

**Additional Table 2 Functionally characterised N transporters in phylogenetic trees**

Substrate	Genefamily	Subfamily	Gene (Accession)	References
Amino Acids	ATF	AAP	AtAAP1 (At1g58360), AtAAP2 (At5g09220), AtAAP3 (At1g77380), AtAAP4 (At5g63850), AtAAP5 (At1g44100), AtAAP6 (At5g49630), AtAAP7 (At5g23810), AtAAP8 (At1g10010), HvAAP1(-), HvAAP2(-),	<b>AtAAP1</b> Hsu et al., 1993, Frommer et al., 1993, Boorer et al., 1996, Chang et al., 1997, Lee et al., 2007; <b>AtAAP1-2</b> Kwart et al., 1993; <b>AtAAP1-6</b> Fischer et al., 2002; <b>AtAAP1-5</b> Fischer et al., 1995; <b>AtAAP1,5-8</b> Okumoto et al., 2002; <b>AtAAP2</b> Zhang et al., 2010; <b>AtAAP5</b> Boorer et al., 1997; HvAAP1,2 (unpublished)
		LHT	AtLHT1 (At5g40780), AtLHT2 (At1g24400), OsHT1 (Os08g03350)	<b>AtLHT1</b> Chen et al., 1997, Himer et al., 2006, Svennerstam et al., 2007; <b>AtLHT2</b> Lee et al. 2004; <b>OsHT1</b> LIU et al., 2005
		ProT	AtProT1 (At2g39890), AtProT2 (At3g55740), AtProT3 (At2g36590), OsProT (Os03g44230), HvProT (BAB69951), HvProT2 (AB545851)	<b>AtProT1,2</b> Rentsch et al., 1996; <b>AtProT1-3</b> Grallath et al., 2005, Lehmann et al., 2011; <b>OsProT</b> Igarashi et al., 2000; HvProT Ueda et al., 2001; <b>HvProT2</b> Fujiwara et al., 2010
		GAT	AtGAT1 (At1g08230)	<b>AtGAT1</b> Meyer et al, 2006
		ANT	AtANT1 (At3g11900)	<b>AtANT1</b> Chen et al, 2001
		AUX	AtLAX1 (At5g01240), AtLAX3 (At1g77690)	<b>AtAUX1</b> Swarup et al., 2001 and 2004, Kleine-Vehn et al., 2006, Carrier et al., 2009, Blakeslee et al., 2007; <b>AtLAX3</b> Lee et al., 2011
	APC	CAT	AtCAT1 (At4g21120), AtCAT2 (At1g58030), AtCAT3 (At5g36940), AtCAT5 (At2g34960), AtCAT6 (At5g04770), AtCAT7 (At3g10600), AtCAT8 (At1g17120)	<b>AtCAT1</b> Frommer et al., 1995; <b>AtCAT1,2,3,5,6,8</b> Su et al., 2004; <b>AtCAT6</b> Hammes et al., 2006; <b>AtCAT8</b> Yang et al., 2010
		GABA	AtBAT1 (At2g01170)	<b>AtBAT1</b> Dundar et al., 2009
		LAT	OsPUT1 (Os02g47210)	<b>OsPUT1</b> Mulangi et al., 2011
	Nitrate & Peptides	NRT1/PTR	I	AtNRT1.1 (At1g12110), BnNRT1.2 (Q43390), AgDCAT1 (Q7Y0R5), AtNRT1.2 (At1g69850), AtNRT1.4 (At2g26690), OsNRT1.3 (Os10g40600), OsSP1 (Os11g12740)
II			AtNRT1.5 (At1g32450), AtNRT1.8 (At4g21680), <b>AtPTR1 (At3g54140), AtPTR2 (At2g02043), AtPTR4 (At2g02020), AtPTR5 (At5g01180), AtPTR6 (At1g62200), OsPTR1 (Os07g01070), OsPTR4 (Os07g41250), OsPTR5 (Os04g50940), OsPTR6 (Os04g50950), OsPTR7 (Os01g04950), OsPTR8 (Os03g51050), HvPTR1 (BAJ95903)</b>	<b>AtNRT1.5</b> Lin et al., 2008; <b>AtNRT1.8</b> Li et al., 2010; <b>AtPTR1</b> Dietrich et al., 2004; <b>AtPTR2</b> Song et al., 1997, Chiang et al., 2004; <b>AtPTR3</b> Karim et al., 2005, 2007; <b>AtPTR4,6</b> Weichert et al., 2011; <b>AtPTR1,5</b> Komarova et al., 2008, Hammes et al., 2010; <b>At1g68570</b> Sugiura et al., 2007; <b>OsPTR1-8</b> Ouyang et al. 2010; <b>HvPTR1</b> Waterworth et al., 2000, West et al., 1998;
III			<b>AtPTR3 (At5g46050), OsPTR3 (Os10g33210)</b>	<b>AtPTR3</b> Karim et al., 2005, 2007; <b>OsPTR1-8</b> Ouyang et al. 2010;
IV			AtNAXT1 (At3g45650), AtNRT1.6 (At1g27080), AtNRT1.7 (At1g69870), AtNRT1.9 (At1g18880), AtNRT1.11 (At1g52190), <b>OsPTR2 (Os12g44100)</b>	<b>AtNAXT1</b> Segonzac et al., 2007; <b>AtNRT1.6</b> Almagro et al., 2008; <b>AtNRT1.7</b> Fan et al., 2009; <b>AtNRT1.11</b> Nambara et al., 2009; <b>AtNRT1.9</b> Wang et al., 2011; <b>OsPTR1-8</b> Ouyang et al. 2010;
Oligopeptides	OPT	<b>AtOPT1 (At5g55930), AtOPT3 (At4g16370), AtOPT4 (At5g64410), AtOPT5 (At4g26590), AtOPT6 (At4g27730), AtOPT7 (At4g10770), OsGT1 (Os06g03560)</b>	<b>AtOPT1,4-7</b> Koh et al., 2002; <b>AtOPT3</b> Wintz et al., 2003; <b>AtOPT4</b> Osawa et al., 2006; <b>AtOPT6</b> Cagnac et al., 2004, Pike et al., 2009; <b>OsGT1</b> Zhang et al. 2004	
Chelated Metals	YSL	AtYSL1 (At4g24120), AtYSL2 (At5g24380), AtYSL3 (At5g53550), OsYSL2 (Os02g43370), OsYSL6 (Os04g32050), OsYSL15 (Os02g43410), OsYSL18 (Os01g61390), HvYS1 (BAE71187.1), HvYS2 (BAL02122)	<b>AtYSL1</b> Le Jean et al., 2005; <b>AtYSL1,3</b> Waters et al., 2006, Chu et al., 2010; <b>AtYSL2</b> DiDonato et al., 2004, Schaaf et al., 2005; <b>OsYSL2</b> Koike et al., 2004, Ishimaru et al., 2010; <b>OsYSL6</b> Sasaki et al., 2010; <b>OsYSL15</b> Lee et al., 2009, Inoue et al. 2009; <b>OsYSL18</b> Aoyama et al., 2009; <b>HvYS1</b> Murata et al., 2006; <b>HvYS2</b> Araki et al., 2011	

\*Information regarding peptide transporters in NRT1/PTR and oligopeptide transporters in OPT families is given in green letters.