**Table S4:** Accession numbers of proteins used for alignments using ClustalW on Lasergene MegAlign (DNAStar)

| Organism | Protein abbreviation | Accession number |
|---|---|---|
| DRP3A alignment (**Figure 3**) | | |
| *Arabidopsis thaliana* | DRP3A | At4g33650 |
| *Arabidopsis thaliana* | DRP1A | NP_851120.1 |
| *Oryza sativa* | | NP_001045220.1 |
| *Chlamydomonas reinhardtii* | | XP_001697229.1 |
| *Homo sapiens* | | NP_056384.2 |
| *Dictyostelium discoideum* | | XP_642112.1 |
| SDP1 alignment (**Figure 5**) | | |
| *Arabidopsis thaliana* | SDP1 | At5g04040 |
| *Arabidopsis thaliana* | SDP1L | At3g57140 |
| *Glycine max* | | XP_003554141.1 |
| *Oryza sativa* | | NP_001044325.1 |
| *Selaginella moellendorffii* | | XP_002982599.1 |
| *Saccharomyces cerevisiae* | Tgl4p | NP_013015.1 |
| MDAR4 alignment (**Figure 5**) | | |
| *Arabidopsis thaliana* | MDAR4 | At3g27820 |
| *Populus trichocarpa* | | XP_002298535.1 |
| *Glycine max* | | XP_003553831.1 |
| *Oryza sativa* | | NP_001047875.1 |
| *Selaginella moellendorffii* | | XP_002990620.1 |
| PXA1 alignment (**Figure 6**) | | |
| *Arabidopsis thaliana* | PXA1 | At4g39850 |
| *Glycine max* | | XP_006591509.1 |
| *Oryza sativa* | | NP_001054425.1 |
| *Selaginella moellendorffii* | | XP_002965745.1 |
| *Homo sapiens* | ABCD1 | NP_000024.2 |
| *Saccharomyces cerevisiae* | Pxa1p | NP_015178.1 |
| ACX1 alignment (**Figure 6**) | | |
| *Arabidopsis thaliana* | ACX1 | At4g16760 |
| *Solanum lycopersicum* | | NP_001234198.1 |
| *Oryza sativa* | | NP_001056542.1 |
| *Selaginella moellendorffii* | | XP_002963293.1 |
| *Homo sapiens* | | NP_004026.2 |
| *Saccharomyces cerevisiae* | | NP_011310.1 |
| ACX2 alignment (**Figure 6**) | | |
| *Arabidopsis thaliana* | ACX2 | At5g65110 |
| *Oryza sativa* | | ABA94669.2 |
| *Homo sapiens* | | NP_003492.2 |
| *Saccharomyces cerevisiae* | | NP_011310.1 |
| MFP2 alignment (**Figure 7**) | | |
| *Arabidopsis thaliana* | MFP2 | At3g06860 |
| *Arabidopsis thaliana* | AIM1 | At4g29010 |
| *Solanum lycopersicum* | | XP_004252912.1 |
| *Oryza sativa* | | NP_001042973.1 |
| *Selaginella moellendorffii* | | XP_002978003.1 |
| *Chlamydomonas reinhardtii* | | XP_001699366.1 |
| *Rattus norvegicus* | | NP_598290.1 |
| *Mycobacterium tuberculosis* | | WP_003404426.1 |

**Table S4** continued

| Organism | Protein abbreviation | Accession number |
|---|---|---|
| PED1 alignment (**Figure 7**) | | |
| *Arabidopsis thaliana* | PED1 | At2g33150 |
| *Helianthus annuus* | | AAQ77242.1 |
| *Oryza sativa* | | NP_001048523.1 |
| *Selaginella moellendorffii* | | XP_002963753.1 |
| *Homo sapiens* | ACAA1 | NP_001598.1 |
| *Saccharomyces cerevisiae* | Pot1p | NP_012106.1 |
| *Thermus thermophilus* | | WP_011228352.1 |
| CHY1 alignment (**Figure 7**) | | |
| *Arabidopsis thaliana* | CHY1 | At5g65940 |
| *Oryza sativa* | | NP_001066529.1 |
| *Selaginella moellendorffii* | | XP_002982321.1 |
| *Homo sapiens* | | NP_055177.2 |
| *Saccharomyces cerevisiae* | Ehd3p | NP_010321.1 |
| *Mycobacterium thermoresistibile* | | WP_003924040.1 |
| ICL alignment (**Figure 8**) | | |
| *Arabidopsis thaliana* | ICL | At3g21720 |
| *Glycine max* | | NP_001239869.1 |
| *Oryza sativa* | | NP_001059839.1 |
| *Selaginella moellendorffii* | | XP_002981082.1 |
| *Saccharomyces cerevisiae* | Icl1p | NP_010987.3 |
| LON2 alignment (**Figure 12**) | | |
| *Arabidopsis thaliana* | LON2 | At5g47040 |
| *Glycine max* | | XP_003549964.1 |
| *Oryza sativa* | | NP_001063769.1 |
| *Selaginella moellendorffii* | | XP_002974838.1 |
| *Homo sapiens* | LON2 | NP_113678.2 |
| *Saccharomyces cerevisiae* | Pim1p | NP_009531.1 |
| *Bacillus subtilis* | | WP_038827668.1 |
| PME31 alignment (**Figure 15**) | | |
| *Arabidopsis thaliana* | PME31 | At3g29090 |
| *Arabidopsis thaliana* | PME2 | At1g53830 |
| *Arabidopsis thaliana* | PME53 | At5g19730 |
| *Solanum lycopersicum* | PME31 | XP_004253337.1 |
| *Solanum lycopersicum* | PME1 | P14280.5 |
| *Zea mays* | | XP_008661243.1 |
| *Dickeya dadantii* | PME | 1QJV_A |