Supplementary material for:

Hijacking membrane transporters for arsenic phytoextraction

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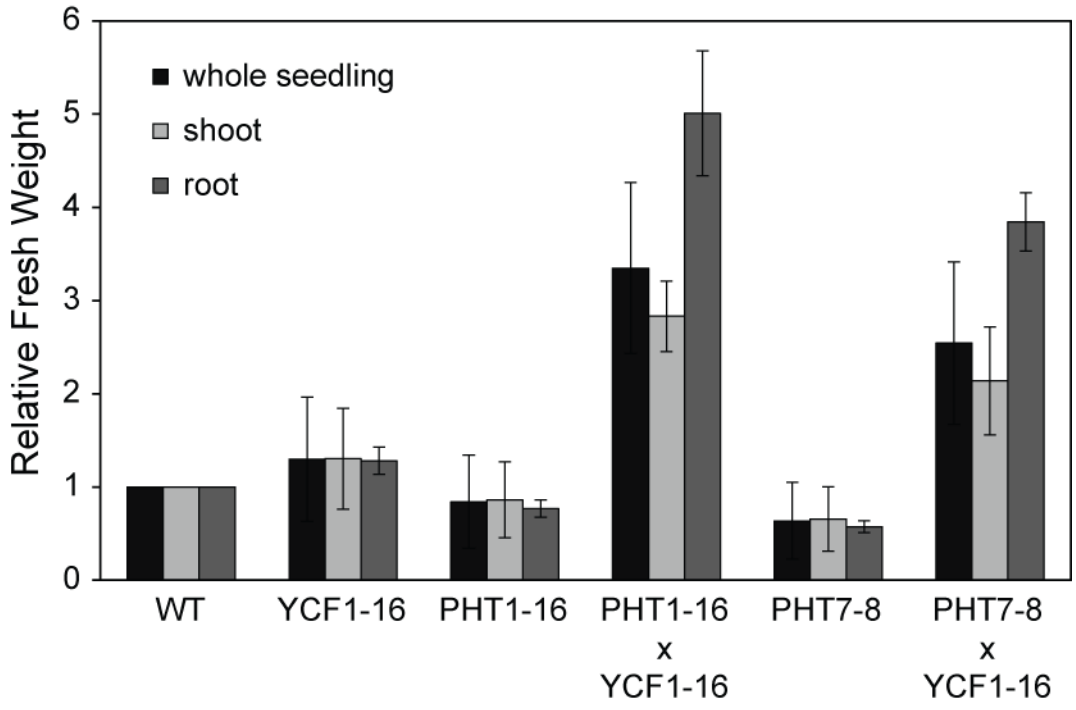
Fig. S1. Arsenate phenotypes of transgenic Arabidopsis plants overexpressing *PHT* and/or *YCF1*. Wild-type (WT) and homozygous transgenic lines were grown on 150 µM sodium arsenate for 30 days. Average fresh weights of roots, shoots, or whole seedlings are shown normalized to the weights in the corresponding tissue from WT. Error bars indicate standard deviation, n > 60.

Fig. S2. Seedling morphology of transgenic Arabidopsis plants overexpressing *PHT* and/or *YCF1* trangenes. Plants were grown on plates in the presence (right) or absence (left) of 150 µM sodium arsenate (AsV) for 21 days.

Fig. S3. *PHT*-overexpression does not confer sensitivity to arsenite. The average seedling fresh weights of wild-type (WT) and *PHT1*- or *PHT7*-overexpression plants grown on 25 µM sodium arsenite for 21 days were quantified. Error bars indicate standard deviation, n > 25.

Fig. S4. Glutathione depletion phenocopies the arsenate-sensitivity of *PHT1ox* and *PHT7ox* plants in *PHToxYCF1ox* co-expressors. Root elongation was quantified for 7-day-old wild-type (WT) and transgenic plants grown for 5 days in the presence of 150 µM sodium arsenate (left) or 150 µm sodium arsenate and 500 µM BSO (right). Black dots mark the location of seedling root tips at the time of transfer from control media to media containing arsenate or arsenate and BSO.

Table S1. Primers used in the current study.



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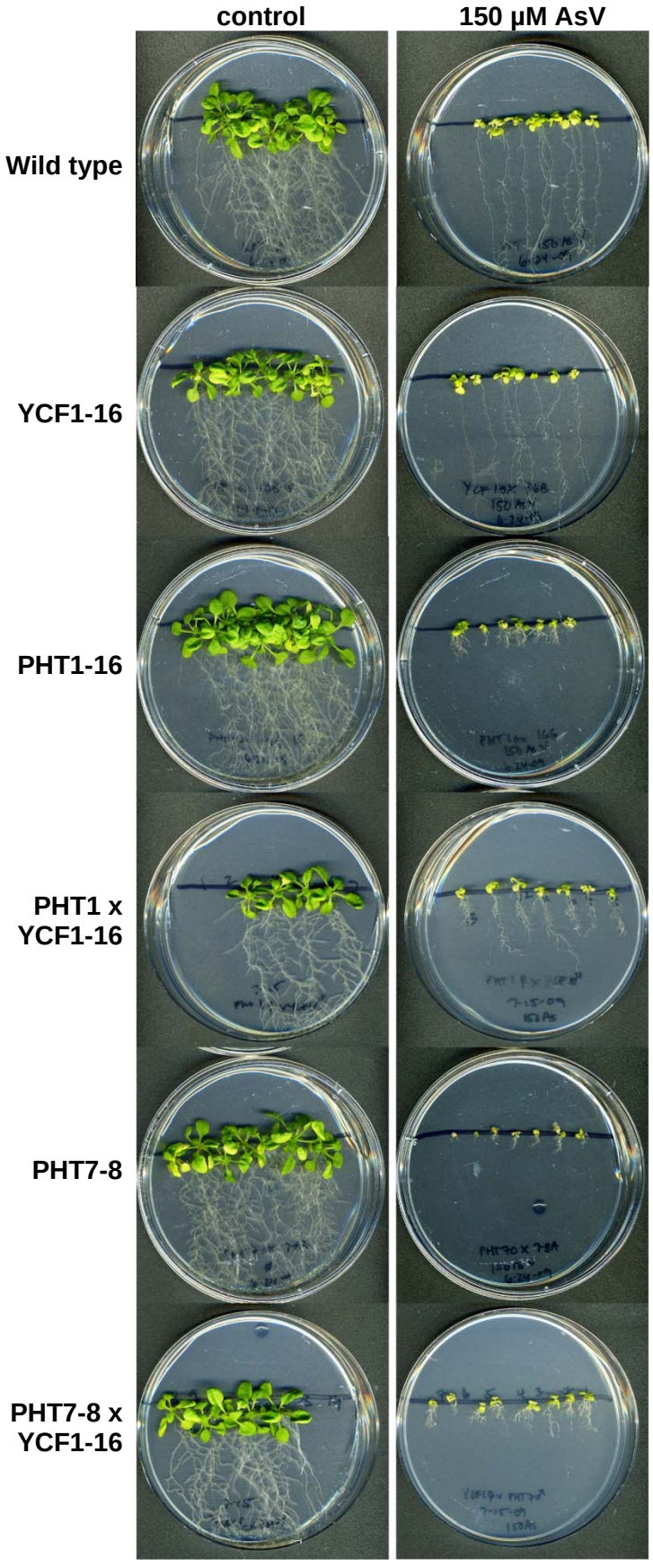

Fig. S2. Seedling morphology of transgenic Arabidopsis plants overexpressing *PHT* and/or *YCF1* trangenes. Plants were grown on plates in the presence (right) or absence (left) of 150 µM sodium arsenate (AsV) for 3 weeks.

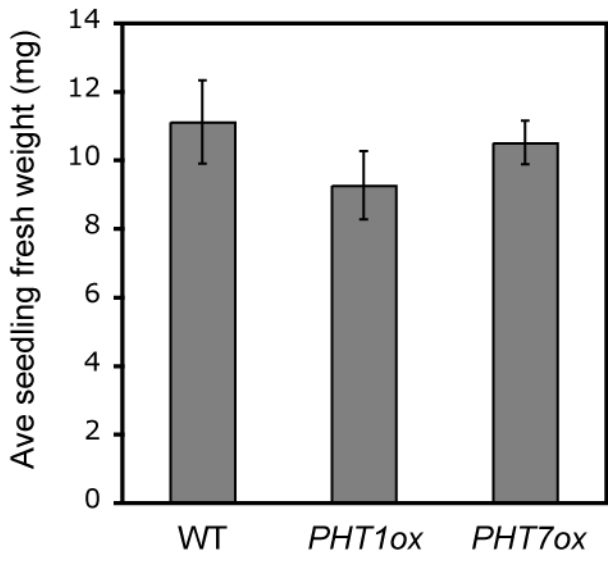

Fig. S3. *PHT*-overexpression does not confer sensitivity to arsenite. The average seedling fresh weights of wild-type (WT) and *PHT1*- or *PHT7*-overexpression plants grown on 25 µM sodium arsenite for 21 days were quantified. Error bars indicate standard deviation, n > 25.

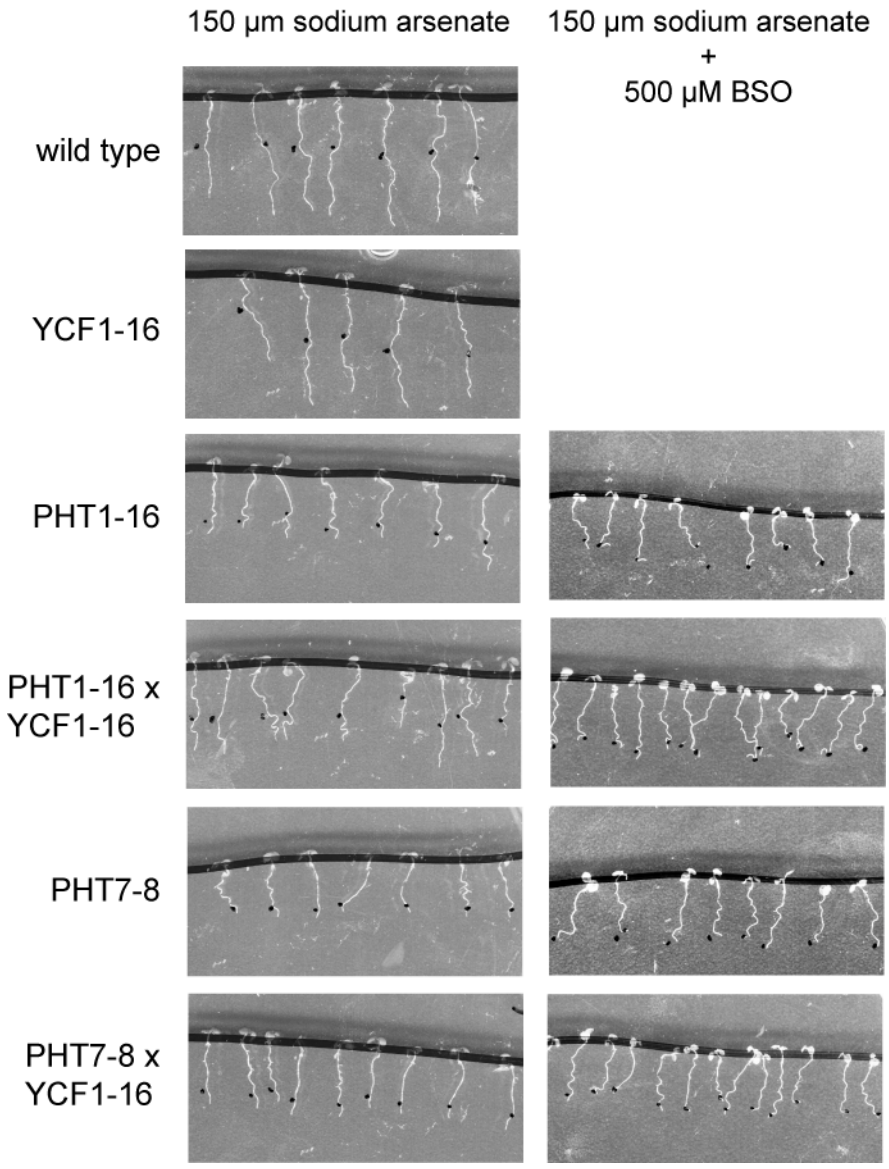

Fig. S4. Glutathione depletion phenocopies the arsenate-sensitivity of *PHT1ox* and *PHT7ox* plants in *PHToxYCF1ox* co-expressors. Root elongation was quantified for one-week-old wild-type (WT) and transgenic plants grown for five days in the presence of 150 µM sodium arsenate (left) or 150 µm sodium arsenate and 500 µM BSO (right). Black dots mark the location of seedling root tips at the time of transfer from control media to media containing arsenate or arsenate and BSO.

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Primer	**Sequence (5' → 3')**
YCF1-XhNcIS	tagtgactcgagccatggctggtaatcttgtttcatgggcct
YCF1-NcMutN	accattcattatccaaggaacttgtgaaacata
YCF1-NcMutS	tatgtttcacaagttccttggataatgaatggt
YCF1-PstIN	gtctagctgcagttgttccagctctccttcta
YCF1-PstIS	tagtgactgcagaaattaaatgatttggat
YCF1-ScBmN	gtctaggagctcggatccttaattttcattgaccaaaccagcct
PHT1_S1	tacgtcggtaccccatggccgaacaacaactaggagtgcta
PHT1_A894	aaggagatgaagcccgtggcgtctaaggaat
PHT1_S863	aattccttagacgccacgggcttcatctcct
PHT1_A1575noHA	tagctgtctagaaagcttttatttctcgtcatggctaacct
PHT1_flank_S	aatacgtcggtaccccatggccga
PHT1_flank_A	ttagctgtctagaaagcttttaagca
PHT7_S1	tacgtcgcggccgcaatcatgagtgcaggagatcaactaaacgtgctaaacgcactcgacgtcgccaa aacgcaatggtatcatttca
PHT7_A876	aaggccatggcgtttcataaattccttggaa
PHT7_S845	tttccaaggaatttatgaaacgccatggcct
PHT7_A1073	aaccagtaaccaggcaccgtgctacaca
PHT7_S1045	ttgtgtagcacggtgcctggttactggt
PHT7_A1608noHA	tagctggggcccgtcgacctatgcagttgacactgcgttgt
PHT7_flank_S	aatacgtcgcggccgcaatcatga
PHT7_flank_A	tttagctggggcccgtcgacctaa