



Supplementary Information for

Light modulates the gravitropic responses through organ-specific PIFs and HY5 regulation of *LAZY4* expression in *Arabidopsis*

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This PDF file includes:

Figures S1 to S5

Tables S1

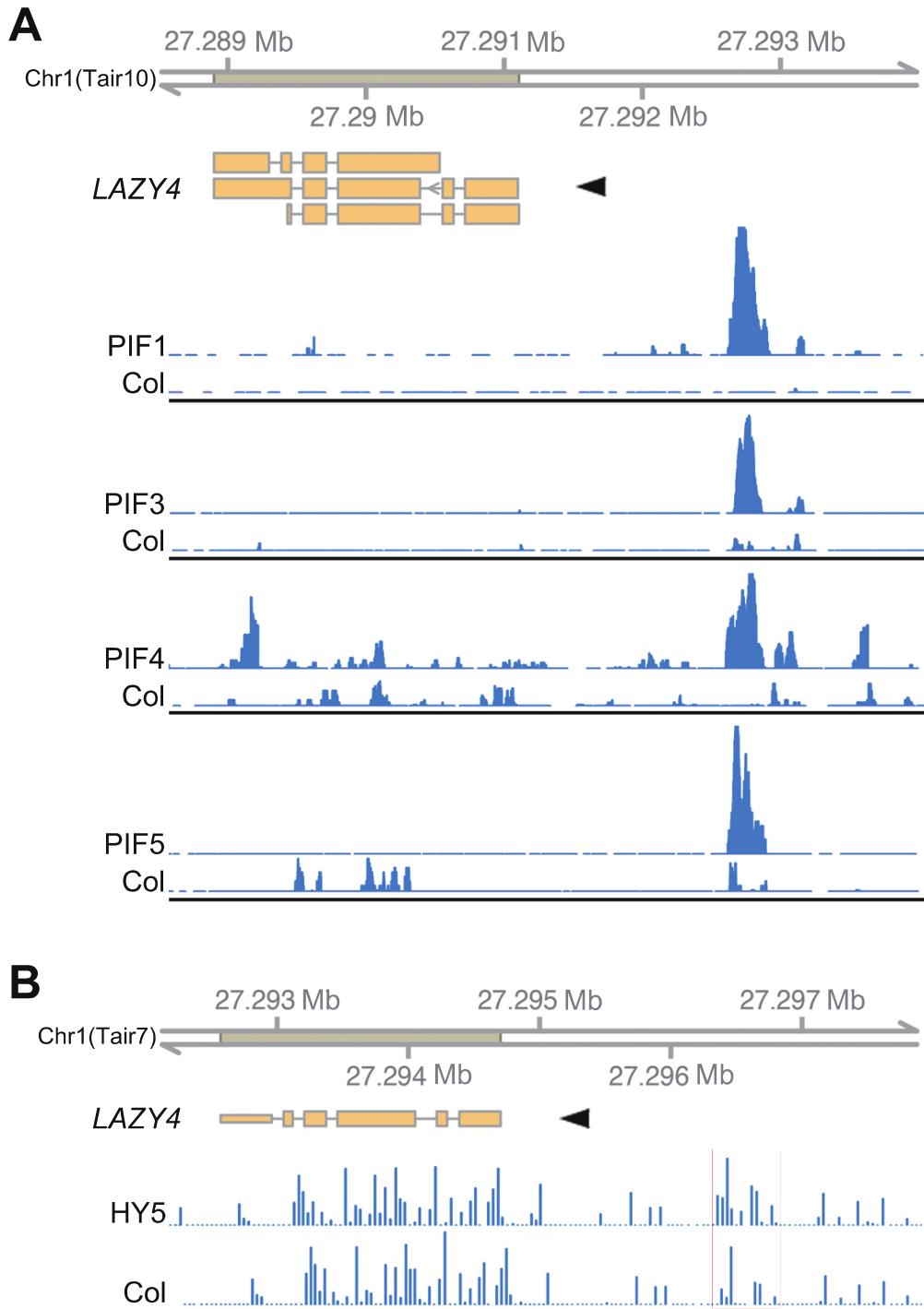


Fig. S1. Peak graphs showing the published results of ChIP assays for PIFs (*A*) and HY5 (*B*) at the *LAZY4* promoter. The orange bars indicate the *LAZY4* transcripts annotated in TAIR10 or TAIR7. The arrowheads indicate the direction of transcription.

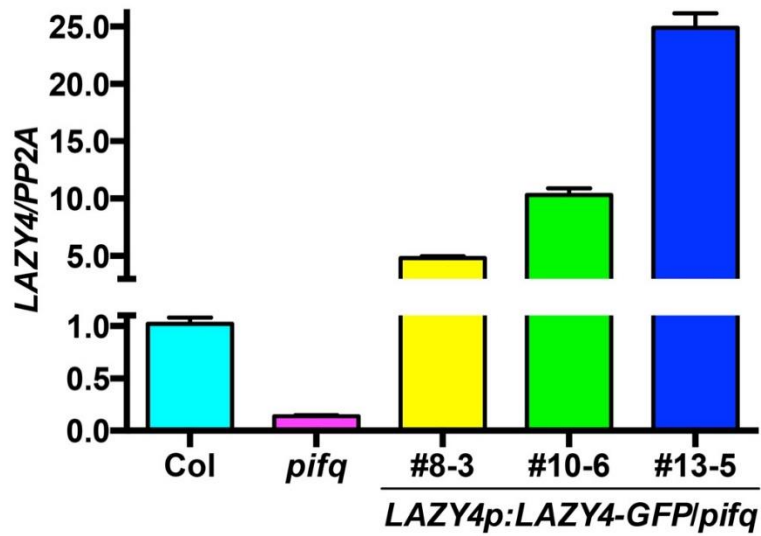


Fig. S3. Transcript levels of *LAZY4* in the hypocotyls of Col, *pifq*, and three *LAZY4p:LAZY4-GFP/pifq* transgenic lines. Total RNA was extracted from hypocotyls of 4-day-old dark-grown seedlings. Transcript levels were examined by qRT-PCR. Error bars represent the SD of three technical replicates. These experiments were repeated three times, and a representative result is shown.

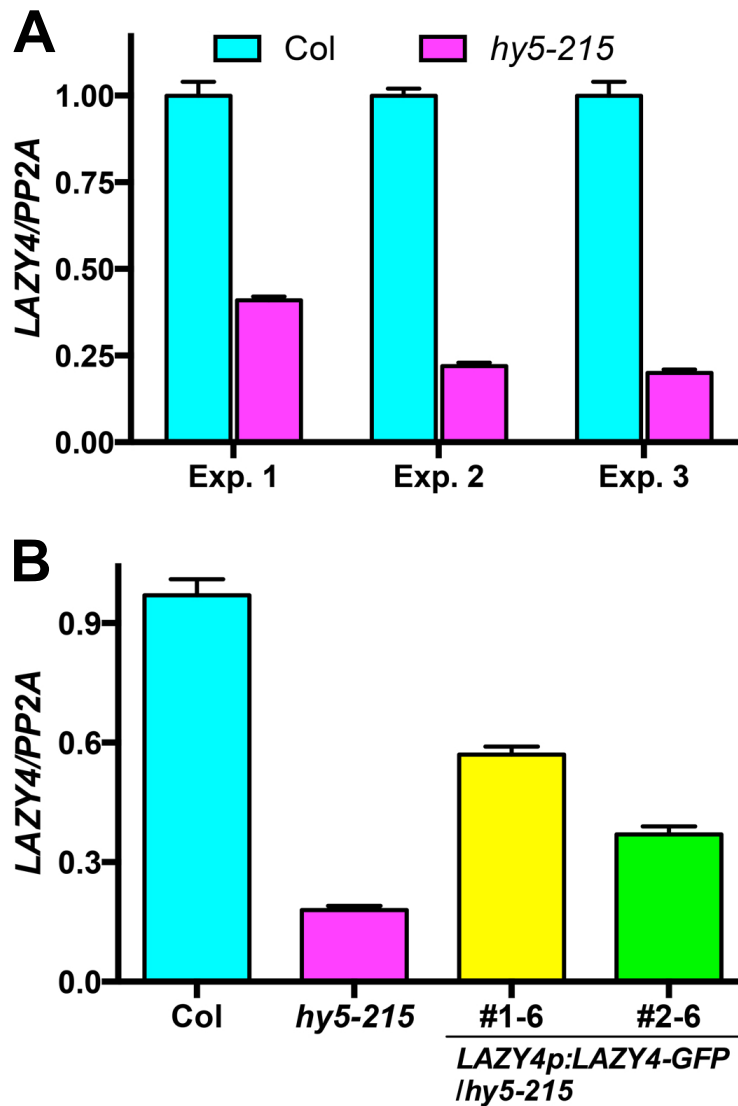


Fig. S4. Transcript levels of *LAZY4* in *Arabidopsis* roots. (A) Transcript levels of *LAZY4* in the root tips of Col and *hy5-215*. (B) Transcript levels of *LAZY4* in the roots of Col, *hy5-215*, and two *LAZY4p:LAZY4-GFP/hy5-215* transgenic lines. Total RNA was extracted from root tips (about 1mm length) (A) or whole roots (B) of 4-day-old seedlings grown in white light. Transcript levels were examined by qRT-PCR. Error bars represent the SD of three technical replicates. These experiments were repeated three times, and three repeats (Exp.1, Exp. 2 and Exp.3) are shown (A) or a representative result is shown (B).

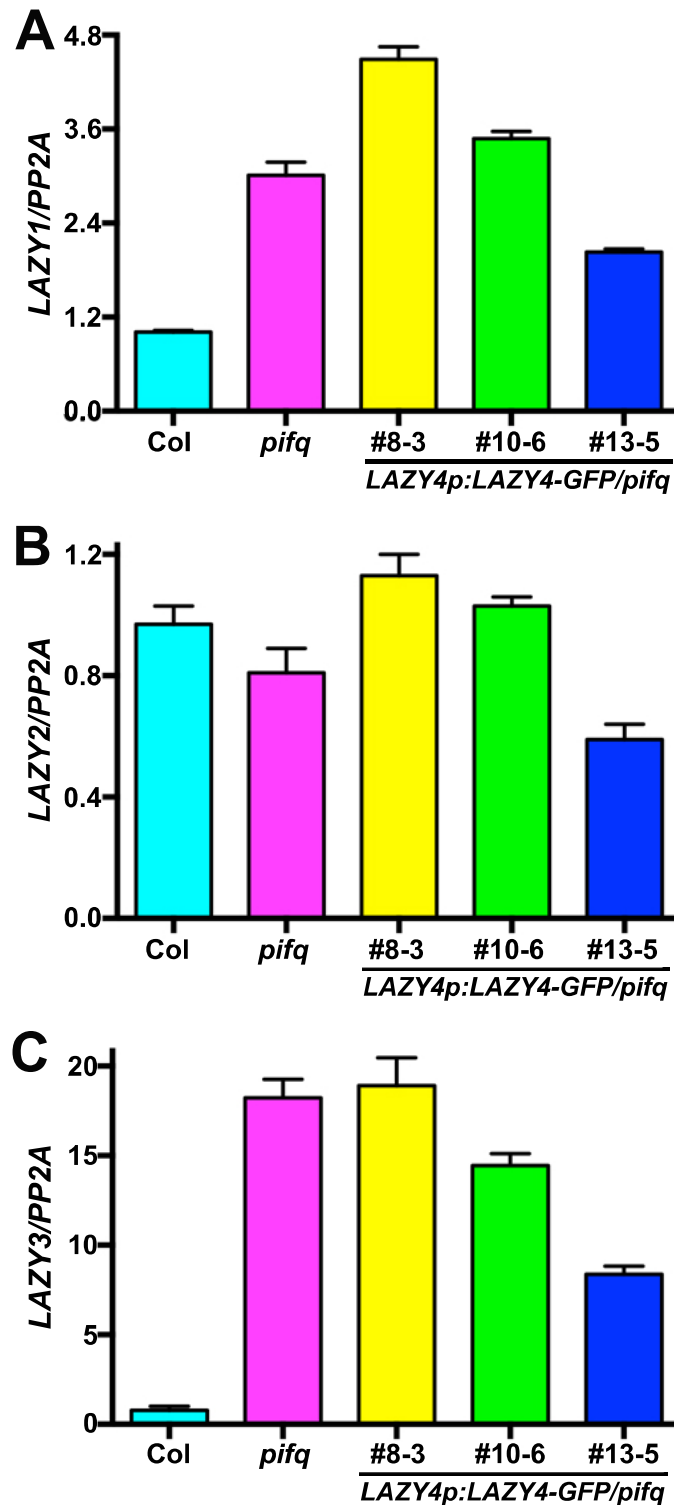


Fig. S5. Transcript levels of *LAZY1*, *LAZY2* and *LAZY3* in the hypocotyls of *Col*, *pifq*, and three *LAZY4p:LAZY4-GFP/pifq* transgenic lines. Total RNA was extracted from hypocotyls of 4-day-old dark-grown seedlings. Transcript levels were examined by qRT-PCR. Error bars represent the SD of three technical replicates. These experiments were repeated three times, and a representative result is shown.

Table S1. List of primers in this study.

A. List of primers for generating constructs.

Construct	Primer	Sequence
LAZY4p-a: LacZ	EcoRI-a-F	ATACGAATTCactttaaatagatttttag
	SalI-a-R	ATACGTCGACttctttatacagtcacaac
LAZY4p-b: LacZ	EcoRI-b-F	ATACGAATTCcttccagttctctcaccta
	SalI-b-R	ATACGTCGACctgtataaaagtactattaag
LAZY4p-c: LacZ	EcoRI-c-F	ATACGAATTCaattcaatcaaaggagatca
	SalI-c-R	ATACGTCGACtgaactataaaaaaaatcg
LAZY4p-c(mACE7): LacZ	mACE7-F	ttcGGGGgattgggagtggtgcggtgggctcaact
	mACE7-R	accactccaatccccgaactcaggtccaat
LAZY4p-c(mACE8): LacZ	mACE8-F	aatgGGGGggagaatgtcgattggacctgagttc
	mACE8-R	tcgacattctccccccatttttcccacccccg
LAZY4p-c(mACE9): LacZ	mACE9-F	gaatGGGGgtctttctcaccataattagtttg
	mACE9-R	tggtgagaaagacccccattctaaggtaaaaagggt
LAZY4p-c(mACE10): LacZ	mACE10-F	tatGGGGatagcttgtgcataaactatgatatgtac
	mACE10-R	atgcacaagctatccccataaaatacttta
LAZY4p-c(mACE11): LacZ	mACE11-F	gattaacatGGGGtgTTTTTaaagtatttta
	mACE11-R	taaaaaacaccccatgtaatacaaatatattat
LAZY4p-c(mACE12): LacZ	mACE12-F	gttaGGGGaagaacaagttccatggggaccaata
	mACE12-R	gaacttggttctccctaacttctctatcgc

B. List of EMSA probe primers.

Probe	Primer	Sequence
ACE8	ACE8-FP-label	gatgggaaaaatgACGTggagaatgtcgat/3biotin/
	ACE8-RP	atcgacattctccacgtcattttccatc
	mACE8-FP-label	gatgggaaaaatgGGGGggagaatgtcgat /3biotin/
	mACE8-RP	atcgacattctccccccattttccatc
ACE9	ACE9-FP-label	taccttagaatACGTgtctttctcaccat/3biotin/
	ACE9-RP	atggtgagaaagacacgtattctaaggta
	mACE9-FP-label	taccttagaatGGGGgtctttctcaccat/3biotin/
	mACE9-RP	atggtgagaaagacccccattctaaggta

C. List of qRT-PCR and ChIP-qPCR Primers.

Gene	Primer	Sequence
<i>PIL1</i>	Q6-QF	ATAACACAAAGGGGTGGATG
	Q6-QR	GTGAGTGACATGCGAGAGAG
	Q10-QF	ACGTGACTCTTTTCTTGACAG
	Q10-QR	CGCTGTACTIONCGGTCTCATA

<i>18S rRNA</i>	18S rRNA-QF	GCTAACTAGCTACGTGGAGG
	18S rRNA-QR	CATCTAAGGGCATCACAGAC
<i>LAZY4</i>	P1-QF	GATGGGAAAAATGACGTGGA
	P1-QR	AGCAGTTTCGCTTTATCATC
	P2-QF	CAATGCTCGTTTGTTTAAGC
	P2-QR	GCTTTATCATCGGAGAGTTGA
	ACE8-QF	GTCTTTCTCACCATAATTAG
	ACE8-QR	GAACTCAGGTCCAATCGACA
	ACE9-QF	GCCGTTGAAAGTCAACCTGA
	ACE9-QR	GCTTAAACAAACGAGCATTG
	LAZY4-QF	TTTTCGGGTGGATGCAGAAC
	LAZY4-QR	ACCAATCGCGAGTAATCCGT
<i>LAZY1</i>	LAZY1-QF	GCAACTGAAGCACGAAAATG
	LAZY1-QR	TGGAATAGCTGTTGCCAGTAGA
<i>LAZY2</i>	LAZY2-QF	GCGCAGATGGGATTTCTACA
	LAZY2-QR	GATGTTGGTTTCGAGGAGGC
<i>LAZY3</i>	LAZY3-QF	CGTGTGCCTACTTCAGATTCT
	LAZY3-QR	TCTTCGTCTTGAGGCAAACC
<i>PP2A</i>	PP2AA3-QF	TATCGGATGACGATTCTTCGTGCAG
	PP2AA3-QR	GCTTGGTTCGACTATCGGAATGAGAG