

Table S1. Primers used for expression analyses.

Soybean and common bean accessions	Gene name	Function	Forward primer '5-3' Reverse primer '5-3'	References
Glyma01g07120	<i>GmUPS1-1</i>	Ureide permease 1-1	GGAGACATCTCTCCAAGGAGGGG AGCAAAGTCCAGCAAAGAATGTTAGAGC	Collier and Tegeder (2012) The Plant Journal (2012) 72: 355–367.
Glyma02g12970	<i>GmUPS1-2</i>	Ureide permease 1-2	GGTGATTATAAAAATGGAGACACCTCTTTG GAAGCAAAGTCCAGCAAAGAAAGTTAGAAA	Collier and Tegeder (2012) The Plant Journal (2012) 72: 355–367.
Glyma02g12980	<i>GmUPS1-3</i>	Ureide permease 1-3	CCTGTCTTAAACTTACCCAAGTCATCACTG ACAAAACAATGCCCAAAGGTA	Collier and Tegeder (2012) The Plant Journal (2012) 72: 355–367.
AY461734	<i>PvUPS1</i>	Ureide permease	GTAAGCACTTTCTGGGGTGTGTTCTA CTTGGCAGTGTGAGAAGTCTCTG	Pélessier et al. (2004) Plant Physiology 134: 664–675.
Glyma06g11430	<i>NIA</i>	Nitrate reductase	TTCATCAGAGGCTATGCGTATTCGG CTTTTCAGGTTGGGTGTTGAGGG	Wu et al. (1995) Plant Molecular Biology 29: 491-506.
Glyma11g33560	<i>GS1</i>	Glutamine synthetase 1	CTATTCCTCAACAAGAGGCACGC GCCAACACCACAGTAGTATGGACC	Morey (2002) Plant Physiology 28: 182-193.
Glyma03g28410	<i>GOGAT</i>	Glutamate synthase	ACACTCTCATCTTCTCTCTCTCTCTCG CGTTGTGGAGGGAAGGGAATG	O'Rourke (2014) Annals of Botany 113: 1107-1120.
Glyma17g33050	<i>AAT5</i>	Aspartate aminotransferase 5	GCTCAATCTTACAGTAAAAATCTCGGTCTC TTCCAACAACATCGGCAACTATCC	Wadsworth (1993) Plant Molecular Biology 21: 993–1009.
Glyma18g06840	<i>AS</i>	Asparagine synthase	CTGTATGAGGAGCACGGAGAAAACCTTA TCATCATTCAACCCCTCAATTCAGAG	Hughes et al. (1997) Plant Molecular Biology 33:301-311.
Glyma14g09510	<i>ASPG1a</i>	Asparaginase	GCGCGGCAGCAACATCCACG CTTCACCCGTGCACGATACGCC	Pandurangan et al. (2012) Journal of Experimental Botany 63: 3173-3184.
Glyma17g35650	<i>ASPG1b</i>	Asparaginase	CGGCAGCGACATCCACAGGG CTCGCCCGTGCACGATACACC	Pandurangan et al. (2012) Journal of Experimental Botany 63: 3173-3184.
Glyma02g02230	<i>HIUH</i>	Hydroxyisourate hydrolase	TTGGAGAGGATCTGTTTTCAAATGAAGAG GTGACGAATTACTTGCTGTCCGTTGAC	Raychaudhuri and Tipton (2002) 130:2061-2068.
Glyma15g07910	<i>ALN1</i>	Allantoinase 1	TATCCTACAACCGTGTCAAAGGAAAACTA AAGAACCACAGCACTTAAGAGCCCC	Duran and Todd (2012) Plant Physiology and Biochemistry 54: 149-155.
Glyma13g31430	<i>ALN2</i>	Allantoinase 2	TTACGAAGGACACAAGAAAAGGTGGC GACAAGTCTCAACACTTATGCTGTCAACAT	Duran and Todd (2012) Plant Physiology and Biochemistry 54: 149-155.
Glyma15g16870	<i>AAH</i>	allantoate amidohydrolase	GATATACGAGCGATAGATGACCTTGGACG CTTAGATCCGAATCACAATCACAGCAC	Werner et al. (2008) Plant Physiology 146: 418-430.
Glyma11g37250	<i>UU</i>	ubiquitous urease	AGCATTGGCAAGGCTGGTAGTTC ATTCAGTTTCATGTCTCGTTTGGTGAGC	Goldraj et al. (2003) Plant Physiology 132:1801–1810.
Glyma07g01730	<i>VSPa</i>	Vegetative storage protein α	TTAAAGAAGGCTGGCTACCACACATG GGTCTGCTTTCGCTCTGTGG	Mason et al. (1988) Plant Molecular Biology 11: 845–856.
Glyma08g21410	<i>VSPb</i>	Vegetative storage protein β	GGCATAGATAACACCGTACTCTCTAATATCCC CCCATTTCATCATATAAGGTTTCATTAAATTCC	Mason et al. (1988) Plant Molecular Biology 11: 845–856.
Glyma18g52780	<i>ACT11</i>	Cytoskeletal Actin	CGGTGGTTCTATCTTGGCATC GTCTTTCGCTTCAATAACCCTA	Hu et al. (2009) BMC Molecular Biology 10: 93–104.
Glyma12g05510	<i>SKIP16</i>	SKP1/ASK-interacting protein 16	CTAATGGCAATTGCAGCTCTC AGATAGGGAATTGTGCAGGT	Hu et al. (2009) BMC Molecular Biology 10: 93–104.

Figure S1. Representative images of roots from (A to C) three individual plants of wild-type (WT) and *UPS1*-overexpression lines OE1 and OE1. Bars = 5 cm.

