

S15 Figure: Phylogenetic analysis of the establishment of *MeGI*, proto *OGI*, and the inverted repeat of *OGI*.

The nucleotide sequences of *SiMeGI*, *MeGI*, and the forward and inverted repeats of *OGI* were aligned to each other to estimate their relative timing of establishment. Our results indicated that the gene duplication event that generated *MeGI* and proto *OGI* (pink outlined circle) postdated the *Dd- α* whole-genome duplication event (or concurrent segmental duplication) which produced the *MeGI* and *SiMeGI* pair (gray filled circle). This result is well supported (bootstrap 99/100). Later, the inverted repeat of *OGI* was probably generated by local inversion of the proto *OGI* (blue outlined circle, bootstrap = 92/100). FR: forward repeat, IR: inverted repeat. Achn210611 from *Actinidia chinensis* was used as the outgroup. Divergence of Achn210611 from the *MeGI/SiMeGI* family predated the *Dd- α* (Figure 4b). This topology was constructed with MEGA v6 using the maximum likelihood method (GTR+I+G, gamma=3, complete deletion).

