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Phytochrome B-mediated Activation of Lipoxygenase Modulates Excess red light-induced

Defense Response in Arabidopsis

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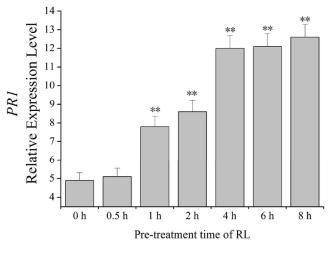




Fig. S1. Impact of different time of RL on *PR1* expression. Quantitative RT-PCR data show the expression of the *PR1* gene in WT *Arabidopsis*. Total RNA was extracted from leaves 4 h post inoculation by Pst-DC3000, plants were pre-treated with different time of RL as indicated. *Arabidopsis ACTIN2* was used as an internal control. Expression levels for each treatment were normalized to a RL-treated (0 h) plant. Values represent means ±SD of three independent experiments. Asterisks (*) indicate a significant difference from the (0 h) at * *P* < 0.05 or ** *P* < 0.01 by *t*-test.

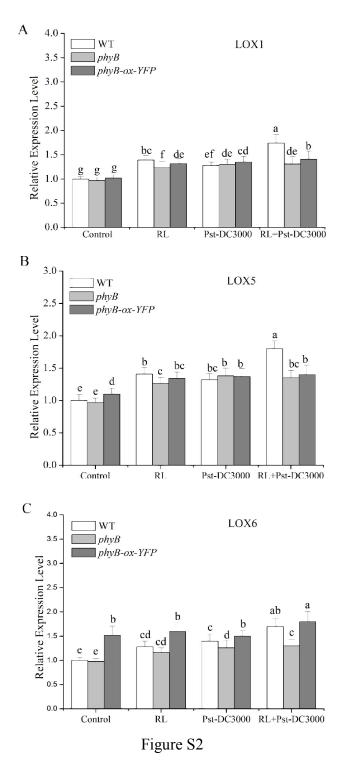


Fig. S2. Induction of transcription levels of *LOX1*, *LOX5*, *LOX6* by RL. (A)-(C) Transcript levels of *LOX1*, *LOX5*, *LOX6* in wild-type, *phyB*, *phyB-ox-YFP* plants. Total RNA were extracted from the leaves of full-grown *Arabidopsis* after different treatments as follows: control (no treatment), RL (120 μ mol photons m⁻²s⁻¹; 4 h), Pst-DC3000 inoculation (OD₆₀₀=0.01 in 10 mM MgCl₂), RL+Pst-DC3000 (inoculation after RL). *Arabidopsis ACTIN2* was used as an internal control. Different letters indicate statistically significant

differences between treatments (Duncan's multiple range test: P < 0.05). Values represent means ±SD of three independent experiments.

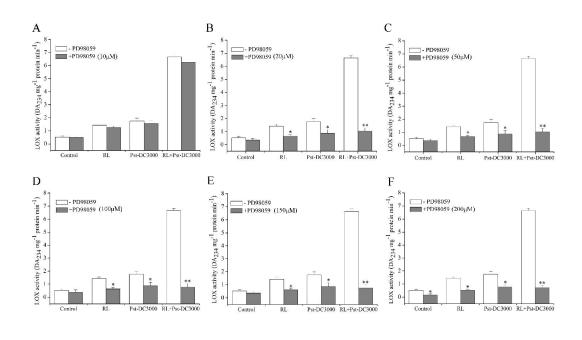




Fig. 3. Effect of different concentrations of PD98059 on activation of LOX. Leaves were pre-incubated with or without PD98059 for 1 h, and then proteins were extracted from the leaves 2 h post treatment. Concentrations of PD98059 in (A)-(F) were 10 μ M, 20 μ M, 50 μ M, 100 μ M, 150 μ M and 200 μ M.

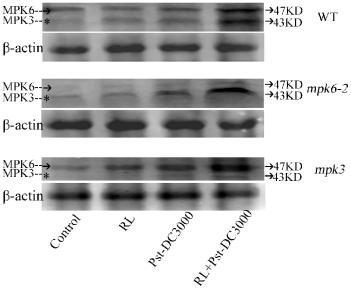


Figure S4

Fig. S4. Activation of MPK3 and MPK6 during defense response induced by RL in the WT, *mpk6-2* and *mpk3* plants. Proteins were extracted from the leaves treated as follows: control (no treatment), RL (120 μ mol photons m⁻²s⁻¹; 4 h), Pst-DC3000 inoculation (OD₆₀₀=0.01 in 10 mM MgCl₂, 2 h), RL+Pst-DC3000 (2 h inoculation after RL). The experiment was repeated three times with similar results.

Table S1. Primers for several genes.

Gene name	Primer
LOX1	U:GATAGTGAATCATACGGTAACCAGA
	D:AGGATGAGGCAAGCTCAGCTCTAT
LOX2	U:CACCTGACGAAGAGTACATTGG
	D:GTAACACCATGCTCAGAGGTAGG
LOX3	U:TGAACATTGAGAGAGTCAAGACTTTT
	D:AGATAGTTCGAGTAGCATAGGCTTTGC
LOX4	U:TCGCTAACTTTGGTGAGATCGATAG
	D:TCGTCATCTCGAAGCATGCATATT
LOX5	U:CATACGAACAGAGCACATAGAATCA
	D:AAACTTTGCTGACCGATCCATATGA
LOX6	U:GCTTGAAATCAATGCTCGTGCG
	D:GTCAATCACAAGCCTCACGCCAC
CaM3	U:GCTCTAGAACAGGTTTCACGAAAAGGAGA
	D:CGGGATCCCTTAGCCATCATGACCTTAAC
Actin2	U:AGAGATTCAGATGCCCAGAAGTCTTGTTCC
	D:AACGATTCCTGGACCTGCCTCATCATACTC
PR1	U:CATACACTCTGGTGGGCCTT
	D:GACCACAAACTCCATTGCAC