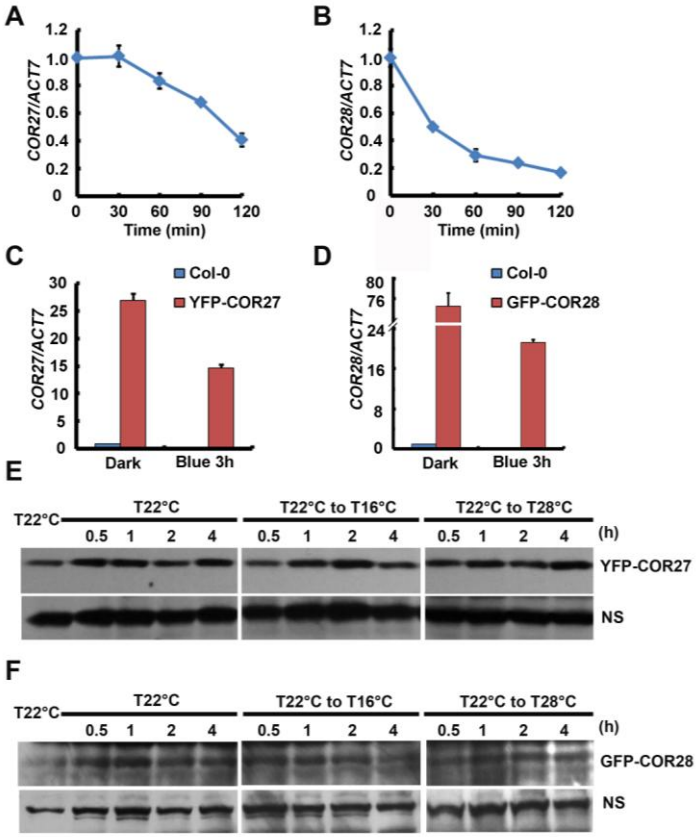
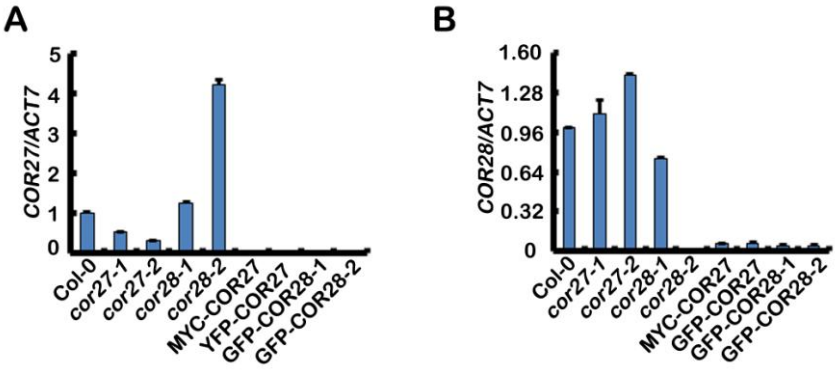


Supplemental Figure 1. Red Light Represses Transcription of *COR27* and *COR28*, and Low Temperature Does Not Affect COR27 and COR28 Stability.

(A) and **(B)** Quantitative PCR results showing transcription of *COR27* and *COR28* are repressed by red light. 7-d-old seedlings grown in 22 ℃ CL condition were transferred to darkness for 24 h before being transferred to red light for the indicated time (40μmol m^{-2} s^{-1}). Error bars represent SD of 3 technical replicates.

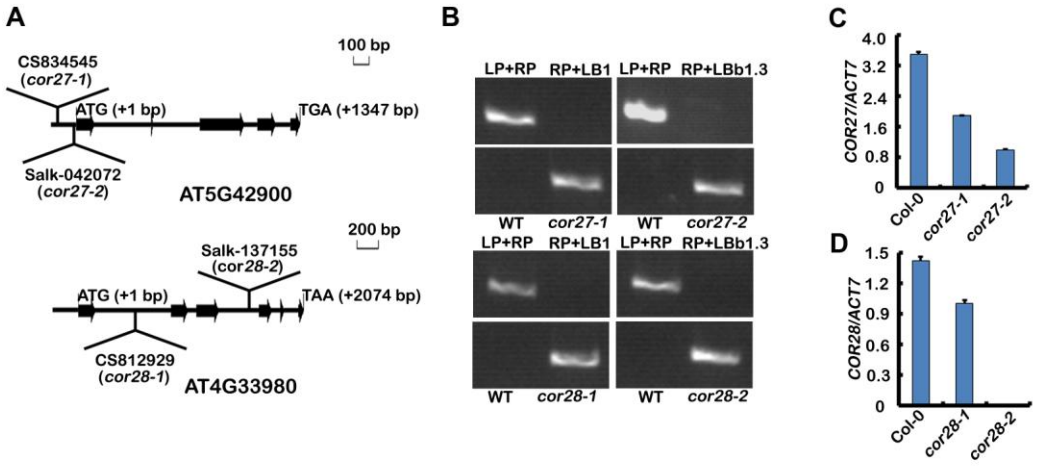
(C) and **(D)** Quantitative PCR results showing transcription of *COR27* and *COR28* are repressed by blue light in transgenic plants expressing *Pro35S:YFP-COR27* and *Pro35S:GFP-COR28*. 5-d-old seedlings grown in 22 ℃ LD condition were transferred to darkness for 2 d before transferred to blue light (40μmol m^{-2} s^{-1}). Error bars represent SE of 3 biological replicates. Each experiment was performed at least three times with similar results.

(E) and **(F)** Immunoblots showing that ambient temperature change does not affect abundance of COR27 and COR28 proteins. Samples were fractionated by 10% SDS-PAGE, blotted, and probed with an anti-GFP antibody. NS represents non-specific band. YFP-COR27 and GFP-COR28 were grown in 22 ℃ CL condition for 7 d, then transferred to 16 ℃ or 28 ℃ for the indicated time.



Supplemental Figure 2. COR27 and COR28 Repress Their Own and Each Other's Transcription.

(A) and **(B)** Quantitative PCR results showing the transcription of endogenous *COR27* or *COR28* are repressed by themselves and each other. Samples were collected from 5 d-old seedlings of the genotypes indicated at ZT12. Error bars represent SD of 3 technical replicates.

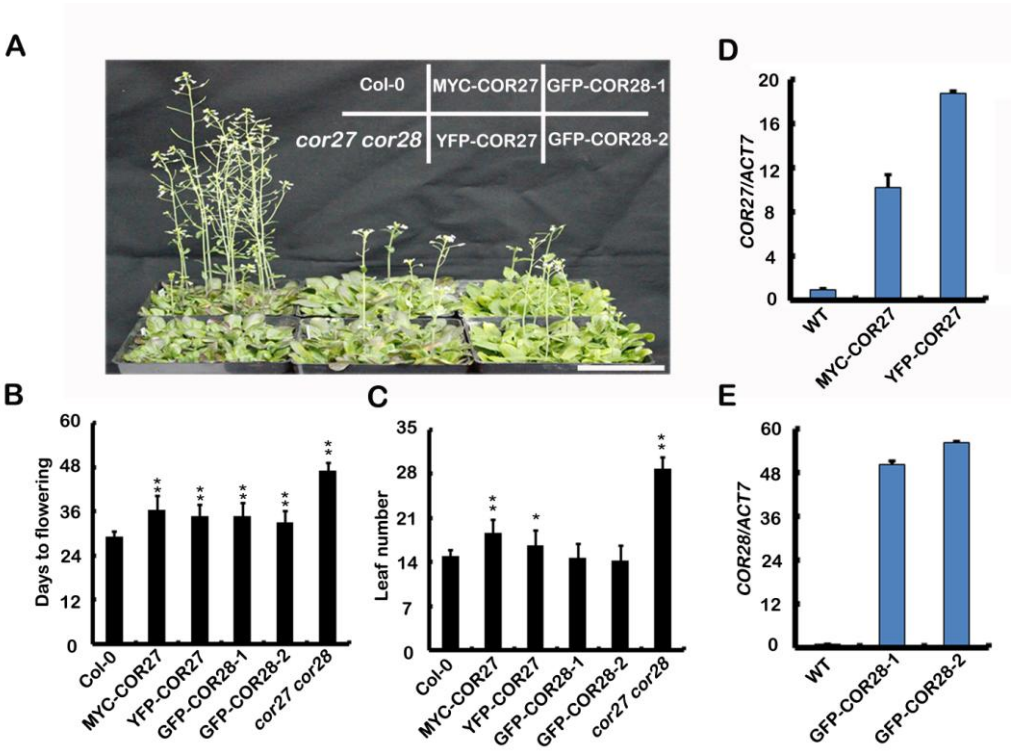


Supplemental Figure 3. Isolation and Characterization of *COR27* and *COR28* T-DNA Insertional Mutants.

(A) Schematic illustrating the genomic structures of *COR27* and *COR28* and the locations of the T-DNA insertions.

(B) PCR results showing the genotyping of the indicated mutant.

(C) and **(D)** Quantitative PCR results showing the mRNA expression of *COR27* and *COR28* in the genotypes indicated. Error bars represent SD of 3 technical replicates.

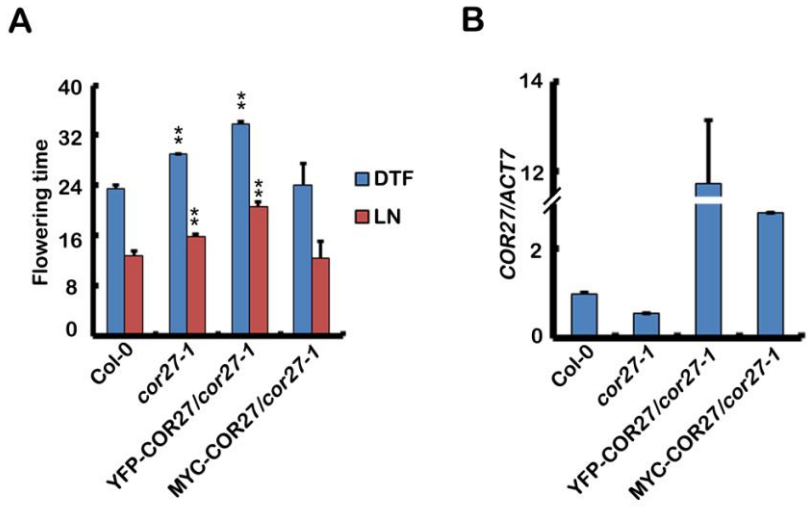


Supplemental Figure 4. Overexpression of COR27 and COR28 Lead to a Slightly Late-Flowering Phenotype.

(A) 40 d-old plants of the genotypes indicated grown in 22°C LD. Bar = 5 cm.

(B) and **(C)** The quantitative flowering times measured as days to flower **(B)** and the number of rosette leaves **(C)** at the day floral buds became visible of the genotypes shown in A. Standard deviations (SD) ($n \geq 20$) are indicated, and the asterisks indicate significant differences compared with the WT under the same treatment conditions (*$P < 0.05$, **$P < 0.01$, student *t*-test).

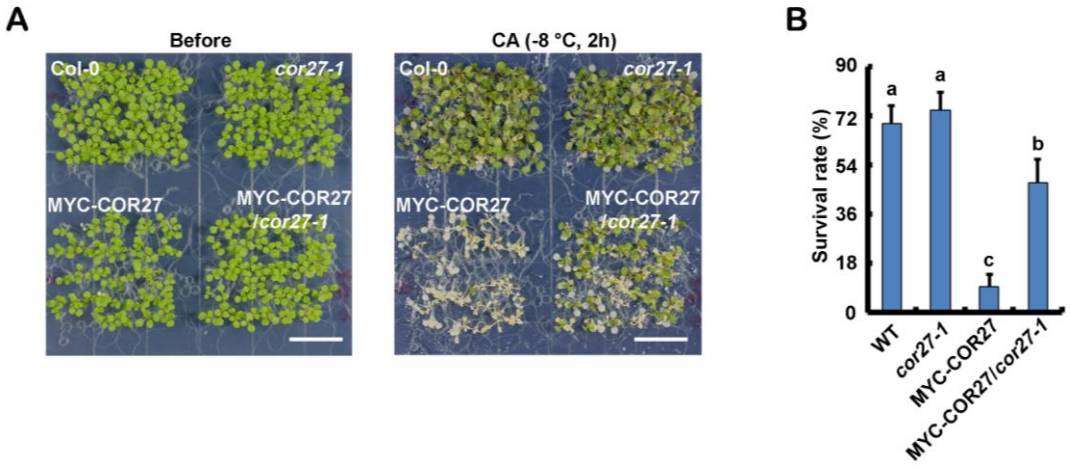
(D) and **(E)** Quantitative PCR results showing the mRNA expression of *COR27* **(D)** or *COR28* **(E)** in the genotypes indicated. Error bars represent the SD of 3 technical replicates. Each experiment was performed at least three times with similar results.



Supplemental Figure 5. The *cor27-1* Phenotype was Fully Rescued by Introduction of *Pro35S:MYC-COR27*.

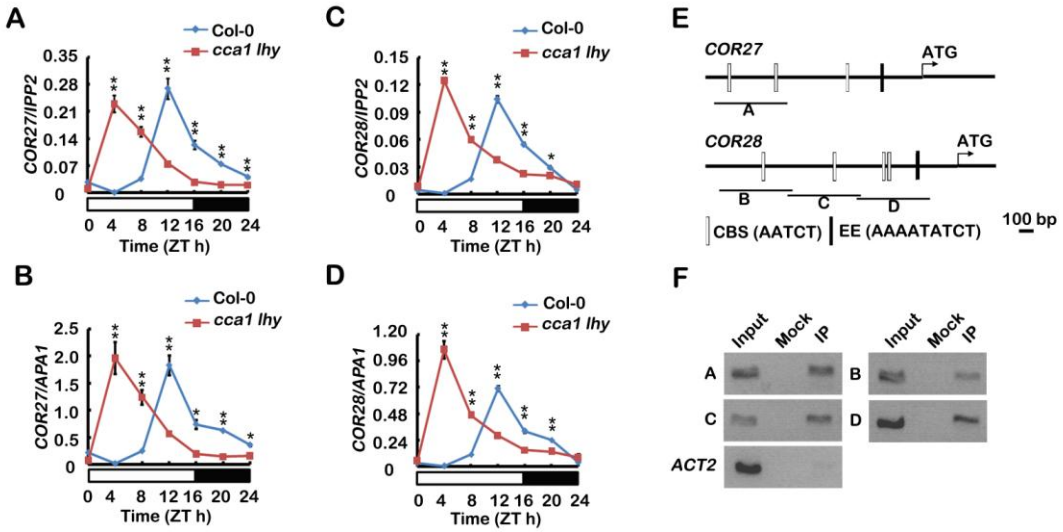
(A) The flowering phenotype of *cor27-1*, transgenic lines expressing *Pro35S:MYC-COR27* or *Pro35S:YFP-COR27* in the *cor27-1*background in LD. The quantitative flowering times were measured as days to flower and the number of rosette leaves at the day floral buds became visible, the numbers indicate independent transgenic lines, and the standard deviations ($n \geq 20$) are shown, and the asterisks indicate significant differences compared with the WT under the same treatment conditions (**$P < 0.01$, student *t*-test).

(B) Quantitative PCR results showing the mRNA expression of *COR27* in the genotypes indicated. Error bars represent SD of 3 technical replicates.



Supplemental Figure 6. COR27 Affects Freezing Tolerance.

(A) and **(B)** A freezing tolerance assay of *cor27-1*, MYC-COR27, MYC-COR27/*cor27* and WT control. 8 d-old seedlings grown in 22°C LD were pre-treated at 4°C for one day (CA) then frozen at -8°C for 2 h and then transferred to 22°C for 3 d before the measurement of survival rates. **(A)** Representative photos of plants of the genotypes indicated after the freezing treatment. Bar = 1.5 cm. **(B)** Survival rates of the genotypes indicated after the freezing treatment. Error bars represent SE of 3 biological replicates, and the asterisks indicate significant differences compared with the WT under the same treatment conditions. The letters "a" to "d" indicate statistically significant differences between ratios for hypocotyl of indicated genotypes, as determined by Tukey's least significant difference (LSD) test ($P < 0.01$).

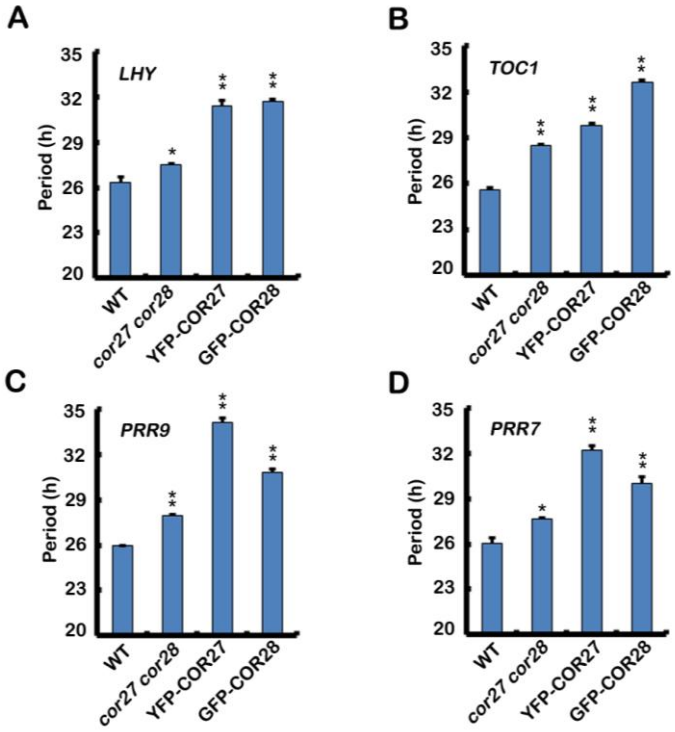


Supplemental Figure 7. *COR27* and *COR28* are Direct Targets of CCA1.

(A) to **(D)** Quantitative PCR results showing expression of *COR27* and *COR28* in *cca1 lhy* and WT grown in LD conditions. Samples were collected from 5 d-old seedlings of genotypes indicated every 4 h over one day in LD. *IPP2* **(A)** and **(C)** and *APA1* **(B)** and **(D)** were used as internal control respectively. Error bars represent SD of 3 technical replicates. (**P < 0.01, *P < 0.05, student *t*-test).

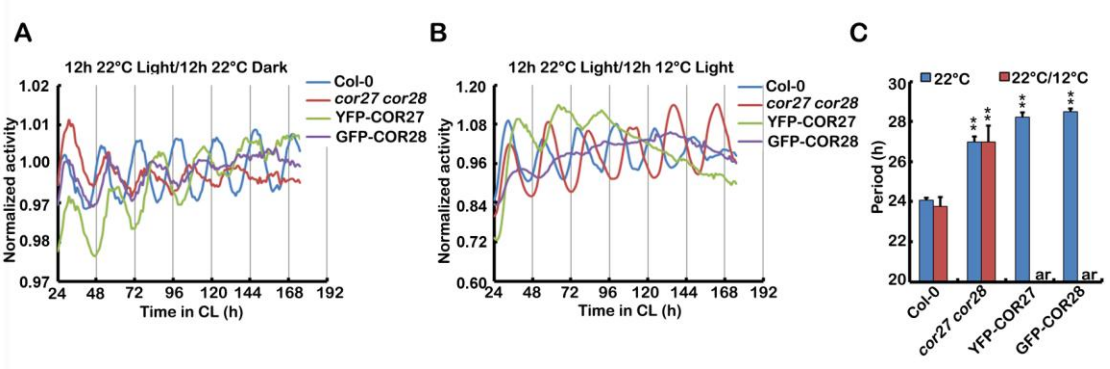
(E) Diagram depicting putative promoters of *COR27* and *COR28*. The white boxes represent the CCA1 Binding cite motif (CBS), the dark boxes represent the Evening Element motif (EE).

(F) Representative results of the ChIP-PCR assays. 7 d-old WT seedlings grown in LD conditions were collected at ZT 0 for Chromatin immunoprecipitation. Anti-CCA1 antibody was used to immunoprecipitate the protein-DNA complex.



Supplemental Figure 8. The *cor27 cor28* Double Mutation Lengthens the Free-Running Period of Central Oscillator Gene Expression.

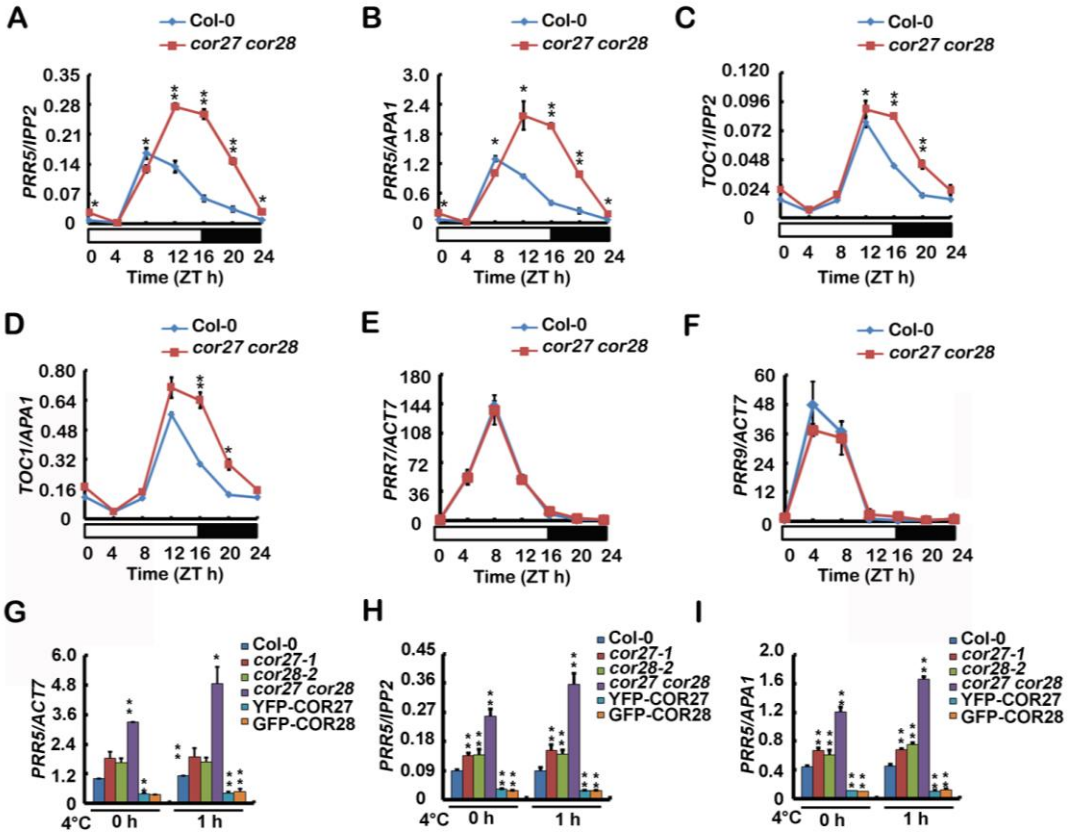
(A) to **(D)** Period of the gene expression rhythms shown in Figure 7. The asterisks indicate significant differences compared with the WT (**P < 0.01, *P < 0.05, student *t*-test).



Supplemental Figure 9. Transgenic Lines Expressing YFP-COR27 and GFP-COR28 Show an Unrhythmic Phenotype in a Temperature Cycle Condition.

(A) and **(B)** *ProCAB2:LUC* bioluminescence rhythms in indicated genetic backgrounds under CL (40 μmol $m^{-2}s^{-1}$) conditions. Seedlings were entrained in 12 h 22°C/ 12 h 12°C CL conditions for 6 d and then transferred to 22 °C CL, *ProCAB2:LUC* activity rhythms were then monitored, and each point is the average of 15 to 20 seedlings.

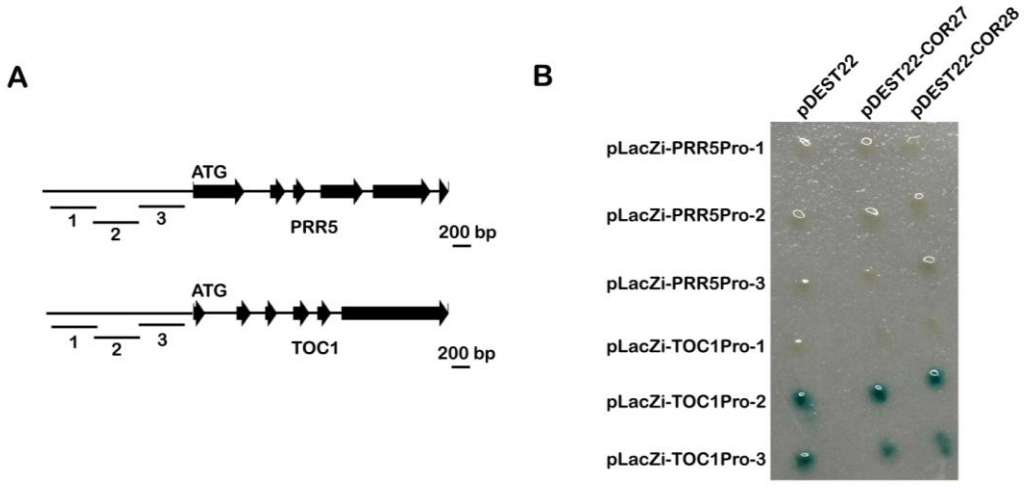
(C) Period of the *ProCAB2:LUC* bioluminescence rhythms shown in **(A)** and **(B)** (ar represents unrhythmic). The asterisks indicate significant differences compared with the WT (**P < 0.01, student *t*-test).



Supplemental Figure 10. COR27 and COR28 Affect the Transcription of *PRR5* and *TOC1* but Not *PRR7* and *PRR9.*

(A) to **(F)** Quantitative PCR results showing the expression of *PRR5*, *TOC1*, *PRR7* and *PRR9* in *cor27 cor28* and WT grown in 22°C LD conditions. Samples were collected from 5 d-old seedlings of the genotypes indicated every 4 h over 1 d in LD. *ACT7*, *IPP2* or *APA1* was used as internal control, respectively. **(A)** to **(D)** Error bars represent SD of 3 technical replicates. **(E)** and **(F)** Error bars represent SE of 3 biological replicates.

(G) to **(I)** qPCR results showing the expression of *PRR5* in *cor27*, *cor28*, *cor27 cor28*, YFP-COR27, GFP-COR28 and WT grown in 22°C LD conditions moved to 4°C for the indicated time. *ACT7*, *IPP2* or *APA1* was used as internal control, respectively. **(G)** Error bars represent SE of 3 biological repeats. **(H)** and **(I)** Error bars represent SD of 3 technical replicates (**P < 0.01, * P < 0.05, student *t*-test).



Supplemental Figure 11. COR27 and COR28 Cannot Bind the Promoter of *PRR5* and *TOC1* Directly.

(A) Diagram depicting putative promoters of *PRR5* and *TOC1*. Black lines depict the DNA fragments that were used as bait in the yeast one hybrid assay.

(B) ß-Gal assays of yeast cells harboring the indicated constructs.