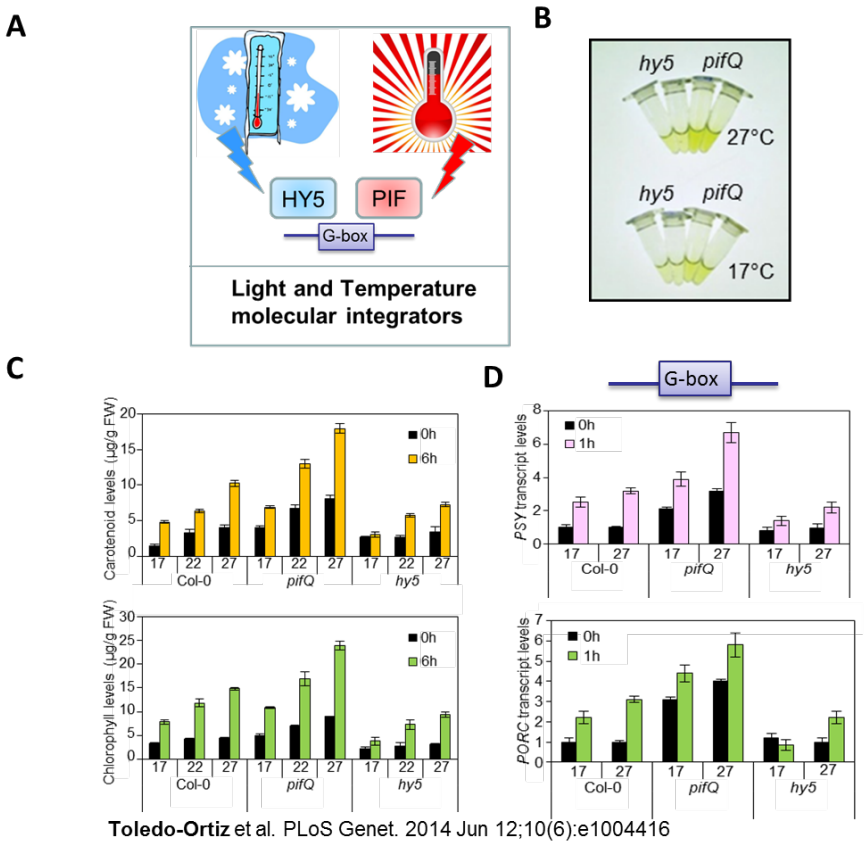
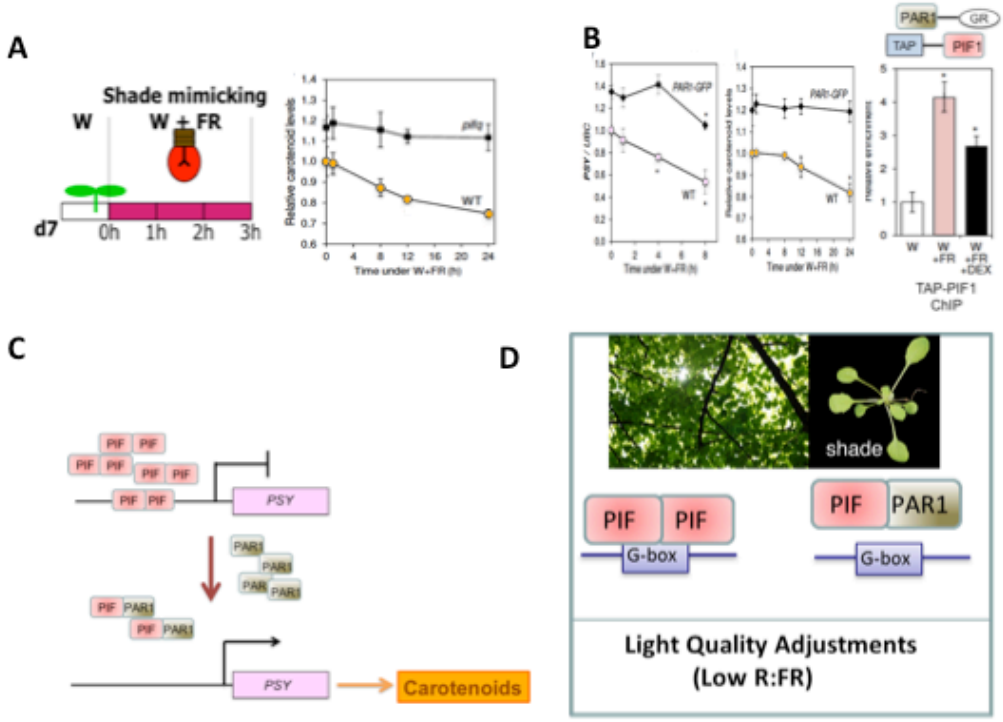


Figure 1. The PIFs-HY5 regulatory module.

A) Transcription factors HY5 and PIFs form an activation-repression transcriptional module sensitive to light and temperature inputs that adjust photopigment gene expression. **B)** *hy5* and *pifQ* mutants accumulate different levels of pigments in a light and temperature sensitive manner. **C)** PIFs and HY5 have opposite effects on carotenoid and chlorophyll accumulation. **D)** The control of photopigments by PIFs and HY5 relies on opposing transcriptional regulation of common targets via a cis-element (G-box) present in the promoter of genes.



Bou-Torrent, Toledo-Ortiz et al. 2015. Plant Physiol. Jun 16. pii: pp.00552.2015

Figure 2. PAR1: a break for carotenoid repression under low R:FR

A) Analysis of the *pifq* mutant shows that PIF transcriptional repressors are necessary for the down regulation of carotenoid levels by shade. **B)** PAR1 is a shade induced HLH protein that positively regulates *PSY* expression and carotenoid accumulation under shade. PAR1 functions as a PIFs co-repressor by direct interaction. PAR1-PIF1 dimers titrate out PIF1 from the *PSY* promoter positively modulating carotenoid content. **C)**Working model: shade induces the accumulation of PAR1 leading to PAR1-PIF1 heterodimers with no DNA binding capacity. Therefore PAR1 plays a positive role in shade modulated carotenogenesis. **D)** The combination of positive (PAR1) and negative (PIFs) transcriptional regulators is instrumental to adjust carotenoid content to changes in light quality.