

Dataset S1 | Candidate lyciumin precursor peptides from plant genomes (core peptide motif: QP(X)<sub>s</sub>W). BURP domains are underlined, lyciumin core peptides are highlighted in red, lyciumin genotypes with detected chemotypes are highlighted in bold.

>AHYPO\_007393 Org\_Ahypochochondriacus peptide: AHYPO\_007393-RA (1 of 19) PF03181 - BURP domain (BURP) (PAC:32833029) (*Amaranthus hypochochondriacus*)  
MAMDRLRQFPALFLLLTFLALHASSCKQEDYWKMKLPKVPMPPEAIKQSLLSHGGENKLDKSSALK**QPYTVGSW**KYDVTNPKVDDSVVK**QPYTVGSW**KYDADKNKVPDESAL  
K**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGE  
NKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTV**  
**FSW**KYDAGENKVKDESAL**QPYTVFSW**KYDAGENKVKDESAL**QPYTVGSW**KYDAGENKVKDESAL**QPYTVGSW**KYDAGENKVKDESAL**QPYTVGSW**KYDAGENKVKDESAL**QPYTV**  
GSVFFVEKSLHIGSKLKHDFQKTPKTSFLSKQEAQSI PFSMEKIGDILNLTCAQSMEDIVDFVVGELGTNEVEIKMMNNNIEVPGIQDYVLSKVEKLVVPGNTAVACHRM  
SYPYIVVYCHHQDQIGQYVNTLVSPSTGAAFQTTAVCHYDTYAWQPDVVALKYLGRPGDAPVCHFSAINDMFWRKNNDFKSLDMVQ

>XP\_021740703.1 BURP domain-containing protein 9-like (*Chenopodium quinoa*)  
MAMHFLPLRLLHAIFFLLVFLAFHASSCEQEDYWKMKLPKVPMPQAIKDNLFHPKDKMSMTPSIEITDKAAHGNDADKAKKANT**QPFVTVGW**KYNADGAKERVGM**QPY**  
**TVMAW**KYNVDDAKERV**QPYTVVWGW**NYNTDSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**NYNTNSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**NYNTNN  
ANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**NYNTDSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**NYNTNSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**  
NYNTNSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**NYNTDSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**NYNTNSANKEKVEKAYKPLSIEINTKKTGID**QPYTVVWGW**  
PGSVEATGIGKGLDVCVLRHPKVEKENRTCAQSMEDVDFVVRLEGSNDVLELMMKNDIEVPGIQDYVITKVKLVVPGNTAAACHRMSYPYVYVYCHHQDIGHYDVTLV  
SPTTGNAIQTAVCHYDTYAWKPNVFPALQYLGRPGDAPVCHFSAINDMFWSLKANSKSLDMV

>AUR62036450 Org\_Cquinoaearly-release peptide: AUR62036450-RA BURP3: BURP domain-containing protein 3 (PAC:36312315) (*Chenopodium quinoa*)  
MN**QPYTVFGW**KYDANNEKEKVGID**QPYTVYVWGW**KYNADDAKERV**QPYTVVWGW**KYNADSAKEADSAKEKVNID**QPYTVYVWGW**KYNVDDAKERV**QPYTVYVWGW**KYNADDA  
KERV**QPYTVYVWGW**KYNADSAKEADSAKEKVNID**QPYTVYVWGW**KYNADDAKERV**QPYTVYVWGW**KYNADDAKERV**QPYTVYVWGW**KYNADSAKEADSAKEKVNID**QPYT**  
**VYVWGW**KYNQENGKKEKVEVFSVFFVEKSLRLGKELKHDFQKTPSVPFLPHIAQSI PFSGDKFEIILDLFSIKPGSIEVTGIGKGLDVCVLRHPKVEKENRTCAQSMEDVDFVVRLEGSNDVLELMM  
RSDIEVPGIQDYVITKVKLVVPGNTAAACHRMSYPYVYVYCHHQDIGHYDVTLVSPSTGNTIQTAVCHYDTYAWKPNVFPALQYLGRPGDAPVCHFSAINDMFWSLK  
ANSKSLDMV

>Glyma.08G036700 Org\_Gmax peptide: Glyma.08G036700.1.p (1 of 11) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:30538805) (*Glycine max*)  
MILLRHETYANPNTPIPSALRDLVKGPEGVEIDNLPQIVDTQYPKTFYFEEDLHPEKTMNVQFSKSPFT**QPFVTFVW**LKGLKIEIKDIEKGHTFADICMMREHVEGERNWE  
RTFKYFQVFPVDFKQEQYTVVEGVQNLGGKAVMCHRLNFRFVAVFYCHVHGTTAFIVPMVAGDGTKTRTSLSCGQDTAYQTDVVV

>Glyma.13G283900 Org\_Gmax peptide: Glyma.13G283900.1.p (1 of 11) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:30503009) (*Glycine max*)  
MTSSSQEFGSQIFSYPSLIARMECLLFSISVLFALGLARESHAQSSIPDEDFHVAWPNTPISALRELLKHGREGVEIDNLPQIDDTQYPKTFYFEQDLHPGKTMNV  
QFSKSPFT**QPFVTFVW**LKGLKIEIKDIEKGHTFADICMMREHVEGERNWE RTFKYFQVFPVDFKQEQYTVVEGVQNLGGKAVMCHRLNFRFVAVFYCHVHGTTAFIVPMVAGDGTKTRTSLSCGQDTAYQTDVVV

>Glyma.12G217300 Org\_Gmax peptide: Glyma.12G217300.1.p (1 of 11) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:30548760) (*Glycine max*)  
MALRCLVMSLSVLFITGLARESHARDEDFHVAWPNTPIPSSLRDLLKPGPASVEIDDPHQIEETQYPKTFYKEDLHPGKTMKVQFSKPPF**QPVGVTW**LKEIKDITTK  
EGYSFEELCIKKEAIEGEEKFCAKSLGTVIGFAISKLGKNIQVLSVSSVFNKQEQYTVVEGVQNLGDKAVMCHRLNFRFVAVFYCHVHGTTAFIVPMVAGDGTKTRTSLSCGQDTAYQTDVVV

>Glyma.12G217400 Org\_Gmax peptide: Glyma.12G217400.1.p (1 of 11) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:30547846) (*Glycine max*)  
MEFRCSVISFTILFSLALAGESHVHASLPEEYWEAVWPNTPIPTALRELLKPLPAGVEIDELPKQIDDTQYPKTFYKEDLHPGKTMKVQFSKPPF**QPVGVTW**LKEIKDITTK  
DTSKEGYSFEELCIKKEAIEGEEKFCAKSLGTVIGFAISKLGKNIQVLSVSSVFNKQEQYTVVEGVQNLGDKAVMCHRLNFRFVAVFYCHVHGTTAFIVPMVAGDGTKTRTSLSCGQDTAYQTDVVV

>Medtr1g008460 Org\_Mtruncatula peptide: Medtr1g008460.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:31095704) (*Medicago truncatula*)  
MEFPYLSIFISLNLALVATHAALPPELYWKSLLPPTQIPKAITDILHPRKGGTSMVGVKARR**QPLLFYVW**PYDASVTLQHDYQNLDLFFFEKDLHNGTKLNMQFTKTGAT  
FLPREVANSIPFSSNKVENILNYFSIKQGSASENLKQAICYCETPTIEGEEKSCVTSLESMDVFTTSKLGNNVEAVSTEANKESDKQYIIIAKGVKLSSENKIVVCHLLS  
YPYAVFYCHKLRAKRVYVYLPMEIGDGTQVKTAAICHNDTSQVSKPHLAFHVLKVPQGTVPVCHFLQHGHVIFWFSK

>Medtr2g081590 Org\_Mtruncatula peptide: Medtr2g081590.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:31067976) (*Medicago truncatula*)  
MGFQHLIFISVLSLALAGGSHASVPEEYWEAVWPNTPIPTSLLELLKPGPKVEIDDLPEIDDTQFPNTFFYEHLYPGKTMNMQFSKRPLA**QPYGVYFW**MHDIKDLQ  
KEGYTFIDEMCVKNPKKVEEKFCAKSLGTLIGFAISKLGKNIQVLSVSSVFNKQEQYTVVEGVQNLGDKAVMCHRLNFRFVAVFYCHVHGTTAFVAVPLVANDGTRKTHAIAICH  
ADISGMNQHMLHQIMKGDGPGSNHVCHFLGNKAILWVPLGLDNAYGANAAL

>Medtr2g081610 Org\_Mtruncatula peptide: Medtr2g081610.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:31064010) (*Medicago truncatula*)  
MELKHLIFISVLSLALAGGSHASVPEEYWEAVWPNTPIPSLRELLKPGPEGVEIDDLPEVDDTQYPKTFYEHLYPGKTMKVQFSKRPLA**QPYGVYFW**MREIKDIE  
KEGYTFNEVCVKKAAAEQKFCAKSLGTLIGFISIKLGKNIQVLSVSSVFNKQEQYTVVEGVQNLGDKAVMCHRLNFRFVAVFYCHVHGTTAFVAVPLVANDGTRKTHAIAICH  
TDTSGMNHMLQIQIMKADPGSKPVCHFLGNKAILWVPLGLDNAYGANAAL

>Medtr8g044290 Org\_Mtruncatula peptide: Medtr8g044290.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:31069385) (*Medicago truncatula*)  
MSVVYGYRIQNKKEYNKLALVGINASQSEESYWKSIWPNTPLPKALSDLLPESGTVNPIRGEESQYWTFFFEHDLPGNKINLIGICEWRNEKNNSDDNTKEKTRQSFQ  
ARIWPKQSSDAFKSGDEKER**QPLITRMW**NEKER**QPLITRMW**GEKER**QPLITRMW**GEKER**QPLITRMW**NEKER**QPLITRMW**GEKER**QPLITRMW**NEKER**QPLITRMW**DEKER  
QGLDNYCRSPSAIGEDKICALSLESMDVFAISKLGKNIQVLSVSSVFNKQEQYTVVEGVQNLGDKAVMCHRLNFRFVAVFYCHVHGTTAFVAVPLVANDGTRKTHAIAICH

GHNTDIMSNDLSTLTKQGYCKYTTPIFFSFFSACALSNNLPPSSLPSSSPTVVLATFLPNRPHNHHGQQRPPPTPSSSSLLFAFPSSLYPIDVLTSLVTISIIVN  
IDHHRPRTHQPVOI

>Medtr8g045880 Org\_Mtruncatula peptide: Medtr8g045880.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:31070668) (*Medicago truncatula*)  
MEFTLLFVLALFFLIIVGINGSKSGEDYWKSVWPNTPMPEVLSDDLLESGTSVPIKQDEKQYWTVFFEHDLYPGKMKSLGVHKSVDVQPSQSGHGLQVKKANQFFGTRK  
WLEKTSAKARQPPFGINIWEQKESVKPKQFFGTHILIDKPTTEEMAKPNDFGILVWTKASQSFRTTHISIDNVAKKETEKISQTSVAHKLDEKETHILHSYCGNPSAIGE  
EKHCAYSLESMMDFAIKSLGKNIKVMSSSFSQSDQYVVEVRKIGDNVAVMCHRMNLKVKGFYCHQINATTTVMVPLVASDGTGKSKALTIHHDRGMNDPNMLYEVLVQVKP  
GTVPVCHFIGNKAIWVNDVVESEDHSCVI

>Medtr8g045890 Org\_Mtruncatula peptide: Medtr8g045890.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:31070954) (*Medicago truncatula*)  
MELTHLSVLAIFFLALVINGSKSGEYWKSVWPNTPMPEVLSDDLLESGTSVPIQKKEKQYWTVFFEHDLYPGKMKSLGIQKHSIDQPSQSHQVSVKASQSFGRK  
WLRKTEKVNQPPFGLVWVDKATKTQTKNRNPPFETRTLIDKSNQPPFGFSWTEKETEADSKKANPAFAEHTLIDKTNQPPFGFSWTEKIEAETKNTNQHFETPTWNDKT  
SQPPFGFSWTEKATESEGEIEKANEPFETRTWNDKTNQPPFGFSWTEKIEADTKNTNQHFETPAWNDKTSQPPFGFSWTEKATEAEGEIEKANEPFETRTWNDKTSQPLP  
AHKWTDKAIKETEKSQHFVHTHTSDENEAHILEDYCGRPSAIGEDKHCAPSLESMMDFAIKSLGKNIKVMSSSFSQSDQYVVEVRKIGDNVAVMCHRLNFKKLVLYFC  
HQVNATTTVMVPLVASDGTGKSKALTIHHDRGMNDPNVLDVVKVPGTVPVCHFIGNKAVAVPNDVDTSDNGHPSVF

>Medtr8g046000 Org\_Mtruncatula peptide: Medtr8g046000.1 (1 of 52) PF03181 - BURP domain (BURP) (PAC:31075065)  
(*Medicago truncatula*)  
MGSTYLSVLTFLSLALAGIVASHSDIEGKLLFLENDLYPGKMKSLGQKLSNIQPPFTIGWLPPEKATQQSGNVVEKESYSLEICGGPPAIGEDKFCATSSSEMKEFAISK  
LGAKIKSYSGYFAKNQDQYVVEVRKIADKGMCHRMNFEKVVYFCHQVNASTTYMVLPLASDGSKVNLAACHHDTRGMNPNLLDEVLVKVPGTIPVCHFVGNKAVAWLP  
IPVASESDDRPAI

>Medtr8g445140 Org\_Mtruncatula peptide: Medtr8g445140.1 (1 of 22) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:31069650) (*Medicago truncatula*)  
MNIKLLVGINASQSGEDYWKTIWPNTPMPKALSDDLQPESTSNLPIRGEENKQYWTIFFEHDLYPGNKISLGNKSNKDSQPLGAVKWDKNEIQPPGSLTWLKKTSEER  
NPPFGVAAWLQKTSEERNQPPGFRAWRNEKPSQPPFEAHTWGGKERQSFNDYICIRPSAIGEEKYCALSLKSMNFAISKLGTNIKVISSFAQNQDQYKVDVKKIGDKA  
VMCHRLNFKDMVYFCHQVNASTTYMVLPLASDGTGKAKALTIHHDRGMNDVLYELLKVKVPGTIPICHFVGNKAIWVDPSS

>PGSC0003DMG400047074 Org\_Stuberousum peptide: PGSC0003DMP400069178 BURP domain-containing protein  
(PAC:37467747) (*Solanum tuberosum*)  
MELHHQYFFTFSSVIFVSHAANLSPVEYWRVKLPNTMPPTIKDALHISDGIRLPLRSTFKYANHGEWVDGIRLPEFENELHKVRQPWGVDVSWQAAPENELHKVRQPY  
GVGVVYNDAAKDLNDNHVPTPYFFETDLHQGKKNLQSLKNNYAPILPRKVVDSIAFSSDKIEEILNHFVVDKSERAKDIKTKICEEPAGNGEVKHCATLSLESMID  
FTLSHLGTNNI IAMSTEVEKETPEVQAYTIEKVEEKANGKGVVCHKVAVYAVVHFCHDVGSTRTFMVMVVGADGTVKNAVSVCHEDTASMPKALPFQLLNVKPGDKPICH  
FTLDDQIALFSPQNAVLQVAEN

>Prupe.1G465600 Org\_Ppersica peptide: Prupe.1G465600.1.p (1 of 20) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:32119163) (*Prunus persica*)  
MGFHLPLIFAILSLAAVALANHAAQPAALQLYWNSVLPNTQMPRTISELLHPDSTNEEKSTNIMNAVGNKPTDHNKPKMKALFSGYTIQVQYAGVPSNDQLQYYKNMTI  
FFLGKDMRLGATMNFQFTRNSNTATFLPRESAQSIFFSSNKLSEIFNHFVSVKPTSEAKTIKKTIEECEAPGKGEERYCATSLESMDVDFSTSKLRTRNVQAI STEVLEKG  
ATMSMHKYYTTPGLKLAGDKVVVCHKENYPYAVVFFCHAIKQTAAYVLSLKGDDGVKVKAVTICHLDTSEWNPKHLAFQILKVKVPGTIPICHFLSTDAIAWVPHKSA

>Prupe.1G475100 Org\_Ppersica peptide: Prupe.1G475100.1.p (1 of 20) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:32116793) (*Prunus persica*)  
MGFHLPLIFALLSLAAVALAIHAAQPAQLYWNSVLPNTQMPRSISELLHPDSKNEEKSTNDVVGKPEFPLGNKRYYSQKRYGRGNKYSYRSQKRYGRGNKYSYVQKNYGRG  
ASPSDNQLLHYKDLAIFLEKDMSPGTMMKFQFPRNSNTATFLPRESAQSIFFSSNKLSEIFNHFVSVKPTSEAKTIKKTIEECEAPGKGEERYCATSLESMDVDFSTSKL  
GTRNVEAISTEVLEKGTMSIQNYTTPMGLKLAGDKVVVCHKQNYPYAVVFFCHAIKHTAAAYVLSLKGDDGKVKAVTICHLDTSEWNPHEMFSQIVNVKPGTIPICHFIS  
TDAIAWVPHKSA

>Prupe.1G475200 Org\_Ppersica peptide: Prupe.1G475200.1.p (1 of 20) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:32117006) (*Prunus persica*)  
MGFHLPLIFALLSLAAVALANHAAQPAALQLYWNSVLPNTQMPRTISELLHLEKSTNIMNAVGNKPTDHNKPKPEINALFSGYTIQVQYAGVPSNDQLQYYKNITIFFLGK  
DMRLGATMNFQFPRNSNTATFLPRESAQSIFFSSNKLSEIFKHFVSVKPTSEAKTIKKTIEECEAPGKGGERYCATSLESMDVDFSTSKLRTRNVQAI STEVLEKGTAMSM  
HKYTTMPLGLKLAGDKVVVCHKENYPYAVVFFCHAIKQTAAYVLSLKGDDGVKVKAVTICHLDTSEWNPKHLAFQILKVKVPGTIPICHFLSTDAIA

>Prupe.1G475300 Org\_Ppersica peptide: Prupe.1G475300.1.p (1 of 20) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:32119871) (*Prunus persica*)  
MGFHPPLIFAILSLAAVAQANNAQPAQLYWNSVLPNTQMPRSISELLHPDSTNEEKSTNDVVGKPEFPLGNQNYSSQKNYGTGNKRYCSQKRYGRGKRYCDQKQYGRG  
ASPSDNQLLHYKDLAIFLEKDMRPGTMMKFQFSRNSNTATFLPRESAQSIFFSSNKLSEIFNHFVSVKPTSEAKTIKKTIEECEAPGKGGERYCATSLESMDVDFSTSKL  
GTRNVEAISTEVLEKGTAMSMHNYTTPMGLKLAGDKVVVCHKQNYPYAVVFFCHAIKHTAAAYVLSLKGDDGKVKAVTICHLDTSEWNPHEMFSQIVNVKPGTIPICHFIS  
TDAIAWVPHKSA

>Prupe.1G475500 Org\_Ppersica peptide: Prupe.1G475500.1.p (1 of 20) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:32114486) (*Prunus persica*)  
MQLAAVALANHAAQPAQLYWNSVLPNTQMPRAISELLHPQNPENTVPLQLARRFFSYKSDDRPTDNQLHYKNVAIFLEKDMRPGTMMKFQFPRNSNTATFLPPERAAQS  
IFSSNKLSEIFNHFVSVKPTSEAKTIKKTIEECEAPGKGGERYCATSLESMDVDFSTSNFRTRNVQAI STEVLEKGTAMSMHKTTPMGLKLAGDKVVVCHKQNYPYAV  
FYCHVIKPTAAAYVLSLKGDDGVKIKAVAICHLDTSEWNPKHLAFQILKVKVPGTIPICHFLPTDHSVWVPHKSA

>Prupe.1G475800 Org\_Ppersica peptide: Prupe.1G475800.1.p (1 of 20) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE  
PROTEIN RD22 (PAC:32111329) (*Prunus persica*)  
MGFHLPLIFALLSLAAVALANHAAQPAQLYWSSVLPNTQMPRSISELLHPDSTNEEKSTNDVVGKPEFPLGNQHYSSQKHYGGIPETSPLGNKHYSSQKHYGRGKPEFPP  
LNQHYSSQRHYGRGKPEFPLGNKHYSSQKHYGRGKPEFPLGNQHYSSQKHYGRGASPSDNQLLHYKDLAIFLEKDMRPGTMMKFQFPRNSNTATFLPRESAQSIFFS  
SNKLSEIFNHFVSVKPTSEAKTIKKTIEECEAPDLKGEERYCATSLESMDVDFSTSKLGRNVEAISTEVLEKGTAMSIQNYTTPMGLKLAGDKVVVCHKQNYPYAVVFFCH  
AIKHTAAAYVLSLKGDDGKVKAVTICHLDTSEWNPHEMFSQIVNVKPGTIPICHFISTDAIAWVPHKSA\*



>Tp57577\_TGAC\_v2\_gene33142 Org\_Tpratense peptide: Tp57577\_TGAC\_v2\_mRNA34256 (1 of 17) PTHR31236:SF2 - DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:35953689) (*Trifolium pratense*)  
MWYIYMLALAEESNALLPEEYWEAVWPNTPIPTSVRELLKPGQGVIEDDLPEVDDTQYPRTFYEQDLYPGNTMNVQFSKRPFAPYGYVYTWREIKDIEKEGYTFN  
EVCVKKEAAKGEQKFCAKSLGLTIGFAISKLGKNIQALSSSFIDKNDQYTVESVQNLGKAVMCHRLNFRKVVVYFCHEVHRTKAFMVPVLVANDGTKTQALAVCHTDTSGMN  
HEMLKQLMKADPGTKPVCHFLGNKAILWVPNLVVDNAYGANIV

>Vigun05g201200 Org\_Vunguiculataearly-release peptide: Vigun05g201200.1.p (1 of 7) PTHR31236//PTHR31236:SF2 - FAMILY NOT NAMED // DEHYDRATION-RESPONSIVE PROTEIN RD22 (PAC:39026770) (*Vigna unguiculata*)  
MCKNLDHKYSLSLAKMGFRCLVISISVLFALALGGESHQSRVSDYWKAVWPNTPIPTALQHLNPIASGVEIHDQPTQIDDTTEYPKTFFYEHLDPGKTMNVQFSKGL  
YKQPATLLAWLRKVRDTRKERYTFDELCTKREPIDGEHKFCAKSLGTIGFAVSKLGKNIQVLSSSFANKQEQYTVYEGVQNLGDKAVMCHGLNFQTVVYFCHEVCGTRAFM  
VSLVAGDGTKTQALAIChSDTSGMNHMLRQIMGVDPGTPVCHFLGTKEILWVPNLAVDTAYQTEVVL

>XP\_010675925.1 PREDICTED: BURP domain protein USPL1 (*Beta vulgaris subsp. vulgaris*)  
MAMHFRQLSHAFFLLAFLAFYASSCEQEDIWRMKLPKVPMPQAIKENLHANAIEPITIDNKEIANFDKPYTAKKDKIVASENQPWTYVYGRYPNPETDANAVEPVSHDVA  
TTNTVTTKKDKIVASENQPWTYVYGRYPNPETDANAVEPVATNTVTTKKDKTVTSENQPWTVAGWRYPNPDNINEKNSIKASHNHHHFMHNANSKDSVKEENLNGGSVFEV  
EESLRLGTLKHKDFOKTKRPPYLPKKAQSI PFSVDKVAEILNLSIKSKSAEATS IKETLGLICLQRPNVKKENRTCAQSMEDIVDFVVKELGTNDVQLRMMRNNEI VPHG  
IQDYVVTVKVLLVPGNTAAACHRMVYVYVYVYCHHQDIGHYDITLVSPTSIGNAIQTAVCHYDTYAWQPDVEALRYLGI RPDGAPVCHFSAINDMFWSIKPTHSKYLDL  
AQ

>XP\_010676059.1 PREDICTED: BURP domain protein USPL1-like (*Beta vulgaris subsp. vulgaris*)  
MGKQLWGQLQYIETKEKLANFDKPYTAKKDKIVASENQPFTISAWHYNPETGANVPEVSHDVAATTKDKIVASENQPFTISAWRYNSDTNANAVEPVSDGATTDTVTTK  
DKTIVASENQPWTVAWRYPNPDNINEKNSIKASHNHHHFMHNANSKDSVKEENLNGGSVFEESLRLGMLKHKDFOKTKRPPYLPKKAQSI PFSVDKVAEIVNLSIKS  
ESAETAIKETLGLICLQRPNVKKENRTCAQSMEDIVDFVVKELGTNDVQLRMMRNNEI VPHG IQDYVVTVKVLLVPGNTAAACHRMVYVYVYVYCHHQDIGHYDITLVS  
PTFGNAIQTTAVCHYDTYAWQPDVLLALRYLGI RPDGAPVCHFSAINDMFWSIKPNSKYISRHGSVKRVIES

>XP\_016572294.1 PREDICTED: BURP domain-containing protein 5-like (*Capsicum annuum*)  
MAMLYQYFFTLTSLVYVISHAANLSEPEVYWKIKLPNTMPKPKIKDALHISEKTSQPYGGLTWDWVHVFVSKNELHKLHQLSQPYGYVYGVSLKNLNDHLVTRFFETD  
LHQGKKNLKLKNNNPAPLLPRKVVDSISFSSNRIEIEILDHFSVDNNSDAKVIKRTVELCEQPAADGEIKYCATSLESIIDFASSRLETNNILAIHTEVEKETPVLQTY  
TIKEVKEKANGKCVICHKVPYAVHFC HDVGSTRAFRVTMVGADGTVKNAVSVCHEDTASMNPKALVFQLLNKPGDKPICHFIMDDQIALFSPQNAVLMQAE

>XP\_016541386.1 PREDICTED: uncharacterized protein LOC107842123 (*Capsicum annuum*)  
MELHHHYFFILLSLAFVASHAANLSEPEVYWKAKLPNAMPRIKDALHYFVAEVELKLLQPWGVCWLYQPAEAGDLHLKLCQPWGVGSWYQVAEDYLKLLCQLPWGVALM  
YQPAEAGDLHLKLRQPWGVGFYQPAAGDGLHLKLRQPWGVGSWYQVAQFDLHKIRQ

>PHU09676.1 BURP domain-containing protein 3 (*Capsicum chinense*)  
MIRVMVRRSLNDPNINVKGAVALNHPQVSSFEHRQRQSFVQFVAVSSHCRVRLPLPSRQRCPSELAFVASHAANLSEPEVYWKAKLPNAMPRIKDALHYFVAEVELK  
LRQPWGVCFWYQPAEAGDLHLKLCQPWGVGSWYQVAEDYLKLLCQLPWGVALWYQPAEAGDLHLKLRQPWGVGFYQPAADGDLHLKLRQPWGVGSTRTFMVMVMVGGDTKVN  
AVSVCHEDTASMNPKALPQLNPKGDKPIHFH

>XP\_016188646.1 unknown seed protein USP (*Arachis ipaensis*)  
MEFRCAVAMFLCLAFAGSHGRELIPDEDYWQAVWPNTPIPNLTKELLKPGAQDSEINDVPMKVDVTQYPKTFFFEHELFPGKMMNQFSKIPFAQPYGYVYTWGNVIKDL  
KESFTFEDACIREAGKGEDKYCAKSLSTLIGFAVSKLGKNIQPFSSFLDKQSDYTIIEGVHNLGDRVMCHRLNFQSTVFYCHEIHGTTAYMVPVMAADGTRTRALAVCH  
DTSGMNAEVLYQMLKIKPGTETACHFLGNKAVMVPNMAVNSVYNNANVAS

>XP\_015085736.1 PREDICTED: BURP domain-containing protein 17-like (*Solanum pennellii*)  
MELHHHYVYVTFVSVIFVSSHAAANLSEPEVYWRVFPNTPMPTPIKNALHINEKPAYNGDGNTKISQPWGVGAWYQAAPDELHKIRQPFVGYRWYQAAPDELHKIRQ  
GVFRWYQYAPENELHKVHPQPWGVGSWYNDAAKDLNDNHPVTPYFFETDLHQGKMMNLES LNYPNAPILPRKVVDSIAFSSDKIEEILNHFSADKDSERARDIKTKMC  
EEPAGNGEVKHCATLSLESMIDFTLSHLGNKI IASTQVEKETPEVQTYTIEKVEEKANGKGVCHKVAYPYAVHFC HDVGSTRTFMVMVMVADGTRTRALAVCH  
NPKALPQLLNKPGDKPICHFTLDDQIALFSPQNAVLMQAE

>XP\_019248232.1 PREDICTED: BURP domain-containing protein 3-like (*Nicotiana attenuata*)  
MSQPWGVVSWYQATEKDNLPNMQPWGVYSWYNGATTKDINENHPVTPYFFETDLHQGKMMNLPKLNHPAPILPRKIADSI PFSDDKMEIEILNHFSVDKDSEVAKMIK  
TIKMCCEPAGNGEKKYCATSLESMDVFATSHLGTNNI IALSTEVEKETPQVQIYTIIEVKEKANGKGVICHKIGYPAVHFC HDVGSTRTFMVMVMVADGTRTRALAVCH  
DTSLMNPALPQLNPKGDKPICHFILDDQIALVIPS RDGTQVAEN

>XP\_015953961.1 unknown seed protein USP (*Arachis duranensis*)  
MEFRCAVAMFLCLAFAGSRGRELIPDEDYWQAVWPNTPIPNLTKELLKPGAQDSEINDVPMKVDVTQYPKTFFFEHELFPGKMMMKFSKIPFAQPYGYVYTWGKVIKDL  
KESFTFEDACVREAGKGEDKYCAKSLSTLIGFAVSKLGKNIQPFSSFLDKQSDYTIIEGVHNLGDKAVMCHRLNFQSTVFYCHEIHGTTAYMVPVMAADGRRTRALAVCH  
DTSGMNAEVLYEMLKIKPGTETACHFLGNKAVMVPNMAVNSVYNNANMAS

>XP\_015943734.1 unknown seed protein USP-like (*Arachis duranensis*)  
MEFRCAVAMFLCLAFAGSRGRELIPDEDYWQAVWPNTPIPNLTKELLKPGAQDSEINDVPMKVDVTQYPKTFFFEHELFPGKMMMKFSKIPFAQPYGYVYTWGKVIKDL  
KESFTFEDACVREAGKNEKDYCAKSLSTLIGFAVSKLGKNIQPFSSFLDKQSDYTIIEGVHNLGDKAVMCHRLNFQSTVFYCHEIHGTTAYMVPVMAADGRRTRALAVCH  
DTSGMNAEVLYEMLKIKPGTETACHFLGNKAVMVPNMAVNSVYNNANMAS

>XP\_015953954.1 unknown seed protein USP-like (*Arachis duranensis*)  
MIMRADSEINDVPMKVDVTQYPKTFFFEHELFPGKMMMKFSKIPFAQPYGYVYTWGKVIKDLKESFTFEDACVREAGKGEDKYCAKSLSTLIGFAVSKLGKNIQPFSSSF  
LDKQSDYTIIEGVHNLGDKAVMCHRLNFQSTVFYCHEIHGTTAYMVPVMAADGRRTRALAVCHHDTSGMNAEVLYEMLKIKPGTETACHFLGNKAVMVPNMAVNSVYNNAN  
MAS

>XP\_021803298.1 BURP domain protein RD22-like isoform X1 (*Prunus avium*)  
MGFHLPLIFALLSLAAVALANHAAQFAPQLYWNVLLNTQMPRAISELLHPLGTYSTNEEKSTNIMNAVGNKPTDLIPLGAGYGIQYDRILDNELHYKNVTLYFFEKDIRP  
GATMNFQFRRNNTATFLPRKSAQSI PFSNKLSEIFNHFSAPKPTSVEAKTIKKTIEVCEAPGKGEKYCATSLESMDVFSTSKLRTRNVQAISTEVLEKATMSMHKYT  
TMPGLKLAGDKVYVCHKQNYPYAVFYCHVIKPTAAYVLSLKGDDGKVKAVAVCHLDTSEWNPKHLAFQIILKVKPGTIPICHFLPTDHIWVPNRKS

>XP\_021803299.1 BURP domain protein RD22-like isoform X2 (*Prunus avium*)  
MGFHLPLIFALLSLAAVALANHAAQPAPQLYWNNSVLLNTQMPRAISELLHPDSTNEEKSTNIMNAVGNKPTDLIPLGAGYGIQYDRLTDNELHYKNVTLYFFEKDIRPGA  
TMNFQFPRNSNTATFLPRKSAQSIFFSSNKLSEIFNHFSVAKPTSVEAKTIKKTIEVCEAPGKGEKEYCATSLESMDVDFSTSKLRTNRVQAISTEVLEKATMSMHKYTTM  
PGLKLAGDKVVVCHKQNYPIAVFYCHVIKPTAAVYVLSLKGDDGVKVAVCHLDTSEWNPKHLAFQILKVKPGTIPICHFLPTDHI I WVPNRKSG

>XP\_021814906.1 BURP domain protein RD22-like (*Prunus avium*)  
MGFHLPLIFALLSLAAVALANHAAQPAPQLYWNNSVLPNTQMPRAISELLHPDSTNEEKSTNIMNAVGNKQTDHKGKPENIPLANGIYYIRYDHPDNYKNVAIFFLEKDM  
RPGATMNFQFLRNSNKATFLPRESAQSIFFSSNKLSEIFNHFSVAKPTSVEAKTIKQTIKECEAPGVKGEKEYCATSLESMDVDFSTSKLRTNRVQAISTEVLEKATMAMHK  
YTTMPGLKLAGDKVVVCHKQNYPIAVFYCHAIKPTAAVYVLSLKGDDGVKVAVCHLDTSEWNPKHLAFQILKAKPGKIPICHFLPTDHI I WVPNRKSG

>XP\_021803319.1 BURP domain protein RD22-like isoform X2 (*Prunus avium*)  
MGFHLPLIFAFLLSAAVALANHAAQPAPQLYWNNSVLPNTQMPRAISELLHPDSTNEEKSTNIMNAVGNKPTDHHKVPDDIFVQESRINYGGPSPDKPDDIFLPATRIIY  
GPPSPDNQLHYKNVAIFFLEKDMRPGATMNFQFPRNSNTATFLPRESAQSIFFSSNKLSEIFNHFSVAKPTSVEAKTIKKTIEECEAPGKGEKEYCATSLESMDVDFSTSKL  
RTRNRVQAIPTEVLEKATMSMHKYTTMPGLKLAGDKVVVCHKQNYPIAVFYCHAIKQTAAYVLSLKGDDGKVKAVTICHLDTSEWNPKHLAFQILKVKPGTIPICHFLP  
TDQIVWVPHKTA

>XP\_021800106.1 BURP domain protein RD22-like (*Prunus avium*)  
MGFHLPLIFALLSLAAVALANHAAQPAPQLYWNNSVLPNTQMPRAISELLHPDPTKPIDHKGKPEPNTVPELVPFFYRVYDHPDNLHYKNVAIFFLEKDMRSGTMMNFQ  
FPRNSNTATFLPRESAQSIFFSSNKLSEIFNHFSVAKPTSVEAKTIKKTIEECEAPGKGEKEYCATSLESMDVDFSTSKLRTNRVQAISTEVLEKATMSIHKYTTMPGLK  
LAGDKVVVCHKQNYPIAVFYCHAIKPTAAVYVLSLKGDDGVKVAVCHLDTSEWNPKHLAFQILKVKPGTIPICHFLPIDHIWVWPHKTA

>XP\_021803318.1 BURP domain protein RD22-like isoform X1 (*Prunus avium*)  
MGFHLPLIFAFLLSAAVALANHAAQPAPQLYWNNSVLPNTQMPRAISELLHPGLYSTNEEKSTNIMNAVGNKPTDHHKVPDDIFVQESRINYGGPSPDKPDDIFLPATRI  
IYGPSPDNQLHYKNVAIFFLEKDMRPGATMNFQFPRNSNTATFLPRESAQSIFFSSNKLSEIFNHFSVAKPTSVEAKTIKKTIEECEAPGKGEKEYCATSLESMDVDFST  
KLRTRNRVQAIPTEVLEKATMSMHKYTTMPGLKLAGDKVVVCHKQNYPIAVFYCHAIKQTAAYVLSLKGDDGKVKAVTICHLDTSEWNPKHLAFQILKVKPGTIPICHFL  
LPTDQIVWVPHKTA

>XP\_021802039.1 BURP domain protein RD22-like (*Prunus avium*)  
MEFHLPLIFALLSLAAVALANHAAQPAPQLYWNNSVLPNTQMPRAISELLHPDSTNEEKSTNIMNAVGNKPTDHHKGPPIIPLRLQKYGKHYGSSADNPLHYKNVTIYFFM  
KDMRPGATMNFQFPRNSNTATFLPRESAQSIFFSSNKLSEIFNHFSVAKPTSVEAKTIKKTIEECEAPGKGEKEYCATSLESMDVDFSTSKLRTNRVQAISTEVLEKATMS  
MHKYTTMPGLKLAGDKVVVCHKQNYPIAVFYCHAIKPTAAVYVLSLKGDDGVKVAVCHLDTSEWNPNHLSFQILKVKPGTIPICHFLPTDHIWVWPHKSA

>Peaxi162Scf00799g00412.1 BURP domain-containing protein (*Petunia axillaris*)  
MKSQLLYSLTI FWLAFVASHAAISPEIYWKVKLPNTPIPKVIKDFLPLAVNEVPELQDKLASKEKVFSGLQQPYGVGFVFWHRAATEDELHELQKDNAAASKKKVFSGLQPPY  
GVFAWHRAATEDELHELQKHSTGSMKVVYGLHQPYPGVFAWHRAATEDELHEMOKDNTGSMKVVYGLHQPYPGVFAWHRAATGDEVRELKQSPSINHVTAMNELQQLTER  
SNAKNDLNDKFLYKPYFLEEAELEKGIINFPPLKKNKNEAPFLSRQFVESIPFSSQKIPEILKYLSIDSSSSKDAQKIEETIKLCEKPEIKHKEKKRCATSLESMDVDFSI  
V LGTNNIKALTEVAGETQMMQKYTIEEVQVAEGDNMVCHKLSYAYVHYCHVGGATKTYMVMVSGADGTVKAVSVCHKDTSFWNPKGLPFVVLKVKPGTIPICHFLQDD  
QIVFVPAKEATKISDN

>Peinf101Scf00928g10015.1 BURP domain-containing protein (*Petunia inflata*)  
MELHHYFFFTFLSLAFVASHAAISPEIYWKVKLPNTPMPKVIKDFLPLAVNEVPELQDKLASKEKVFSGLQQPYGVGFVFWHRAATEDELHELQKDNAAASKKKVFSGLQPPY  
PKLFNSATEKDINENHLVTPYFFETDLHQGKMMNIPSLKYNPAPILPGKVADSIFFSSDKIEEILNHFSIDEDSEFANMVKTIKMGCEPAGNGEKKYCATSLESMDVDF  
TSHLGTNKILAI STEVEKETPKVQTYTIEEVMEKAYGKGVICHKVAIYAVHFCHDVGSTRTFMVMVSGADGTVKAVSVCHEDTATMNPALPFQLLNVKPGDKPICHFT  
LDDQVALVTQFK

>Peinf101Scf00928g11001.1 BURP domain-containing protein (*Petunia inflata*)  
MPQPFQDYVWFQPANEGDLQKLRQPFGAAKKEINENHLVTPYFFETDLHQGKMMNIPSLRNSYHAPILPRKVADSIFFSSDKIEEILNHFSIDKDESEFANMVKTIKMGCE  
PAGNGEKKYCATSLESMDVDFTTSHLGTNKILAI STEVEKDTPEVQTYTIEEVKEKANGKGVICHKESYIYAVHFCHDVGSTRTFMVMVSGADGTVKAVSVCHEDTATMNP  
KALPFQLLNVKPGDKPICHFTLDDQVALVPSQDAVQAA

>Peinf101Scf01794g12009.1 BURP domain-containing protein (*Petunia inflata*)  
MKSQLLYSLTI FWLAFVASHAAISPEIYWKVKLPNTPMPKVIKDFLPLAVNEVPELQDKLASKEKVFSGLQQPYGVGFVFWHRAATEDELHELQKDNAAASKKKVFSGLQPPY  
GLFGWHRAATEDELHELQKDNAAASKKKVFSGLQPPYGLFGWHRAATEDELHELQKDNAAASKKKVFSGLQPPYGLFGWHRAATEDELHELQKDNAAASKKKVFSGLQPPYGVF  
GWHRAATEDELHELQKDNAAASKKKVFSGLQPPYGLFGWHRAATEDELHELQKDNAAASKKKVFSGLQPPYGLFGWHRAATEDELHELQKDNAAASKKKVFSGLQPPYGVFV  
RAATGNEVRELKQSPSINHVTAMNELQQLTERSNKNDLNDKFLYKPYFLEEAELEKGIINFPPLKKNKNEAPFLSRQFVESIPFSSQKIPEILKYLSIDSSSSKDAQKIE  
ETIKLCEKPEIKHKEKKRCATSLESMDVDFSI SVLGTNNIQAITTEVAGETQMMQKYTIEEVQVAEGDNMVCHKLSYAYVHYCHVGGSTKTYMVMVSGADGTVKAVSV  
HKDTSFWNPKGLPFVVLKVKPGTIPICHFLQDDQIVFVPAKAGATKISDN

>Sopim08g068140 Unknown Protein (AHRD V1); contains Interpro domain(s) IPR004873 BURP (*Solanum  
pimpinellifolium*)  
MELYHNQYVFTIFSVIFVVSAAHNSPEVYWRVKFPNTMPPTPIKDALHINEKPAYNGDGNKISQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPW  
VGAWYKAAPEDELHKIRQPWVGAWYKVAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWY  
KAAPEDELHKIRQPWVGAWYKAVPEDELHKIRQPWVGAWYKAVPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWY  
ELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWYKAAPEDELHKIRQPWVGAWY  
VPTPYFFETDLHQGKMMNIPSLKYNPAPILPRKVVDISIAFSSDKI

>Sopim08g068130 BURP domain-containing protein (Fragment) (AHRD V1 \*\*-- Q94IC5\_9ROSI); contains Interpro  
domain(s) IPR004873 BURP (*Solanum pimpinellifolium*)  
MCEEPAGNGEVKHCATSLESMDVDFTTSHLGTNKILAI STEVEKETPEVQTYTIEEVKEKANGKGVICHKVAIYAVHFCHDVGSTRTFMVMVSGADGTVKAVSVCHEDTATMNP  
SMNPALPFQLLNVKPGDKPICHFTLDDQIALFSPQNTDLQVAEN

>Sme2.5\_05808.1\_g00001.1 /partial (*Solanum melongena*)  
KTAAYNGDNTKISQPWGVNSWYQAAPEDELHKVQPWGVLRWYHDAPEDELHKLRQPWGVGSWYQAAPEDELHKVQPWGVGSWYHDAPEDELHKLRQPWGVGSWYNDVAK  
KQDHNHLVTPYFFETDLHQGKAMNLSLKNYNPAPILPRKVVDISIAFSSDKIEEILNHFSADKDELAEMIKKTIKMCEDPAGNGEVKHCATSLESMDVDFTTSHLGTNNI  
IAISTEVEKETPEVQTYTIEEVKEKANGKGVICHKVAIYAVHFCHDVGSTRTFMVMVSGADGTVKAVSVCHEDTATMNPALPFQLLNVKPGDKPICHFTLDDQIALF  
SQNVLLQVAKN

>Sme2.5\_02115.1\_g00002.1 unnamed protein product (*Solanum melongena*)

MCDVYTSQLVVLVASQAANLSPEVYWKVLPNTMPKPIKDALHISEKTAINGDKSTKISQPWGVGSWYQAAPENDLHKVRQPWGVLGWYHDAPENELHKLRQPWGVGSWYQ  
AALGNELHKLRQPWGVGSWYHDAPENELHKLRQPWGVGSWYQAAPENELYKVRQPWGVLGWSHVPLRMSFTNCANRGEWAHDLHQKAMNLLSLKNYNPAPIIPRKVVDSI  
FFSSDKIEEILSHFSADKDSERAEMIKKTIKMCEDPAGNGEVKHCATSLESMLDFTVSHLGTNNIIAISTEVEKETPEVQTYTIEKVEEKANGKGVVCHKVAYPYSVHFCH  
DVGSTRTFMVMVGADGTVKNAVSVCHEDTAPMNPKALFFQLLNVKPGDKPICHFTLDDQIALFPPSPNVPLQVTKN

>Sme2.5\_03183.1\_g00006.1 unnamed protein product (*Solanum melongena*)  
MVSPHSNPPVTHLVVHREKRALHISLPIQSIAYFIADPGHCILHCRKAHLSCITETRCEDIYFLVVKRPIYHASRLSYSQKELPDRSKKAEIQAEMGRSLDGLAKVLMG  
LASPKRRNQDRIVAQYVLAIHVPKDRHYRPMRELIILHHGKERTANLSPEVYWKVTLNTPMPKPIKDALHISEKLPPELDKLRQWGVYARYDGVPKSELRLKLRQPYG  
VYTWYRGAEDPVYARYHDASENELHKVHQPSLKDHNHLVMPYFFETHLHQGKQLNLLSLKNNNPAPFLPRKIVDSIPFSSDKIEEIFSYSVDKSKPAEMIGKTIKL  
CEGPAGNGEVKYCATSLESMEFTLSHVGTNNIIAISTEVEKETPEVQTYTIEKVEEKANGKGVVCHKVAYPYAVHYCHDVGSTRVFMVMVGADGTVKNGVSVCHEDTTP  
MNFELPFQLLNVKPGEKPICHFTLDDQIVLFFSPNVLLQVTDN