

Supplemental Materials

Molecular Biology of the Cell

Liu et al.

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Supplemental Information

Figure S1. Cells expressing Nuc2-COP1-YFP under control of CaMV35S promoter in *cop1-6* mutant background (Nuc2-COP1-YFP *ox/cop1-6*) have similar transcription levels of 18S and 25S rRNAs to those in wild type.

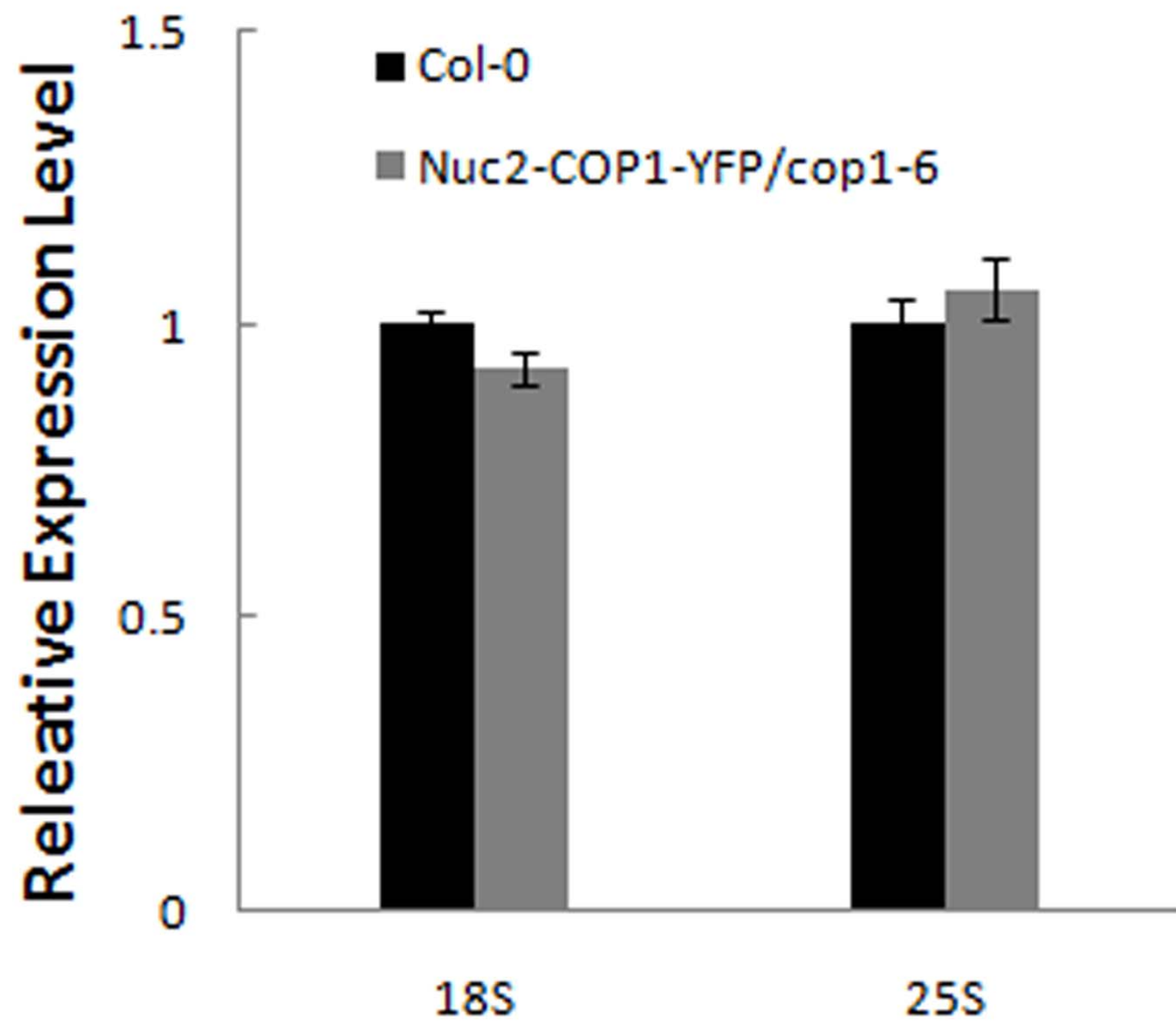
Figure S2. The interaction between HYL1 and DCL1 revealed the tethering ability and efficiency of NoTS system. (A) HYL1 concentrated in nuclear dicing bodies and did not co-localize with Nuc2. **(B)** Nuc2-HYL1 fusion, which was tethered to nucleolus, successfully recruited DCL1, a large protein, to nucleolus because of the interaction between HYL1 and DCL1. Bars, 5 μ m.

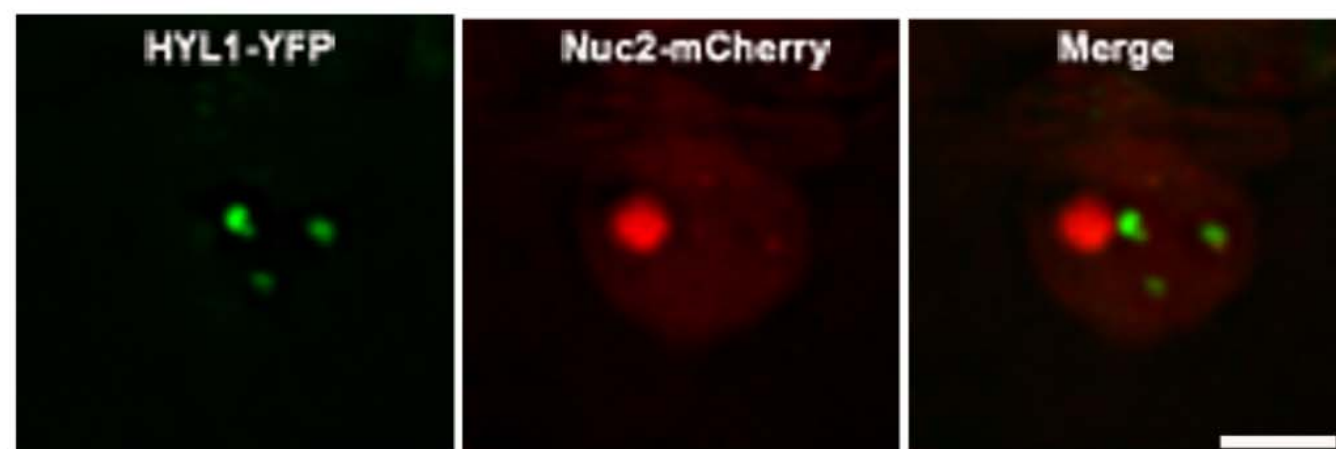
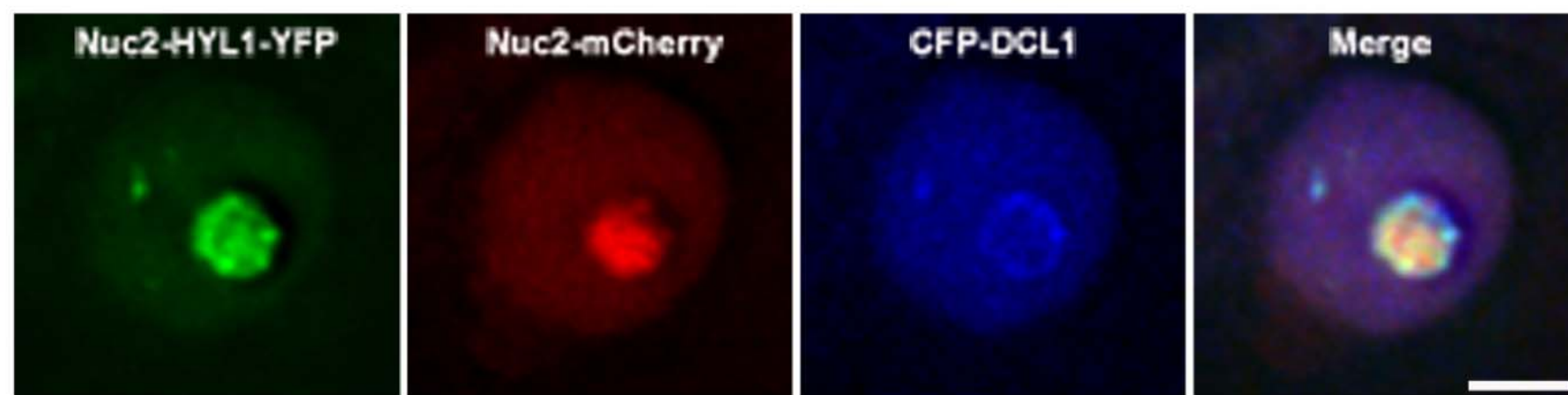
Figure S3. Nuc2-COP1 relocated from nucleoplasm to the nucleolus. (A) Subcellular localization of Nuc2-COP1 fusion protein. COP1 was tethered to the periphery of the nucleolus by Nuc2 in addition to a diffuse signal in nucleolus. **(B)** Subcellular localization of COP1. COP1 formed discrete bodies in the nucleoplasm, not co-localizing with Nuc2 which labels the nucleolus. Bars, 5 μ m.

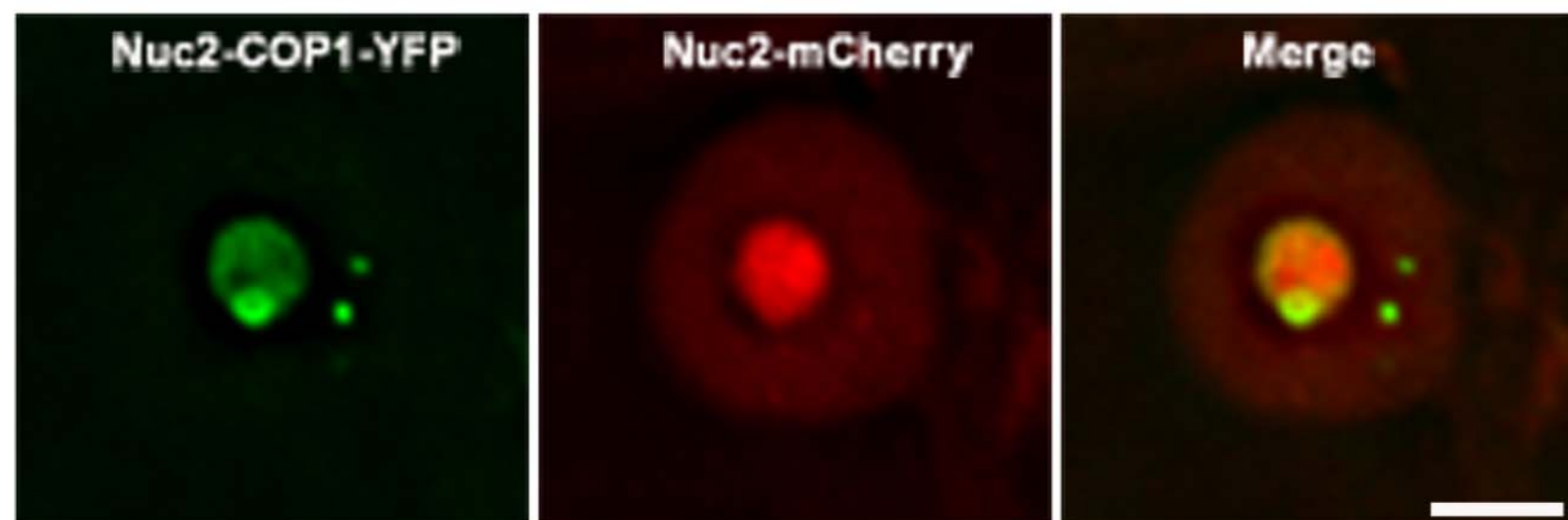
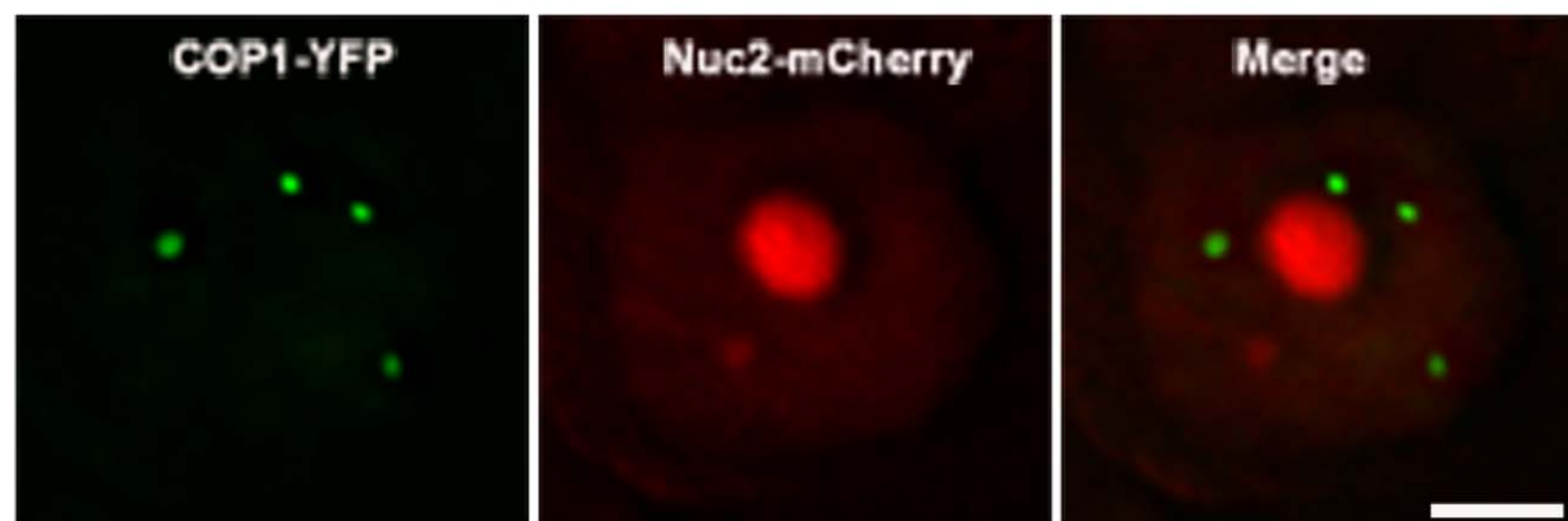
Figure S4. Nuc2-COP1 failed to recruit phytochromes phyA and phyB to the nucleolus. (A) Phytochromes phyA and phyB were not recruited to the nucleolus when co-expressed with Nuc2-COP1. **(B)** Phytochromes phyA and phyB did not co-localize with Nuc2 in nucleolus. The nucleolus is labeled by Nuc2-mCherry. Bars, 5 μ m.

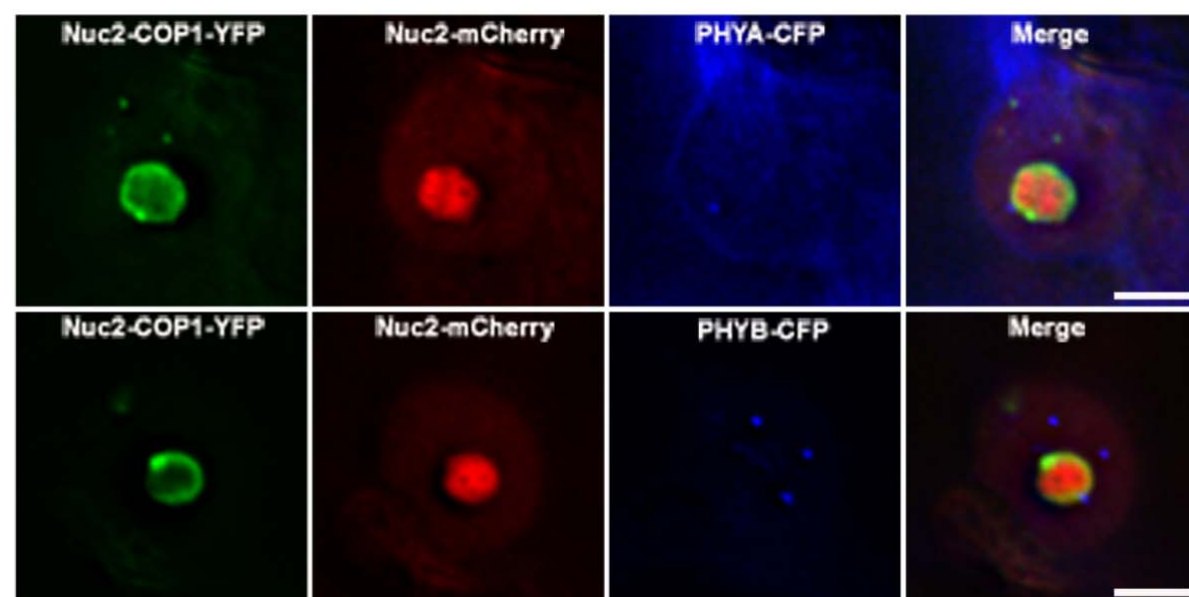
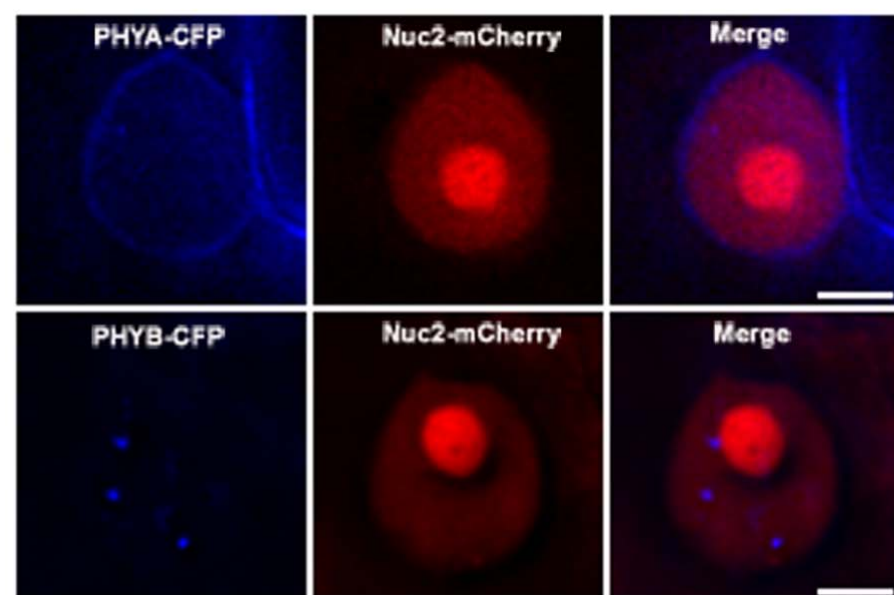
Figure S5. The *de novo* formed bodies at the periphery of nucleolus are functional photobodies. (A) The tobacco epidermal cells expressing COP1-YFP were imaged before and after photobleaching. Bar, 10 μ m. **(B)** The tobacco epidermal cells expressing Nuc2-COP1-YFP were imaged before and after photobleaching. Bar, 10 μ m. **(C)** The dynamics of recovery after bleaching of COP1-YFP body. **(D)** The dynamics of recovery after bleaching of Nuc2-COP1-YFP body. **(E)** Transgenic line with relocated nuclear bodies formed by Nuc2-COP1-YFP can complement the developmental defects of *cop1-6*

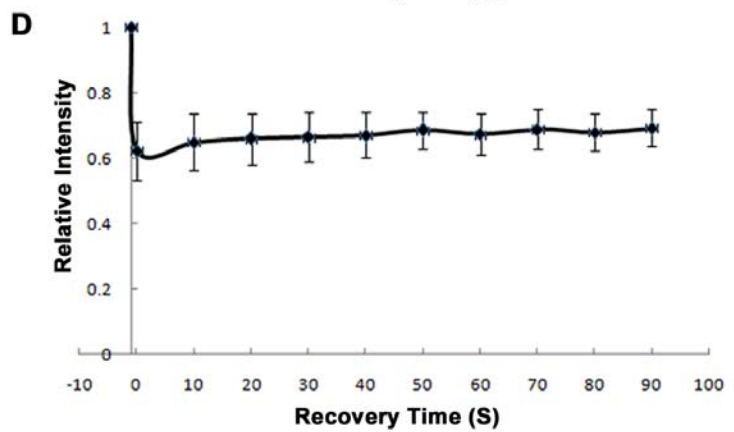
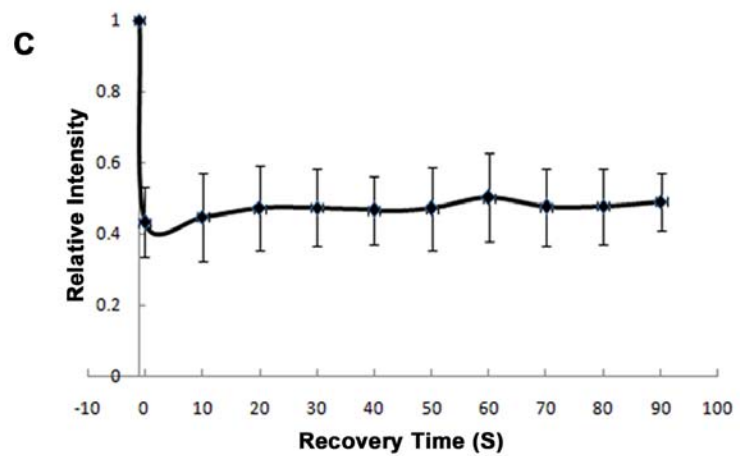
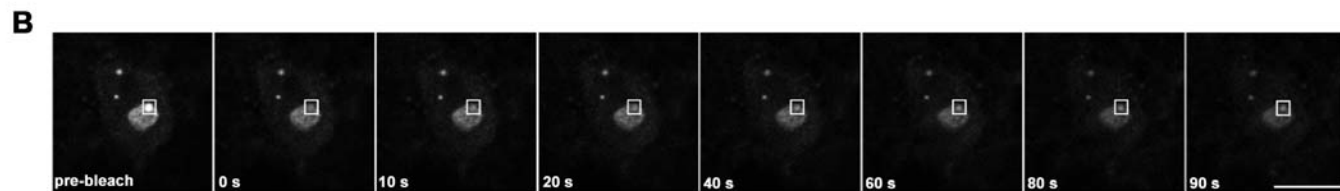
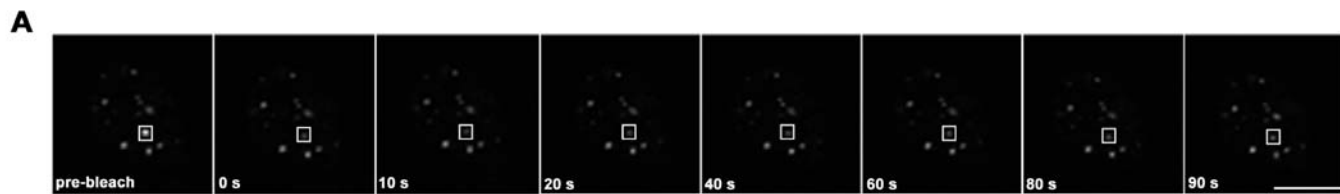
mutant. The plants are 28-day old. Bar, 2 cm.



A**B**

A**B**

A**B**



Supplemental Table 1: Primers used in this study

Primers	Sequences
SalI-COP1CDS-5'-F	CCCGTCGACATGGAAGAGATTTTCGACGGATCCGG
SpeI-COP1CDS-3'-R	CCCCTAGTCGCAGCGAGTACCAGAACTTTG
SalI-COP1(Δ WD40)-5'-F	NNNGTCGACATGGAAGAGATTTTCGACGGATCC
SpeI-COP1(Δ WD40)-3'-R	NNNACTAGTATAAATTGCCTACAAAATTTCTCTCTC
SalI-phyACDS-5'-F	NNNGTCGACATGTCAGGCTCTAGGCCGACTC
SpeI-phyACDS-3'-R	NNNACTAGTCTTGTGTTGCTGCAGCGAGTTC
XbaI-phyBCDS-5'-F	NNNTCTAGAATGGTTTCCGGAGTCGGGGGT
XbaI-phyBCDS-3'-R	NNNTCTAGAATATGGCATCATCAGCATCATGTCA
SalI-cry1CDS-5'-F	NNNGTCGACATGTCTGGTTCTGTATCTGGTTGTG
SpeI-cry1CDS-3'-R	NNNACTAGTCCCGGTTTGTGAAAGCCGTCTC
SalI-cry2CDS-5'-F	NNNGTCGACATGAAGATGGACAAAAAGACTATAG
SpeI-cry2CDS-3'-R	NNNACTAGTTTTGCAACCATTTTTTCCCAAAC
SalI-UVR8CDS-5'-F	NNNGTCGACATGGCGGAGGATATGGCTGC
SpeI-UVR8CDS-3'-R	NNNACTAGTAATTCGTACACGCTTGACATCAGT
SalI-HY5CDS-5'-F	NNNGTCGACATGCAGGAACAAGCGACTAGCT
SpeI-HY5CDS-3'-R	NNNACTAGTAAGGCTTGCATCAGCATTAGAAC
SalI-PIF7CDS-5'-F	NNNGTCGACATGTCGAATTATGGAGTTAAAGAGC
SpeI-PIF7CDS-3'-R	NNNACTAGTATCTCTTTTCTCATGATTCGAAGA
SalI-HFR1CDS-5'-F	NNNGTCGACATGTCGAATAATCAAGCTTTCATGG
SpeI-HFR1CDS-3'-R	NNNACTAGTTAGTCTTCTCATCGCATGGGAAGA
SalI-COCDS-5'-F	NNNGTCGACATGTTGAAACAAGAGAGTAACGAC
SpeI-COCDS-3'-R	NNNACTAGTGAATGAAGGAACAATCCCATATCCT
SalI-HEMERACDS-5'-F	NNNGTCGACATGGCGTCAATATCAACCACCAC
SpeI-HEMETACDS-3'-R	NNNACTAGTAGGATCAGTCTCCTCTTCAAAGTCC
SalI-HYL1CDS-5'-F	NNNGTCGACATGACCTCCACTGATGTTTCTCT
SpeI-HYL1CDS-3'-R	NNNACTAGTTGCGTGGCTTGCTTCTGTCT
Actin 2-qPCR-5'-F	GACCTTTAACTCTCCCGCTATG
Actin 2-qPCR-3'-R	GAGACACACCATCACCAGAAT
18S rRNA-qPCR-5'-F	GAAAGACGAACAACCTGCGAAAG
18S rRNA-qPCR-3'-R	GGTTGAGACTAGGACGGTATCT
25S rRNA-qPCR-5'-F	GTTCCGACCGCCTTGAATTA
25S rRNA-qPCR-3'-R	CCACTCTGCCACTTACAATACC