Supporting Information (SI Appendix)

COP1 is required for UV-B-induced nuclear accumulation of the UVR8 photoreceptor

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Supplemental Figures S1 – S11

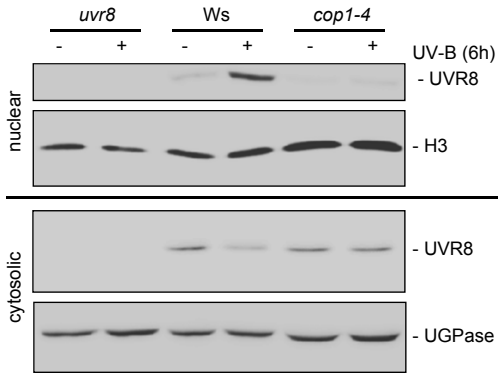

Fig. S1. Immunoblot analysis of UVR8, histone H3 and UGPase in nuclear (*upper*) and cytosolic fractions (*lower*) of *uvr8-7*, wild-type (Ws), and *cop1-4* in the Ws background grown in white light with UV-B for 6 h or not.

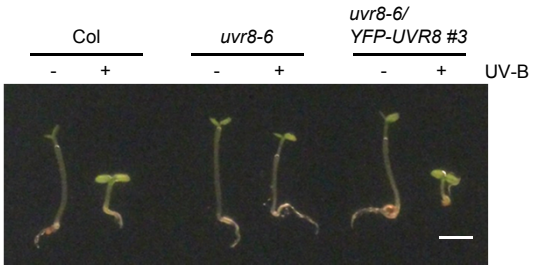

Fig. S2. Genetic complementation of the *uvr8-6* UV-B hypocotyl phenotype by *Pro$_{35S}$:YFP-UVR8*. Representative 4-day-old seedlings of wild-type (Col), *uvr8-6,* and the *uvr8-6*/*Pro$_{35S}$:YFP-UVR8* complementation line #3 (*uvr8-6*/*YFP-UVR8 #3*) grown in white light (-) or white light supplemented with narrowband UV-B (+). Bar = 2 mm.

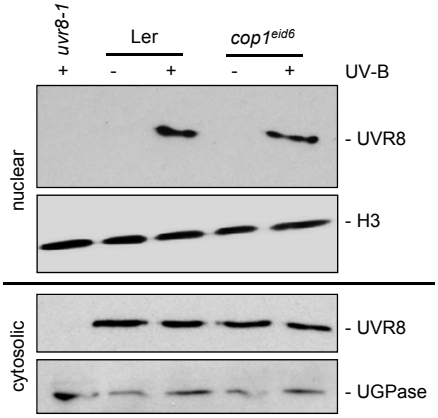

Fig. S3. Immunoblot analysis of UVR8, histone H3 and UGPase in nuclear (upper) and cytosolic fractions (lower) of *uvr8-1*, wild-type (Ler), and *cop1*^{eid6} grown in white light without or with UV-B for 24 h.

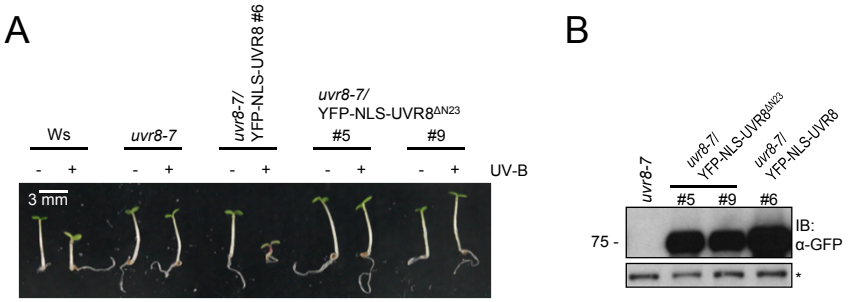

Fig. S4. Expression of UVR8$^{\Delta N23}$ cannot restore hypocotyl growth inhibition under UV-B in *uvr8-7*. (*A*) Representative 4-day-old seedlings of wild-type (Ws), *uvr8-7*, *uvr8-7*/*Pro*$_{35S}$*:YFP-UVR8* line #6 and *uvr8-7*/*Pro*$_{35S}$*:YFP- UVR8*$^{\Delta N23}$ lines #5 and #9 grown in white light (-) or white light supplemented with narrow band UV-B (+). (*B*) Immunoblot analysis of YFP-NLS-UVR8$^{\Delta N23}$ and YFP-NLS-UVR8 protein levels in *uvr8-7*, *uvr8-7*/*Pro*$_{35S}$*:YFP-UVR8*$^{\Delta N23}$ lines #5 and #9 and *uvr8-7*/*Pro*$_{35S}$*:YFP-UVR8* line #6 grown in white light for four days.

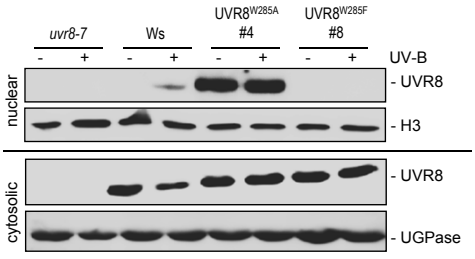

Fig. S5. UVR8^{W285F} does not accumulate in the nucleus in response to UV-B. Immunoblot analyses of UVR8, histone H3 and UGPase nuclear (*upper*) and cytosolic proteins (*lower*) of 7-day-old *uvr8-7*, wild-type (Ws), *uvr8-7*/*Pro*$_{35S}$*:UVR8*^{W285A} line #4 (UVR8^{W285A} #4), and *uvr8-7*/*Pro*$_{35S}$*:UVR8*^{W28F} line #8 (UVR8^{W285F} #8) treated with 9 h narrowband UV-B or not.

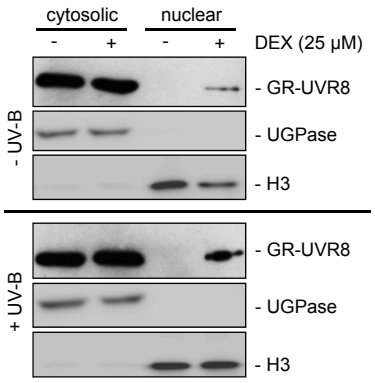

Fig. S6. DEX triggers nuclear translocation of GR-UVR8 fusion protein in transgenic plants. Seven-day-old *uvr8-7/Pro$_{35S}$:GR-UVR8* line #1 seedlings were grown in white light with UV-B or not and then treated with 10 µM Dex or an equal amount of ethanol in MS medium for 6 h.

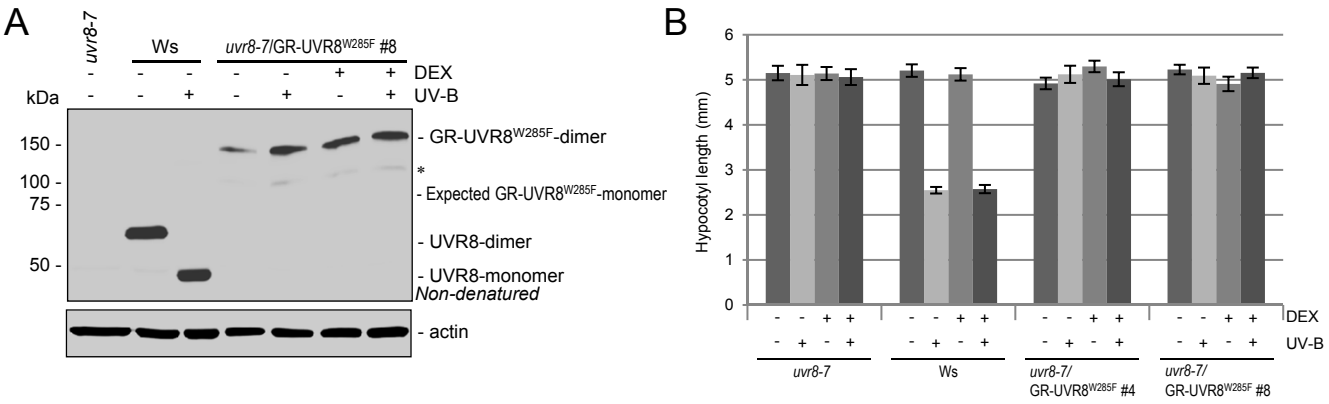

Fig. S7. GR-UVR8^{W285F} is not active in Arabidopsis seedlings. (*A*) UVR8 and GR-UVR8^{W285F} homodimers and monomers in non-heat-denatured protein extracts of 4-day-old *uvr8-7*, wild-type (Ws), and *uvr8-7/Pro$_{35S}$:GR-UVR8^{W285F}* line #8 seedlings. The latter seedlings were treated with 10 µM dexamethasone (Dex) or ethanol (mock). Seedlings were irradiated for 15 min with (+) or without (−) broadband UV-B. Actin was the loading control. (*B*) Hypocotyl lengths of 4-day-old seedlings grown in white light or in white light supplemented with narrowband UV-B and treated with 10 µM dexamethasone (+Dex) or ethanol (-Dex); means with SE, *n*=19.

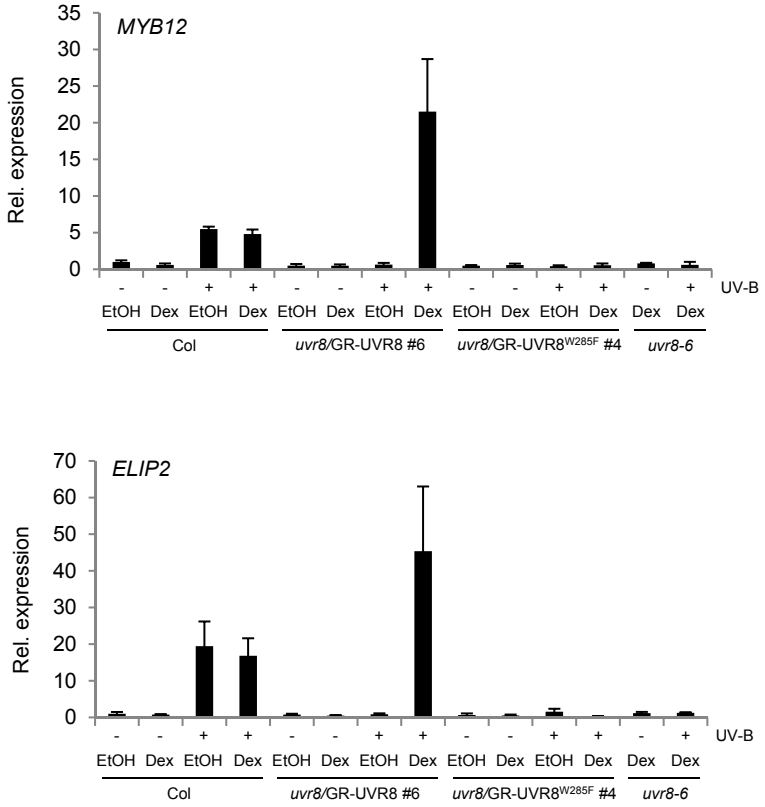

Fig. S8. Quantitative RT-PCR analysis of *MYB12* and *ELIP2* mRNA in 7-day-old seedlings incubated for 3 h in half-strength MS (Ctrl.) with 10 µM dexamethasone (Dex) or ethanol (EtOH) before irradiation for 2 h with narrowband UV-B (+) or without (−). Data for Col with ethanol treatment were set to 1; means with SE; *n*=3.

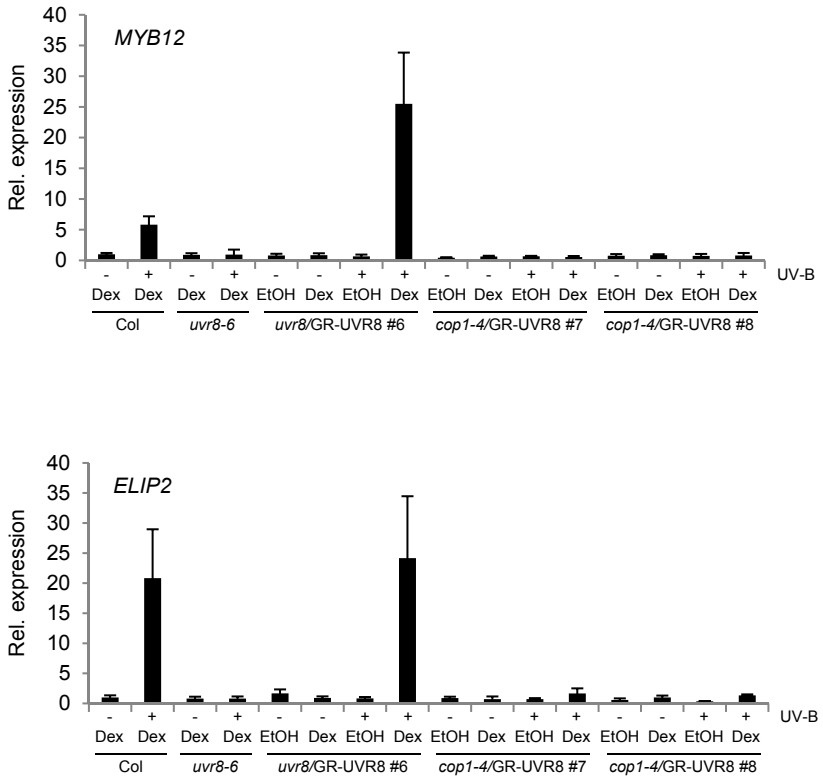

Fig. S9. Quantitative RT-PCR analysis of *MYB12* and *ELIP2* mRNA in 7-day-old seedlings of *uvr8-6*/*Pro*$_{35S}$*:GR-UVR8* line #6 and *cop1-4*/*Pro*$_{35S}$*:GR-UVR8* lines #7 and #8 incubated for 3 h in half-strength MS with 10 µM dexamethasone (Dex) or ethanol (EtOH) before irradiation for 2 h with narrowband UV-B (+) or without (−); means with SE; *n*=3.

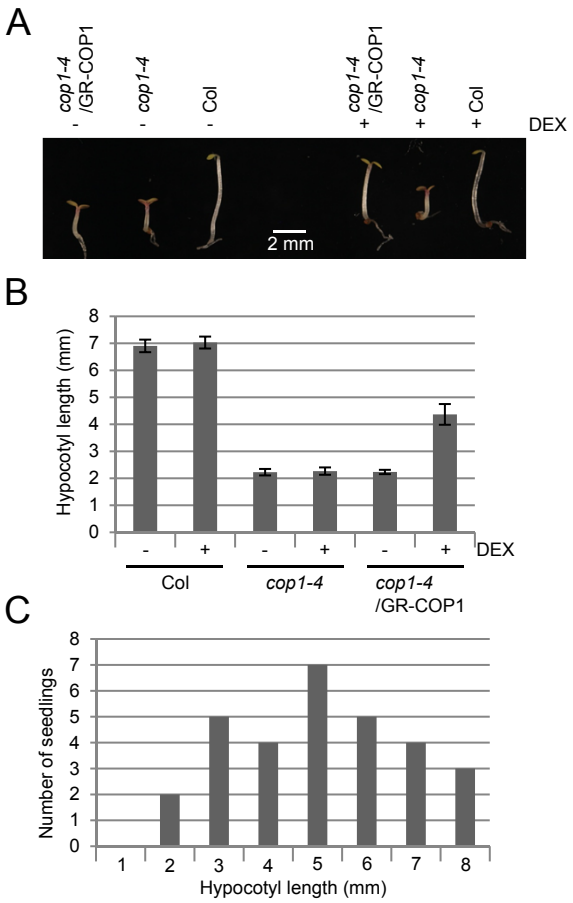

Fig. S10. Conditional partial complementation of *cop1-4* by *Pro$_{35S}$:GR-COP1*. (*A*) Representative seedlings. (*B*) Hypocotyl lengths of 3-day-old dark-grown seedlings in the presence (+) or absence (-) of 25 μM dexamethasone; means with SE, *n*=30. (*C*) Hypocotyl length distribution from the data in panel B.

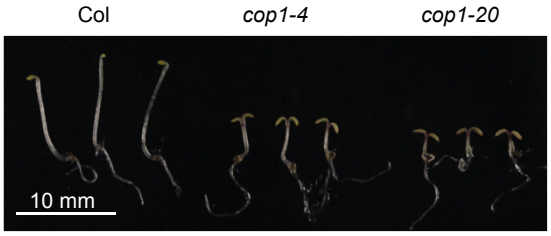

Fig. S11. Representative 4-d-old dark-grown seedlings of wild-type (Col), *cop1-4* and *cop1-20*.