Table 4: Expression profile of candidate genes related to low Pi treatment from transcriptome database									
QTL	**MSU ID**	**Experiment ID**	**Log2-ratio**	**Fold-Change**	**Stimulus**	**Stimulus description**	**Genotype**	**Genotype Description**	**Anatomical Part**
qREP1.1	*LOC_Os01g21240.1*								
	LOC_Os01g21250.1								
qRPPUE1.2	LOC_Os01g43220.1	Os00036	1.11	2.14	phosphorus (no P for 10d; shoot) vs. iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	LOC_Os01g43250.1								
	LOC_Os01g43270.1								
	LOC_Os01g45510.1								
	LOC_Os01g45520.1								

		OS-00239	1.57	2.92	phosphorus (Dular; 1μM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1μM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1μM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300μmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1μM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		LOC_Os01g45530.1	OS-00036	1.21	2.24	phosphorus (no P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00091	1.03	2.04	phosphorus (low Pi for 6h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016mM NaH2PO4) for 6h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

		OS-00036	1.37	2.55	phosphorus (no P for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM $FeCl_3$) concentration but lacking phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450 mmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

qRPPUE1.3		[illegible]	1.09	2.13	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		LOC_Os01g45550.1	OS-00091	1.01	2.02	phosphorus (low Pi for 24h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 24h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

			OS-00036	-1.39	-2.61	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron ($FeCl_3$) and phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00239	-1.9	-3.88	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
			-2.45	-5.51	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

	LOC_Os01g57390.1	OS-00096	-1.05	-2.09	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots
			-1.47	-3.23	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
	LOC_Os01g57400.1		-1.12	-2.74	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

		OS-00036	1.4	2.64	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		LOC_Os01g57410.3	OS-00239	-1.04	-2.05	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Dular; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

		OS-00036	-1.51	-2.88	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
		OS-00096	2.76	6.8	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

			2.42	5.36	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots
		OS-00036	2.38	5.17	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		[illegible]	1.53	2.89	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00239	1.53	2.9	phosphorus (Pusa Basmati 1; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Pusa Basmati 1 seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Pusa Basmati 1	Semi-dwarf aromatic (Evolved Basmati) cultivar developed by The Indian Agricultural Research Institute (IARI), released in 1989. Low number of seeds (approx. 181) per panicle (Deshmukh et al., 2010, Funct Integr Genomics 10: 339-47). Pusa Basmati 1 is susceptible to Magnaporthe oryzae strain Mo-nwi-53 (Jain et al., 2017, Front Plant Sci. 8: 93). Pusa Basmati 1 is sensitive to low phosphate (Pi) content in the soil (Mehra et al., 2016, Front Plant Sci. 6: 1184).	roots

		LOC_Os01g57420.1	OS-00036	1.42	2.65	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

qRRSR1.4			1.37	2.57	iron; phosphorus (no Fe and P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron ($FeCl_3$) and phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			1.01	2.01	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00091	-1.13	-2.19	phosphorus (low Pi for 6h) untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016mM NaH2PO4) for 6h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling
		OS-00239	-1.79	-3.4	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

LOC_Os01g57440.1	OS-00096	1.04	2.06	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
LOC_Os01g57450.1								
LOC_Os01g57460.1	OS-00096	1.26	2.4	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

LOC_Os01g57470.1	OS-00096	2.6	4.11	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
	OS-00003	1.44	2.57	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots

			-1.92	-3.77	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
	LOC_Os01g57480.1	OS-00239	-2.55	-4.68	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

		[illegible]	-2.35	-5.01	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
			-2.4	-5.34	phosphorus (Dular; 320µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
	LOC_Os01g57490.1									
	LOC_Os01g66070.1									

		OS-00091	1.42	2.69	phosphorus (low Pi for 24h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 24h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

		OS-00036	1.41	2.67	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00239	1.37	3.14	phosphorus (Pusa Basmati 1; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Pusa Basmati 1 seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Pusa Basmati 1	Semi-dwarf aromatic (Evolved Basmati) cultivar developed by The Indian Agricultural Research Institute (IARI), released in 1989. Low number of seeds (approx. 181) per panicle (Deshmukh et al., 2010, Funct Integr Genomics 10: 339-47). Pusa Basmati 1 is susceptible to Magnaporthe oryzae strain Mo-nwi-53 (Jain et al., 2017, Front Plant Sci. 8: 93). Pusa Basmati 1 is sensitive to low phosphate (Pi) content in the soil (Mehra et al., 2016, Front Plant Sci. 6: 1184).	shoot

			1.25	2.41	iron (no Fe for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

	LOC_Os01g66100.1	OS-00036	1.24	2.35	phosphorus (no P for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

			1.08	2.12	phosphorus (no P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM $FeCl_3$) concentration but lacking phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450 mmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

			1.06	2.09	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

qRPUpE1.5		OS-00239	1.04	2.12	phosphorus (Dular; 320µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

			1.73	3.3	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM $FeCl_3$) concentration but lacking phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00036	1.55	2.93	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			1.22	2.33	iron; phosphorus (no Fe and P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron ($FeCl_3$) and phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

	LOC_Os01g66110.1	OS-00282	-1.47	-2.76	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr3; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot
		OS-00096	-1.48	-2.81	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

		OS-00282	-1.69	-3.24	phosphorus (phr1/2/3; -Pi for 7d) phosphorus (Nipponbare; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot
		OS-00282	-1.77	-3.41	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr1; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot

	LOC_Os01g73880.1								
	LOC_Os01g73890.1	OS-00003	1.35	2.56	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots
		OS-00239	-1.06	-2.08	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

	LOC_Os01g73900.1	OS-00036	-1.74	-3.34	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

qRPUpE1.6	*LOC_Os01g73910.1*	OS-00036	-1	-2.01	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

	LOC_Os01g73910.1	OS-00036							
			-1.1	-2.12	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	LOC_Os01g73950.1	OS-00003	1.06	2.1	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots
	LOC_Os03g59660.1								

			1.92	3.68	phosphorus (no P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

			OS-00036	1.5	2.76	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

qRPUpE3.7	*LOC_Os03g59670.1*		1.14	2.2	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots
		OS-00096	1.04	2.06	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

		OS-00036	-1.05	-2.03	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	LOC_Os03g59680.1								
	LOC_Os03g59690.1								
	LOC_Os03g59700.1								
	LOC_Os03g59710.1								
	LOC_Os03g59720.1								
	LOC_Os03g59730.1								
	LOC_Os03g59740.1								
	LOC_Os03g60190.1	OS-00003	1.74	3.38	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots

LOC_Os03g60190.1	OS-00003	1.04	2.02	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots
LOC_Os03g60200.1								
	OS-00036	1.53	2.88	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		[illegible]	1.49	2.81	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00239	-0.38	-0.56	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Dular; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		LOC_Os03g60210.1	OS-00036	-1.17	-2.25	phosphorus (no P for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

			-1.3	-2.41	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
		OS-00239	-2.04	-4.3	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

			-2.41	-5.26	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
		OS-00239	-1.73	-3.26	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		OS-00096	2.06	4.14	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
			1.6	3.02	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

		OS-00036	1.54	2.91	ron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

qRPUpE3.8	*LOC_Os03g60220.1*	[illegible]	1.36	2.57	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			-1.14	-2.18	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
		OS-00239	-1.36	-2.63	phosphorus (Dular; 320µM Pi; root) phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

			-1.73	-3.26	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

LOC_Os03g60240.1	OS-00036	1.24	2.35	phosphorus (no P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	OS-00096	-1.05	-2.07	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

LOC_Os03g60250.1	OS-00036	-1.01	-2.01	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	OS-00003	-1.05	-2.03	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg^{2+} and SO_4^{2-}, 0.2mM Ca^{2+} and K^+, 0.6mM NO_3^-, and 1ppm (13.3µM) arsenate (Na_2HAsO_4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al^{3+}) (Arbelaez et al., 2017, Plant Direct 1).	roots

		OS-00282	1.4	2.63	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (Nipponbare; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH_2PO_4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m^{-2} s^{-1}) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot

		LOC_Os03g60260.1	OS-00036	1.3	2.47	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

	LOC_Os05g00260.1	OS-00036	1.2	2.28	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00282	1.2	2.3	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr3; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot
	LOC_Os03g60279.1								
			2.08	4.29	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

		OS-00096	1.7	3.24	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
		OS-00239	1.52	2.76	phosphorus (Pusa Basmati 1; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Pusa Basmati 1 seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Pusa Basmati 1	Semi-dwarf aromatic (Evolved Basmati) cultivar developed by The Indian Agricultural Research Institute (IARI), released in 1989. Low number of seeds (approx. 181) per panicle (Deshmukh et al., 2010, Funct Integr Genomics 10: 339-47). Pusa Basmati 1 is susceptible to Magnaporthe oryzae strain Mo-nwi-53 (Jain et al., 2017, Front Plant Sci. 8: 93). Pusa Basmati 1 is sensitive to low phosphate (Pi) content in the soil (Mehra et al., 2016, Front Plant Sci. 6: 1184).	roots

	LOC_Os04g50216.1	OS-00036	1.29	2.54	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots
		OS-00003	-1.05	-2.05	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg^{2+} and SO_4^{2-}, 0.2mM Ca^{2+} and K^+, 0.6mM NO_3^-, and 1ppm (13.3µM) arsenate (Na_2HAsO_4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al^{3+}) (Arbelaez et al., 2017, Plant Direct 1).	roots

	OS-00239	-1.24	-2.3	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
LOC_Os04g50660.1								
LOC_Os04g50680.1								
LOC_Os04g50700.1								
LOC_Os04g50710.1								
LOC_Os04g50720.1	OS-00239	-1.2	-2.29	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

qRPUpE4.9	*LOC_Os04g50730.1*	OS-00096	1.3	2.05	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
		OS-00003	1.46	2.76	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots
	LOC_Os04g50740.1								

		OS-00096	1.71	3.28	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
			1.21	2.32	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

		LOC_Os04g50760.1		-1.01	-2.07	iron; phosphorus (no Fe and P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00036	-1.07	-2.17	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM $FeCl_3$) concentration but lacking phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			-1.56	-3.06	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots
	LOC_Os05g29740.1								
	LOC_Os05g29750.1								

		OS-00036	1.59	3.01	ron; phosphorus (no Fe and P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			1.46	2.75	phosphorus (no P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM $FeCl_3$) concentration but lacking phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			1.28	2.42	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

qRPPUE5.10	*LOC_Os05g29760.1*			1.05	2.07	phosphorus (no P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

OS-00239	1.01	2.01	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
	-1.11	-2.15	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Dular; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

		OS-00036	-1.47	-2.77	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00030	-2.09	-4.27	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots
	LOC_Os05g31610.1								
		OS-00003	3.91	15.27	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg^{2+} and SO_4^{2-}, 0.2mM Ca^{2+} and K^+, 0.6mM NO_3^-, and 1ppm (13.3µM) arsenate (Na_2HAsO_4).	Bala	Improved indica upland cultivar; origin: Eastern India	roots

		OS-00036	3.9	14.97	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		[illegible]	3.83	14.2	iron (no Fe for 10d; root) vs ron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00239	2.33	7.8	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Dular; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
		OS-00003	2.17	4.89	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots

		OS-00239	1.01	2.15	phosphorus (Pusa Basmati 1; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Pusa Basmati 1 seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Pusa Basmati 1	Semi-dwarf aromatic (Evolved Basmati) cultivar developed by The Indian Agricultural Research Institute (IARI), released in 1989. Low number of seeds (approx. 181) per panicle (Deshmukh et al., 2010, Funct Integr Genomics 10: 339-47). Pusa Basmati 1 is susceptible to Magnaporthe oryzae strain Mo-nwi-53 (Jain et al., 2017, Front Plant Sci. 8: 93). Pusa Basmati 1 is sensitive to low phosphate (Pi) content in the soil (Mehra et al., 2016, Front Plant Sci. 6: 1184).	shoot

			-1.03	-2.04	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00036	-1.48	-2.78	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

	LOC_Os05g31620.1		-2.51	-5.67	iron (no Fe for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

				-1.41	-2.66	phosphorus (low Pi for 24h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 24h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

			OS-00091	-1.6	-3.03	phosphorus (low Pi for 6h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016mM NaH2PO4) for 6h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

			-2.92	-7.58	phosphorus (low Pi for 48h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 48h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling
			-3.47	-11.34	phosphorus (Dular; 320µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		OS-00239	-3.85	-9.32	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
			-3.98	-15.73	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

qRRSR5.11			-5.84	-57.23	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

			7.74	214.4	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

		OS-00036	7.47	175.8	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			[illegible]	6.73	106.4	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

			5.98	63.06	iron (no Fe for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
		OS-00096	5.57	40.69	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P_2O_5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

			4.78	19.27	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots
		OS-00003	4.39	21.6	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots
			4.26	19.28	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots

	LOC_Os05g31670.1	OS-00239	1.59	3.03	phosphorus (Dular; 1µM Pi; root) phosphorus (Dular; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
			1.32	2.43	phosphorus (Pusa Basmati 1; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Pusa Basmati 1 seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Pusa Basmati 1	Semi-dwarf aromatic (Evolved Basmati) cultivar developed by The Indian Agricultural Research Institute (IARI), released in 1989. Low number of seeds (approx. 181) per panicle (Deshmukh et al., 2010, Funct Integr Genomics 10: 339-47). Pusa Basmati 1 is susceptible to Magnaporthe oryzae strain Mo-nwi-53 (Jain et al., 2017, Front Plant Sci. 8: 93). Pusa Basmati 1 is sensitive to low phosphate (Pi) content in the soil (Mehra et al., 2016, Front Plant Sci. 6: 1184).	roots

		OS-00096	-0.73	-2.03	phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the mid-tillering stage on soil from Siniloan, Luzon, the Philippines (phosphorus-deficient; P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) fertilized with phosphorus (equivalent of 60kg P2O5 ha-1), well watered, aerobic.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
			-1.06	-2.26	phosphorus (Dular; 320µM Pi; shoot) phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		OS-00239	-1.12	-2.19	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
			-1.4	-2.73	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		OS-00091	-2.13	-4.37	phosphorus (low Pi for 48h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 48h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

		OS-00091	-2.16	-4.49	phosphorus (low Pi for 72h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 72h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling
		OS-00096	1.62	3.07	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

	LOC_Os05g35110.1		1.62	3.06	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots
		OS-00003	-1.3	-2.47	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots
			4.05	16.57	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots

		OS-00096	1.9	3.88	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
			1.65	3.19	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

qRPPUE5.12	*LOC_Os05g35140.1*		1.05	2.07	phosphorus (no P for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00036	-1.34	-2.54	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

			-1.92	-3.79	iron (no Fe for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	LOC_Os05g35160.1								

		OS-00239	3.21	9.25	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Dular; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
			2.57	5.89	phosphorus (low Pi for 24h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 24h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling

qRPPUE7.13	*LOC_Os07g34110.1*	OS-00091	1.53	2.88	phosphorus (low Pi for 72h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 72h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling
		OS-00239	1.78	3.43	phosphorus (Pusa Basmati 1; 1µM Pi; root) phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Pusa Basmati 1 seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Pusa Basmati 1	Semi-dwarf aromatic (Evolved Basmati) cultivar developed by The Indian Agricultural Research Institute (IARI), released in 1989. Low number of seeds (approx. 181) per panicle (Deshmukh et al., 2010, Funct Integr Genomics 10: 339-47). Pusa Basmati 1 is susceptible to Magnaporthe oryzae strain Mo-nwi-53 (Jain et al., 2017, Front Plant Sci. 8: 93). Pusa Basmati 1 is sensitive to low phosphate (Pi) content in the soil (Mehra et al., 2016, Front Plant Sci. 6: 1184).	roots

		OS-00096	-1.34	-2.53	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	R64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots
			-1.46	-2.72	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
	LOC_Os07g34130.1								
	LOC_Os07g34140.1								

		OS-00096	3.3	9.96	phosphorus (35S::PSTOL1 (20); no P fertilizer) vs phosphorus (35S::PSTOL1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
			2.77	7.04	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

			1.71	3.31	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr3; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot
		OS-00282	1.61	3.07	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr1; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot

	LOC_Os07g42910.1		1.56	2.98	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (Nipponbare; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot

		OS-00036	-1.28	-2.39	iron; phosphorus (no Fe and P for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron ($FeCl_3$) and phosphorus (NaH_2PO_4). Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00239	-1.46	-2.73	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
					phosphorus (Dular; 320µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

	OS-00239	-1.15	-2.26	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
		-1.95	-3.92	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr1; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot

qRPPUE7.14	*LOC_Os07g42924.1*	OS-00282	-2.14	-4.38	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (phr3; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot
			-2.32	-4.96	phosphorus (phr1/2/3; -Pi for 7d) vs phosphorus (Nipponbare; -Pi for 7d)	Shoot samples of phr1/2/3 plants grown hydroponically for 14 days in a nutrient solution (pH 5.5; Zhou et al., 2008, Plant Physiol. 146: 1673-1686) containing 200µM NaH2PO4 (sufficient phosphate) and then transferred for 7 days into a solution lacking phosphate. Other conditions: greenhouse, 12h light (200µmol photons m-2 s-1) at 30°C / 12h dark at 22°C cycles, 60% relative humidity.	phr1/2/3	Triple mutant (Nipponbare genetic background) with following mutations in OsPHR1, OsPHR2, OsPHR3 (PHOSPHATE STARVATION RESPONSE1, 2, 3): phr1, a 2bp deletion in the first translated exon of OsPHR1 (LOC_Os03g21240) resulting in a frameshift and a premature translation stop codon; phr2, a T-DNA insertion in OsPHR2 (LOC_Os07g25710); phr3, a Tos-17 retrotransposon insertion in the seventh translated exon of OsPHR3 (LOC_Os02g04640). The triple mutant was obtained by crossing single homozygous phr1, phr2 and phr3 mutants. OsPHR1, OsPHR2 and OsPHR3 are functionally redundant transcription factors involved in phosphate (Pi) signaling. Irrespective of Pi supply (low or sufficient), Pi concentration in phr1/2/3 shoots was lower than in shoots of Nipponbare wild type. Pi concentration in phr1/2/3 roots was only slightly lower than Pi concentration in wild type roots. Root and shoot biomass of phr1/2/3 was reduced compared to the wild type under both low Pi and sufficient Pi. Under Pi deficient conditions, root hairs of phr1/2/3 were much shorter than root hairs of the wild type (root hair length: phr1/2/3, approx. 40µm; wild type, approx. 175µm) (Guo et al., 2015, Plant Physiol. 168: 1762-76).	shoot

		OS-00036	1.1	2.14	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots
		OS-00096	1.04	2.08	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

LOC_Os07g42940.1	OS-00239	-1.18	-2.27	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
		-1.2	-2.29	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
LOC_Os07g42950.1								

		OS-00239	1.85	3.58	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Dular; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

			1.65	3.14	iron (no Fe for 10d; root) vs iron; phosphorus (no Fe and P for 10d; root)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

	LOC_Os07g42960.1	OS-00036	1.45	2.73	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots

			1.1	2.15	iron (no Fe for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH_2PO_4) concentration but lacking iron ($FeCl_3$) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons $m^{-2}s^{-1}$) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00239	-1.06	-2.08	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
		OS-00091	-2.51	-5.67	phosphorus (low Pi for 72h) vs untreated seedling samples (sufficient Pi)	Seedling samples of cultivar Zhonghua 10 grown for 7 days in a nutrient solution with sufficient phosphate (0.323mM NaH2PO4), then transferred to low phosphate (0.016 mM NaH2PO4) for 72h. Other components of the nutrient solution (pH 5.5): 1.425mM NH4NO3, 0.513mM K2SO4, 0.998mM CaCl2, 1.643mM MgSO4, 0.168mM Na2SiO3, 0.125mM Fe-EDTA, 0.019mM H3BO3, 0.009mM MnCl2, 0.155mM CuSO4, 0.152mM ZnSO4, 0.075mM Na2MoO4. Other conditions: 16h light at 30°C / 8h dark at 22°C.	Zhonghua 10	Japonica (Oryza sativa ssp. japonica) cultivar.	seedling
	LOC_Os07g42970.1								

	LOC_Os09g12270.1		1.15	2.2	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots
		OS-00003	1.33	2.62	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots
			1.24	2.37	arsenate (Azucena) vs untreated root samples (Azucena)	Root samples of rice variety Azucena grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Azucena	Traditional japonica (Oryza sativa ssp. japonica) upland cultivar; origin: the Philippines. Azucena is resistant to aluminum stress (Al3+) (Arbelaez et al., 2017, Plant Direct 1).	roots

		OS-00036	1.25	2.38	iron (no Fe for 10d; root) vs untreated root samples (sufficient Fe and P)	Root samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	roots
qRPUpE9.15		OS-00096	-1.22	-2.33	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

	LOC_Os09g12290.1		-1.49	-2.85	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
		OS-00239	-1.49	-2.81	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots

			-1.5	-2.84	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
	LOC_Os09g12300.1								
	LOC_Os09g12310.1								
qRPUUE9.16	*LOC_Os09g16980.1*								
	LOC_Os09g17000.1								
	LOC_Os09g17010.1								
	LOC_Os09g17080.1								

			-1.46	-2.7	phosphorus (Dular; 1µM Pi; root) vs phosphorus (Pusa Basmati 1; 1µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
			-1.52	-2.91	phosphorus (Dular; 320µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot
	LOC_Os10g39520.1	OS-00239							

LOC_Os10g39520.1	OS-00239	-1.58	-3.01	phosphorus (Dular; 320µM Pi; root) vs phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
		-1.61	-3.19	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

qREP10.17		OS-00036	1.62	3.06	iron; phosphorus (no Fe and P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) lacking iron (FeCl3) and phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
			1.16	2.52	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots

		LOC_Os10g39540.1	OS-00096	0.92	2.04	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots
				1.16	2.21	phosphorus (no P for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal iron (0.036mM FeCl3) concentration but lacking phosphorus (NaH2PO4). Other growth conditions: growth chamber, 12h light (450 mmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

		OS-00036	-1.49	-2.78	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	LOC_Os10g39550.1								
	LOC_Os10g39560.1	OS-00096	1.84	3.35	phosphorus (35S::PSTOL 1 (20); no P fertilizer) vs phosphorus (35S::PSTOL 1 (20); 60kg/ha P2O5)	Root samples of 35S::PSTOL1 (20) line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	35S::PSTOL1 (20)	Phosphorus-starvation-tolerant transgenic line 20 (cv. IR64 background) carrying full-length coding region (CDS) of PSTOL1 under control of the constitutive CaMV35S promoter and NOS terminator. The PSTOL1 CDS is derived from O. sativa indica cultivar Kasalath. PSTOL1 (Phosphorus-starvation tolerance 1; OsPupK46-2) encodes a functional serine/threonine protein kinase and is absent in genomes of phosphorus-starvation-intolerant rice varieties such as IR64, Nipponbare. 35S::PSTOL1 (20) plants grown on phosphorus-unfertilized soil have larger root system and produce approx. 60% more seeds than the control IR64-null plants (segregants without the transgene). Compared to the non-transgenic IR64-null control, total root length and surface area of 35S::PSTOL1 (20) plants is increased not only under low-phosphorus but also under phosphorus-sufficient conditions (Gamuyao et al., 2012, Nature 488: 535-539).	roots

			1.48	2.75	phosphorus (IR64-null; no P fertilizer) vs phosphorus (IR64-null; 60kg/ha P2O5)	Root samples of IR64-null line grown till the heading stage on phosphorus-deficient soil from Siniloan, Luzon, the Philippines (P-Bray, 1.23 ± 0.30mgkg-1; P-Olsen, 0.77 ± 0.46 mgkg-1) under dry-down conditions.	IR64-null	Non-transgenic, phosphorus-starvation-intolerant line from the segregating progeny of a transformant heterozygous for the 35S::PSTOL1 transgene; sibling of the transgenic 35S::PSTOL1 (20) line.	roots
		OS-00239	-1.06	-2.08	phosphorus (Dular; 320µM Pi; root) phosphorus (Pusa Basmati 1; 320µM Pi; root)	Root samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	roots
		OS-00003	-1.09	-2.14	arsenate (Bala) vs untreated root samples (Bala)	Root samples of rice variety Bala grown for 7 days in hydroponics on phosphate-free nutrient solution containing 0.1mM Mg2+ and SO42-, 0.2mM Ca2+ and K+, 0.6mM NO3-, and 1ppm (13.3µM) arsenate (Na2HAsO4).	Bala	Improved indica upland cultivar; origin: Eastern India.	roots

		OS-00239	-1.12	-2.34	phosphorus (Dular; 320µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 320µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate sufficient nutrient solution (320µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

qRPPUE12.18	*LOC_Os12g29330.1*	OS-00036	-1.23	-2.27	iron (no Fe for 10d; shoot) vs iron; phosphorus (no Fe and P for 10d; shoot)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot

OS-00239	-1.46	-2.74	phosphorus (Dular; 1µM Pi; shoot) vs phosphorus (Pusa Basmati 1; 1µM Pi; shoot)	Shoot samples of 15-day-old Dular seedlings grown in a phosphate deficient nutrient solution (1µM Pi); the solution (pH 5.5) was exchanged every 24h. Other growth conditions: growth chamber, 16h light (250-300µmol photons m-2 s-1) at 30°C / 8h darkness at 28°C cycles, 70% relative humidity. The nutrient solution as described in (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3, International Rice Research Institute, Manila, Philippines).	Dular	Traditional Oryza sativa ssp. indica variety with very low yield potential (7-22q/ha) and high tolerance to low phosphate (Pi) content in the soil. Dular is more efficient in Pi utilization and better preserves root growth under Pi-limiting conditions than a low Pi-sensitive variety, Pusa Basmati 1. When plants were grown under low Pi (1µM) for 15 days, Dular root length was 9.38 ± 0.17cm while Pusa Basmati 1 root length was 7.41 ± 0.15cm. Under low Pi, Dular produced more and longer lateral roots than Pusa Basmati 1. Even though under sufficient Pi root and shoot Pi content was lower in Dular than in Pusa Basmati 1, under low Pi root and shoot Pi content was higher in Dular than in Pusa Basmati 1 (Mehra et al., 2016, Front Plant Sci. 6: 1184). Dular belongs to wide-compatibility variety (WCV) rice germplasms, i.e. Dular is able to produce fertile hybrids when crossed to indica or japonica varieties (Wang et al., 1998, Theor Appl Genet. 97: 407).	shoot

		OS-00036	-1.93	-3.83	iron (no Fe for 10d; shoot) vs untreated shoot samples (sufficient Fe and P)	Shoot samples of cultivar Nipponbare germinated for 2 days in distilled water and then floated for 10 days on the Yoshida nutrient solution (Yoshida et al., 1976, Laboratory Manual for Physiological Studies of Rice, Ed 3. International Rice Research Institute, Manila, The Philippines) with optimal phosphorus (0.323mM NaH2PO4) concentration but lacking iron (FeCl3) and citric acid. Other growth conditions: growth chamber, 12h light (450µmol photons m−2s−1) at 30°C / 12h darkness at 22°C.	Nipponbare	Japonica (Oryza sativa ssp. japonica) variety resistant to infection by the plant Striga hermonthica, an obligate root hemiparasite (Swarbrick et al., 2008, New Phytol. 179: 515-529). Nipponbare is susceptible to Xanthomonas oryzae pv. oryzae strains BAI3 (from Burkina Faso), PXO99A (from the Philippines; race 6), PXO86 (from the Philippines; race 2), T7174 (from Japan; race 1), and MAI1 (from Mali). Nipponbare is well transformable with Agrobacterium tumefaciens: using A. tumefaciens strain EHA 105, transient transformation frequency has been found to be 85.2%, stable transformation frequency 53.52% (Tie et al., 2012, Plant Mol. Biol. 78: 1-18). Nipponbare is susceptible to Meloidogyne graminicola, a root knot nematode that induces re-differentiation of root cells into multinucleate giant cells and formation of hook-like galls. Nipponbare is susceptible to Magnaporthe oryzae isolate FR13 (virulent isolate from France) and resistant to M. oryzae isolates CL3.6.7 (avirulent isolate) and BR32 (nonadapted isolate from Brazil) (Abbruscato et al., 2012, Mol Plant Pathol.; Faivre-Rampant et al., 2008, New Phytol. 180: 899-910). This variety is sensitive to drought stress; drought index 0.54 (Wei et al., 2017, Front Plant Sci. 8: 473). Nipponbare is susceptible to Rice Stripe Virus (RSV) (Zhao et al., 2016, New Phytol. 210: 196-207).	shoot
	LOC_Os12g29350.1								