Supplemental Figure S1. Sensitivity of OsMGT1 knockout lines to osmotic stress and water deficit. 
A, Fresh weight of roots and shoots under different concentrations of mannitol. 20-d-old Seedlings of both wild-type (WT) and two OsMGT1 knockout lines were exposed to a nutrient solution containing 0, 100, 250 mM mannitol for 5 days. B, Water loss rate of detached leaves. Data are means ± SD (n=3).
A-B. Effect of Mg toxicity (A) and Cd toxicity (B) on the growth of rice seedlings. C, Dry weight of roots and shoots. Seedlings of both wild-type rice (WT) and two OsMGT1 knockout lines (osmgt1-1/NF0595 and osmgt1-2/NE45208) were exposed to ½ kimura nutrient solution (Control), nutrient solution containing 10 mM MgCl₂ or 5 µM CdCl₂ for 12 days. Data are means ± SD (n= 3). Means with different letters are significantly different (P<0.05 by Tukey’s test).

**Supplemental Figure S2.** Sensitivity of OsMGT1 knockout lines to Mg and Cd toxicity
Supplemental Figure S3. Comparison of Mg and K in the shoots, roots and xylem sap of wild-type rice and knockout lines of OsMGT1. A-B, Mg (A) and K (B) concentration in both root and shoot of rice seedlings. Seedlings of both wild-type (WT) and two OsMGT1 knockout lines (osmgt1-1 and osmgt1-2) were exposed to a nutrient solution containing 50 mM NaCl for 12 days. C-D, Mg (C) and K (D) concentration in xylem sap of rice seedlings. Xylem sap was collected from the WT and the knockout lines exposed to a nutrient solution containing 10 mM NaCl for 24 hours. Data are means ± SD (n= 3). The asterisk shows a significant difference compared with WT (P<0.05 by Tukey’s test).
Supplemental Figure S4. Gene expression of *OsHKT1;4* (A), *OsHKT1;5* (B) and *OsSOS1* (C) in WT and *OsMGT1* knockout lines.

Rice seedlings were exposed to a nutrient solution containing 0 or 50 mM NaCl for 24 hours. The roots were sampled for RNA extraction. The expression level was determined by real-time RT-PCR. Relative expression level to WT (-Na) is shown. Data are means ± SD (n= 3). The asterisk shows a significant difference compared with WT (P<0.05 by Tukey’s test).
Supplemental Figure S5. Regulation of OsHKT1;5-mediated Na⁺ transport by 0.1 or 1.0 mM Mg²⁺.

Current-voltage relationships of oocytes injected with water or OsHKT1;5 cRNA are shown in the presence of 0.1 or 1.0 mM Mg²⁺ (n=5 for OsHKT1;5 and n=4 for water, ±SE). Voltage steps from +30 to −150 mV were applied with a holding potential of −40 mV.
Supplemental Figure S6. Regulation of OsHKT1;5-mediated Na\(^+\) transport by 1.8 or 18 mM Ca\(^{2+}\).

Current-voltage relationships of oocytes injected with water or OsHKT1;5 cRNA are shown in the presence of 1.8 or 18 mM Ca\(^{2+}\) (n=5 for OsHKT1;5 and n=5-6 for water, ±SE). Voltage steps from +30 to −150 mV were applied with a holding potential of −40 mV.
Supplemental Figure S7. Effect of high Mg$^{2+}$ supply on salt sensitivity in oshkt1;5 (A) and osmgt1-1 oshkt1;5 double mutant (B). Rice seedlings were exposed to a nutrient solution containing 0.02, 0.2 or 2 mM MgCl$_2$ in the presence of 50 mM NaCl for 12 days. Data are means ± SD (n= 3).
Supplemental Figure S8. Isolation of oskt1;5 osmgtl-1 double knockout rice mutants. A, A map of the OsHKT1;5 genomic sequence with a T-DNA insertion site marked. The positions of primers used for genotyping the mutants and for RT-PCR are shown. B, Expression of OsHKT1;5 mRNA in wild type rice (cv. Nipponbare) and the T-DNA mutants by RT-PCR using gene-specific primers (RT-F and RT-R). C, Genotyping using genomic PCR to identify single and double mutants. Different primers were used to genotype homogenous lines.