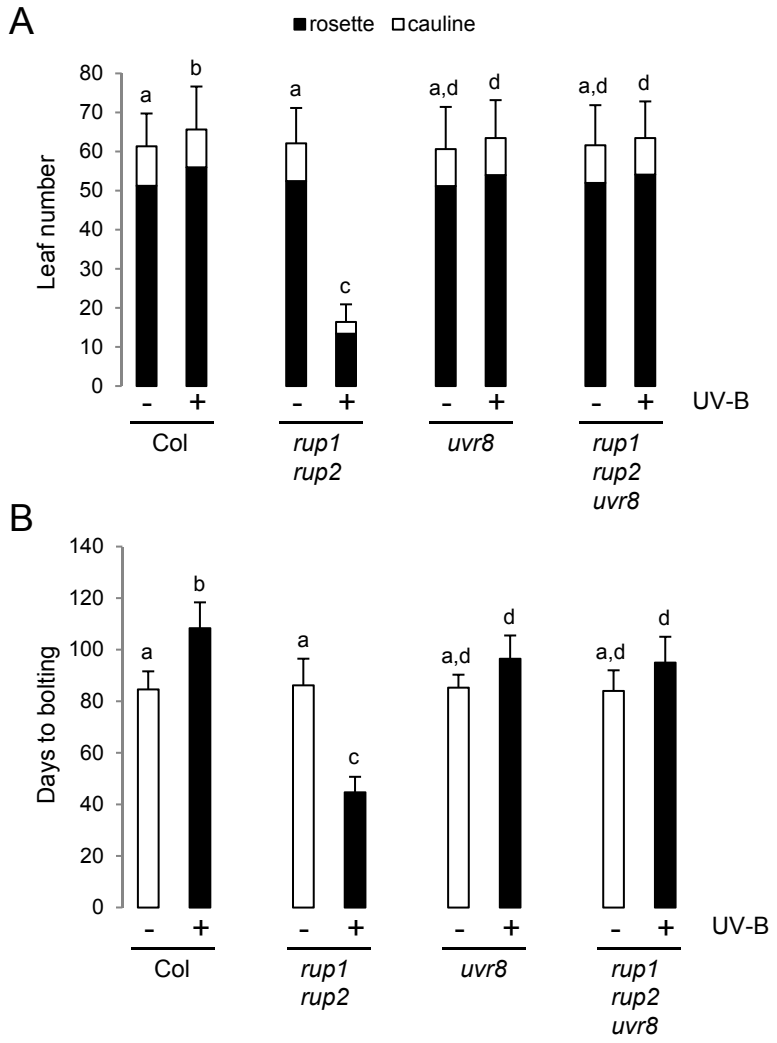


Figure S1. Early flowering of *rup1 rup2* double mutants in SD with UV-B is suppressed by UVR8 mutation. (*A*,*B*) Quantification of flowering time of wild-type (Col), *uvr8-6*, *rup1-1 rup2-1*, and *rup1-1 rup2-1 uvr8-6* plants grown in SD with (+) or without (-) UV-B. The flowering time is represented by total leaf number (rosette and cauline leaves; *A*) and days to bolting (*B*). Error bars represent SD (n = 30); shared letters indicate no statistically significant difference in the means ($P > 0.05$).

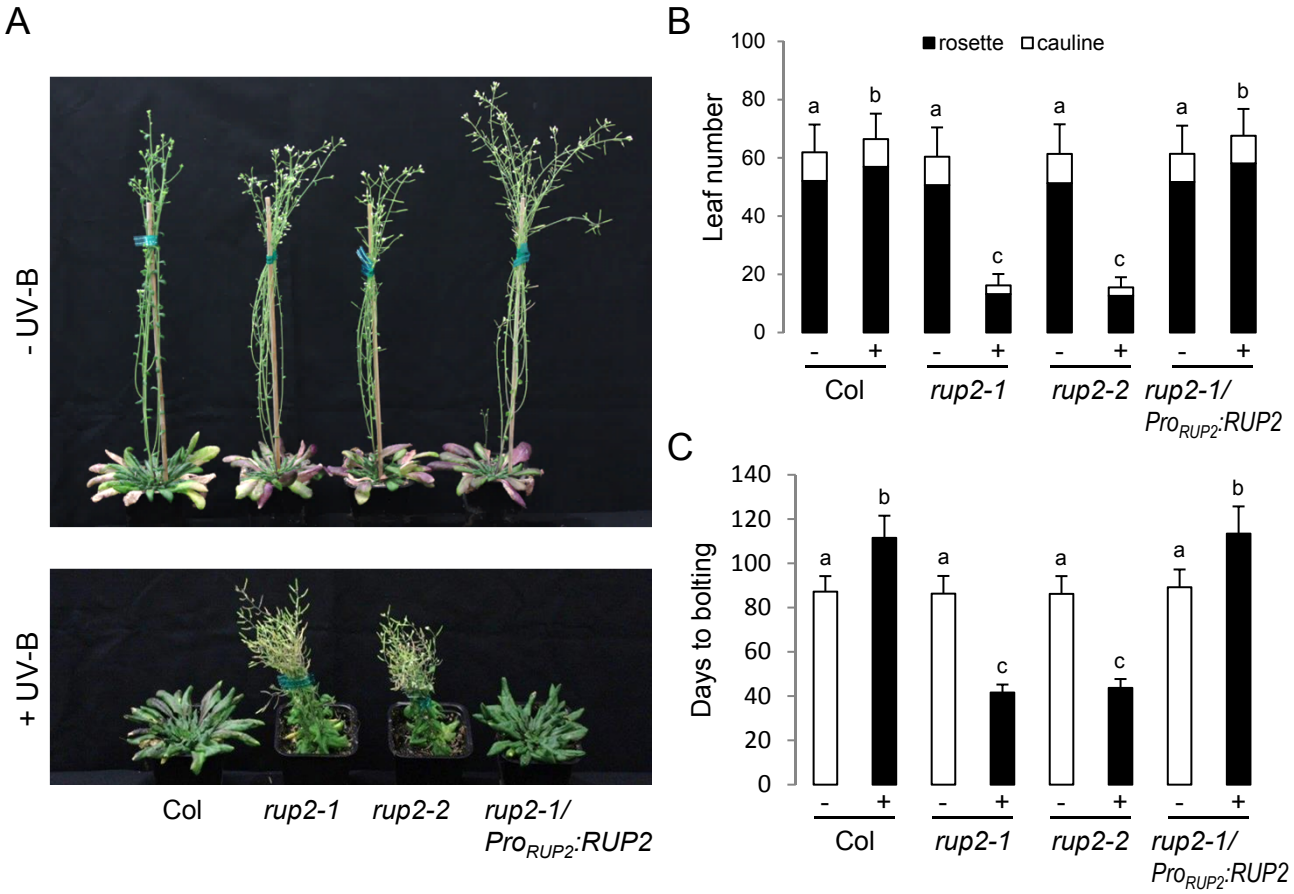


Figure S2. The novel *rup2-2* mutant allele flowers early in SD with UV-B and transgenic expression of *RUP2* complements the *rup2-1* early flowering phenotype. (*A*) Representative images of 100-d-old wild-type (Col), *rup2-1*, *rup2-2*, and *rup2-1*/*Pro*$_{RUP2}$*:RUP2 Arabidopsis* plants grown with (+UV-B) or without (-UV-B) UV-B (note that the *rup2-1* +UV-B plant is identical to the one shown in Fig. 1A, as from the same experiment). (*B*,*C*) Quantification of flowering time of wild-type (Col), *rup2-1*, *rup2-2*, and *rup2-1*/*Pro*$_{RUP2}$*:RUP2* plants grown in SD with (+) or without (-) UV-B. The flowering time is represented by total leaf number (rosette and cauline leaves; *B*) and days to bolting (*C*). Error bars represent SD (n = 30); shared letters indicate no statistically significant difference in the means ($P > 0.05$).

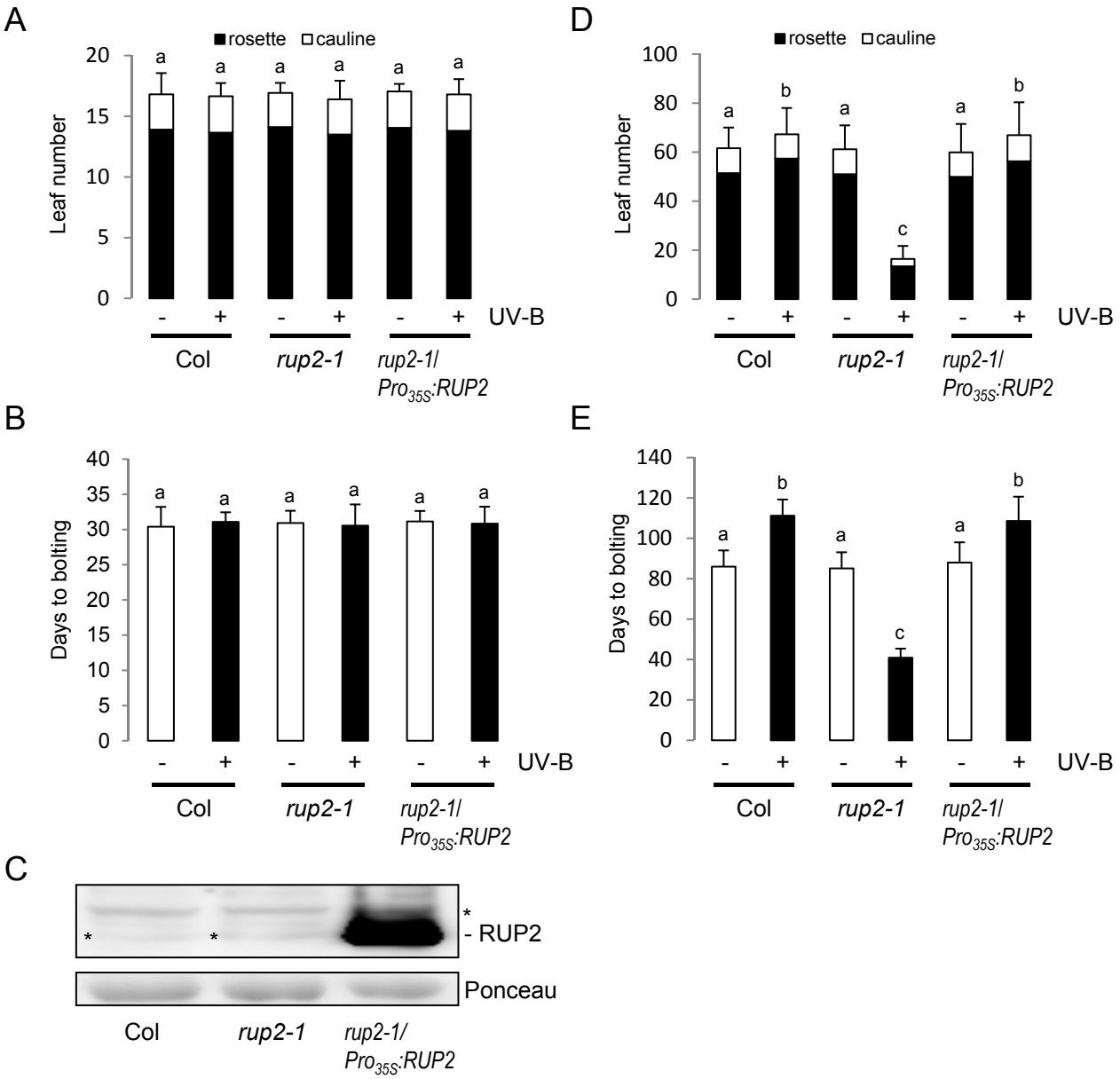


Figure S3. *RUP2* overexpression does not affect the flowering time in LD, independent of the absence or presence of UV-B. (*A,B*) Quantification of flowering time of WT (Col), *rup2-1*, and *rup2-1*/*Pro*$_{35S}$*:RUP2* plants grown in LD with (+) or without (-) UV-B. The flowering time is represented by total leaf number (rosette and cauline leaves; A) and days to bolting. Error bars represent SD (n = 30). (*C*) Immunoblot analysis of RUP2 levels in the *rup2-1*/*Pro*$_{35S}$*:RUP2* overexpression line compared to that in WT (Col) and *rup2-1*. Asterisks indicate nonspecific cross-reacting bands. The membrane was stained with Ponceau S as a loading control. (*D,E*) Quantification of flowering time of WT (Col), *rup2-1*, and *rup2-1*/*Pro*$_{35S}$*:RUP2* plants grown in SD with (+) or without (-) UV-B. The flowering time is represented by total leaf number (rosette and cauline leaves; *D*) and days to bolting (*E*). Error bars represent SD (n = 24).

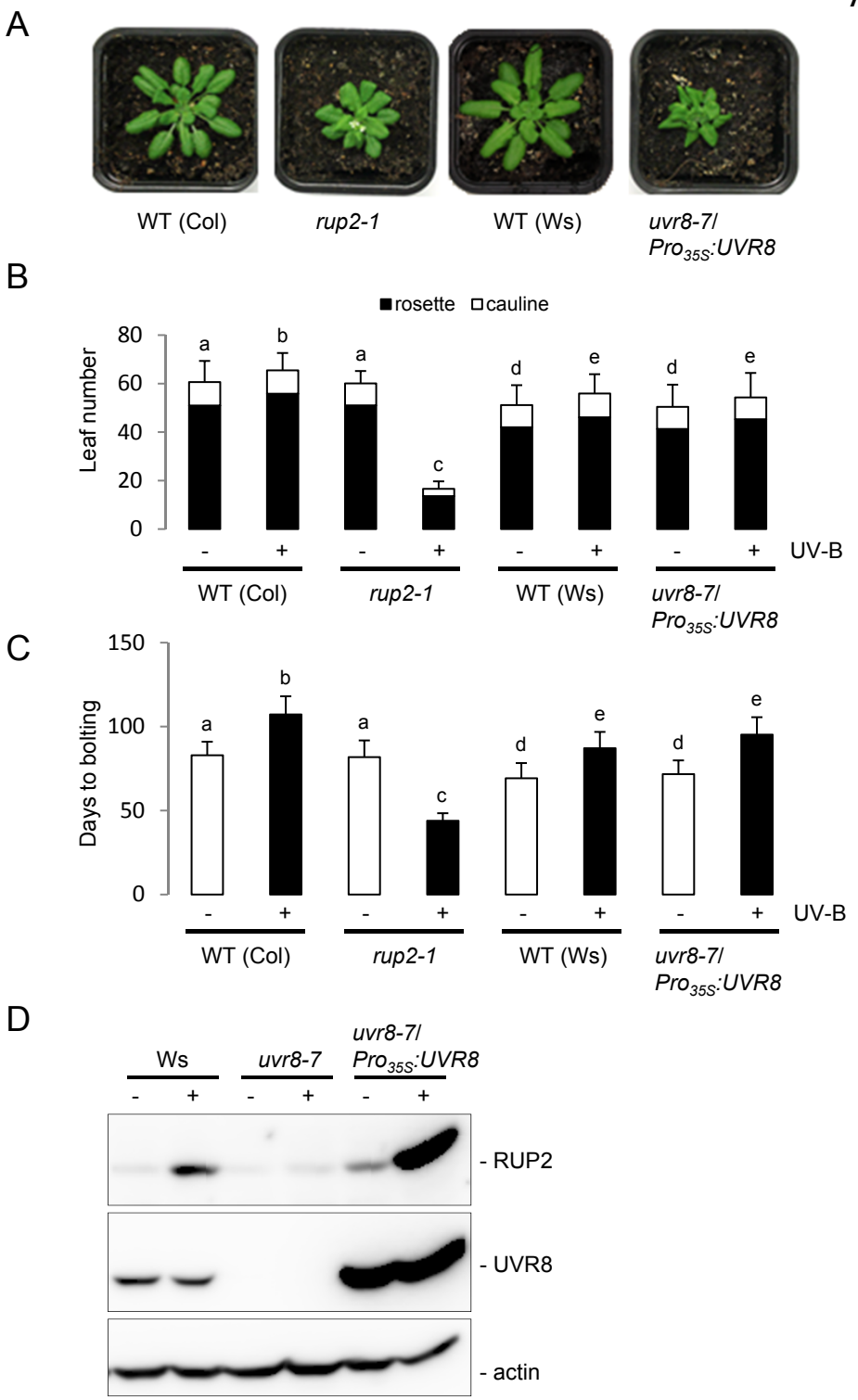


Figure S4. Overexpression of UVR8 results in UV-B hypersensitivity but not in an early flowering phenotype under SD+UV. (*A*) Representative images of 45-d-old WT (Col and Ws), *rup2-1*, and *uvr8-7*/*Pro*$_{35S}$*:UVR8* plants grown under SD+UV. (*B*,*C*) Quantification of flowering time of WT (Col and Ws), *rup2-1*, and *uvr8-7*/*Pro*$_{35S}$*:UVR8* plants grown in SD with (+) or without (-) UV-B. The flowering time is represented by total leaf number (rosette and cauline leaves; *B*) and days to bolting (*C*). Error bars represent SD (n = 30); shared letters indicate no statistically significant difference in the means ($P > 0.05$). (*D*) Immunoblot analysis of RUP2 and UVR8 protein levels in 4-d-old wild-type (Ws), *uvr8-7*, and *uvr8-7*/*Pro*$_{35S}$*:UVR8* seedlings grown in the absence (-) or presence (+) of UV-B. Actin levels are shown as a loading control.

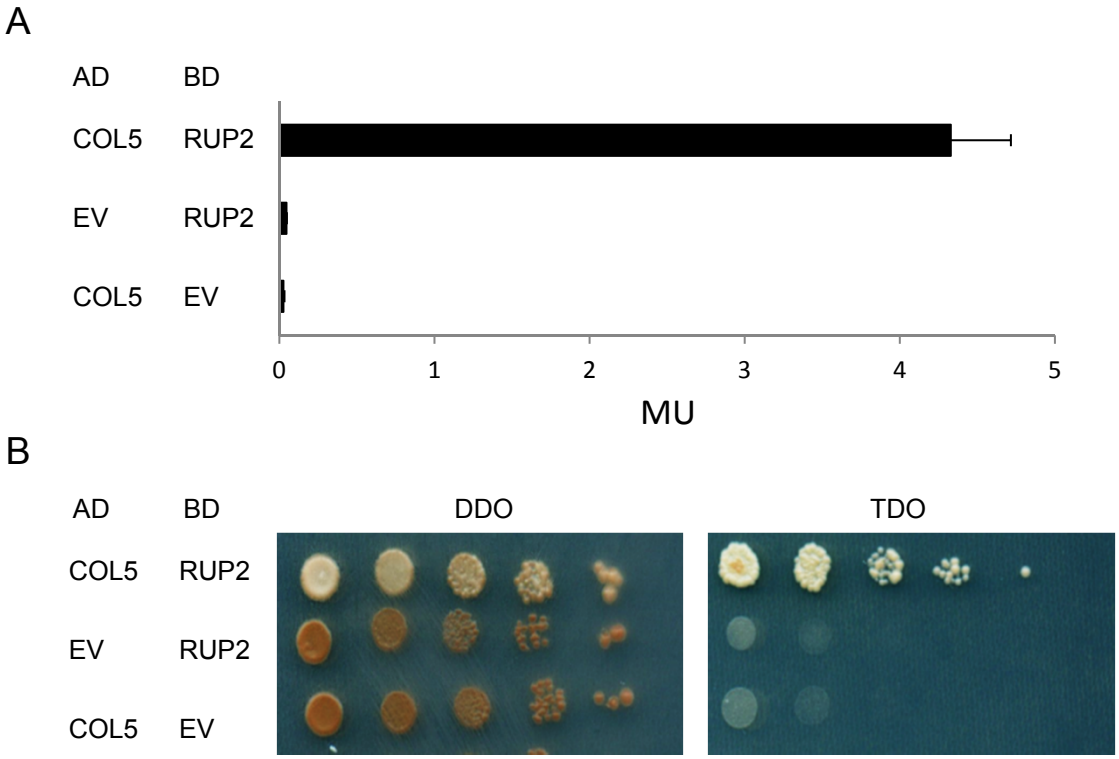


Figure S5. RUP2 interacts with COL5/BBX6 in yeast. (*A*,*B*) Quantitative β-galactosidase yeast two-hybrid activity assay (*A*) and growth assay of 10-fold serial dilutions on DDO (nonselective for interaction) and TDO (selective) plates (*B*). AD: activation domain; BD: binding domain; EV: empty vector; MU, Miller units; DDO, SD/-Trp/-Leu; TDO, SD/-Trp/-Leu/-His. Means and SEM from three biological replicates are shown.

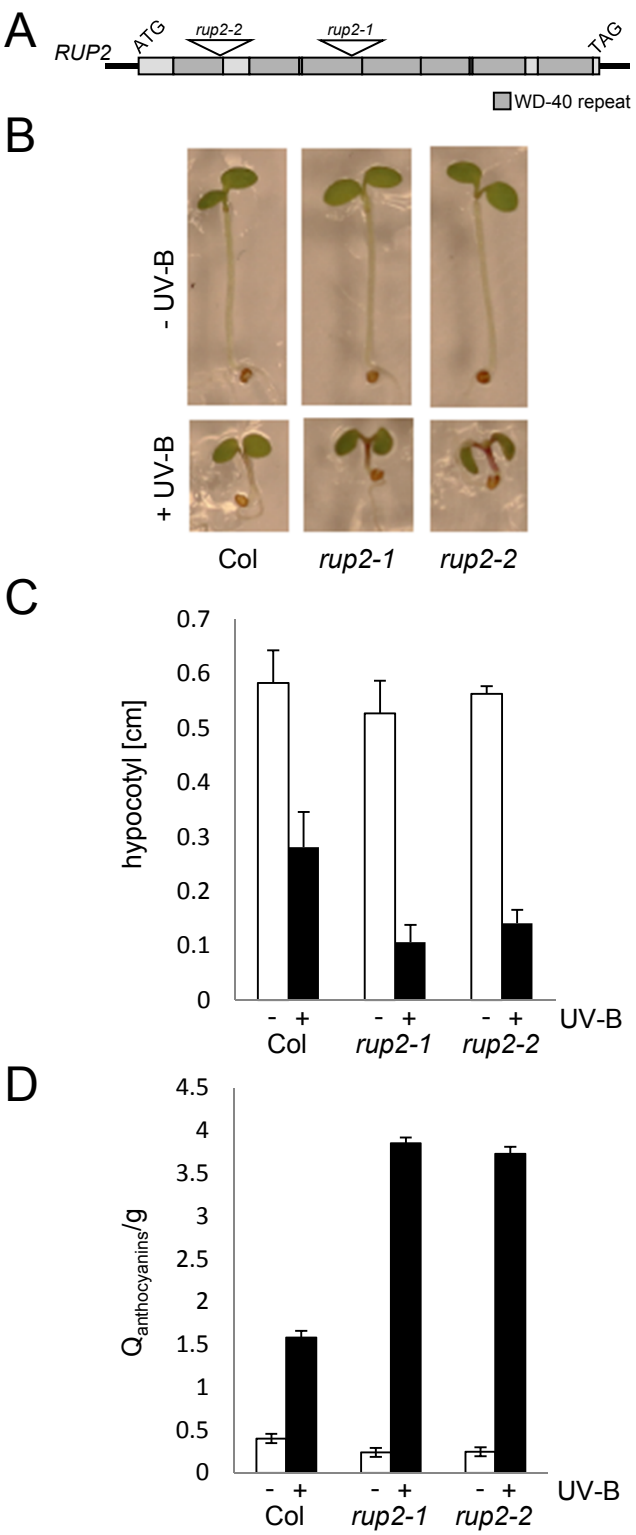
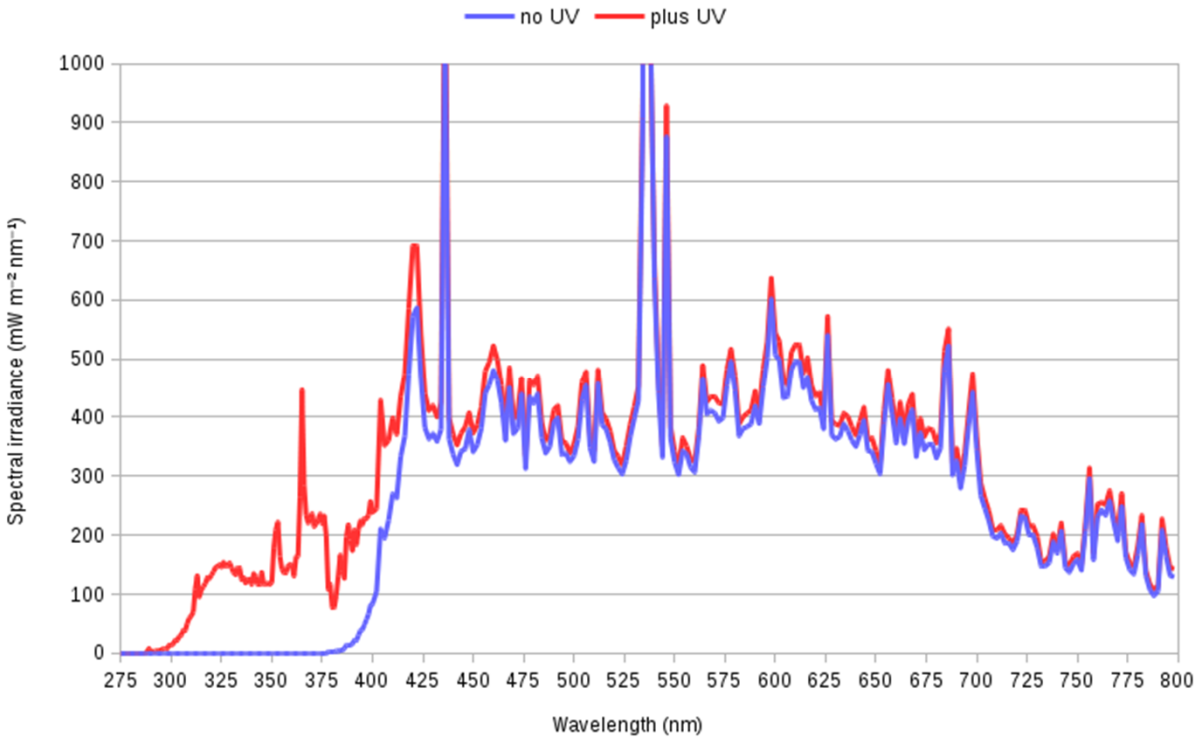


Figure S6. The *rup2-2* mutant allele confers UV-B hypersensitivity, similar to *rup2-1*. (*A*) Structure of *RUP2*, and the approximate locations of T-DNA insertions in *rup2-1* and *rup2-2*. (*B*) Representative images showing the UV-B inhibition of hypocotyl length and elevated anthocyanin content (dark red pigmentation) in 4-d-old WT (Col), *rup2-1*, and *rup2-2* seedlings when compared to seedlings grown in weak-white light devoid of UV-B. (*C*) Hypocotyl length measurements of 4-d-old seedlings grown with (+) or without (-) UV-B. Error bars indicate SEM ($n = 30$). (*D*) Anthocyanin level of 4-d-old *Arabidopsis* seedlings grown with (+) or without (-) UV-B. Data shown are the mean values of three independent biological replicates. Error bars represent SD ($n = 3$).

A



B

	-UV	+UV
PAR (µmol m^{-2} s^{-1})	580	600
UV-B_{BE} (mW m^{-2})	< 0.1	308
UV-C (W m^{-2})	< 1e-04	< 1e-04
UV-B (W m^{-2})	< 1e-04	0.91
UV-B (µmol m^{-2} s^{-1})	< 1e-03	2.34
UV-A (W m^{-2})	0.59	14.14
UV-A (µmol m^{-2} s^{-1})	1.5	42.6

Figure S7. Irradiance conditions in the sun simulator. (*A*) Spectral irradiances of the study in the sun simulator for control and UV treatment. (*B*) Determined values from spectroradiometric measurements of the irradiance condition in the sun simulator. UV-B_{BE}: biologically effective UV-B radiation, normalized at 300 nm (Caldwell 1971).