

Figure S1. Validation of incorrect assembly of part of Chr9. **a, b** Part of Chr03 (**a**) and Chr09 (**b**) viewed in JBrowse. **c** Sequence blast and PCR validation. Chr03 and Chr09 share a 35-kb sequence, which encodes ten genes including *CzDGTT3* (*Cz03g14070+Cz03g14080* or *Cz09g23010+Cz09g23020*). We inferred a wrong assembly of this part may occur for Chr03 or Chr09. Primer pairs were designed for Chr03 (f1+r1) and Chr09 (f2+r1), respectively; only the former gave the expected PCR product, while the latter had no product (**c**), indicating the incorrect assembly of Chr09.

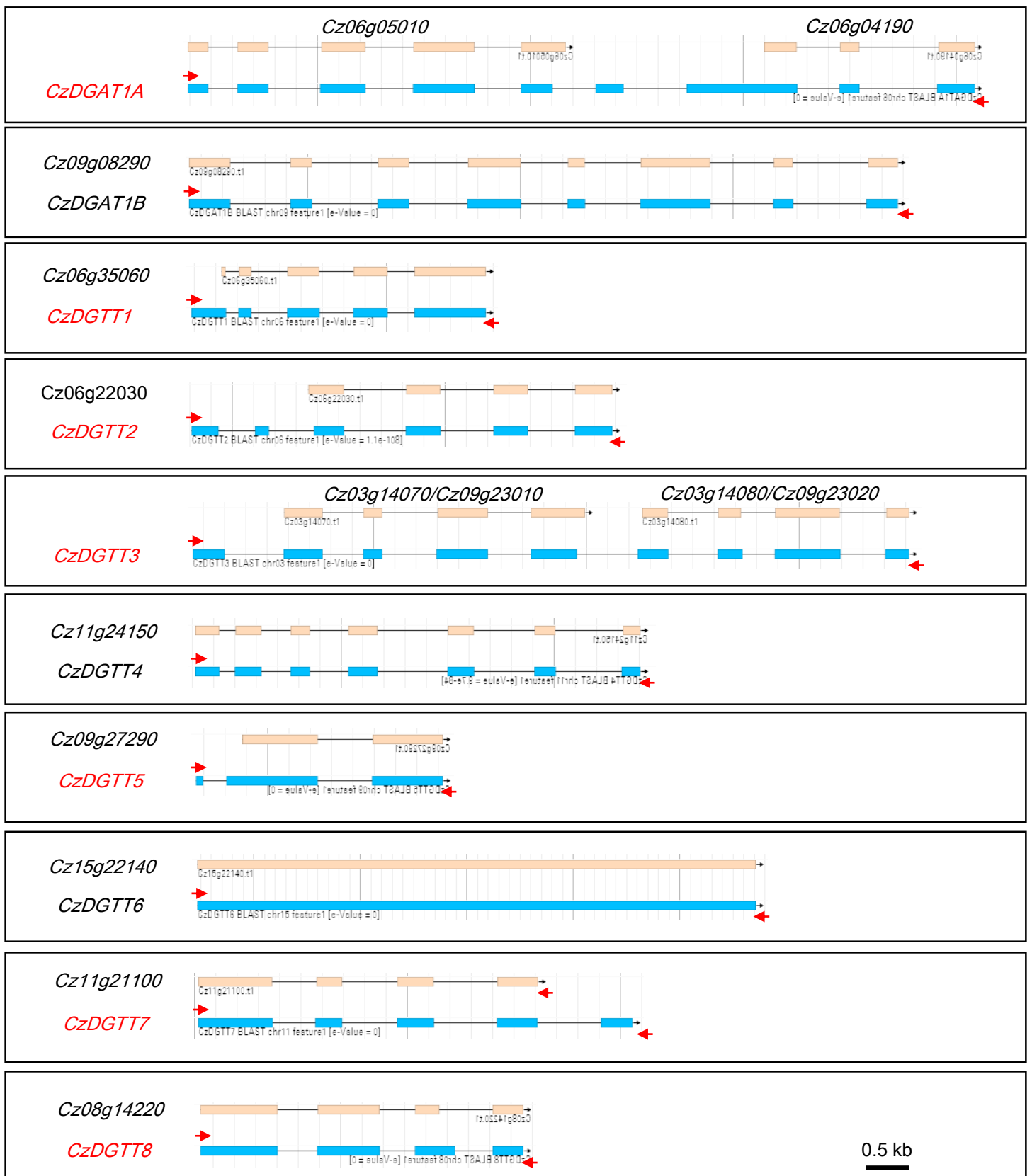


Figure S2. Comparison between the gene models of *DGATs* predicted from Roth et al (2017) and ours confirmed by 5'-RACE and sequencing. The gene models from Roth et al. (2017) and us are on the top and bottom of each panel, respectively. The red arrows indicate the primers used for cloning the full-length coding sequence. Note that based on the sequence of Cz11g21100, PCR using cDNA as the template gave no product.

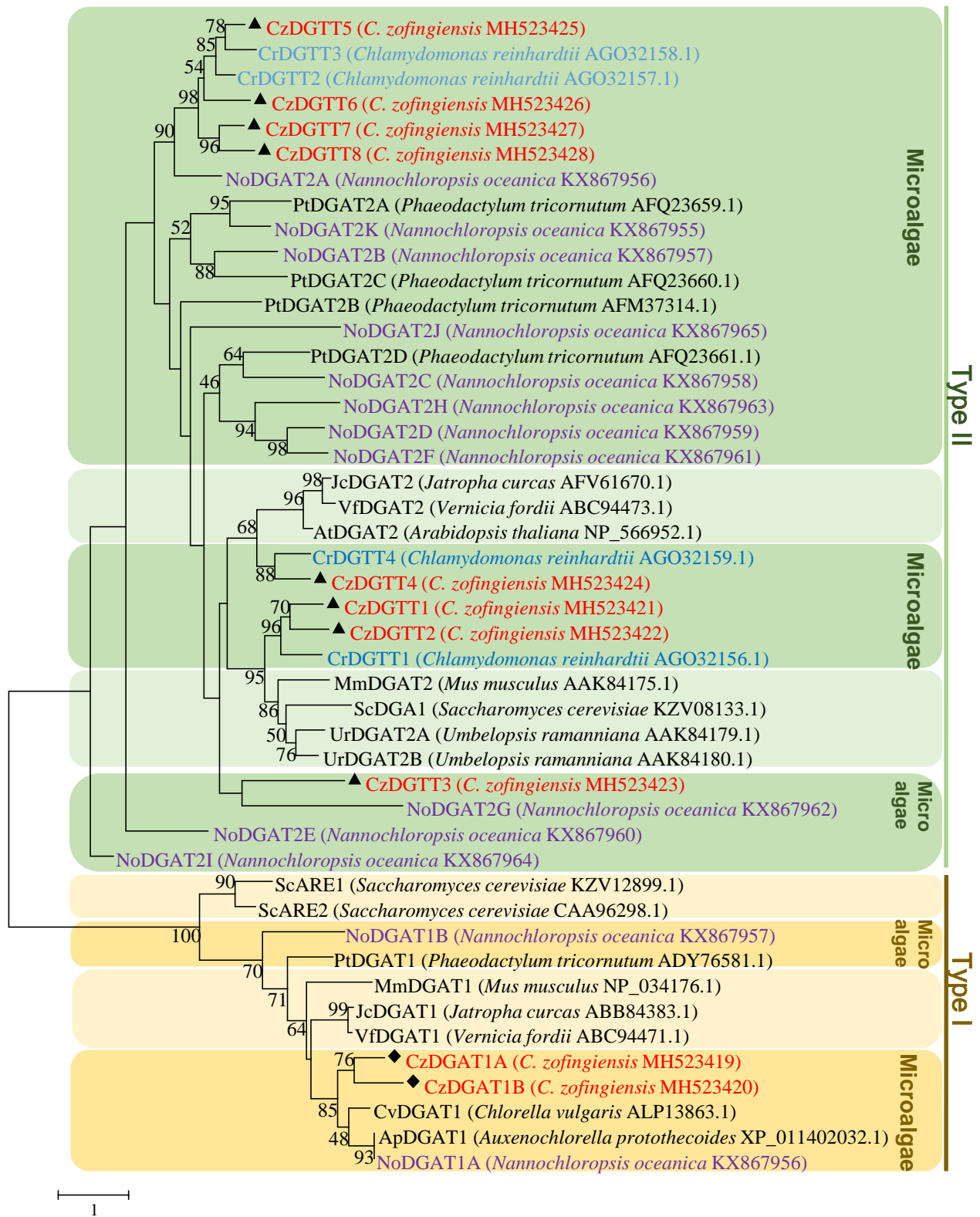


Figure S3. Phylogenetic analysis showing relationships among CzDGATs and various annotated DGATs from plants, animal, fungi and microalgae. Alignment of amino acid sequences was conducted using ClustalX 2.1. The tree was generated in the MEGA6.0 software using the maximum-likelihood method. Protein sequences were used for calculations. The percentages of bootstrap support that was calculated from 1000 bootstrap resamplings are shown on the branches. Bootstrap values >40% are shown above the branch. The sources and Genbank Accession numbers of DGATs are shown in the brackets.

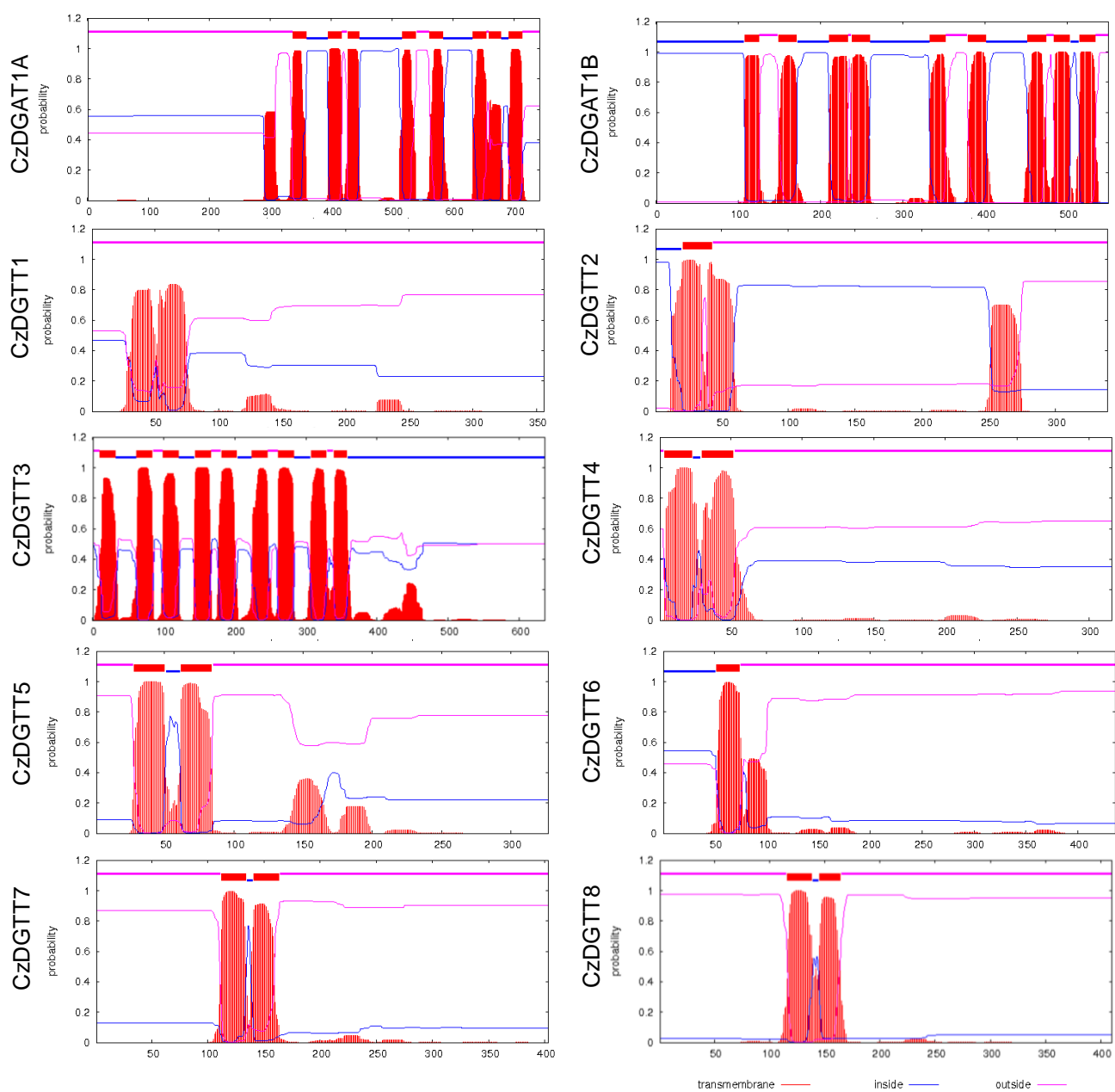


Figure S4. Predicated transmembrane domains for NoDGAT1A NoDGAT1B by TMHMM (V2.0, <http://www.cbs.dtu.dk/services/TMHMM/>).

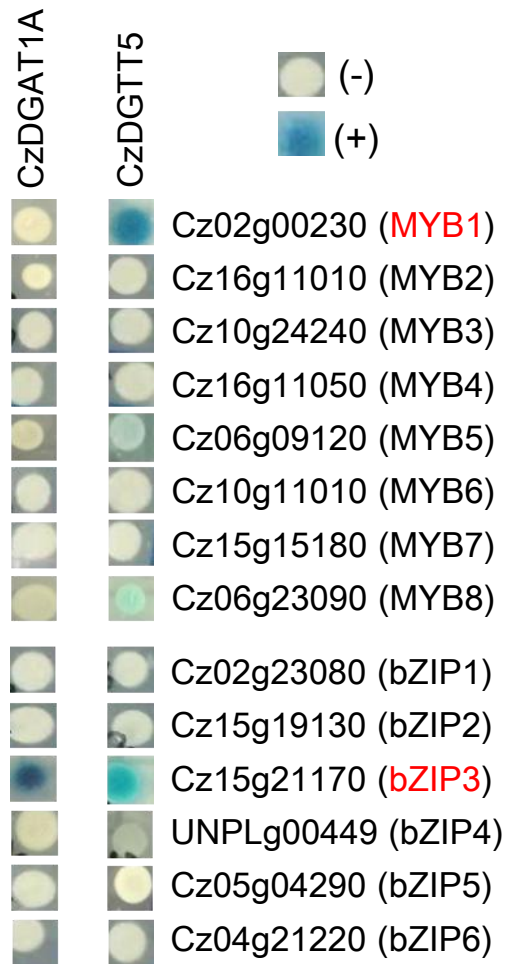


Figure S5. Yeast one-hybrid assay identified TFs bound to the promoter region of *czDGAT1A* and *CzDGTT5*. (-) and (+) designate the negative and positive control, respectively. Blue indicates the binding between the promoter and TF.

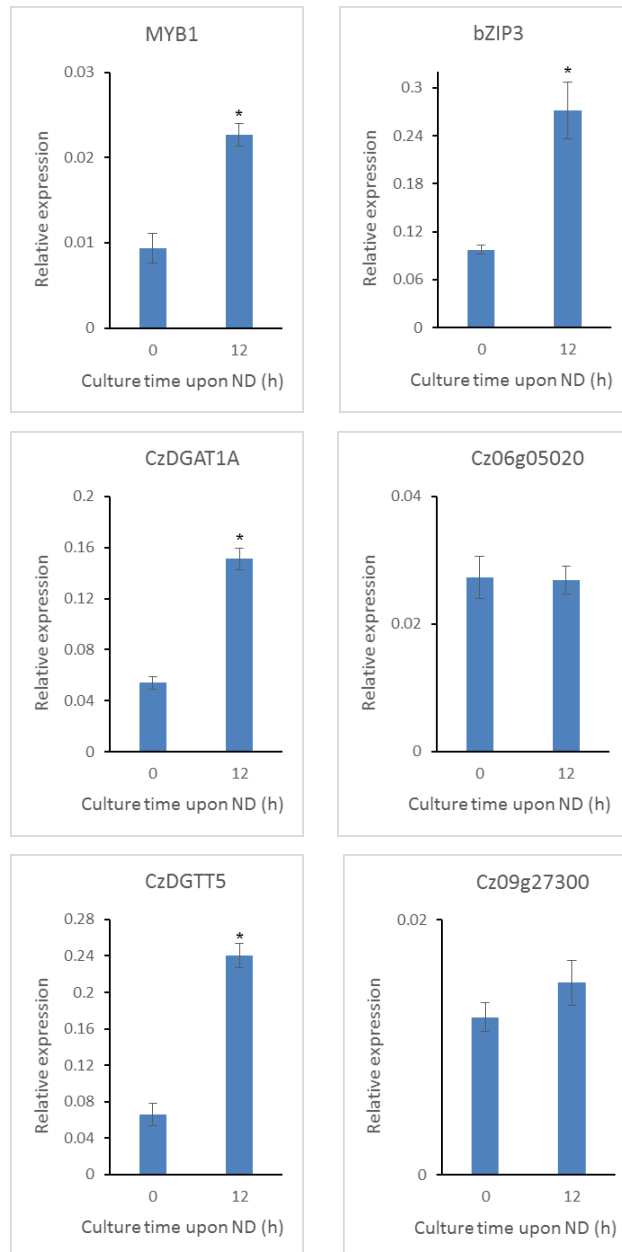


Figure S8. Gene expression of MYB1, bZIP3, *CzDGAT1A*, *CzDGT5*, *Cz06g05020* and *Cz09g27300* at 0 and 12 h of ND. *Cz06g05020* and *Cz09g27300* are the 5' neighboring genes of *CzDGAT1A* and *CzDGT5*, respectively (Additional file 1: Figure S6 and Figure S7). Asterisks indicate the significant difference compared to 0 h (t -test, $P < 0.01$).