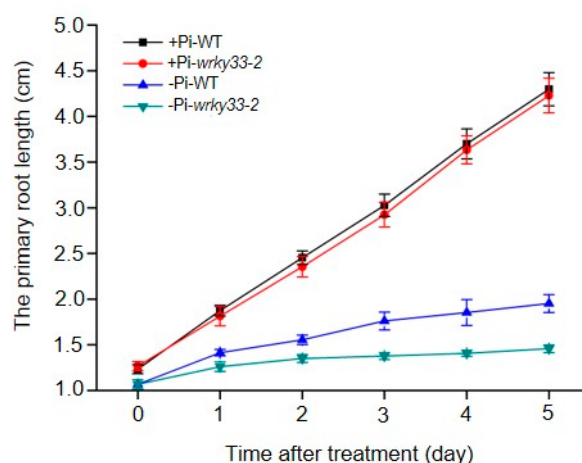
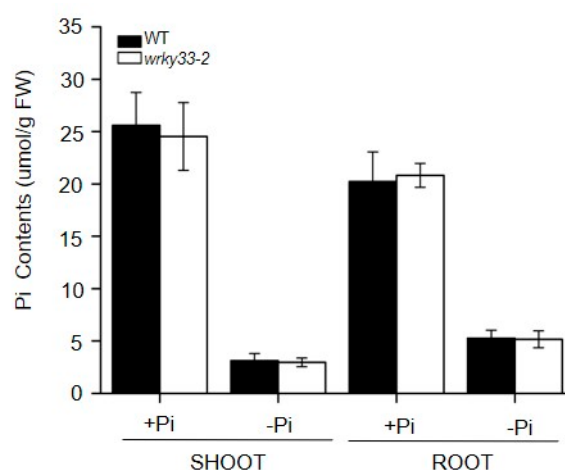


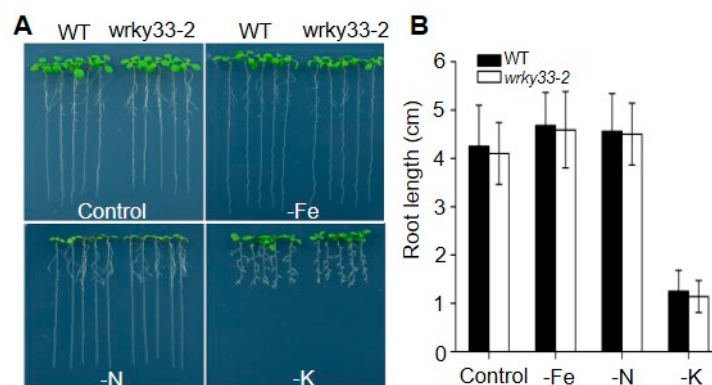
Supplementary datas



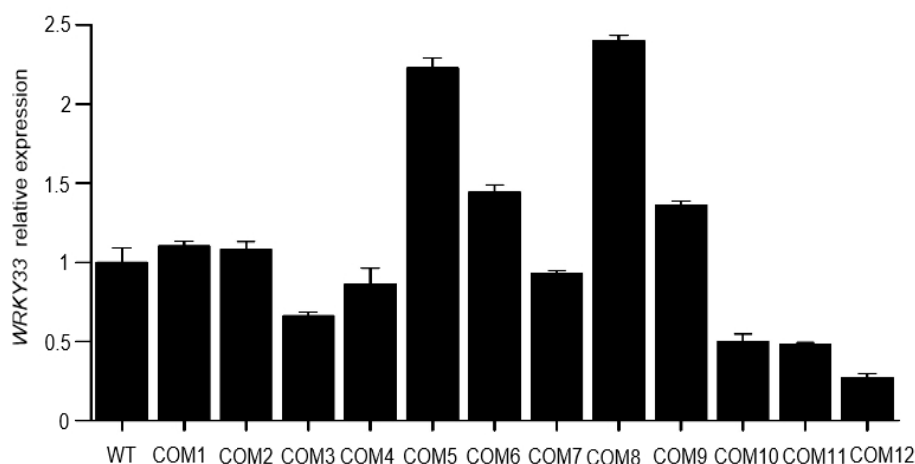
Supplementary figure S1. Root length of WT and *wrky33-2* grown on +Pi or -Pi medium for 5 days. Seedlings were germinated on 1/2 MS agar medium and 4-day-old seedlings were transferred to +Pi or -Pi medium for another 5 days. Data are means \pm SD from three independent experiments ($n = 8$, n represents the number of samples).



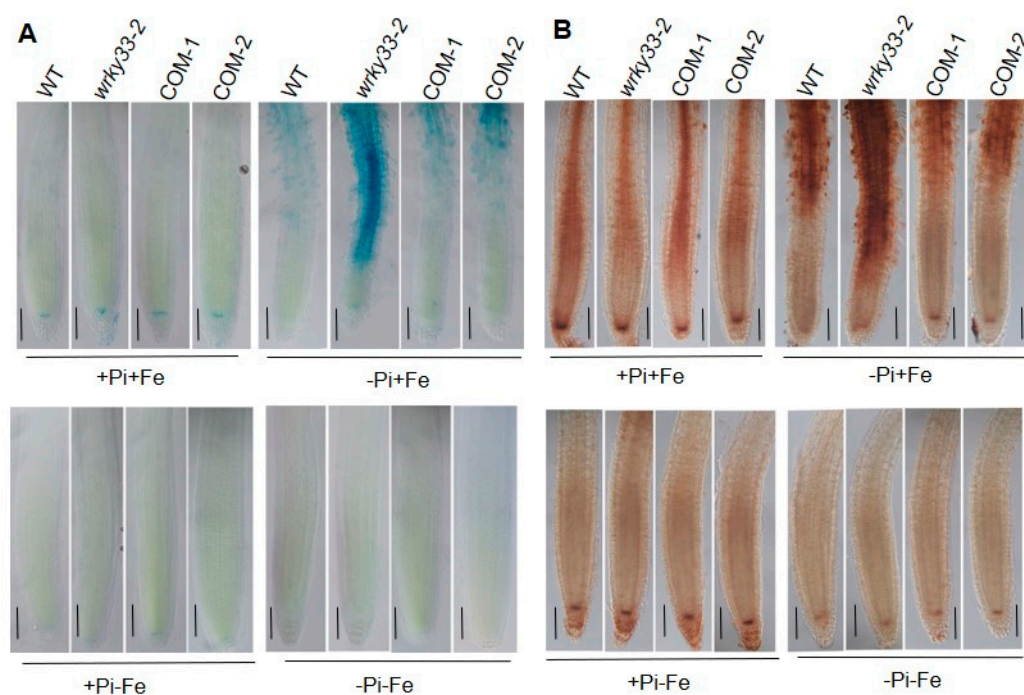
Supplementary figure S2. Pi content in roots and shoot of WT and *wrky33-2* mutant. Six-day-old seedlings grown on +Pi or -Pi medium for another 6 days. Roots and shoots were harvested separately for Pi content determination. Data are means \pm SD of three replicate experiments.



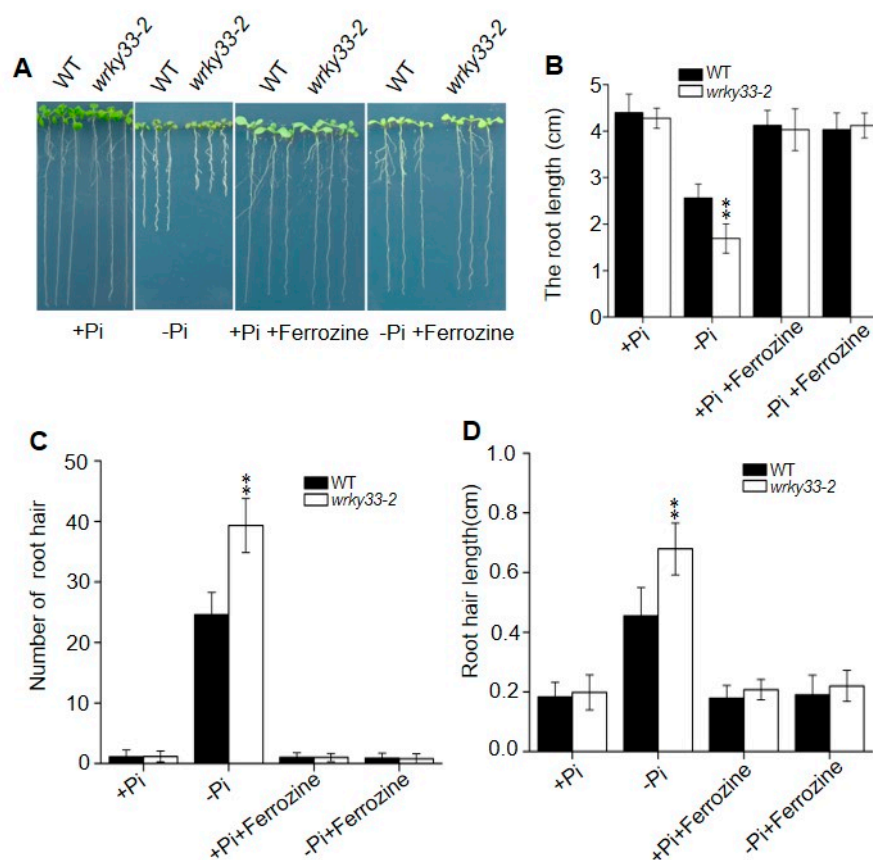
Supplementary figure S3. The seedlings growth under nitrogen(N), potassium(K), and Iron (Fe) deficient conditions. (A)The growth phenotypes of WT and *wrky33-2* mutants. Four-day-old seedlings were transferred to -N, -K, or -Fe medium for 6 days. (B) The statistical analysis of the primary root length as indicated in (A). Data are means \pm SD from three independent experiments (n=15, n represents the number of samples).



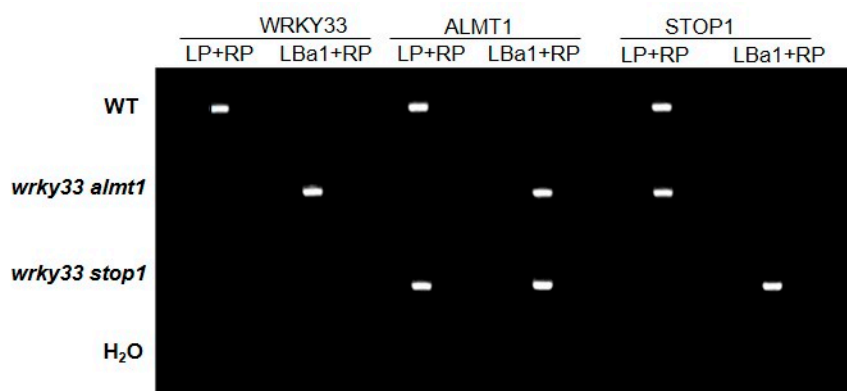
Supplementary figure S4. qRT-PCR analysis of *WRKY33* expression in transgenic plants. 7-day-old plants were excised for RNA extraction and qRT-PCR analysis. *ACTIN2* was used as an internal standard. Data are mean \pm SD from three independent experiments.



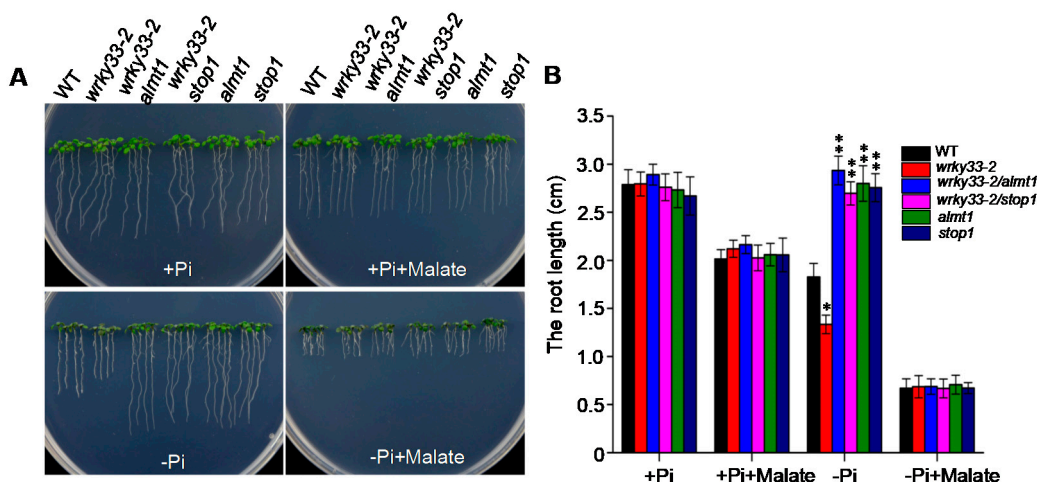
Supplementary figure S5. Pi deficiency-induced Fe accumulation in root tips depended on the presence of Fe in the medium. (A-B) Fe staining by Perls (A) and Perls/DAB (B). Four-day-old seedlings of WT, *wrky33-2* and complementation lines grown on +Pi+Fe, -Pi+Fe, +Pi-Fe and -Pi-Fe medium for 3 days. Bar=50um.



Supplementary figure S6. Ferrozine alleviates Pi deficiency-induced root growth inhibition. **(A)** 4-day-old seedlings of WT and *wrky33-2* were transferred to +Pi and -Pi medium supplemented with 200 μ M ferrozine for 6 days. **(B)** The statistical analysis of the primary root length in **(A)**. Data are means \pm SD from 3 independent experiments ($n = 15$). The root hair number **(C)** and root hair length **(D)**. Four-day-old seedlings of WT and *wrky33-2* grown on +Pi and -Pi medium supplemented with 200 μ M ferrozine for 3 days. Data are means \pm SD from three independent experiments ($n = 15$, n represents the number of samples). Asterisks in **(B)**, **(C)** and **(D)** indicate a significant difference from the WT (Tukey's test; **, $P < 0.01$).



Supplementary figure S7. The identification of *wrky33 almt1* and *wrky33 stop1* double mutant. Confirmation of the T-DNA insertion in the *wrky33 almt1* and *wrky33 stop1* double mutant by PCR.



Supplementary figure S8. Effect of malate on the root growth under Pi deficiency condition. (A) The growth phenotype of WT, *wrky33-2*, *wrky33-2 almt1*, *wrky33-2 stop1*, *almt1* and *stop1* seedlings. Four-day-old seedlings were transferred to +Pi or -Pi medium supplemented with or without 1 mM malate for 6 days. (B) The statistical analysis of the primary root length in (A). Data are means \pm SD from three independent experiments ($n = 15$, n represents the number of samples). Asterisks in (B) indicate a significant difference from the WT (Tukey's test; *, $P < 0.05$; **, $P < 0.01$).

Supplementary Table S1

Primers used in this study

Primer name	Primer sequences (5'-3')
(1) qRT-PCR analyze	
<i>Actin2</i> -F	CTGTTCTCTCCTTGTACGCCAGT
<i>Actin2</i> -R	CGGGTAATTCATAGTTCTTCTCGAT
<i>WRKY33</i> -F	CCATCGGTTGTCCAGTGAGG
<i>WRKY33</i> -R	GCTCTGTTTGTGGCGTAACC
<i>ALMT1</i> -F	ACTTGAGAGAGCTGAGTGACC
<i>ALMT1</i> -R	TCTTCTCGGGTCTTCATTCCC
<i>STOP1</i> -F	CCAAGTTCCATCTCAAGCTTTTCT
<i>STOP1</i> -R	TGGGACGTAAAACCTGCGAA
(2) Construction vector	
<i>WRKY33</i> -COM-F	AACTGCAGGCCAAAGGGTGTTGTTATTGA
<i>WRKY33</i> -COM-R	CGGGATCCTCAGGGCATAAACGAATCGA
(4) Identification of mutants	
LBa1	TGGTTCACGTAGTGGGCCATCG
GABI	GGGCTACACTGAATTGCTAGCTC
<i>wrky33-2</i> -LP	ATGTCAGGTC TCGAAGATAT
<i>wrky33-2</i> -RP	CTACACAGTG TAGTGATGTC
<i>almt1</i> -LP	AGTGAGAGAA GGGATTAGAGTAGG
<i>almt1</i> -RP	GGCAACATGA TGACATGAGTC
<i>stop1</i> -LP	AAGACGATTT GTGCAACACC
<i>stop1</i> -RP	CAGACTCACC AACATTCCTG