Group 1

```
                    10        20        30        40
Arath1   MSP-VISEILRSGLTIDSSLRRRTHLVQSFSVVFLYWFYVFS----
Orysa1   MSP-VISEILLSGFMINSTLRRRTHLVQSFSVVFLYWFYVFS----
Arath2   MTP-VLCEILLSGLTVKSALCRRTHLVQSFSVVFLYWFYNVS----
Arath3   MSPIILSEIFLSGFMLNSTIRRRTHLVQSFSVVFLYWLYYVS----
Orysa2   -------------MKLNVLRRRRSH---SFSVAFLYWFYVFS----
Orysa3   MLLLIIPEHLLSRFMTGPAI---TQLVQSFSVVFLYWFYVFSVSSL
Arath4   -------------MSYSILFRRIRILHSFSVVYLYYTYVFS----
Orysa4   -------------MSITEASLHFCYLHSLSVVFLYFFYVIS----
Orysa5   -------------MKIATHLRRSCFLHSFSVVFLYWFYVIS----
Arath5   -------------MIN---LNQFLVYHSISVVILHWFYVIS----
```

Group 2

```
                    10        20        30        40
Arath1   -----MGKRQISQD----EVGPPIKPRAGLRREQAGRGSYRGS
Arath2   MFGKGMGTRQYSLG----EVGPPINPRAGLRREQAGRGSYRGS
Lyces    -----MGCRVLIVV----NLDPQRKRSGGLRTKQAGRGSCRGS
Medtr    ------RCKKLTVV----NLDPERKRSGGLRTKQAGRGSCRGS
Arath3   -----MACRSMIAF----SLDPERKQSGGLRTKQAGRGSCRGI
Lacsa    -----MSRITWVLILGG-NLDPERKRSGGLRSKQAGRGSCRGS
Orysa    -----MAAASVAARS GGGGVRIPARRGGGLRAKQAGRASFRGA
```

Group 3

```
                    10        20        30        40        50
Orysa1   -MESKGGKKKS--SSSR---SLMYEAPLGYSIEDVRPAG-GVKKFQSAAY
Orysa2   -MESKGGKKKS--SSS----SSMYEAPLGYKIEDVRPAG-GIKKFQSAAY
Orysa3   -MESKGGKKKS--SSSRS--SLMYEAPLGYSIEDLRPAG-GIKKFRSAAY
Arath1   -METKGGKKKSSNSSSRD--SLFFEAPLRYSIEDVRPNG-GIKKFRSAAY
Arath2   MMESKGGKKKS--SSSS---SLFYEAPLGYSIEDVRPNG-GIKKFKSSVY
Cycru    -METKGGKKKSSSNSQ-----QYETPLGYKIEDVRPHG-GIEKFRSAAY
Selmo    -MDAKGGEDDSSSSSSNRNSKFRYEIPLGYVVEDVRPNG-GFEKLRRAGF
Torru    -METKGGKK--SKKSS-----IQYESLLGYVIEDVRPHG-GSEKFRTAAY
Arath3   MMESKAGNKKSSSNSS-----LCYEAPLGYSIEDVRPFG-GIKKFKSSVY
Ulvli    MMCSAEDDSLNSYLESS-----LGELASLLADCPDLRPWGPNKRKYRTIAW

Orysa1   SNCAKKPS
Orysa2   SNCARKPS
Orysa3   SNCARKPS
Arath1   SNITGKPS
Arath2   SNCSKRPS
Cycru    SNCVRKPS
Selmo    TVCVRKPS
Torru    SNCVRKPS
Arath3   SNCAKRPS
Ulvli    DDCKRLPS
```

Group 4

```
                    10        20        30        40        50
Arath1   ------MQKMG-ESTGCGKGGLMIPNHKSANSYNLSLELSLVDSVWDCNV
Brana    ---------MG-ESKGYGKGGRVIPNAKSANSYNVSLQLSPVVSFWDCIV
Arath2   ---------MG-ESKGCGNVGRMISKNKSANSYNLSLQLSPVVSFWDCIV
Arath3   ---------MG-EVKGCWKLGRMLSKDNSANSYNVSLLLSPVVSVWDCIV
Goshi    ---------MG-KCKGCGKL-RMLTGDGPAKAYHYALLCSPVVSVWDCIV
Gosra    ---------MG-KCKGFGKLGRMLPRDGPVNAYYSSLLCSPVVSVWDCIV
Medtr    ---------MG-ECKCCGKLGRMGPRDGSKSAYEFSLMLSPVVSFWDCIV
Prupe    MISSFSMLQMG-KCKGCGKLGRMMPRGGSVSAYQFSLLLSPVVSVWDCIV
Poptt    ---------MG-KCKGCGKLGRMVPRNEPVDAYHFSLLLSPVVSVWDCIV
Orysa    ---------MGQELTTNKPLTTLLPTDEIATAYHFSLLLSPVVSFWDCIF

                    60
Arath1   RTMRYSYIPEWL
Brana    RTMRYSYIPEWV
Arath2   RTMRYSYIPEWV
Arath3   RKMRYTYIPEWV
Goshi    RKMRYSYIPEWV
Gosra    RKMRYSYRPEWV
Medtr    RKMRYSYRPEWV
Prupe    RKMRYSYRPEWV
Poptt    RKMRYSFRPEWV
Orysa    RKI RYSFRPEWV
```