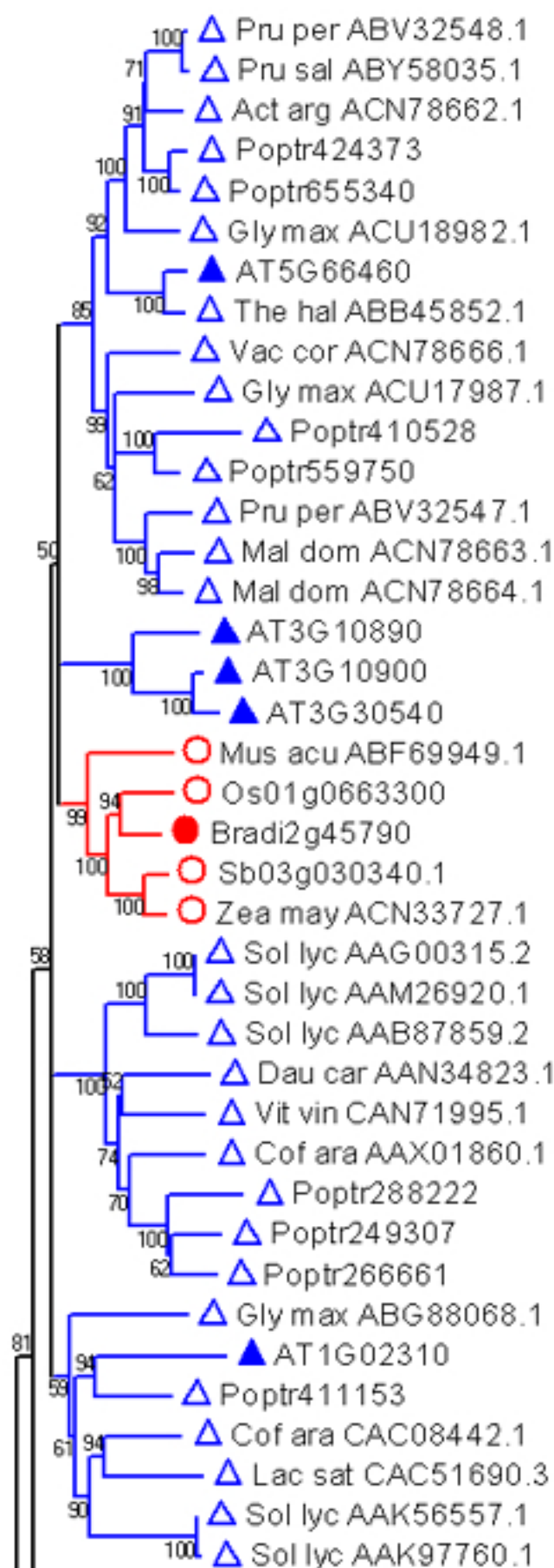
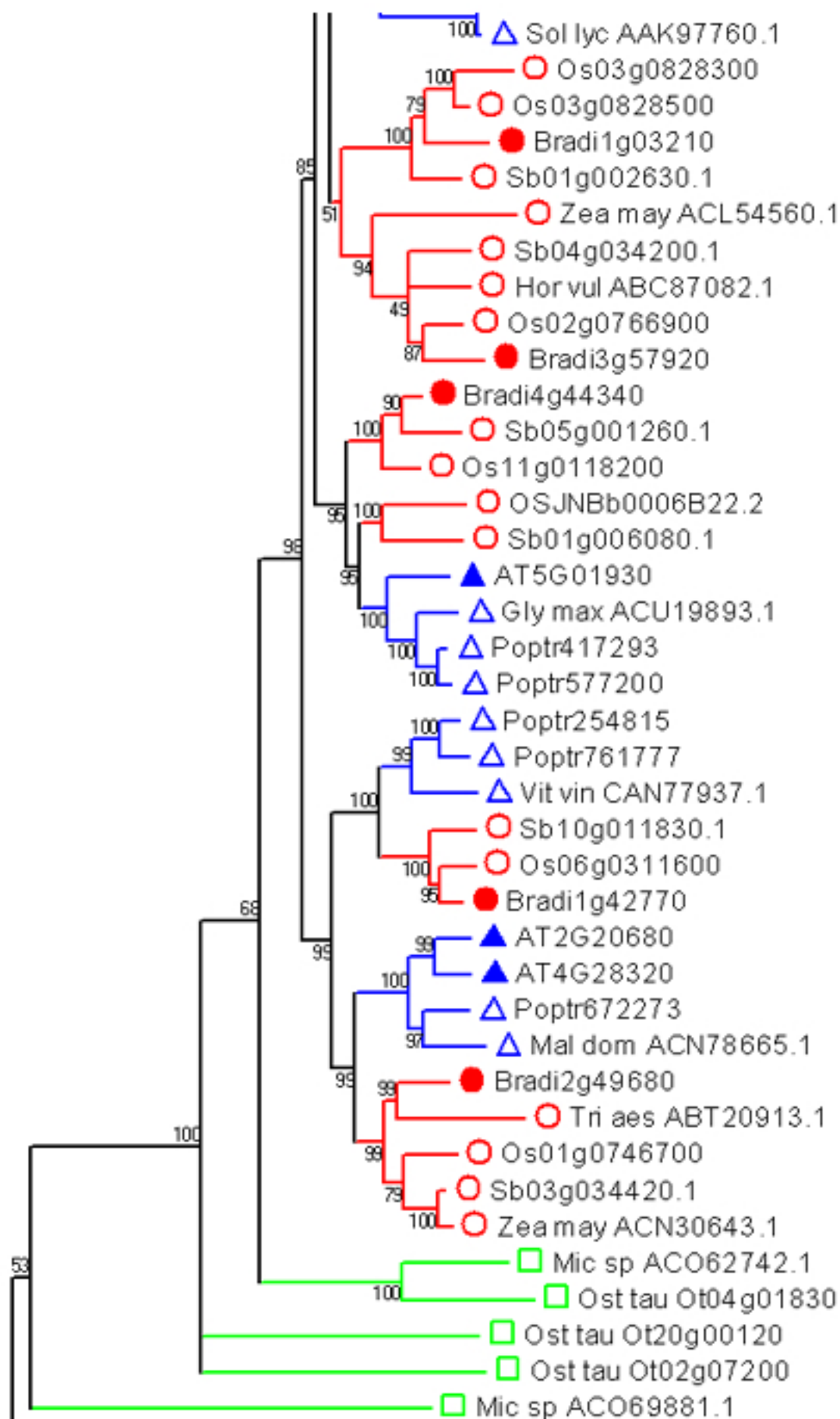
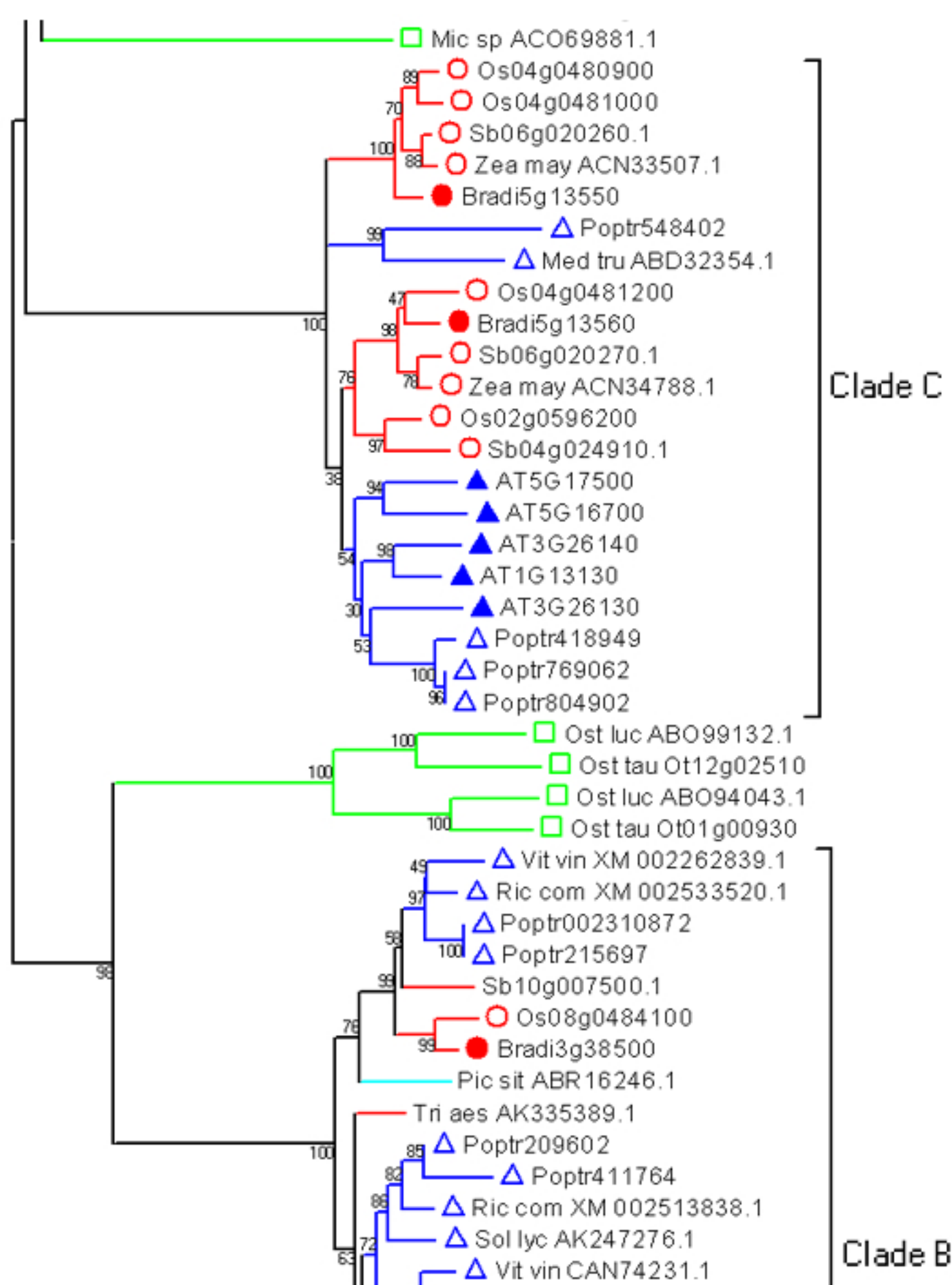
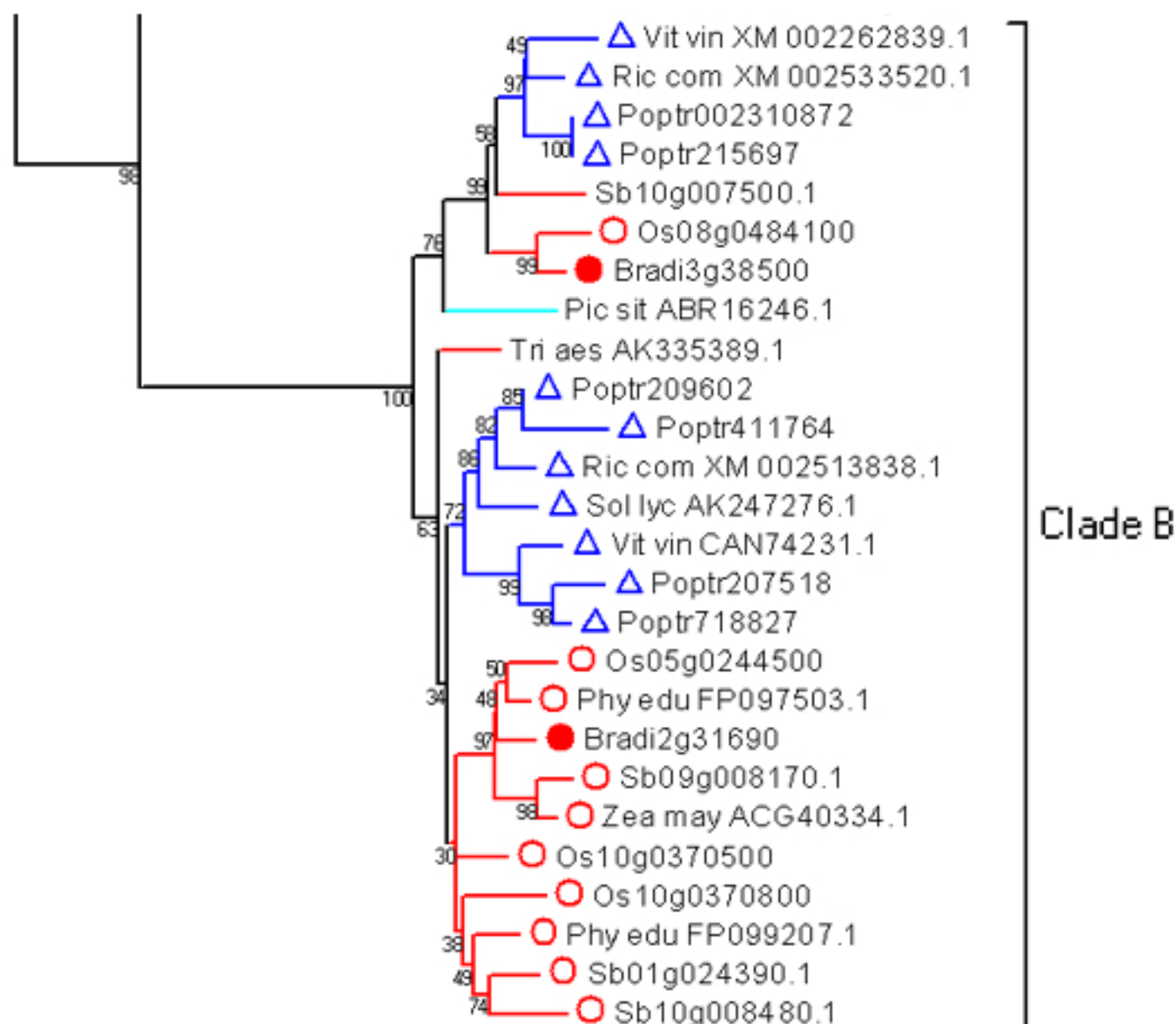




Clade A







0.2

Additional file 13 - GH5 Rectangular Tree. GH5 family tree with all branches labeled. The same tree as in Figure 5 is displayed in a rectangular format, with complete branch information. The tree is comprised of GH5 proteins from 27 species, including *Arabidopsis* (AT), rice (Os), *Brachypodium* (Bradi), sorghum (Sb), and poplar (Poptr). The GH5 encoded by Os12g0117300 is likely fragmentary and was omitted from the analysis. Additional plant and green algal sequences are indicated by a six-letter abbreviation for the genus and species, followed by the GenBank accession number or gene name. The tree was constructed using the Neighbor-Joining method and 1,000 bootstrap replicates. The bootstrap support for each branch is indicated. Distances represent the number of amino-acid substitutions per site. Sequences from eudicots are indicated in blue (*Arabidopsis* with filled triangles, other eudicots with open triangles); sequences from monocots are indicated in red (*Brachypodium* with filled circles, other monocots with open circles). A light blue diamond indicates the single gymnosperm sequence; green squares indicate green algal sequences. Brackets indicate the three major plant clades, A, B, and C. Barley HvMAN1 corresponds to Hor vul ABC87082.1, LeMAN4a to Sol lyc AAK97760.1, and rice GH5BG to Os10g0370500. Act arg: *Actinidia arguta*; Cof ara: *Coffea arabica*; Dau car: *Daucus carota*; Gly max: *Glycine max*; Hor vul: *Hordeum vulgare*; Lac sat: *Lactuca sativa*; Mal dom: *Malus x domestica*; Med tru: *Medicago truncatula*; Mic sp: *Micromonas* sp. RCC299; Mus acu: *Musa acuminata*; Ost luc: *Ostreococcus lucimarinus*; Ost tau: *Ostreococcus tauri*; Phy edu: *Phyllostachys edulis*; Pic sit: *Picea sitchensis*; Pru per: *Prunus persica*; Pru sal: *Prunus salicina*; Ric com: *Ricinus communis*; Sol lyc: *Solanum lycopersicum*; The hal: *Thellungiella halophila*; Tri aes: *Triticum aestivum*; Vac cor: *Vaccinium corymbosum*; Vit vin: *Vitis vinifera*; Zea may: *Zea mays*. Common names for these species can be found in additional file 11. Poplar gene names are abbreviated; for the full names see additional file 9.