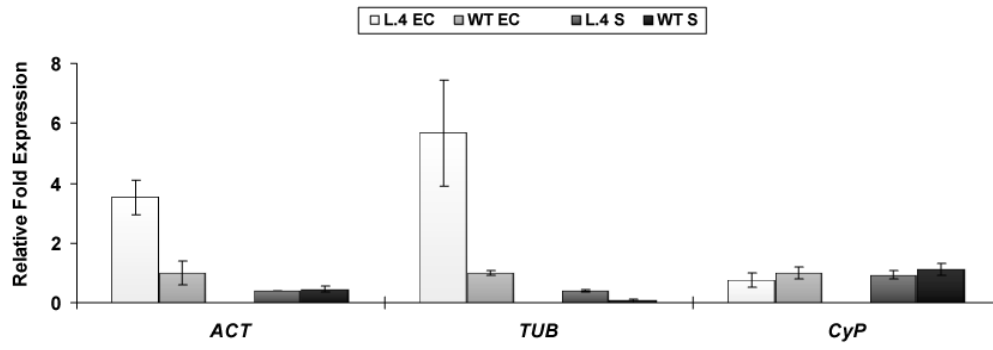


**Additional file 5: Reference gene selection for RT-qPCR gene transcription studies.** (a) microarray identification of differential expression of genes commonly used as references in **root** and **leaf** tissues of AtHMA4- expressing (L.4) and wild-type 17-day-old tomato plants grown in the presence of 5  $\mu$ M Zn; (b) transcription level of actin (ACT), tubulin (TUB), and cyclophilin (CyP) in the epidermis+cortex and stele of roots from AtHMA4- expressing (L.4) and wild type 24-day-old tomato plants grown in the presence of 5  $\mu$ M Zn; (c) Relative expression of cyclophilin in the epidermis+cortex and stele of roots from AtHMA4- expressing (L.4 and L.15) and wild-type 24-day-old tomato plants grown in the presence of 0.5  $\mu$ M Zn; (d) Relative expression of cyclophilin in epidermis+cortex and stele of roots from AtHMA4- expressing (L.4 and L.15) and wild type 24-day-old tomato plants grown in the presence of 1  $\mu$ M Cd; (e) Relative expression of cyclophilin in palisade parenchyma + upper epidermis and spongy parenchyma + lower epidermis of leaves from AtHMA4- expressing (L.4 and L.15) and wild type 17-day-old tomato plants grown in the presence of 5  $\mu$ M Zn. The relative expression level was calculated for 172 pg of cDNA template used in the reaction. All accessions numbers are from NCBI.

<b>(a)</b>							
<b>Leaves</b>							
L.4 vs WT EPP		L.4 vs WT ESP		L.4 ESP vs EPP		WT ESP vs EPP	
Gene	Fold- Change	Gen	Fold- Change	Gene	Fold- Change	Gene	Fold- Change
<a href="#">ABB13293 beta-tubulin [Lycopersicon esculentum]</a>	-1,70126	<a href="#">ABB13293 beta-tubulin [Lycopersicon esculentum]</a>	-2,40579	<a href="#">ABB13293 beta-tubulin [Lycopersicon esculentum]</a>	-1,78593	<a href="#">ABB13293 beta-tubulin [Lycopersicon esculentum]</a>	-1,26293
<a href="#">AAB51592 glyceraldehyde 3-phosphate dehydrogenase [Lycopersicon esculentum]</a>	1,64479			<a href="#">AAB51592 glyceraldehyde 3-phosphate dehydrogenase [Lycopersicon esculentum]</a>	2,24799	<a href="#">AAB51592 glyceraldehyde 3-phosphate dehydrogenase [Lycopersicon esculentum]</a>	4,24621
<a href="#">CAA51679 ubiquitin [Solanum lycopersicum]</a>	-1,30168			<a href="#">CAA51679 ubiquitin [Solanum lycopersicum]</a>	1,75594	<a href="#">CAA51679 ubiquitin [Solanum lycopersicum]</a>	1,413
		P17786 RecName: Full=Elongation factor 1-alpha; Short=EF-1-alpha	1,2014	P17786 RecName: Full=Elongation factor 1-alpha; Short=EF-1-alpha	1,30828		
				<a href="#">CAA41207 ubiquitin [Solanum lycopersicum]</a>	1,42027		
				P17786 RecName: Full=Elongation factor 1-alpha; Short=EF-1-alpha	1,20743		
				P17786 RecName: Full=Elongation factor 1-alpha; Short=EF-1-alpha	1,20216		
		<a href="#">P17786 RecName: Full=Elongation factor 1-alpha; Short=EF-1-alpha</a>	-1,3563	<a href="#">P17786 RecName: Full=Elongation factor 1-alpha; Short=EF-1-alpha</a>	-1,35314		
						<a href="#">AAK95390 ribosomal protein L2 [Lycopersicon esculentum]</a>	1,36971
<b>Roots</b>							
L.4 vs WT EC		L.4 vs WT S		L.4 EC vs S		WT EC vs S	
Gen	Fold- Change	Gen	Fold- Change	Gen	Fold- Change	Gen	Fold- Change
<a href="#">AAB51592 glyceraldehyde 3-phosphate dehydrogenase [Lycopersicon esculentum]</a>	-2,27524			<a href="#">AAB51592 glyceraldehyde 3-phosphate dehydrogenase [Lycopersicon esculentum]</a>	-2,01383		

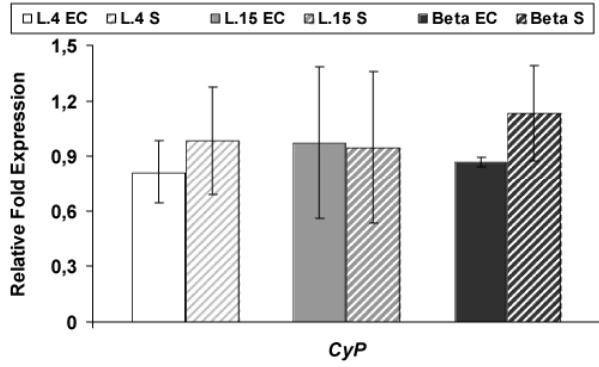
(b)

5  $\mu$ M Zn



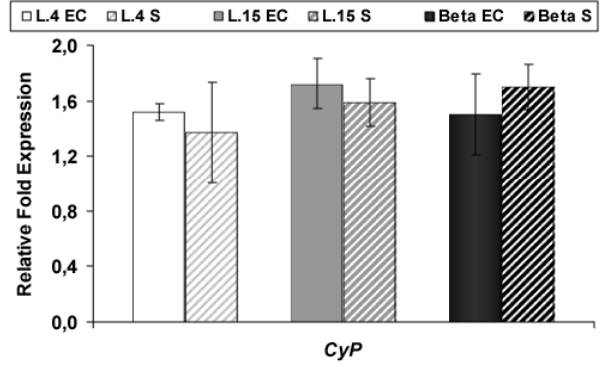
(c)

0.5  $\mu$ M Zn



(d)

1.0  $\mu$ M Cd



(e)

5.0  $\mu$ M Zn

