

Supplementary Information

Figure S1. Venn diagram of expressed genes detected in each hybrid combinations. **A–C** represent *LY2163*, *LY2186* and *LYP9* combinations respectively at Fw stage; **D–F** represent *LY2163*, *LY2186* and *LYP9* combinations respectively at Fi stage. *SE21s*, and *PA64s* are sterile line. *MH63*, *MH86* and *93-11* are restorer line. Percentage refers to number of shared genes in expressed genes in each hybrid combination at different developmental stage.

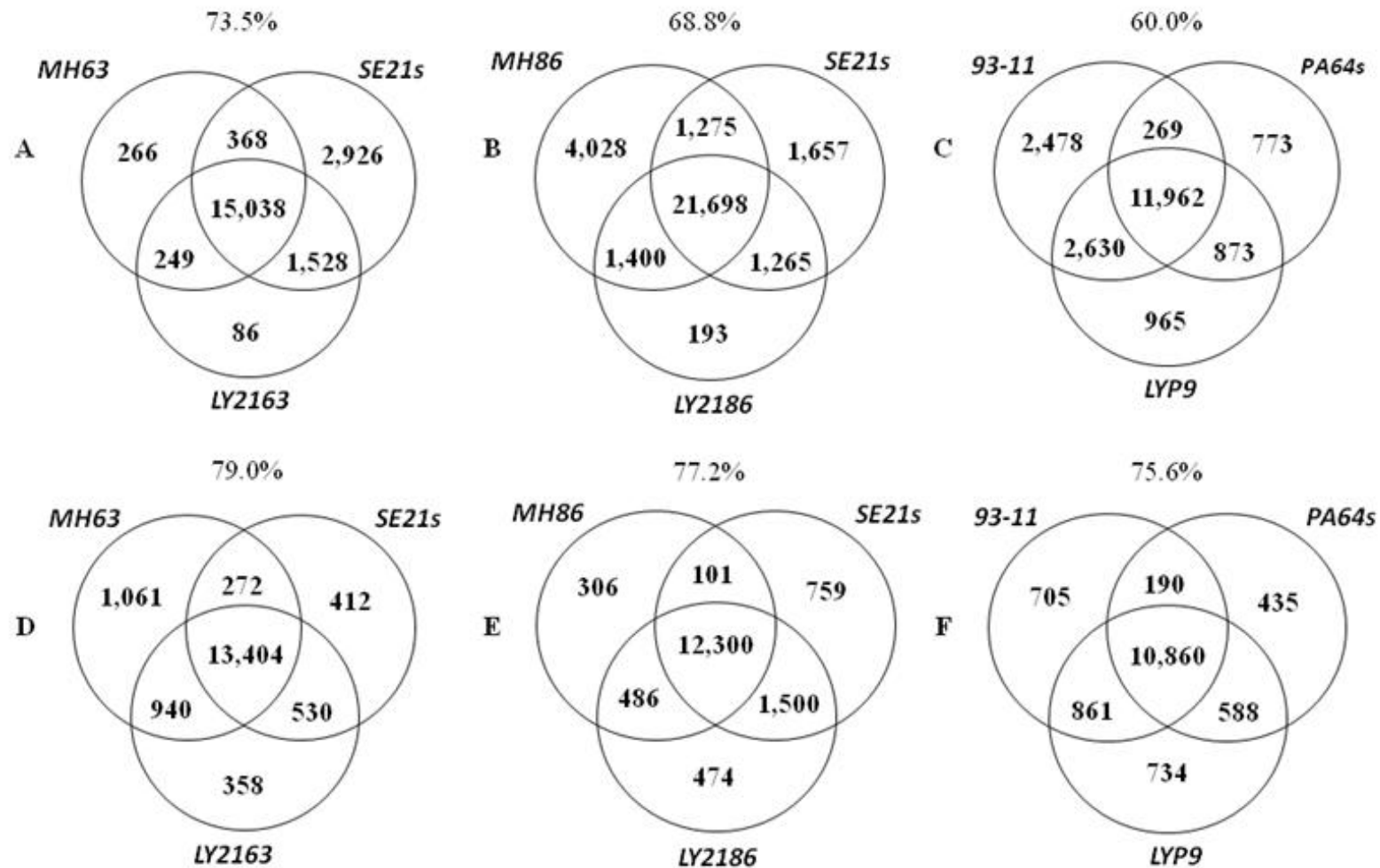


Figure S2. DGs involved in photosynthesis pathway. DGs clustered by MADIBA [33]. Coloured enzyme numbers indicate related genes clustered by MADIBA. ■, in cluster, annotated by any two annotations of KEGG, PRIAM and TIGR.

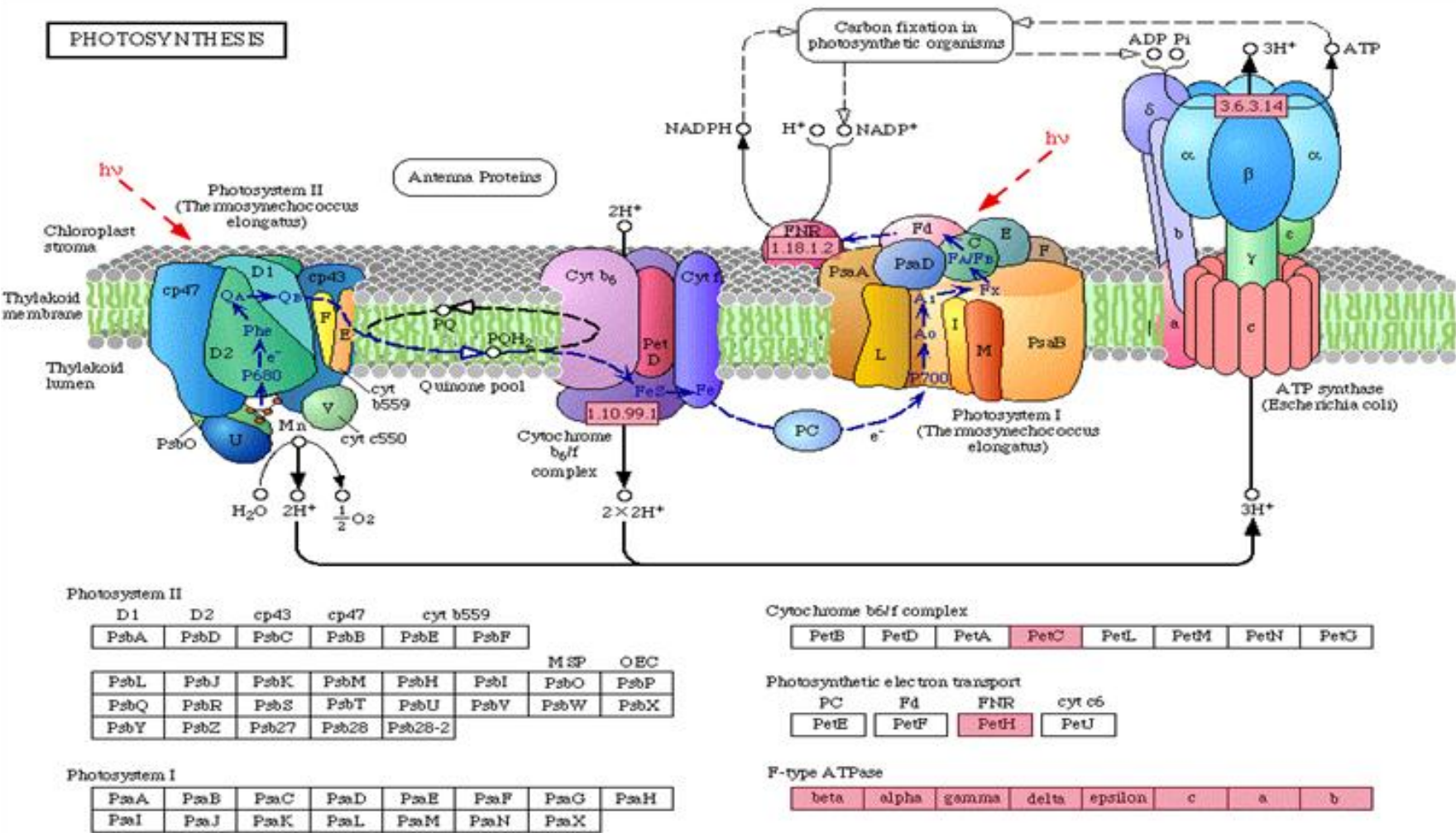


Figure S3. DGs involved in carbon fixation pathway. DGs clustered by MADIBA [33]. Coloured enzyme numbers indicate related genes clustered by MADIBA. ■, in genome but not present in cluster; ■, in cluster, annotated by all annotations; ■, in cluster, annotated by any two annotations of KEGG, PRIAM and TIGR; ■, in cluster, annotated by PRIAM only; ■ refers to DGs shared by *LY2163*, *LY2186* and *LYP9* hybrid combinations.

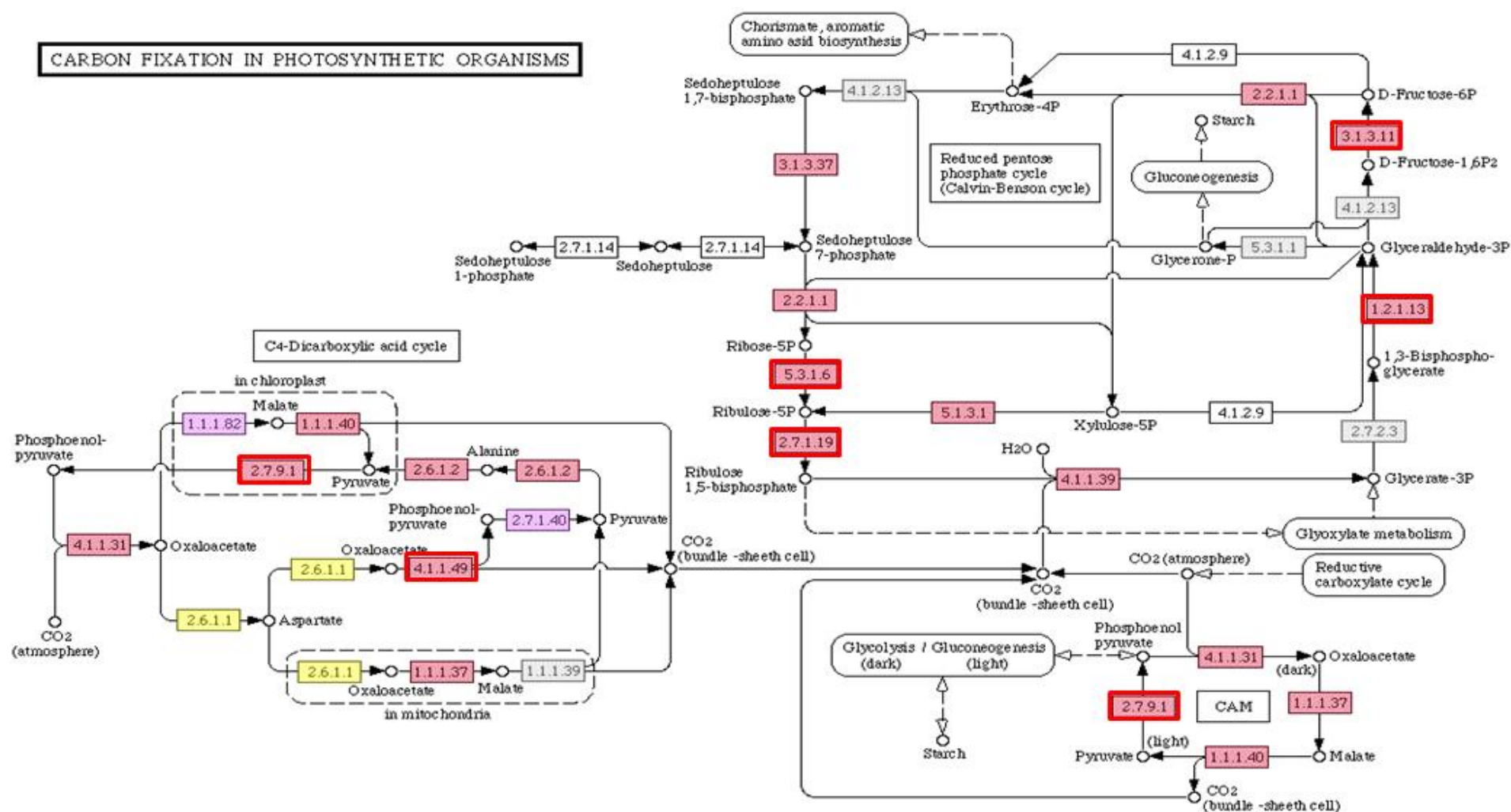


Figure S4. DGs involved in starch and sucrose pathway. DGs clustered by MADIBA [33]. Coloured enzyme numbers indicate related genes clustered by MADIBA. ■, in genome but not present in cluster; ■, in cluster, annotated by any two annotations of KEGG, PRIAM and TIGR; ■, in cluster, annotated by KEGG only; ■, in cluster, annotated by PRIAM only. □ refers to DGs shared by *LY2163*, *LY2186* and *LYP9* hybrid combination.

