P015 Increased expression of a MYB-related transcription factor, *PHR1*, leads to enhanced P-uptake in *Arabidopsis thaliana*.

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Plants have evolved a number of adaptive strategies to cope with fluctuations in phosphate supply. The current knowledge of the transcriptional regulation of the phosphate starvation response in plants is limited, though the involvement of a MYB-related transcription factor, PHR1, has been discovered (Rubio *et al.*, 2001). In this study we characterise a new T-tagged *phr1*-mutant, and document that the mutant has an altered phosphate allocation between root and shoot and accumulates less sugar and starch than P-starved wildtype. The mutant is impaired in induction of a subset of phosphate-starvation induced genes including a transporter gene (*PHT1-7*), a ribonuclease gene (*RNS1*) and several genes involved in anthocyanin biosynthesis. Over-expression of *PHR1* leads to strongly increased phosphate content irrespective of P-regime. This emphasises the importance of this factor in regulation of plant phosphate starvation responses. Complementation of the *phr1* mutant leads to wild type levels of sugars and starch during phosphate starvation conditions, confirming the involvement of PHR1 in this response. This study shows that targeting a key regulatory element in the phosphate starvation regulatory network is a useful approach for molecular breeding of plants exhibiting more efficient phosphate uptake.