

Supplementary files:

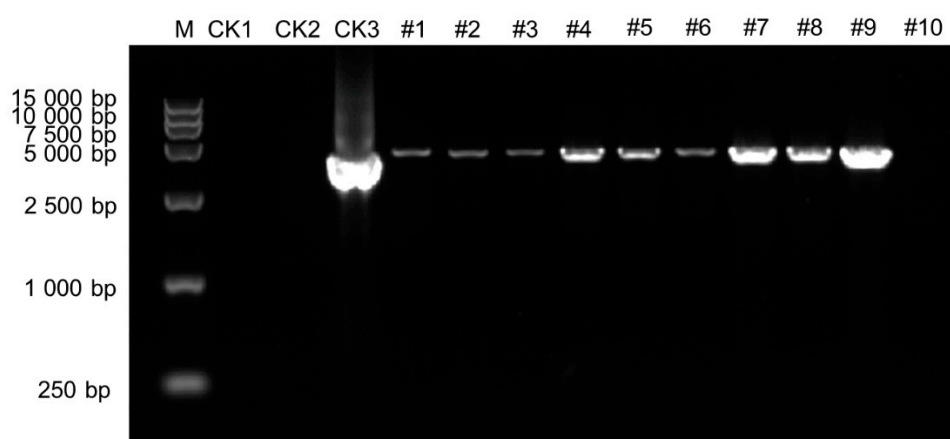
Supplemental Table S1. Primer sequences used in this study

Name	Sequence (5'-3')	Purpose
<i>CaMV 35S-F</i>	TCCCCCGGGTGAGACTTTTCAACAAAGGG	promoter cloning and vector construction
<i>CaMV 35S-R</i>	AAAAGTGCAGTGTCTCTCCAAATGAAATG	
<i>RUBY-F</i>	ATGGATCATGCGACCCTC	<i>RUBY</i> PCR/RT-PCR detecting
<i>RUBY-R</i>	TCACTATCACTGGAGGCTTG	
<i>CYP76AD1-F</i>	ATGGATCATGCGACCCTC	<i>CYP76AD1</i> RT-PCR detecting
<i>CYP76AD1-R</i>	ATGGATCATGCGACCCTC	
<i>DODA-F</i>	GATCCTCACCGTCGAGGATAC	<i>DODA</i> RT-PCR detecting
<i>DODA-R</i>	GGCGGAGGTGAACTTGTAGG	
<i>glucosyl transferase-F</i>	ACCGCCATCAAGATGAACAC	<i>glucosyl transferase</i> RT-PCR detecting
<i>glucosyl transferase-R</i>	TCACTATCACTGGAGGCTTG	
<i>PvoActin-F</i>	CCAGAAGTCTTGTTCAGCCATCTC	<i>PvoActin</i> RT-PCR/RT-qPCR detecting
<i>PvoActin-R</i>	GCGGTGATCTCCTTGCTCATACG	
<i>AtActin-F</i>	TGTGCCAATCTACGAGGGTTT	<i>AtActin</i> RT-PCR/RT-qPCR detecting
<i>AtActin-R</i>	TTTCCCGCTCTGCTGTTGT	
<i>NbActin-F</i>	AATGGAACTGGAATGGTCAAGGC	<i>NbActin</i> RT-PCR/RT-qPCR detecting
<i>NbActin-R</i>	TGCCAGATCTTCTCCATGTCATCCCA	
<i>CYP76AD1-qF</i>	TCGCCAAGATTCACGGCC	<i>CYP76AD1</i> RT-qPCR detecting
<i>CYP76AD1-qR</i>	TATTCGGGATCGTGCGGTTG	
<i>DODA-qF</i>	GATCCTCACCGTCGAGGATAC	<i>DODA</i> RT-qPCR detecting
<i>DODA-qR</i>	GGCTTCACTGTCTCCAG	
<i>glucosyl transferase-qF</i>	CAGGCCATTTCTCGAACTCG	<i>glucosyl transferase</i> RT-qPCR detecting
<i>Glucosyl transferase-qR</i>	TGCCGCTGGAGGAGTAGG	

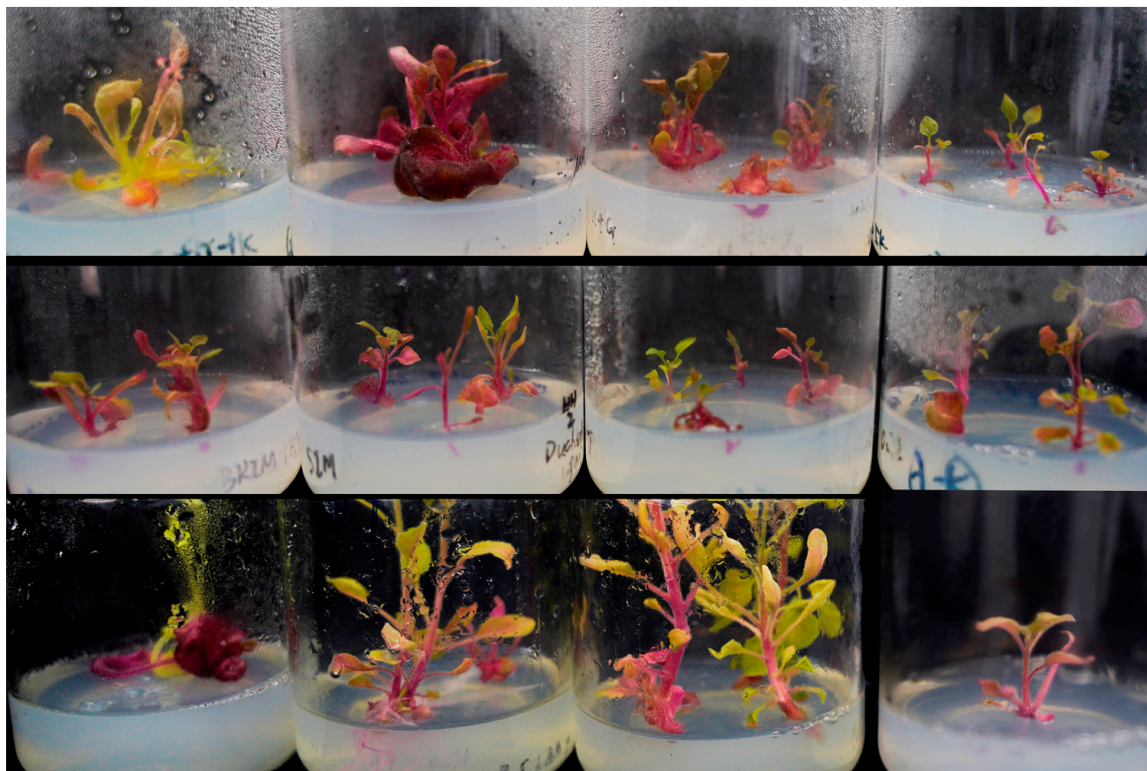
Supplemental Figure S1. Lowly red coloration of *RUBY* transgenic hairy roots of *P. volubilis* induced by *A. rhizogenes* K599



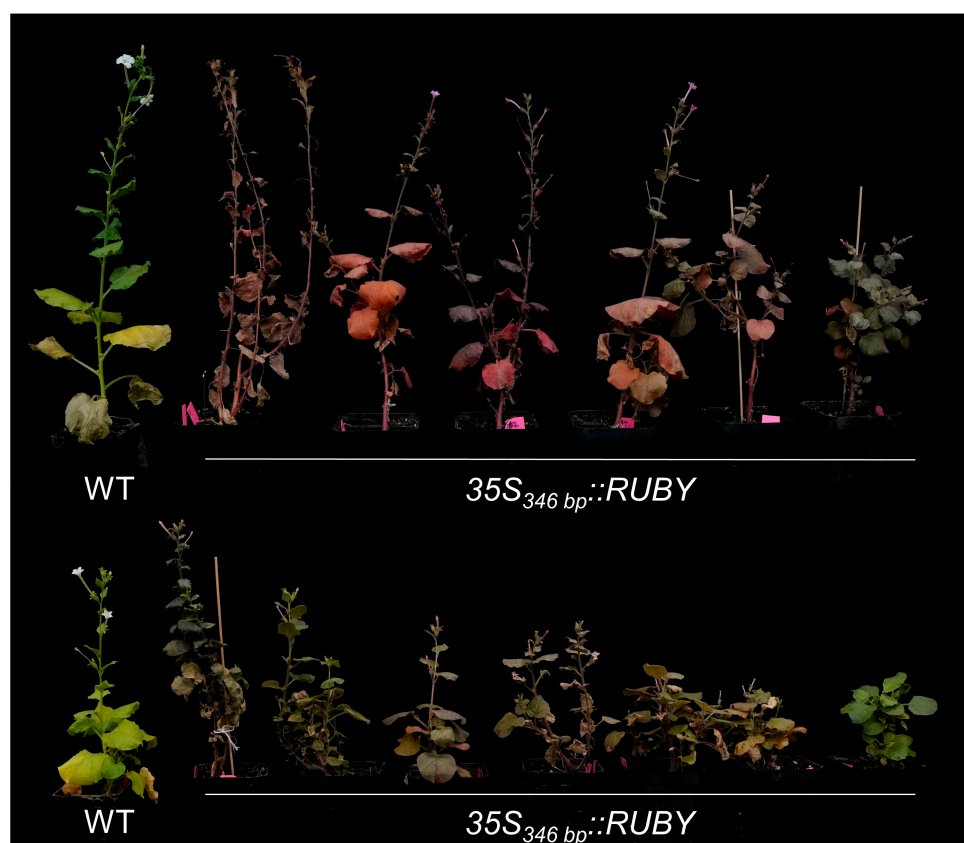
Supplemental Figure S2. PCR identification of *RUBY* transgenic *Arabidopsis* lines. M indicates marker 15 000, CK1 indicates negative sample ddH₂O, CK2 indicates sample pCambia1301 vector plasmid, and CK3 indicates positive sample 35S_{346bp}::*RUBY* plasmid



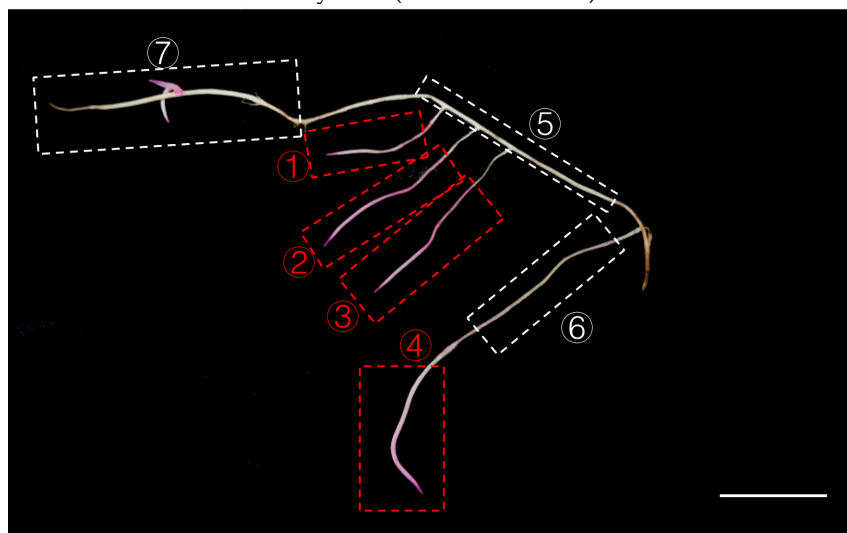
Supplemental Figure S3. *RUBY* transgenic shoots of *N. benthamiana* induced by leaf-disk transformation methods



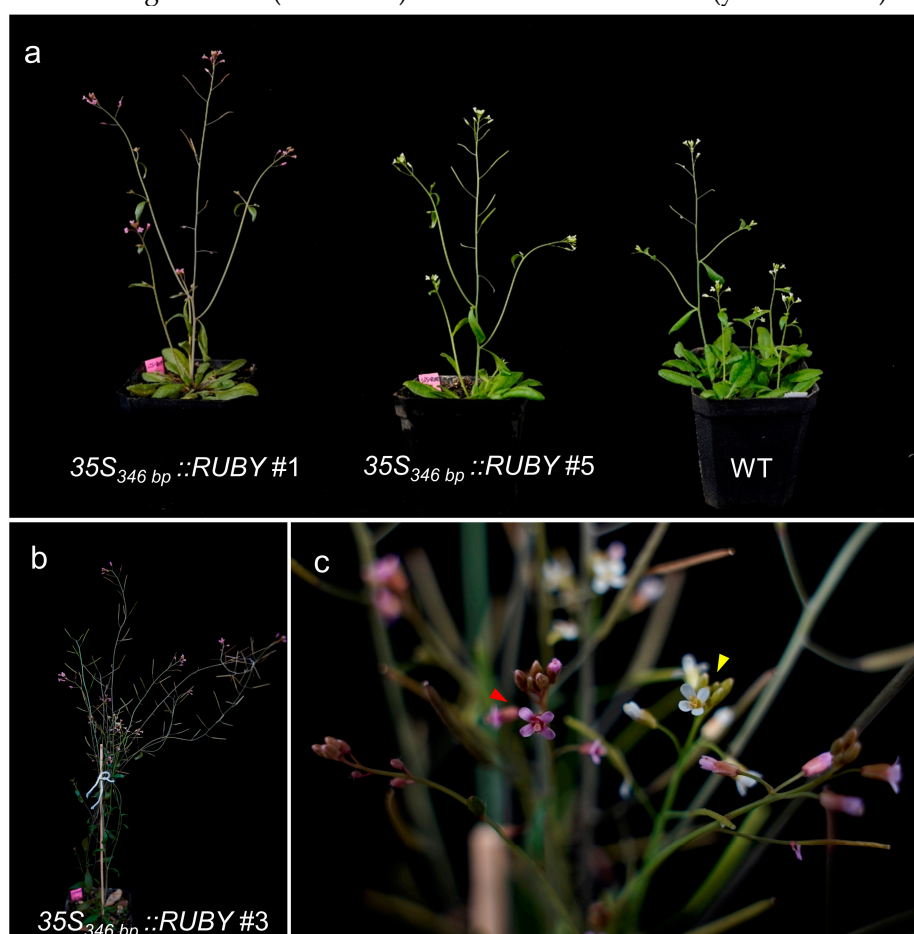
Supplemental Figure S4. *RUBY* transgenic *N. benthamiana* plants grown in the pots.



Supplemental Figure S5. A non-uniform red coloration of *RUBY* transgenic hairy root of *P. volubilis*. Regions No. 1-3 in this figure are secondary roots that show red coloration throughout, region No. 4 is a partially colored secondary root, region No. 5 is a noncolored primary root, region No. 6 is the noncolored part of the secondary root, and region No. 7 is a noncolored primary root with a colored secondary root (Scale bar = 1 cm).



Supplemental Figure S6. Characterization of *RUBY* transgenic *Arabidopsis*. (a) Growth of *RUBY* transgenic *Arabidopsis*. “WT” indicates wild-type Columbia-0 *Arabidopsis*. (b) Later growth stage of line #3. (c) Enlarged area of the white rectangle in Figure e, line #3 bearing both red (red arrow) and white inflorescences (yellow arrow).



Supplemental Figure S7. *RUBY* transgenic *Arabidopsis* offspring screening and red coloration. (a-f) T2 seedlings of lines #1~#6 of *RUBY* transgenic *Arabidopsis* sowed on 1/2 MS medium containing hygromycin for 14 d.

