

Figure S1. The cloning of *MsYSL6* from alfalfa and the transformation into tobacco. (A) The full-length of *MsYSL6* amplified by PCR from complementary DNA (cDNA) of alfalfa. M: DL 2000; 1: PCR product (*MsYSL6* CDS with 2,028 bp). (B) Construction of pBI121-*MsYSL6* vector. LB: T-DNA left border; RB: T-DNA right border; *p35S*: cauliflower mosaic virus promoter; *NptII*: Neomycin phosphotransferase II gene. (C) The transcript levels of *MsYSL6* in transgenic tobacco. Different letters represent significant differences ($p < 0.05$). (D) The *MsYSL6* transgenic tobacco plant.

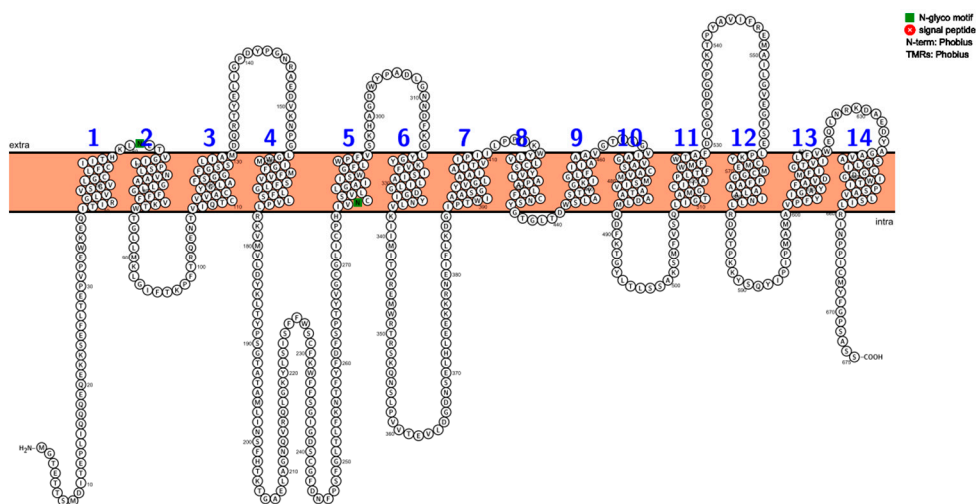


Figure S2. The predicted transmembrane domains of *MsYSL6* protein.

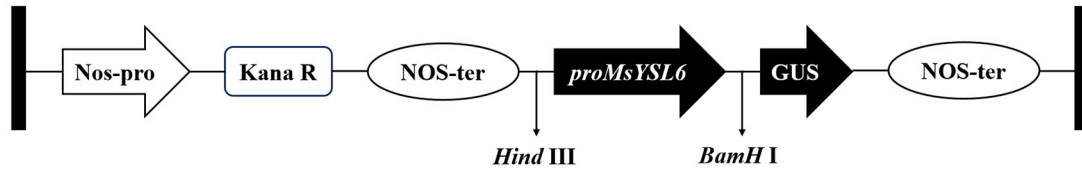


Figure S3. Construction of pBI121-MsYSL6pro::GUS.

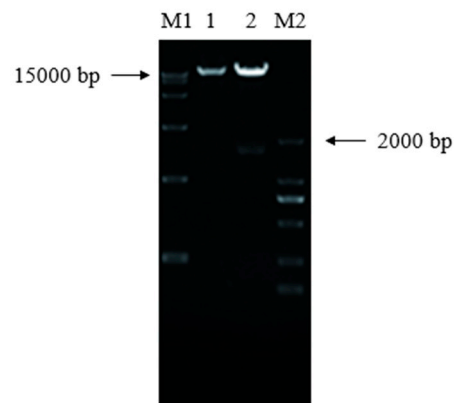


Figure S4. Identification of pBI121-MsYSL6pro::GUS. M1, Marker DL15000; M2, Marker DL2000; 1, pBI121-proMsYSL6::GUS; 2, Recombinant plasmid digested by BamH I, Hind III.



Figure S5. The pBI121-MsYSL6pro::GUS induced alfalfa hairy roots.

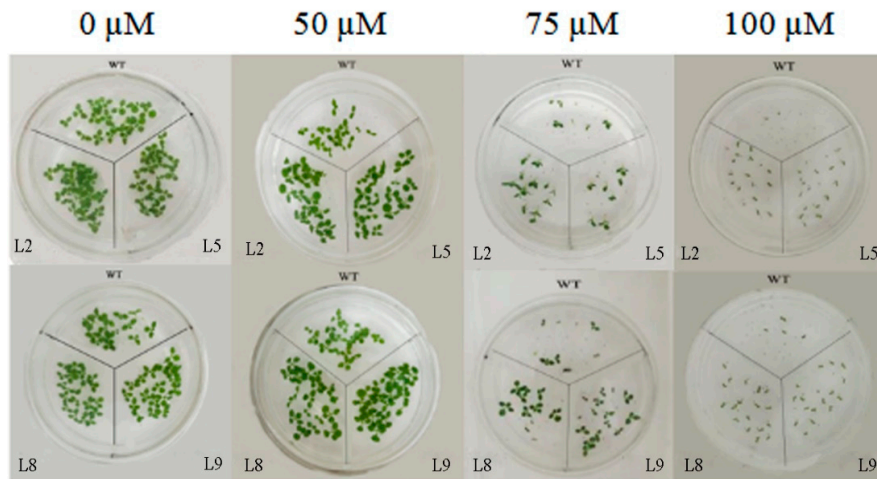


Figure S6. The germination of *MsYSL6OE* tobacco under Cd stress. The seeds of four *MsYSL6OE* lines (L2, L5, L8, and L9) and WT tobacco were germinated on a half-strength MS solid medium containing 0, 50, 75, 100 μM CdCl_2 .

Table S1. The germination rates of *MsYSL6Ex* lines and WT under Cd stress.

Line	Cd			
	Control	50 μM	75 μM	100 μM
WT	95.00 \pm 0.05	75.00 \pm 0.05	45.00 \pm 0.05	26.67 \pm 0.06
L2	96.67 \pm 0.03	83.33 \pm 0.03*	66.67 \pm 0.03*	53.33 \pm 0.03*
L5	95.00 \pm 0.05	83.33 \pm 0.03*	68.33 \pm 0.03*	55.00 \pm 0.00*
L8	96.67 \pm 0.03	83.33 \pm 0.03*	68.33 \pm 0.03*	55.00 \pm 0.05*
L9	96.67 \pm 0.03	83.33 \pm 0.03*	66.67 \pm 0.03*	50.00 \pm 0.05*

Note: * $p < 0.05$.

Table S2. The primer sequence.

Primer Comments	Primer Sequence
<i>MsYSL6</i> cloning	F: ATGGGTACAGAAACA
	R: TCAGCTGCTTGCGGAA
qRT-PCR of <i>MsYSL6</i>	F: CTCAGTCACAACGGGAAGG
	R: TGGAACAGCCACAGCAAT
<i>MsYSL6pro</i> fragment cloning	F: CGGGATCCGCTATCTATTATGTGCTATCT
	R: CCAAGCTTGTTTGAGGTGAATCTGAG
<i>MsNAS</i> gene cloning	F: CGGGATCCTATAGAGATGATACCCACCCG
	R: GAAGATCTTGGATTGAATTGAAGTAATTTTA

qRT-PCR of <i>MsNAS</i>	F: AAGATTGTGGCTTCGGAT R: TTCACTCCTACGCATACCA
<i>MsNAS</i> pro fragment cloning	F: GGGATCC TATAGAGATGATACCCACCCG R: GAAGATCTTGGATTGAATTGAAGTAATTTTA
<i>MsACTIN</i>	F: ACGAGCGTTTCAGATG R: ACCTCCGATCCAGACA
<i>NtGAPDH</i>	F: TAAGGGTGGTGCCAAGAAGGT R: AGCAAGAGGAGCAAGGCACTT