

Supplementary Material

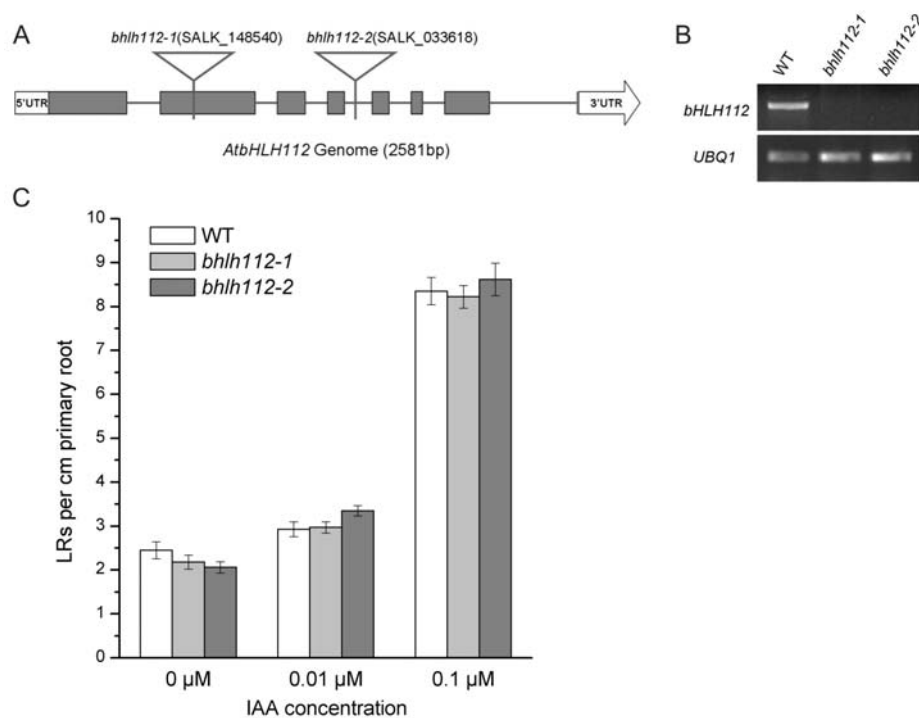
Overexpression of *AtbHLH112* suppresses lateral root emergence in *Arabidopsis*Wen-Shu Wang^A, Jiang Zhu^A and Ying-Tang Lu^{A,B}^AState Key Laboratory of Hybrid Rice, College of Life Sciences, Wuhan University, Wuhan 430072, China.^BCorresponding author. Email: yingtlu@whu.edu.cn

Fig. S1. Characterization and phenotype analysis of T-DNA insertion mutants of *bHLH112*. (A) Location of T-DNA insertion of SALK_148540 and SALK_033618 in *bHLH112* genome is shown. (B) *AtbHLH112* expression in wild-type plants and two *bHLH112* knock-out lines was analyzed using primers for amplifying the coding sequence of *bHLH112*. *AtUBQ1* was used as an internal control. (C) LR density of two *bHLH112* knock-out lines treated with IAA. 5-day-old seedlings were transferred to 1/2 MS medium with or without IAA, and LR density was determined 5 days after transferring. Error bars represent SEM ($n = 20$).

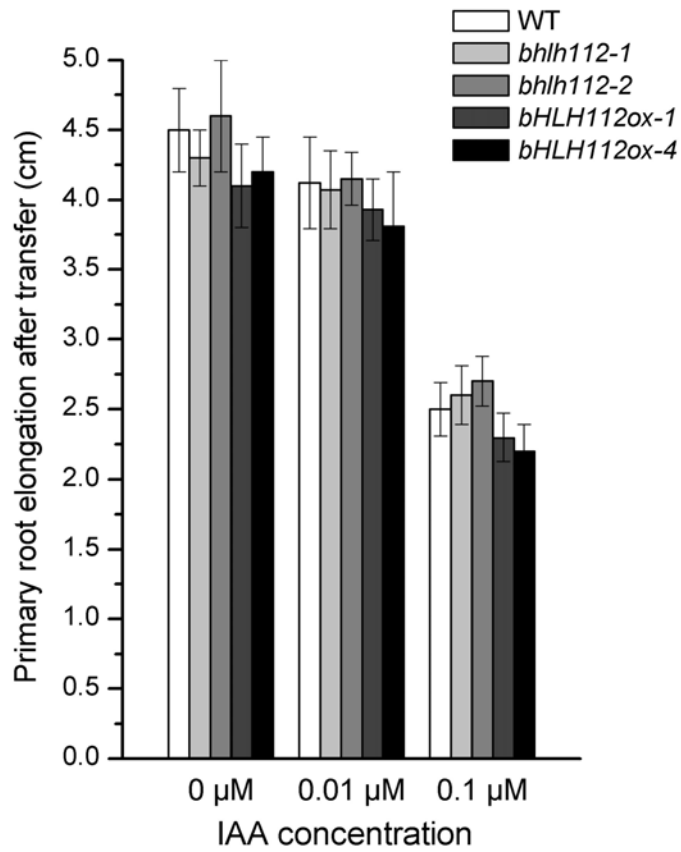


Fig. S2. Primary root length of indicated lines treated with 0, 0.01 or 0.1 μM IAA. 5-day-old seedlings were transferred to 1/2 MS medium with or without IAA, and primary root length was determined 5 days after transferring. Error bars represent SEM ($n = 20$).

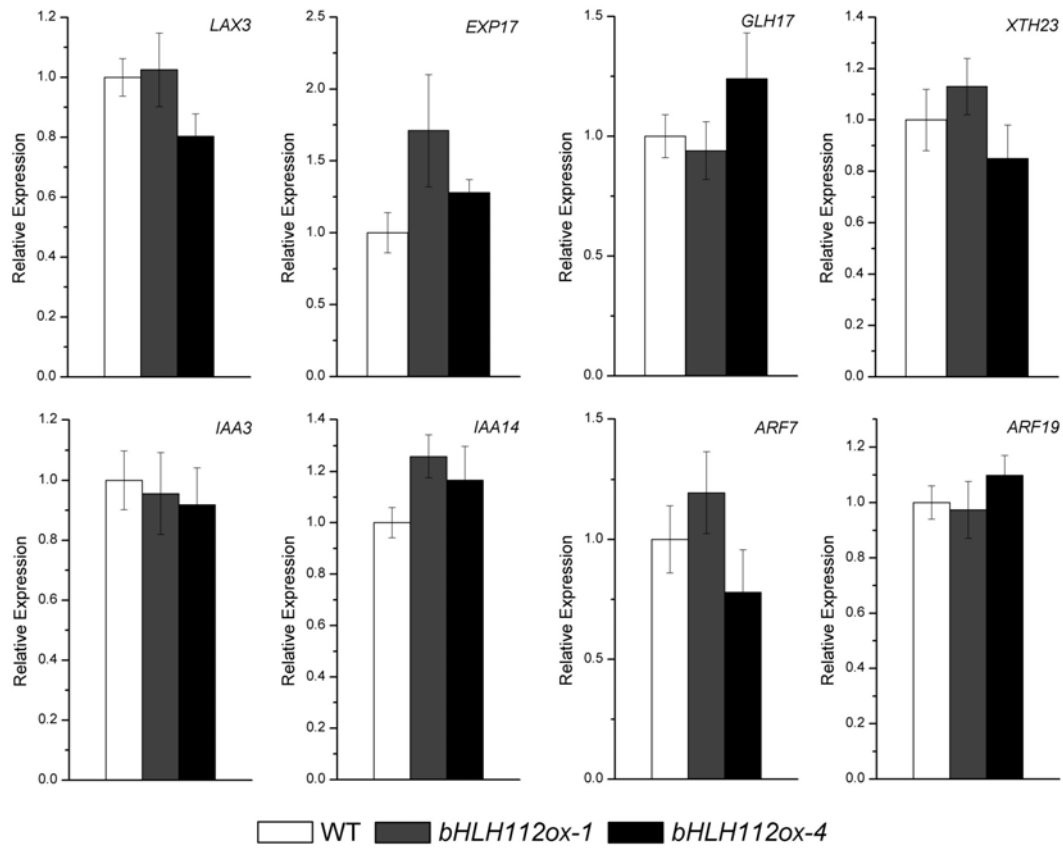


Fig. S3. The expression of LR emergence-related genes in *HLH112*-overexpressing lines. The roots of 8-day-old seedlings of the indicated lines were sampled and subjected to qRT-PCR. Error bars represent SEM of three biological replicates. The expression level in wild-type plants is set to 1.

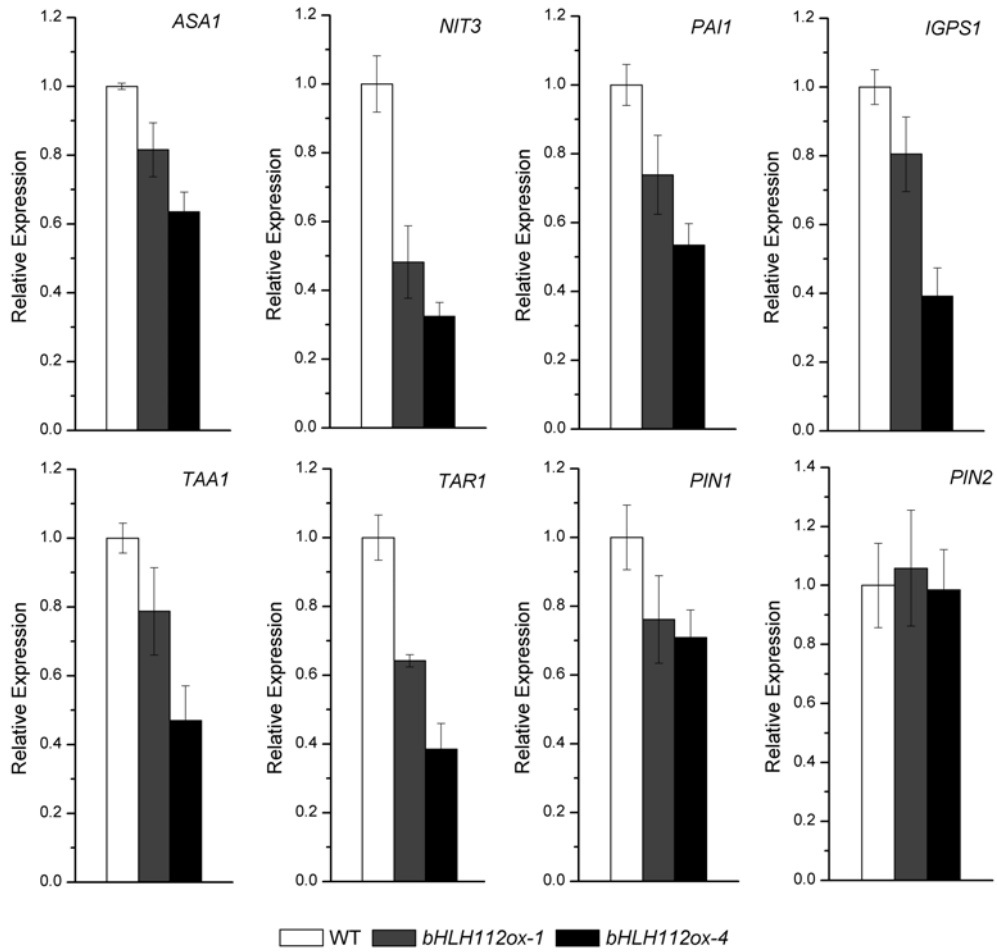


Fig. 4. The expression of auxin biosynthesis genes, *PIN1* and *PIN2* in *bHLH112*-overexpressing lines. The roots of 8-day-old seedlings of the indicated lines were sampled and subjected to qRT-PCR. Error bars represent SEM of three biological replicates. The expression level in wild-type plants is set to 1.

Table S1. Primers used in semi-quantitative RT-PCR

<i>bHLH112</i> AT1G61660 _____	F 5'-TAATCCAGCTTGTTCTTCATCTCC-3'
	R 5'-CTTGACTCTTCGATTTACCAGATAT-3'
<i>UBQ1</i> AT3G52590 _____	F 5'-GCAGATCTTCGTGAAAACCTTGACC-3'
	R 5'-GCACTTGCGGCAAATCATCTTATCC-3'

Table S2. Primers used in qRT-PCR

<i>bHLH112</i> AT1G61660 _____	F 5'-TCCGGTGGCTAACGAAAC-3'
	R 5'-ATATGTTCCCATCCGTCTTG-3'
<i>PDF2</i> AT1G13320 _____	F 5'-GTGTTTATGTCGCGGTGAAG-3'
	R 5'- GTTCTCCACAACCGCTTGGT-3'
<i>AIR3</i> AT2G04160 _____	F 5'-GTGTTTATGTCGCGGTGAAG-3'
	R 5'-CTTAGCCACATTTCCCTTAC-3'
<i>PG2</i> AT1G70370 _____	F 5'-TCTGTCACATGGACACGTC-3'
	R 5'-CTAATCAGCGATAGCCCAG-3'
<i>PLA1</i> AT1G04680 _____	F 5'-AACGGTGCTTACTTCACTTC-3'
	R 5'-GGAACATTGACGTCCTCTG-3'
<i>PLA2</i> AT1G67750 _____	F 5'-GAGCCTCTTCAAGCTATGC-3'
	R 5'-CTACAAAAGAGTGCACCAGC-3'
<i>ARF7</i> AT5G20730 _____	F-5' TCTTGGCGGCACTGATGATCCC 3'
	R-5' TGGTGGCTGAGGCAACTGAGAC 3'
<i>ARF19</i> AT1G19220 _____	F-5' AGCCTCCACAGATTCAGGTGAG 3'
	R-5' GCGGAAGGTGAGGTTGAACAAG 3'
<i>LAX3</i> AT1G77690 _____	F-5' GTTTGGGTATTCGTAGTTGG 3'
	R-5' TCATGGCTTGTGAGGAGG 3'
<i>IAA3</i> AT1G04240 _____	F-5' AACTGAAACATCCCCTCCTC 3'
	R-5' CCATCTCTCTCAAAGTACTCTCC 3'
<i>IAA14</i> AT4G14550	F-5' CTTATCTTCGGAAGGTTGAC 3'

	R-5' GCTTGGAACATACTCAGAAC 3'
<i>EXP17</i> AT4G01630 _____	F-5' TCTAAGAGCAACAAATGGGAG 3'
	R-5' AGCTGCTTTGATACTTCCATC 3'
<i>GLH17</i> AT3G13560 _____	F-5' AGTGCAGGTGGAAC TTGTG 3'
	R-5' GCTTCCCGTATATGCACATG 3'
<i>XTH23</i> AT4G25810 _____	F-5' GTCAAGAACAGATGAGATGG 3'
	R-5' TACGCAGCTAAGCACTCG 3'