

Figure S3

GIPUM3 1 --- MQP ----- GQGTTPHNRR ----- PTKPEMKHEGSKKVPWKKPA ----- GGAPRKP GKPGSGPGKPSANWAAKK 58
 ScPUF6 1 --- MAPLTKKTNGKRSACEVSHSEKLLAKKPRISIDSSDEESELSSKEDA--VSSSSDD-----DDLDDLSTSDSEAEAAEDELISDDSE-----EHENEENEKFKGKDKSEGGENGNH----- 104
 AtPUM24 1 ----- MSSKGLKPKQKSTKRKDDTDSAKFDSLSKSKPKLVSGEQQHVKPKFKGKPKSAGDKEQSTNLSKK 64
 HsPUM3 1 --- MEVKGKKQFTGKSTK--TAQEKNRHFHKNSDSGSKTFPTRKVAKEGGPKVTSRNFE-----KSITLGGKGVKQFKNKQGGDKSPKNKFKPANKFNKK-----RKFPDGRSDESAAKPKWDDFKKK 116
 DmPENG 1 MVSSEPKGSPAN-----VANTASPLKAHESGKRANGQFKKPGGAGG---ARKFDKFGGAGKSFVKPGAGGAKKFKDSGPG---GFKKFDKSGATGDKRLGGNFKRGPQTPQAPAEKQDWNKFKKE 119

GIPUM3 59 G ---- SHPYKRREIPTKNNMT-HDEVIAIWEKMRVKK--LPPERLRYINSIIIGYFV--DNVVTFSRKPVEVRILRFIVKHGTDDYRSMILKEVSGHVQELIVDKYATKLIERL--GGSYRWDKETALAIVESI 181
 ScPUF6 105 --- TEQRKLLKERKMQRKSGTQ-VQIKSVWERLVRKTPPLPKQIREKLSNEIWLK--DCISDLVLKHDASRIVQTLVKYSSKDRREQIVDALKGFYVVLATSAYGKYLVLKLVHYGS---RSSRQTLINEL 229
 AtPUM24 65 ERRVQAKELTEARKKKRPHYNLEQLVSLWEKMRRRN--IGKEDRSKLISEAIRKMK--GKVPETAVSVHSSRVLQTCVKFCSSQAEKDVLFTELQPFNLASNKYAVHFVQKMLDYGAS---KQQLAACISSL 191
 HsPUM3 117 K ---- KELKQSRLSDKTNVDIVVRKQMWELLRKRD--CDKEKRVKLSMDLQKLIQ--GKIKTIAFAHSTRVIQCYIQYGNQEQKQAFELRDDLVLSKAKYSRNIVKFKLMYGS---KPQIAEIIIRSF 238
 DmPENG 120 K ---- KDLKLRK-SAKDTEYISKEANQIHEKLCRR---TENKDLVEQIYKVLNVGDTISKVVKAHDTARVIQSMLKYASPALRAEISEKLLPFTVEMCQSKYAQFCVQRMKYGA---PATKAKLVDLS 240

GIPUM3 182 LPNLQKLCNTTGATTISYIYQTVPLKVONKMLI-ALVGPVAVDITDTALIAEAFILKEALYVPRGFNAVFSECMKILHKGLEKN-LLGCTLLTKLAADTLRMIFGCFGSTTGPLHGHGSAATDEDSGAKDGALEP 314
 ScPUF6 230 HSLRKLMRHREGAYVVEDLFVLYATHEQRQOMIKFVWSEYAVFR--ETHKDLTIEKVCESSEIEKRNIIARNLIGTITASVEKGG-STGFQILHAAMREYVK-----IANEKEI----- 335
 AtPUM24 192 RGHVAPLRRHVFGSLVVEHAYH-LGSAAQKQLLAELYSTELQFLKGLTTSNEKTVVDIIAKLGLQKGAVNRHMTAIIQPILEKGG-IVDHTITHKLLIEYLT-----IADKTS----- 298
 HsPUM3 239 KGHVRKMLRHAEASAIVEYAYNDKAILLEORNMLTEELYGNTFQLYK---SADHRTLDKVLEVPQEKLEIMDEMKOILTPMAQKEAVIKHSLVHKVFLDFFT-----YAPPKLR----- 344
 DmPENG 241 YGHIIVRLAGHSIGSGLLDSMYQ-SATPNQRIYMRQEFYGDLYRKAK--DSNVKTLSDTYKEATNMKASILGSKVKNLHDVANKQ-LVDSALVHAVMLEYLR-----ACDEDEE----- 344

GIPUM3 315 APKKTSLRVNVEKTIQFVSELTDALEENAFSLLDIADSVFVSSFVLFQCTPKRRKDVIKAVRPNVVQFAGDPMFVILCKLFAVTDVTVTSSLSISGEGGIGASLNTILRTRAGIRTVHFLFLFGLKELDAS 449
 ScPUF6 336 ----- SEMIELLHE--QFAELVHTPEGSDVACTLVARANAKERKLLKALKKNHAEKLIKNEYGNIVFITLNCVDDTVLVFKTFSP--TVKEHLQEFIDKFGRRPWLIIYLLGL-----D 441
 AtPUM24 299 ----- ADVLQLLTG-SLLLRMVHTRDGSRLAMLS IKHGS AKERKKI IKAMKEHVKKMAFDQFGSMVLACIFSI VDDTKLVTKIIVR--ELEATLKDLMVDKNGRRPPLQLLHPN-----S 405
 HsPUM3 345 ----- SEMIEAIRE--AVVYLAHTHDGARVAMHCLWHGTPKDRKVIIVKTMKTYVEKVANGQYSHLVLLAAFDICDDTKLVKQIIIS--EIISSLPSIVNDKYGRKVLVLLSPPR-----D 450
 DmPENG 345 ----- KL--EETVTAFAA--LVPHMLSTKEGSEAAVICFYKSTPKNRRAI IKNIKEHLLKI ANHEHGHVFLISLLNALDDTKATKKAIIYD--HLHGD LKALMSSPYGRRV IQWLVA PG-----D 452

GIPUM3 450 GRGTTPIFAKWISEILRQTDLVK-----IFPEASVDQF-----PGLCKKDGATKQAE LR--AGIMPYLLNALTNEDLLVSLGSEVGSQMLCEL IAYLSTSTDEVTKT 546
 ScPUF6 442 GKYFSPVVK--NELRLRYIELSK-----ATSKKDP LQRHELL--SKFAPMFLSTISKD--YSSILTENLGCQFIAEVL--IND----- 511
 AtPUM24 406 SRYLS-----HDDLALDLSVPSLCSMDKSETSSKTKD TDGNEIGEETKDEQEDTVAEHS DHEENV TAMGGKDDPLVRRQELLVNSGLAERLIDVCVEN--AEFFLQSKFGNEVMYEA--IGGSDG----- 523
 HsPUM3 451 PAHTV-----REIIEVLQKGD-----GN-----AHSKKTDEVRRELL--ESISPALLSYLOEH--AQEVVLDKSACVLVSDI--LGSATG----- 520
 DmPENG 453 TCFH-----PEFIRTVEEGL-----AFGKKEKELRRKEIL--EQIEAPIAQSIAED--AAFWSNSHIGLVTDGI--LNHIQGESYE-- 524

GIPUM3 547 EKSLKTKASKKSNADSQPVLDKLPILRTIANAACKLVDP TVRGIRQTDKLLHQGSASNIMKMI AKQKKAIELAKKEQERAAGEEAAHTTDEDDSGSE-----ASSNNEEHPKEGDEPPKKNRAERDKPK 675
 ScPUF6 512 ----- ELYAQLNEKDQEKYQVNL-----NIL-----TTFKGDITEE-----EHPI 547
 AtPUM24 524 ----- ILCPSLSEKLCELYEAISVVAE--PKPQESEK DSEHIL-----ENFH 564
 HsPUM3 521 ----- DVQPTMN-----AASLAATGLHP--GGKDGELHIA-----EHPA 553
 DmPENG 525 ----- KAASALAQVVVQPEWRISADAAG--PQPQDKKPKHNDVE-----AIIAQATKQRKLLYVESSDDEDEDEDEDEESDDEGEDEKEQKEAADAEPKVKKAKKEPKPKAKEEPA 633

GIPUM3 676 RNAPYVPCAPEDRQPLFRHDVGYFSVRRIL-----TNHP-----PFGE LLSAFEAQSVPRGFADKRGAFMLEHI-----AKISDKNNTLVREFVSRHNLTKTVAAKGC KGEALCTVLG--L 782
 ScPUF6 548 H-----RAFSTRLLKALIQGGKWNNEK KVIPLKNVQGLGVVFAEKLYDEIIDSSNLEWINNADSSFTIVALYET---LKDQKEGKPFLLKDIRGVQSKITD--ESNKGSQLAKLLK-- 656
 AtPUM24 565 S-----SRTIRRLV-----LNR-----GFASILFKK-ALSGKCRSWAQ-GHCSKILSAFVETED--VQVREMAKTELQVLVNEGTLKI--SATKPE----- 641
 HsPUM3 554 G-----HLVLKWL I-----EQDKMKENGREG--CFAKTVEH-VGMKNLKSASVNRGAIILSSLLQSCD--LEVANKVKAALKSLIPTLEKTK--STS KGEIILEKLS--T 648
 DmPENG 634 A--PLVSGIEEAGM-----HIVLKKIL-----KNDGK-----REG--TFPSQQLQN-LSSDVLKAWLGVNRACFVLLKLVIECPALDDCKKAI AAEERSLSQILADRK-----TPGAKLLAAKLDIGK 737