLUSTAL Line-ups; Genbank Reference IDs below

Predicted TM domains in **YELLOW**

BBS sequences in **RED**

Grimshawi	MNQS <sup>YIMENNT</sup> PFMSNS <sup>SWLELKLTT</sup> ---NNSTGNS <sup>SLSLDA</sup> --EEEEAIRQTV <sup>RWL</sup> VPL	55
Virilis	MNLS---NITL <sup>TLP</sup> SNSS <sup>WLESQLELTT</sup> ASSNLDN <sup>STL</sup> SSFY--AEAEAIRATV <sup>RWV</sup> VPF	55
Mojavensis	MELS---NL <sup>TTT</sup> LATQ <sup>LHQ</sup> ----LATSSLN <sup>HSIGPD</sup> NSTALQ--SEEEAIRATV <sup>RWL</sup> VPI	51
Bipectinate	-----MDNT <sup>T</sup> LATPDP-----LATMATY <sup>DDN</sup> LTSFFSEERQAIEG <sup>TLIWL</sup> VPF	44
Ananassae	-----MDNT <sup>T</sup> LATSEL-----LATMATY <sup>DDN</sup> FTSFFSEERQAIEG <sup>TLIWL</sup> VPF	44
Serrata	-----MENT <sup>T</sup> L <sup>I</sup> AGET-----LANIS <sup>L</sup> ANITQSDENITSFFTEEE <sup>W</sup> LAL <sup>T</sup> GILP <sup>WL</sup> VGF	49
Kikkawai	-----MENT <sup>T</sup> LITGET-----LANIS <sup>L</sup> ANTRSDENITSFFTEEE <sup>W</sup> LAL <sup>T</sup> GILP <sup>WL</sup> VGF	49
Eugracilis	-----MENM--DN <sup>STM</sup> -----VVDLV-VNSTR <sup>NDEN</sup> MTSFFTDEE <sup>W</sup> VAIRG <sup>TL</sup> PWIVIF	46
Ficusphila	-----MENAT <sup>FFPA</sup> KM-----LGS <sup>L</sup> A-SNATR <sup>NDEN</sup> L <sup>T</sup> FFTDEE <sup>W</sup> LAINST <sup>L</sup> PWV <sup>V</sup> GF	48
Takahashi	-----MENA-----T-----IMLNK-INSS <sup>R</sup> MEEN <sup>ST</sup> SYFTDEE <sup>W</sup> LSISST <sup>L</sup> PWIVCF	42
Rhopaloo	-----MDNIT <sup>VSPA</sup> EM-----LGNIS-INAS <sup>R</sup> NDEN <sup>L</sup> TSFFTDEE <sup>W</sup> LAING <sup>TL</sup> PWIVGF	48
Elegans	-----MDNIT <sup>ESA</sup> EM-----LANIS-LNAS <sup>R</sup> NDEN <sup>L</sup> TSFFTDEE <sup>W</sup> LAINSG <sup>TL</sup> PWIVGF	48
Erecta	-----MENT <sup>L</sup> -----LANIS-LNATR <sup>NEEN</sup> ITSFFTDEE <sup>W</sup> LAINSG <sup>TL</sup> PWIVGF	43
Mauritania	-----MENT <sup>TM</sup> -----LANIS-LNATR <sup>NEEN</sup> ITSFFTDEE <sup>W</sup> LAING <sup>TL</sup> PWIVGF	43
Sechelia	-----MENT <sup>TM</sup> -----LANIS-LNATR <sup>NEEN</sup> ITSFFTDEE <sup>W</sup> LAING <sup>TL</sup> PWIVGF	43
Melanogaster	-----MENT <sup>TM</sup> -----LANIS-LNATR <sup>NEEN</sup> ITSFFTDEE <sup>W</sup> LAING <sup>TL</sup> PWIVGF	43
simulans	-----MENT <sup>TM</sup> -----LANIS-LNATR <sup>NEEN</sup> ITSFFTDEE <sup>W</sup> LAING <sup>TL</sup> PWIVGF	43
Suzuki	-----MDT <sup>MEN</sup> STL-----LGKIS-LNAS <sup>R</sup> SDEN <sup>L</sup> TSFFTDEE <sup>W</sup> LAINSG <sup>TL</sup> PWIVVF	46
biarmipes	-----MDT <sup>M</sup> DNATL-----LGKIS-LNAS <sup>R</sup> NDEN <sup>L</sup> TSFFTDEE <sup>W</sup> LAING <sup>TL</sup> PWIVAF	46

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Grimshawi	FFGIIAISGFFFGNLLVILV <sup>LVLL</sup> LNKNM <sup>HST</sup> TNLLIVN <sup>L</sup> AAADLLFVIFC <sup>VPFTA</sup> VDYVAD	115
Virilis	FFGIIAISGFFFGNLLVILV <sup>LVLL</sup> LNKNM <sup>HST</sup> TNLLIVN <sup>L</sup> AAADLLFVIFC <sup>VPFTA</sup> IDYV <sup>TQ</sup>	114
Mojavensis	FFGIIAVSGF-FGNLLVILV <sup>LVLL</sup> LNKNM <sup>HST</sup> TNLLIVN <sup>L</sup> AAADLLFVIFC <sup>VPFTA</sup> VDYV <sup>TQ</sup>	110
Bipectinate	FFGIIALTGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AVADLLFVIFC <sup>IPFTA</sup> TDYV <sup>TK</sup>	103
Ananassae	FFGIIALTGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AVADLLFVIFC <sup>IPFTA</sup> TDYV <sup>TK</sup>	103
Serrata	TFGAIIATGF-LGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLLFVILC <sup>IPFTA</sup> ADYV <sup>TD</sup>	108
Kikkawai	TFGAIIATGF-LGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AVADLLFVILC <sup>IPFTA</sup> ADYV <sup>TD</sup>	108
Eugracilis	LFGVIIATGF-LGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLLFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	105
Ficusphila	FFGAIIATGF-FGNLLVILV <sup>VVFN</sup> KSM <sup>RST</sup> TNLMIVN <sup>L</sup> AVADLLFVILC <sup>IPFTA</sup> TDY <sup>MVP</sup>	107
Takahashi	FFGVIIATGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	101
Rhopaloo	FFGAIIATGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	107
Elegans	FFGAIIATGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	107
Erecta	FFGVIIATGF-FGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	102
Mauritania	FFGVIIATGF-FGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	102
Sechelia	FFGVIIATGF-FGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	102
Melanogaster	FFGVIIATGF-FGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	102
simulans	FFGVIIATGF-FGNLLVILV <sup>VVFN</sup> NM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	102
Suzuki	FFGAIIATGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFVILC <sup>IPFTA</sup> TDY <sup>VMV</sup>	105
biarmipes	FFGAIIATGF-FGNLLVILV <sup>VVFN</sup> KNM <sup>RST</sup> TNLMIVN <sup>L</sup> AAADLMFV <sup>VLC</sup> IPFTA <sup>TDY</sup> VMV	105

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Grimshawi	HWPFGTIWCRIVQY <sup>LIVV</sup> TAYASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMLRTEHITK <sup>IAIFTL</sup>	175
Virilis	HWPFGKMWCRSVQY <sup>LIVV</sup> TAYASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMLRTEHITK <sup>IAIFTL</sup>	174
Mojavensis	HWPFGKIWCRSVQY <sup>LIVV</sup> TAYASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMLRTEHITK <sup>IAIFTL</sup>	170
Bipectinate	VWPFGLFWCRSVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITM <sup>IAIVTL</sup>	163
Ananassae	VWPFGLFWCRSVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITM <sup>IAIVTL</sup>	163
Serrata	YWPFGGIWCRCVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITM <sup>VAIVTL</sup>	168
Kikkawai	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITM <sup>VAIVTL</sup>	168
Eugracilis	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	165
Ficusphila	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	167
Takahashi	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	161
Rhopaloo	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMLRTEHITK <sup>IAIVTL</sup>	167
Elegans	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	167
Erecta	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	162
Mauritania	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	162
Sechelia	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	162
Melanogaster	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	162
simulans	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	162
Suzuki	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	165
biarmipes	YWPFGRFWRVQY <sup>LIVV</sup> TAFASI <sup>YTLV</sup> LMSIDRFLAVV <sup>HP</sup> PIRSRMMRTENITL <sup>IAIVTL</sup>	165

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Eugracilis	RKAFYKAINCSSRYQNYTSDLPPPRKTSCARTSTTGL	360
Ficusphila	RKAFYKAINCSSRYQNYTSDLPPPRKTSCARTSTTGL	362
Takahashi	RKAFYKAINCSSRYQNYTSDLPPPRKTSCARTSTTGL	356
Rhopaloea	RKAFYKAINCSSRYQNYTSDLPPPRKTSCARTSTTGL	362
Elegans	RKAFYKAINCSSRYQNYTSDLPPPRKTSCARTSTTGL	362
Erecta	RKAFYKAVNCSSRYQNYTSDLPPPRKTSCARTSTTGL	357
Mauritania	RKAFYKAVNCSSRYQNYTSDLPPPRKTSCARTSTTGL	357
Sechelia	RKAFYKAVNCSSRYQNYTSDLPPPRKTSCARTSTTGL	357
Melanogaster	RKAFYKAVNCSSRYQNYTSDLPPPRKTSCARTSTTGL	357
simulans	RKAFYKAVNCSSRYQNYTSDLPPPRKTSCARTSTTGL	357
Suzuki	RKAFYKAINCSSRYQNYTSDLPPPRKTSCGRTSTTGL	360
biarmipes	RKAFYKAINCSSRYQNYTSDLPPPRKTSCARTSTTGL	360

**Melanogaster [NP\\_001263042.1](#)**

1 menttmlani slnatrneen itsfftdeew laingtlpwi vgfffgviai tgffgnllvi  
61 lvvvfnnmr sttnlmivnl aaadlmfvil cipftatdym vyywpygrfw crsvqylivv  
121 tafasiytlv lmsidrflav vhpisrmmr tenitliaiv tlwivvlvvs vpvafthdvv  
181 vdydakknit ygmctftnd flgprtyqvt ffissyllpl miisglymrm imrlwrqgtg  
241 vrmskesqrg rkrvtrlvvv vviafaslwl pvqlilllks ldvietntlt klviqvtagt  
301 layssscinp llyaflsenf rkafykavnc ssryqnytsd lppprktsca rtsttgl

**Erecta [XP\\_001981439.1](#)**

1 mentallani slnatrneen itsfftdeew laisgtpwi vgfffgviai tgffgnllvi  
61 lvvvfnnmr sttnlmivnl aaadlmfvil cipftatdym vyywpygrfw crsvqylivv  
121 tafasiytlv lmsidrflav vhpisrmmr tenitliaiv tlwivvlvvs vpvafthdvv  
181 vdydakknit ygmctftsne flsprtyqvt ffissyllpl miisglymrm imrlwrqgtg  
241 vrmskesqrg rkrvtrlvvv vviafaslwl pvqlilllks ldvietntlt klviqvtagt  
301 layssscinp llyaflsenf rkafykavnc ssryqnytsd lppprktsca rtsttgl

**Suzuki [XP\\_016926809.2](#)**

1 mdtmenstll gkislnasrs denitsfftd eewlaisgtl pwivvfffga iaitgffgnl  
61 lvilvvvfnk nmrsttnlmi vnlaaadlmf vilcipftat dymvyywpyg rfwcrsvqyl  
121 ivvtafasiy tlvmsidrf lavvhpisr mmrtenitli aivtlwivvl vismpvfth  
181 dmvvdttdakk nitygmctfa tndflgpky qvtffissyl lplmiisgly mrmimrlwhg  
241 gtgvmskes qrgrkrvtrl vvvvviafas lwlpvqllll fkslgvietn tltkliiqt  
301 aqtlaysssc inpllyafis enfrkafyka incssryqny tsdlppprkt scgrtsttgl

**Sechelia [XP\\_002037108.1](#)**

1 menttmlani slnatrneen itsfftdeew laingtlpwi vgfffgviai tgffgnllvi  
61 lvvvfnnmr sttnlmivnl aaadlmfvil cipftatdym vyywpygrfw crsvqylivv  
121 tafasiytlv lmsidrflav vhpisrmmr tenitliaiv tlwivvlvvs vpvafthdvv  
181 vdydakknit ygmctftnd flsprtyqvt ffissyllpl miisglymrm imrlwrqgtg  
241 vrmskesqrg rkrvtrlvvv vviafaslwl pvqlilllks ldvietntlt klviqvtagt  
301 layssscinp llyaflsenf rkaffkavnc ssryqnytsd lppprktsca rtsttgl

**simulans [XP\\_002105245.1](#)**

1 menttmlani slnatrneen itsfftdeew laingtlpwi vgfffgviai tgffgnllvi  
61 lvvvfnnmr sttnlmivnl aaadlmfvil cipftatdym vyywpygrfw crsvqylivv  
121 tafasiytlv lmsidrflav vhpisrmmr tenitliaiv tlwivvlvvs vpvafthdvv  
181 vdydakknit ygmctftnd flsprtyqvt ffissyllpl miisglymrm imrlwrqgtg  
241 vrmskesqrg rkrvtrlvvv vviafaslwl pvqlilllks ldvietntlt klviqvtagt  
301 layssscinp llyaflsenf rkafykavnc ssryqnytsd lppprktsca rtsttgl

**biarmipes [XP\\_016950481.1](#)**

1 mdtmdnatll gkislnasrn denitsfftd eewlaingtl pwivafffga iaitgffgnl  
61 lvilvvvfnk nmrsttnlmi vnlaaadlmf vvlcipftat dymvyywpyg rfwcrsvqyl  
121 ivvtafasiy tlvmsidrf lavvhpisr mmrtenitli aivtlwivvl vvsmpvfth  
181 dvmtdtdakk nitygmctfa tndflgpky qvtffvssyl lplmiisgly mrmimrlwhg  
241 gtgvmskes qrgrkrvtrl vvvvviafas lwlpvqlill fktlgvietn tltkliiqt  
301 aqtlaysssc inpllyafis enfrkafyka incssryqny tsdlppprkt scartsttgl

**Takahashi [XP\\_017006243.1](#)**

1 menatimlnk inssrmeens tsyftdeewl sisstlpwiv cfffgviait gffgnllvil  
61 vvvfnknmr sttnlmivnl aaadlmfvilc ipftatdymv yywpygvfw rsvqylivvt  
121 afasiytlvl msidrflavv hpirsrmrt enitliaivt lwivvlvvs1 pvffahdvmv  
181 qydakknity gmcqftendf ngpktyqvtf ftssyllplm iisglymrm1 mrlwrqgtgv  
241 rmskesqrgr krvttrlvvvv viafaslwl pvqlilllks1 nvietntlks1 liiqvtagt1

301 ayssscinpl lyaflsenfr kafykaincs sryqnytsdl ppprktscar tsttgl

**Bipectinate** [XP\\_017092876.2](#)

1 mdnttlatpd platmatyddd nltssffsee rqaiegtliw lvpfffgiia ltgffgnllv  
61 ilvvvfnkm rsttnlmivn lavadllfvi fcipftatdy vtkvwpfglf wcrsvqyliv  
121 vtafasiytl vlmsidrfla vvhpirsrmm rtenitmiai vtlwavilvv stpvqfvndm  
181 vvydnktni tyvactydag nellsprsfq isffissyll plmiisglyv rmimrlwhqg  
241 sgvrmskesq rgrkrvtrlv vvvviafasl wlpvqlilll kalnlykadt lfkiilqisa  
301 qtlaysssci npllyafld nfrkafykai ncssryqnyt sdlppprkts cartsttgl

**Rhopaloo** [XP\\_016982221.1](#)

1 mdnitvspae mlgnisinas rndenltsff tdeewlaing tlpwivgfff gaiaitgffg  
61 nllvilvvvf nknmrsttnl mivnlaaadl mfvilcipft atdymvyywp fgrfwcrsvq  
121 ylivvtafas iytlvlmsid rflavvhipr srmlrtenit liaivtlwiv vlvvsvpval  
181 thdvvdvda kknitygmcm ftndflgsr tyqvtffiss ymlplmiisg lymrmimrlw  
241 rqgtgvmsk esqrgrkrvt rlvvvviaf aslwlpvqli llfkaldvie mnsltkliq  
301 vtaqtlayss scinpllyaf lsenfrkafy kaincssryq nytsdlpppr ktscartstt  
361 gl

**Eugracilis** [XP\\_017083059.1](#)

1 menmdnstmv vdlvvnstrn denmstfftd eewvairgtl pwiviflfgv iaigtllgnl  
61 lvlvvvfnk nmrsttnlmi vnlaaadllf vilcipftat dymvyywpyg rfwcrsvqyl  
121 ivvtafasiytl tlvvlmsidrfla lavvhipr srmlrtenit liaivtlwiv vlvvsvpval  
181 dvvvdhdvkk nitygmctfk pndyvteksy hviffitsyl lplmiisgly mrmimrlwrq  
241 gtgvmskes qgrkrvtrlv vvvviafas lwlpiqlill ksleilttd tlikliiqva  
301 aqtlaytssc inpllyafld enfrkafyka incssryqny tsdlppprkt scartsttgl

**Ficusphila** [XP\\_017038669.1](#)

1 menatffpak mlgslasnat rndenltsff tdeewlains tlpwvvgfff gaiaitgffg  
61 nllvilvvvf nksmrsttnl mivnlavadl lfvilcipft atdymvpywp ygrfwchsvq  
121 vtafasiytl tlvvlmsidrfla vvhpirsrmm rtenitmiai vtlwavilvv stpvqfvndm  
181 nhdvveaide kknityglct yspneflssr tyhvtffvss ymlplmvisg lymrmimrlw  
241 rqgtgvmsk esqrgrkrvt rlvvvviaf aslwlpvqli lllkaldvie mnslnkliq  
301 vsaqtlayss scinpllyaf lsenfrkafy kaincssryq nytsdlpppr ktscartstt  
361 gl

**Anannasae** [XP\\_001955066.1](#)

1 mdnttlatse llatmatyddd nftssffsee rqaiegtliw lvpfffgiia ltgffgnllv  
61 ilvvvfnkm rsttnlmivn lavadllfvi fcipftatdy vtkvwpfglf wcrsvqyliv  
121 vtafasiytl vlmsidrfla vvhpirsrmm rtenitmiai vtlwavilvv stpvqfvndm  
181 vvsydnktni tyvlctfdag nellsprsfq isffvssyll plmiisglyv rmimrlwhqg  
241 sgvrmskesq rgrkrvtrlv vvvviafasl wlpvqlilll kalnlyqadt lfkvilqisa  
301 qtlaysssci npllyafld nfrkafykai ncssryqnyt sdlppprkts cartsttgl

**Serrata** [XP\\_020809023.1](#)

1 menttliage tlanislani tqsdenitsf fteeewlalt gilpwlvgft fgaiaitgfl  
61 gnllvilvvv fnnmrsttn lmvnlaaad llfvlcipf taadyvtdyw pfggiwcrv  
121 qylivvtafa siytlvlmsi drflavvhipi rsrmmrteni tmvaivtlwv vilvsvpva  
181 findfavmsd gkrslgmctf kpndyisprt fqvsffissy lplmiisgl yvrnimrlwh  
241 qsgvrmske sqgrkrvtr lvvvvviafa slwlpiqvlil llkslgviqi nslpkvmmqv  
301 saqtlaysss cinpllyafld sdnfrkafyk aincspryn ytsdlppprk tscartstt  
361 l

**Kikkawei** KAH8347379.1

menttlitge tlanislant trsdnitsf fteeewlalt gilpwlvgft fgaiaitgfl  
61 gnllvilvvv fnnmrsttn lmvnlavad llfvlcipf taadyvtdyw pfggfwrsv  
121 qylivvtafa siytlvlmsi drflavvhipi rsrmmrteni tmvaivtlwv vilvsvpva  
181 findfavmsd gkrslgmctf kpndyisprt fqvsffissy lplmiisgl yvrnimrlwh  
241 qsgvrmske sqgrkrvtr lvvvvviafa slwlpiqvs lfvhslnti kfhlncpqli  
301 lllksldiiq inslpkvmm vsaqtlayss scinpllyaf lsdnfrkafy kaincspryq  
361 nytsdlpppr ktscartstt gl

**Mauritania** [XP\\_033166501.1](#)

1 menttmlani slnatrneen itsfftdeew laingtlpwi vggffgviai tgffgnllvi  
61 lvvvfnnmr sttnlmivnl aaadlmvil cipftatdym vyywpygrfw crsvqylivv

121 tafasiytlv lmsidrflav vhpirmsmr tenitliaiv tlwivvlvvs vpvafthdvv  
181 vdydakknit ygmctfttnd flsprtyqvt ffissyllpl miisglymrm imrlwhqgtg  
241 vrmskesqrg rkrvtrlvv vviafaslwl pvqlilllks ldiietntlt klviqvtagt  
301 layssscinpl llyaflsenf rkafykavnc ssryqnytsd lppprktsca rtsttgl

**Elegans** [XP\\_017131735.1](#)

1 mdnitesaae mlanislmas rndenltsff tdeewlaisg tlpwivgfff gaiaitgffg  
61 nllvilvvvf nknmrsttnl mivnlaaadl mfvilcipft atdymvyywp fgrfwcrsvq  
121 ylivvtafas iytlvlmsid rflavvhpvr srmrtenit liaivtlwiv vlvsvpvaf  
181 thdvvvesda kknitygmcm fitndimdsr tyhvtffiss ymlplmiisg lymrmimrlw  
241 rqgtgvrmsk esqrgrkrvt rlvivvviaf aslwlvpqli llfkalgvve mnsltkviq  
301 vtaqtlayss scinpllyaf lsenfrkafy kaincssryq nytsdlpppr ktscartstt  
361 gl

**Grimshawi** [XP\\_001995830.3](#)

1 mnqsyimenn tpsmsnssl elkltnnst gnsslslsdae eeeairqtrv wlvplffgii  
61 aisgffffgnl lvilvllnk nmhsttnlli vnlaaadllf vifcvpftav dyvadhwpfg  
121 tiwcrivqyl ivvtayasiy tlvlmsidrfl lavvhpvr mlrtehitki aiftlwtvvl  
181 tvsmpvtfth dlvvhhnykt nstyakchfi endlldwltf qvsffissyl lplmvisgly  
241 vrmimrlwrq gsgvrmskes qrgrkrvtrl vvvvviafas wlvplvlill lkalniyvan  
301 smlsvilqiv aqtmaytsss inpllyafis dnfrkafhka incsnryqdy tsdlppprkt  
361 scgrtsttgl

**Virilis** [XP\\_002053983.1](#)

1 mnlstnlttl psnsswlesq leltassnl dntslssfy eaeairatvr wvvpffgii  
61 aisgffffgnl vilvllnk nmhsttnlliv nlaaadllfv ifcvpftaid yvtqhwpgk  
121 mwcrsvqyli vvtayasiy tlvlmsidrfl avvhpvr mlrtehitkia iftlwtvvl  
181 vsmptvfahd vvvdydnqtn vtyamcryid ndvldlftq vsffissyll plmvisglyv  
241 rmimrlwhqg tgvrmskesq rgrkrvtrl vvvviafasl wlvplvlill kaldmyeins  
301 mfnvilqiva htmaytssci npllyafisd nfrkafykai ncsnryhnyt sdlppprkts  
361 cgrtsttgl

**Mojavensis** [XP\\_002000968.1](#)

1 melsnlsttl atqlhqlats slnhsigpnd stalqseee iratvrwlvv iffgiavsg  
61 ffgnllvilv vllknmhst tnllivnlaa adllfvifcv pftavdyvtq hwpfgkiwcr  
121 svqylivvta yasiytlvlm sidrflavvh pirsmlrte hitkiaiftl wtvvltvsm  
181 vtfahdvvd ydnqtnvtya mcrfidnevl eqstfqvsff issyllplmv isglyvrmm  
241 rlwhqgtgvr mskesqrgrk rvtrlvvvv vviafaslwlpv qlilllkald lyetnmmfsv  
301 ilqivahtma ytsscinpl yafldnfrk afykaincsn ryqnytsdlp pprktscgrt  
361 sttgl