

Supplemental File 1A.

Primers for cloning and Q-PCR

Gene	Primer name	Sequence
<i>KAN1 (At5g16560)</i>	KAN1g F	ACGCGTTGTTTGGATGTATGACATTAAGTAAGCTAT
<i>KAN1 (At5g16560)</i>	KAN1g R	GGATCCGCTTTCTCGTGCCAATCTGGTCTGCCTAA
<i>KAN1 (At5g16560)</i>	K1cDNA F	AGATCTAACAATGTCTATGGAAGGTGTTTTCTAGAGAAAAC
<i>KAN1 (At5g16560)</i>	K1 cDNA R	GGATCCGCTTTCTCGTGCCAATCTGGTCTGCCTAA
<i>CLV3 (At2g27250)</i>	CLV3p F	GGAATTCCGGATTATCCATAATAAAAAAC
<i>CLV3 (At2g27250)</i>	CLV3p R	CTGCAGGTTTTAGAGAGAAAGTGACTGAGTGA
<i>CLV3 (At2g27250)</i>	CLV3utr F	AAACCTGCAGGGATCCGCGGC
<i>CLV3 (At2g27250)</i>	CLV3p R	ATAGAATATCACTAGTTAATTATCATTGGTTTAAAGTTATAG
<i>WOX1 (At3g18010)</i>	WOX1p F	ggtaccTCAAAACCGGTTTTTATACGACAAGAC-
<i>WOX1 (At3g18010)</i>	WOX1p R	ggatccTTTGGTGTGTACTTAATTTATATGTATG
<i>WOX1 (At3g18010)</i>	WOX1g F	gcggcagcaagatctATGTGGACGATGGGTTACAACGAAG
<i>WOX1 (At3g18010)</i>	WOX1g R	atagaatatacactagtACGTCACTGATGATATACTACG
<i>PRS (At2g28610)</i>	PRSc F	agatctGCGTACGTGTGTACGTGAATGAAAT
<i>PRS (At2g28610)</i>	PRSc R	ggatccAGTTTGGTACTGTCTTGTGTTGGAGT
<i>PRS (At2g28610)</i>	PRS FP (Q-PCR)	CAACTCCAAACAAGACAGTACCA
<i>PRS (At2g28610)</i>	PRS RP (Q-PCR)	ACATGAATGAAACACCTGCAGA
<i>WOX1 (At3g18010)</i>	WOX1 FP (Q-PCR)	GCCTCCTTCGTTGTAACCCA
<i>WOX1 (At3g18010)</i>	WOX1 RP (Q-PCR)	GCTGTCTCTCCCTTCTCC
<i>IAA20 (At2g46990)</i>	IAA20 FP (Q-PCR)	ATGTGCAATGAGAAGAGTCACG
<i>IAA20 (At2g46990)</i>	IAA20 RP (Q-PCR)	TCACAGTAGACAAGAACATCTCC
<i>ACT2 (At3g18780)</i>	ACT2 FP (Q-PCR)	CCTGTTCTTCTTACCGAGGC
<i>ACT2 (At3g18780)</i>	ACT2 RP (Q-PCR)	AATTTCCCGCTCTGCTGTTG

Supplemental file 1B.

Frequencies of phenotypes amongst transgenic plant lines

Transgenic plants	N° of T2 lines	T2 line phenotypes
<i>ATML1>>REVr-2×VENUS</i>	31	15 arrest or delay of organogenesis 8 partially or completely dorsalized leaves only 8 no phenotype
<i>UBQ10>>STTM 165/166</i>	26	6 arrested organogenesis 20 partially or completely dorsalized leaves
<i>ATML1>>PHVr</i>	50	4 arrest or delay of organogenesis 31 partially or completely dorsalized leaves 15 no phenotype
<i>ATML1>>KANI-GFP</i>	17	11 meristem arrest 6 partially or fully radialized organs only
<i>CLV3>>KANI-2×GFP</i>	32	10 mild change in organ position 10 meristem arrest only 12 leaf morphology change and meristem arrest

For *ATML1>>REVr-2×VENUS* (n=20, number of imaged specimens) and *UBQ10>>STTM 165/166* (n=12) transgenic plants, we used T3 generation plants for imaging that exhibited the reported phenotypes at a frequencies ranging from 70 to 90%. For *ATML1>>KANIGFP* transgenic plants, we imaged a particular T2 line that exhibited meristem arrest after induction at a frequency of approximately 98% (n=10). For *CLV3>>K2G* transgenic lines, among 12 different T2 lines that showed leaf morphology changes and meristem arrest, we used a particular line that produced more than two leaves after meristem arrest at a frequency of 96.8% (n=65). For *ATML1>>PHVr* transgenic lines, we imaged a line that exhibited arrested organogenesis at a frequency of 33% (n=12). An absence of phenotype was generally associated with low levels of induced transgene expression.

Supplemental file 1C.

List of parameter values used in simulations. We have used the values from Heisler and Jönsson (2006), which are based on experimental estimates where applicable.

Symbol	Value	Description
c_A	0.001	Auxin production
d_A	0.001	Auxin degradation
T	1.3	Active transport of auxin (PIN1-dependent)
D	0.002	Passive transport of auxin
c_P	0.001	PIN1 production
d_P	0.001	PIN1 degradation
V_X	10.0	Maximal production rate of polarising signal X
K_{XA}	10.0	Hill constant for auxin activating X
n_{XA}	1	Hill coefficient for auxin activating X
K_{XR}, K_{XK}	0.1	Hill constants for REV/KAN repressing X
n_{XR}, n_{XK}	2	Hill coefficients for REV/KAN repressing X
d_X	1.0	Degradation of polarising signal X
k_p	0.9	Relation of symmetric vs polarized PIN1
f_p	0.3	Ratio between PIN1 endo/exocytosis