PIN2 is required for the adaptation of Arabidopsis root to alkaline stress by modulating proton secretion

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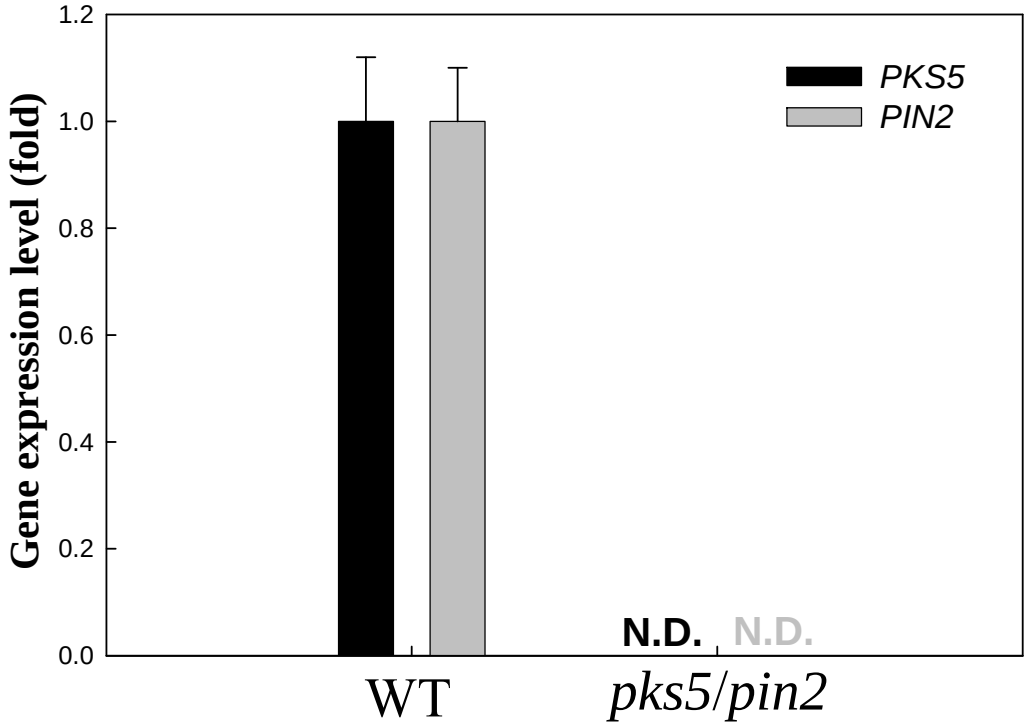
Supplementary Data

Supplementary data are available at *JXB* online:

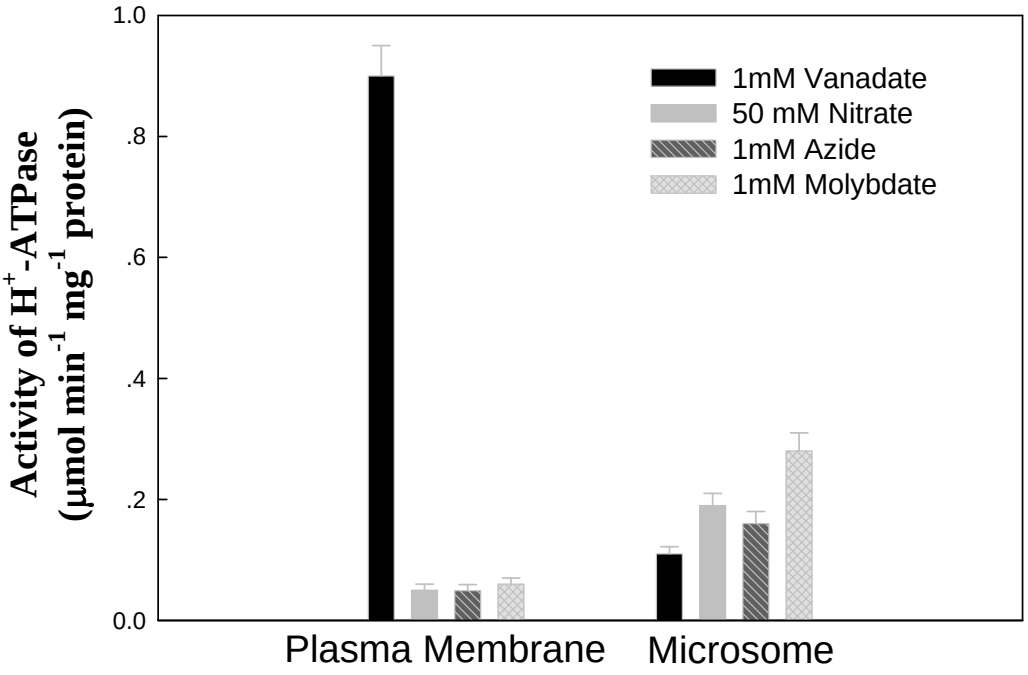
Supplementary Table S1 Gene-specific primers used for PCR

Gene	Code	Primer (5' to 3')
primers specific to the T-DNA of Salk_108074	LP	CGCGTTTAAACTCTTCACAGC
	RP	ATCTTTTTAAAAGCTTCCGCG
	BP	ATTTTGCCGATTTCGGAAC
At-ACT2	U41998	[F]: ATTCAGATGCCCAGAAGTCTTGTTCC
		[R]: ACCACCGATCCAGACACTGTACTTCC
PKS5	NM_128589	[F]: CAAGTTCCACGATGACGAGA
		[R]: ATTCAACCGCGAAATACAAA
PIN2	NM_125091	[F]: TTCCTCGCTGCTGATTCTC
		[R]: CTATCTCCGCATCGGTCTG

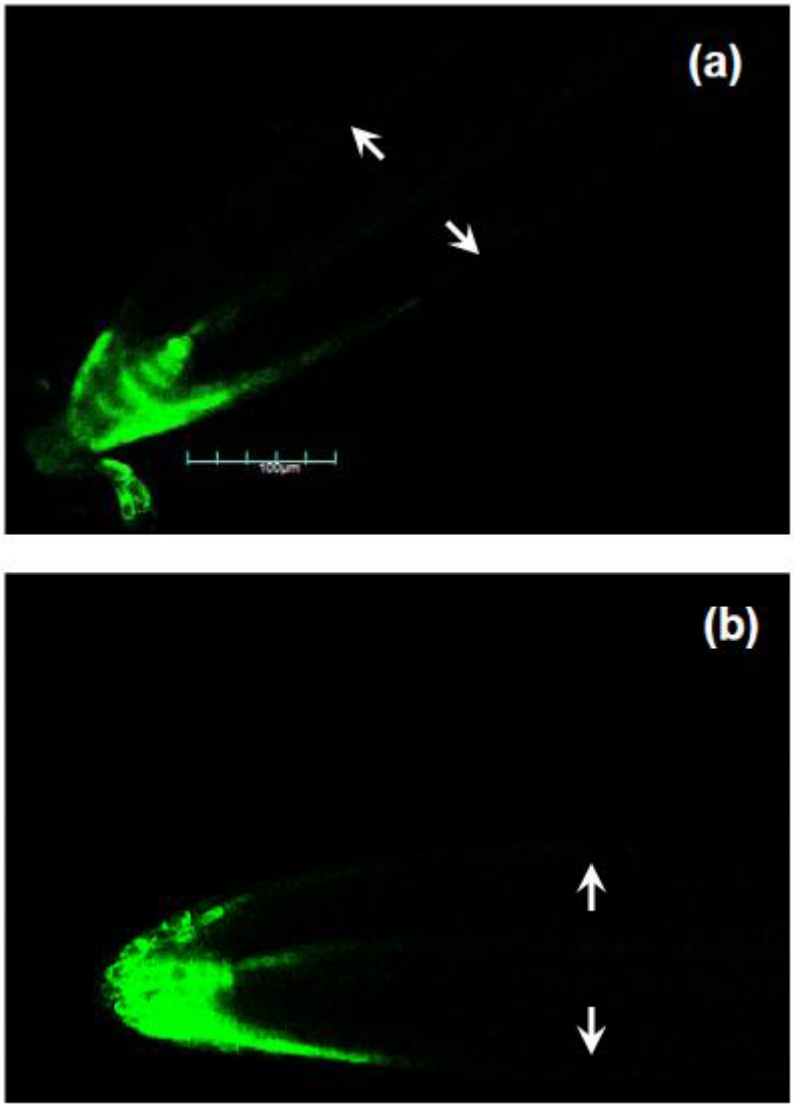
Supplementary Fig.S1 The gene expression of *PKS5* or *PIN2* in the wild-type Arabidopsis plant (WT) or the double mutant (*pks5*/*pin2*). The expression of *PKS5* or *PIN2* in WT was taken as 1-fold.



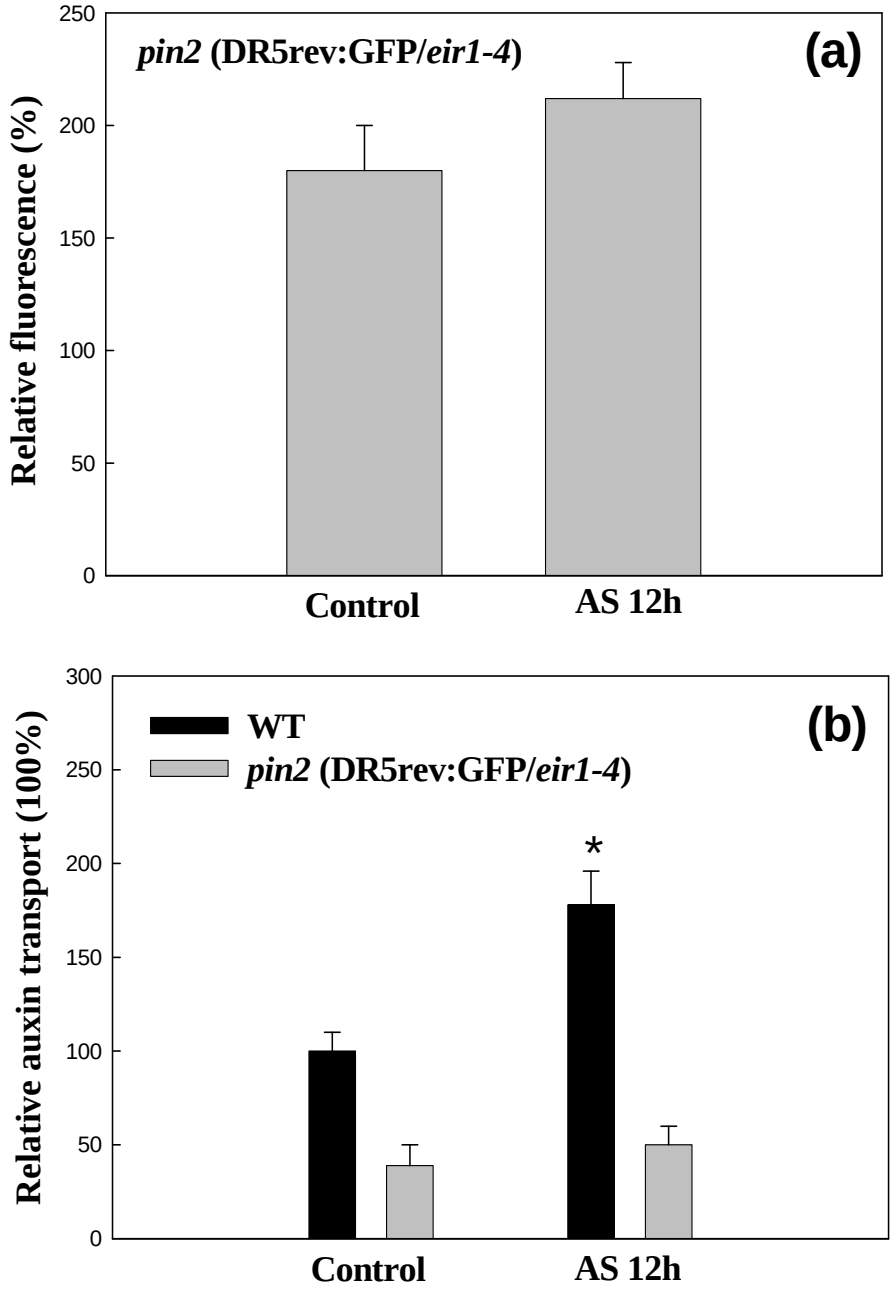
Supplementary Fig.S2 Specific activities of plasma membrane and microsome vesicles isolated from Arabidopsis root.



Supplementary Fig.S3 Auxin distribution and abundance in the root tip of *pin2* mutant Arabidopsis plants (*pin2*) (DR5rev:GFP/*pin2*) under alkaline stress for 12h. 15-d-old Arabidopsis plants were treated with control condition (pH 5.8) (a) and alkaline stress (pH 8.0) for 12h (b) under hydroponic system. White arrowheads indicated no GFP expression. Bar = 100 μm (blue line).



Supplementary Fig.S4 Auxin abundance and basipetal auxin transport in the root tip of wild-type Arabidopsis plants (WT) (DR5rev:GFP) or *pin2* mutant Arabidopsis plants (*pin2*) (DR5rev:GFP/*pin2*) under alkaline stress for 12h. (a) "GFP fluorescence in the root tip (0-200 μm from root cap junction) of WT (DR5rev:GFP) under control condition" are plotted as "100%". (b) Relative auxin transport (basipetal auxin transport) was studied using DR5rev:GFP-based assay, and "GFP fluorescence the epidermal cells of root tip (200 - 520 μm from root cap junction) in WT (DR5rev:GFP) under control condition" are plotted as "100%".



Supplementary Fig.S5 The correlation between *PIN2* transcript abundance and proton flux or primary root elongation in different Arabidopsis natural accessions