Supplemental Figures and Legends

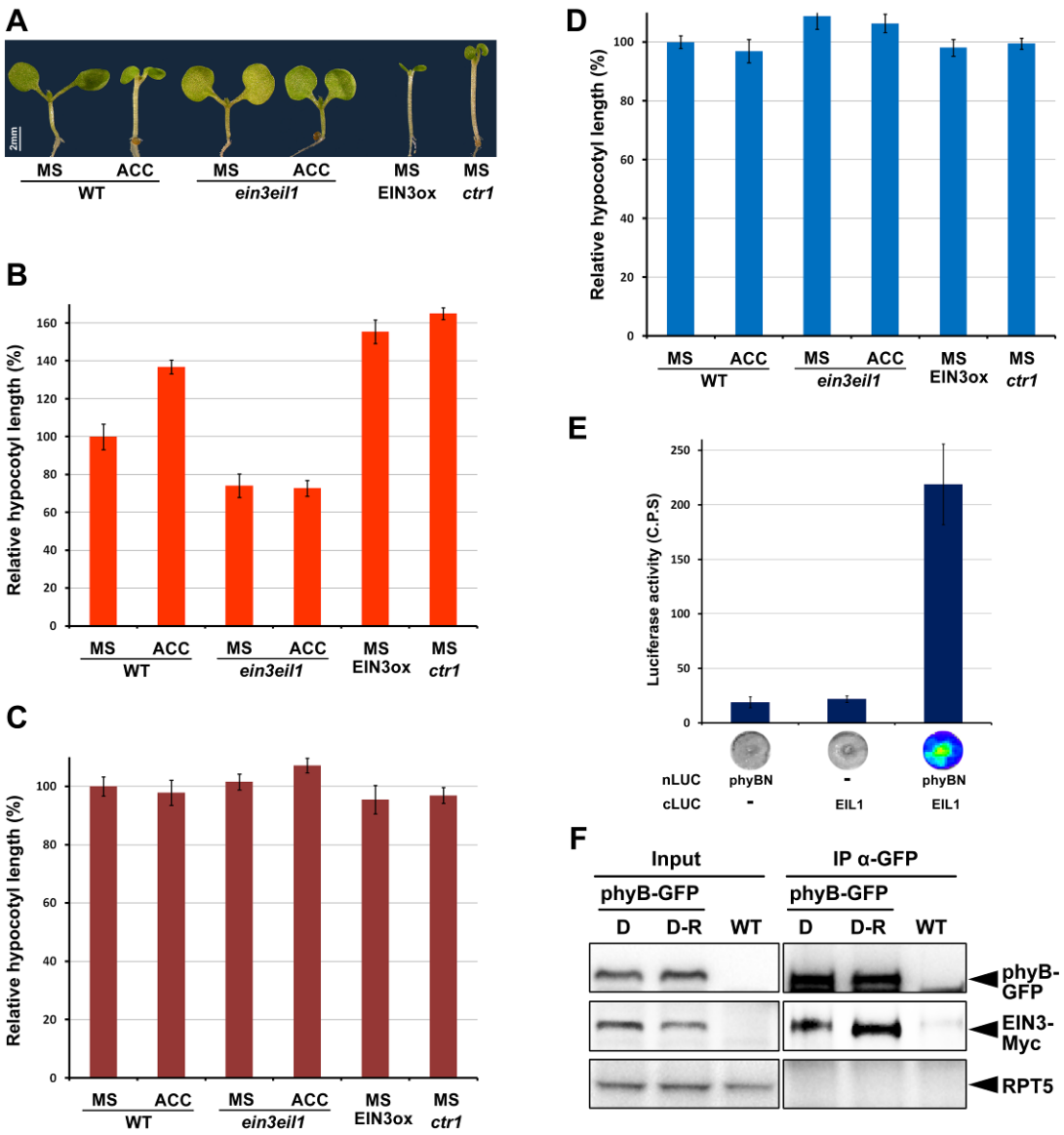

Figure S1. EIN3 is a negative regulator of seedling photomorphogenesis and primarily associates with phyB in red light, related to Figure 1.

(A) Images of seedling photomorphogenic phenotypes in red light. The seedlings were grown on 1⁄2 MS without (MS) or with 10 µM ACC supplementation (ACC) under red light for 5 days.

(B-D) Hypocotyl lengths of 5 day-old WT, *ein3eil1*, EIN3ox and *ctr1* seedlings grown on 1⁄2 MS medium (MS) or 1⁄2 MS medium supplied with 10 μM ACC (ACC) under continuous red light (B), far-red light (C), or blue light (D). Mean ±s.d., n>20.

(E) LCI assay showing that EIL1 interacts with the N-terminus of phyB *in planta*. Full-length EIL1 fused with the split C-terminal (cLUC) fragments of luciferase and the N-terminal fragment of phyB (phyBN) fused with the split luciferase N-terminus (nLUC) reconstituted the luciferase activity in tobacco leaves. Empty vectors were used as negative controls. C.P.S is counts per second. Mean ± s.d., n=5.

(F) Co-immunoprecipitation assays to determine the interaction of EIN3 and phyB proteins. WT and transgenic plants over-expressing EIN3-Myc in a 35S:phyB-GFP background (phyB-GFP) were grown on 1⁄2 MS medium with 10 μM ACC supplementation for 4 days in the dark, and then either maintained in the dark (D) or exposed to red light (D-R) for 30 min. Extracted total proteins were immunoprecipitated using anti-GFP antibody and immunoblotted using the indicated antibodies.

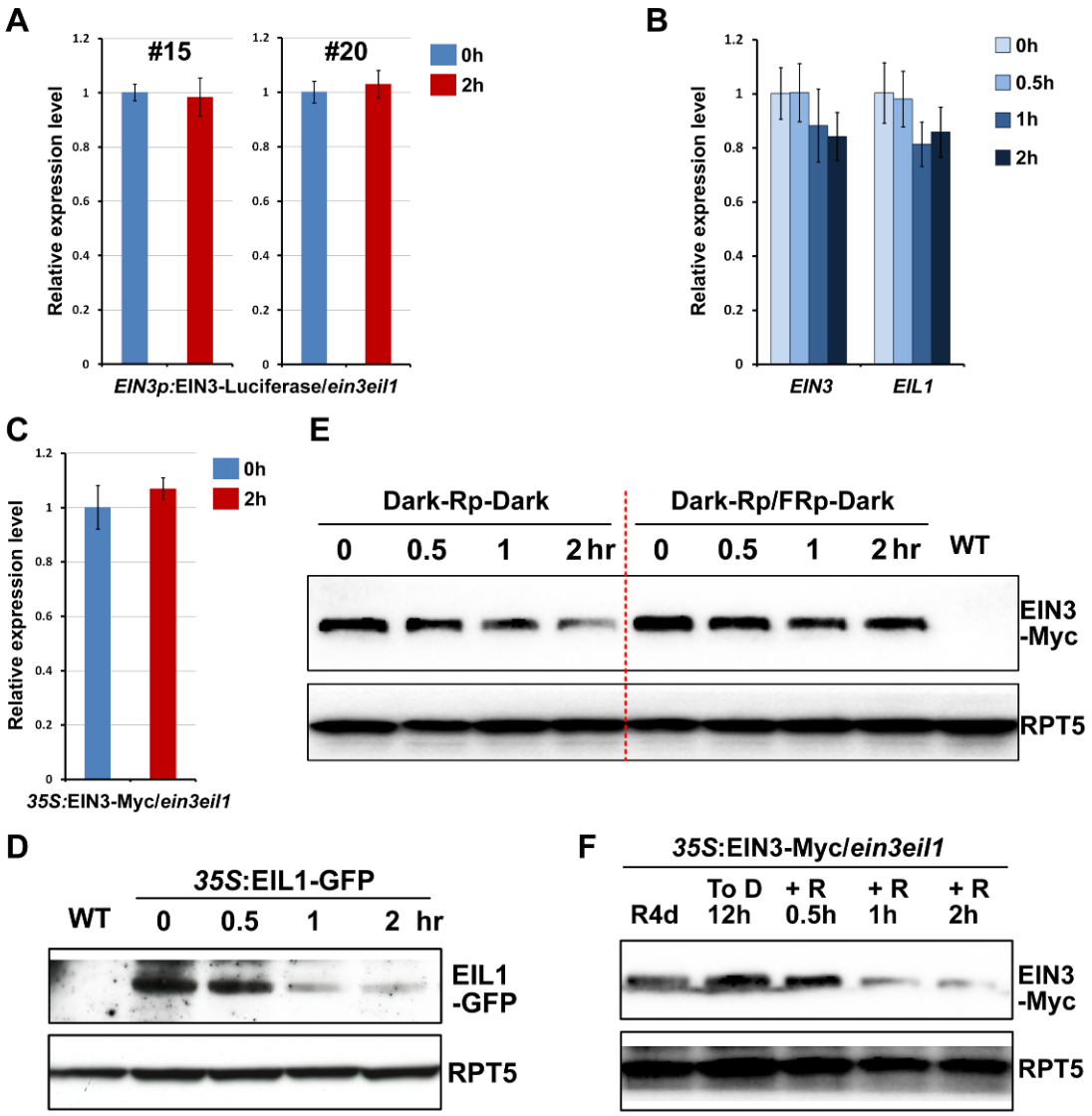

Figure S2. Light does not significantly affect *EIN3* transcription, and the degradation of EIN3 protein in red light is dependent on the photoactivated photoreceptors, related to Figure 2.

(A) qRT-PCR results showing *EIN3* expression of *EIN3p*:EIN3-Luciferase/*ein3eil1* upon light. Two independent lines of *EIN3p*:EIN3-Luciferase/*ein3eil1* transgenic plant seedlings were grown in the dark for 4 days and then exposed to red light for 2 hr. Expression was normalized to *PP2A*. Mean ± s.d., n=3.

(B) qRT-PCR results showing *EIN3* and *EIL1* gene expression in WT. The seedlings were grown in the dark for 4 days and then exposed to red light for the indicated time. Expression was normalized to *PP2A*. Mean ± s.d., n=3.

(C) qRT-PCR results showing *EIN3* gene expression of *35S*:EIN3-Myc/*ein3eil1* upon light. The seedlings were grown in the dark for 4 days and then exposed to red light for 2 hr. Expression was normalized to *PP2A*. Mean ± s.d., n=3.

(D) Western blot results showing that EIL1 proteins are degraded upon light exposure. Seedlings over-expressing EIL1-GFP were grown in the dark for 4 days (0 hr) and then transferred to red light irradiation for the indicated time. WT was used as a negative control. RPT5 was employed as a loading control.

(E) Western blot results showing the photoreversibility of red light induced-EIN3 protein degradation. The 4-day-old dark-grown EIN3-Myc/*ein3eil1* seedlings were irradiated either by 1 min of red light (Dark-Rp-Dark) or by 1 min of red light immediately followed by 1 min of far-red light pulse (Dark-Rp/FRp-Dark), and then the light-irradiated seedlings were incubated in darkness for the indicated time. WT was used as a negative control. RPT5 was used as a loading control.

(F) Western blot results showing the EIN3 protein levels in the dark-adapted seedlings. The EIN3-Myc/*ein3eil1* seedlings were grown in the red light for 4 days and transferred to darkness for additional 12 hr. The dark-adapted seedlings were then exposure to red light for the indicated time. RPT5 was used as a loading control.

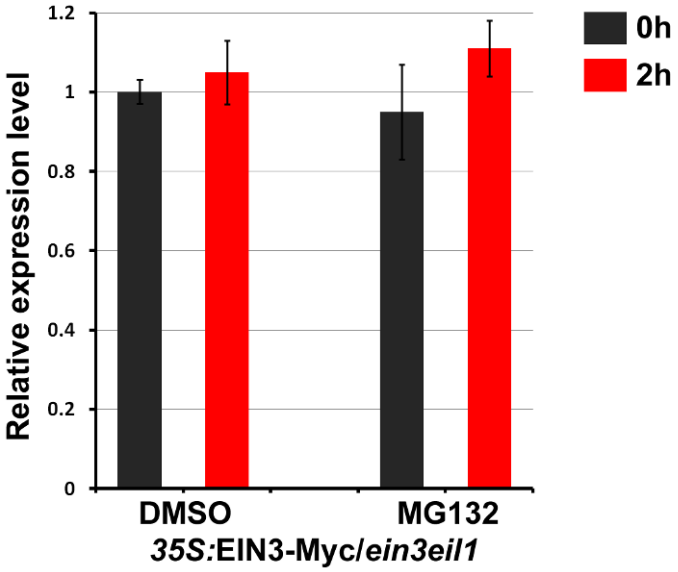

Figure S3. *EIN3* gene expression is not affected either by light or by MG132 treatment, related to Figure 3.

qRT-PCR results showing *EIN3* gene expression of *35S*:EIN3-Myc/*ein3eil1*. The seedlings were grown in the dark for 4 days without (DMSO) or with MG132 (MG132) pretreatment for 12 hr and then exposed to red light for 2 hr. Expression was normalized to *PP2A*. Mean ± s.d., n=3.

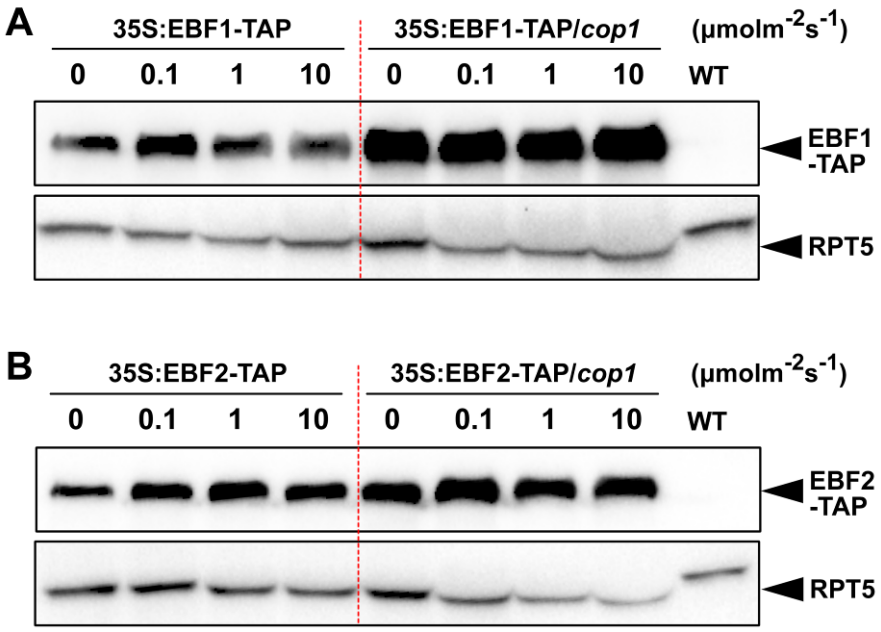

Figure S4. Continuous light irradiation up-regulates EBF1 and EBF2 protein levels, which is dependent on COP1, related to Figure 5.

Western blot results showing EBF1-TAP (A) or EBF2-TAP (B) protein levels in WT and *cop1* backgrounds. The seedlings were grown under different fluences (μmolm^{-2}s^{-1}) of continuous white light for 4 days. RPT5 was used as a loading control.

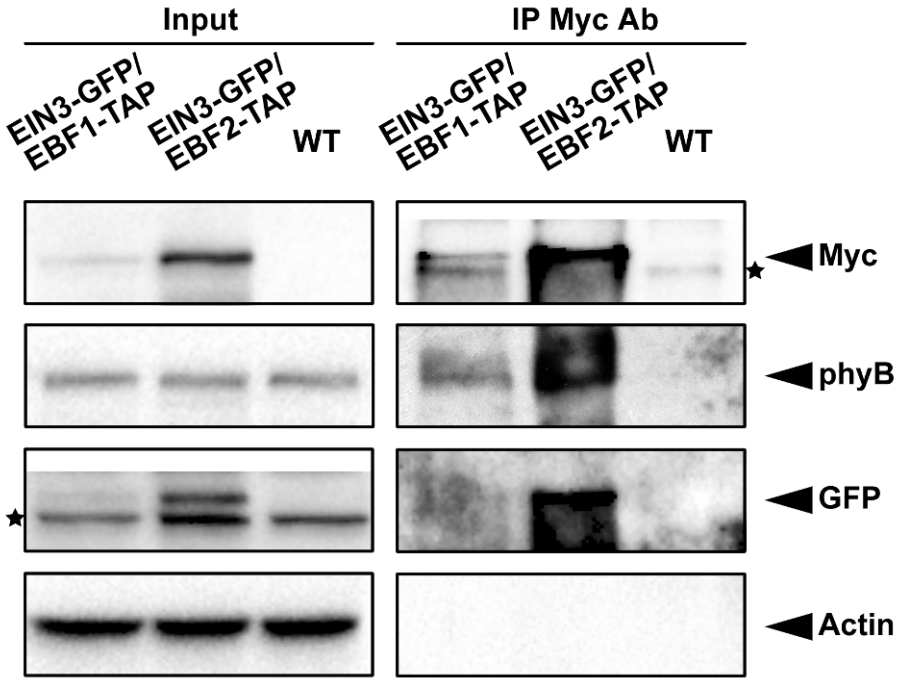

Figure S5. EIN3, phyB and EBFs form a tripartite complex upon light, related to Figure 6.

Co-immunoprecipitation assays to determine the existence of EIN3-phyB-EBFs tripartite complex. WT and transgenic plants over-expressing EIN3-GFP in 35S:EBF1-TAP or 35S:EBF2-TAP backgrounds (EIN3-GFP/EBF1-TAP or EIN3-GFP/EBF2-TAP) were grown on 1⁄2 MS medium for 3.5 days in the dark, and treated by 40 μM MG132 for additional 12 h. After that, the seedlings were exposed to red light for 30 min. Extracted total proteins were immunoprecipitated using anti-Myc antibody and immunoblotted using the indicated antibodies. Asterisks represent the nonspecific bands.