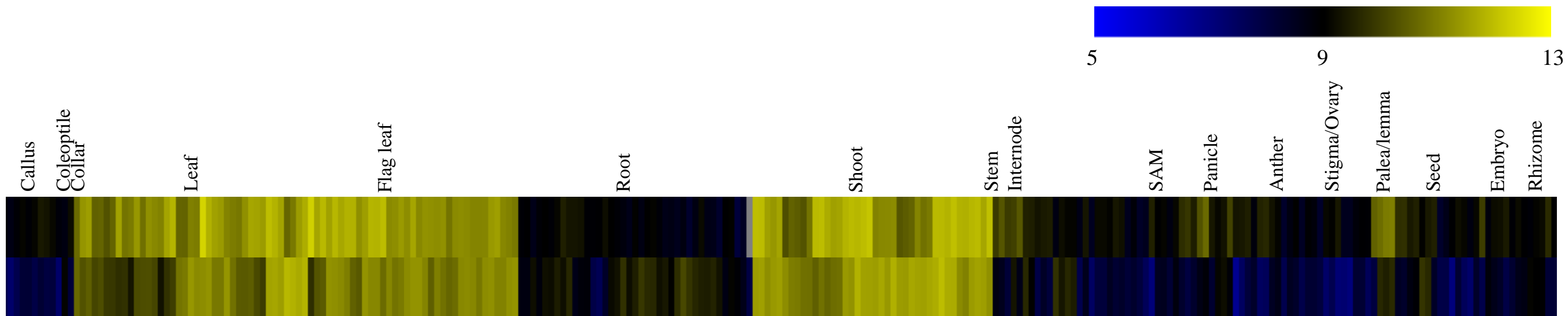


AtPLGG1	MATL—LATP IFSPLASSPARNRLSCSK I RFGSKNGK I LNSDGAQKLNLSKFRKPDGQRF	58
OsPLGG1	MAATSSSSSPCM I ASLRSSHRCRLSPSATATSPPLRLTLPPRRRCRRNPSSSSSSSRQAAA	60
OsPLGG2	-----	0
AtPLGG1	LQMGSS—KEMNFERKLSVQAMDGAGT-----GNTST I SRNVI A I SHLLVSLG I I LAADYF	112
OsPLGG1	I SMAPANPRHRL I AP I HAAAAAGGGGGGAGATSPSGLPSL—VG I AHLLVSLG I VLASDKF	119
OsPLGG2	--MAVDDLNHHL I A-----VGVGEEAATAHCGLRTLVRNMAQLVVSLG I LVAADKL	49
	*. . .: * . : ::*:*****::*:*	
AtPLGG1	LKQAFVAAS I KFPSALFGMFC I FSVLMI FDSVVPAAANGLMNFEPAPFLF I QRWLPLFYV	172
OsPLGG1	LKQAFVAAAS I KFPSALFGMFCVFSVLVVLDAFAPALAKGFMDFFEPATLF I QRWLPLFYV	179
OsPLGG2	VEQAFVAAAS I KFPSALFAMFCV FALLF---LPPSLANGFMAFFDPATVF I HRWLPLFFV	106
	::***,*****,,***:***:, . *: **:* **:* **:* **:* **:* **:* **:* **:* **:	
AtPLGG1	PSLVVLP LSVRD I PAASGVK I CY I VAGGWLASLCVAGYTA I AVRKMVKTEMTEAEPMAKP	232
OsPLGG1	PSLVVLP LAVRDVPAASGLK I FL I I FGGWFASLMVAGYTALTVRK I VQTQL I PAEPMSKP	239
OsPLGG2	PSLVVLP LAVRDVSPASALK I LF I TFGGWFASLVVAGYTALSRR I VKTQL I PAEPMKRP	166
	*****:***: **,:** * ***:*** *****:***:***:***: ** * **	
AtPLGG1	SPFSTLELWSWSG I FVVSFVGALFYVNSLGTSAARTSLPFLLSSTVLGY I VGSGLPSS I KK	292
OsPLGG1	SPFATLEFWAWGAVFVASFAVAYVNPTALGTTARTCLPFLLASTVLGYMVGSG I PSGVKK	299
OsPLGG2	SPFGPLEFWAWAAVVASFAVAYVSPTALGTTATTCLPFLLASTVFGY I LGSRLPSGVKK	226
	, **:*:*,.:**,**, * . *,::* *,*****:***:***:*** **,*:**	
AtPLGG1	VFHPI I CCALSAVLAALAFGYASGSLDPVLGNYLTKVASDPGAGD I LMGFLGSV I LSFA	352
OsPLGG1	VLHPI I CCALSADLAA I AYGYSRSGVDAVLGDYLTAKPSNPGAGDVLGMFLGSV I I SFA	359
OsPLGG2	VLHPI I CCALSADLAAYGYLSRSGVDAVLGDYLTESPSNPGAGD I LMGFLGSV I I SFA	286
	*:***** **:*:*** * **:* **:*:***: *:*****:*****:***	
AtPLGG1	FSMFKQRKLVKRHAAE I FTSV I VSTVFSLYSTALVGRLVGLLEPSLTVS I LPRC I TVALAL	412
OsPLGG1	FSMFKQRKLVKRHAAE I FTS I A I ASTFSLYSTA I LGRV I GLEPSLT I S I LPRC I TVALAL	419
OsPLGG2	FSMFNQRKLVRRHAAE I FTS I AVASTFSLYSTA I LGRVVELEP I LT I S I LPRC I TVALAL	346
	****:*****:*****: :::,*****:***: ** **:*:*****:*****	
AtPLGG1	S I VSLFEGTNSSLTAAVVVVTGL I GANFVQVVDKLRRLRDP I ARG I ATASSAHGLGTAAL	472
OsPLGG1	S I VSFFEGVNSSLTAAVVVLTGL I GANFVQAAMDKLGNDP I ARG I GTASSAHGLGTAAL	479
OsPLGG2	RVVSLFEGVNTSVTAAVVVLTGL I GANFAQAVMDKLRRLKDP I ARG I GTASSAHGLGTAAV	406
	::**:*:*,**:*:*****:*****:*,.:*** *,*****,*:*****:*****:	
AtPLGG1	SAKEPEALPFCA I AYALTG I FGSLLCVPAVRQSLLAVVG-----	512
OsPLGG1	SAKEPEALPFCA I AYGLTG I FGSL I CVPAVRQSLVF I AG-----	519
OsPLGG2	SAKEPEALPFCA I AYALTGVVASLFCSLPA I RHSLVF I AGDASASQTQHFSY	458
	*****:*****,,***:.,**:*:***:***:***: :,*	

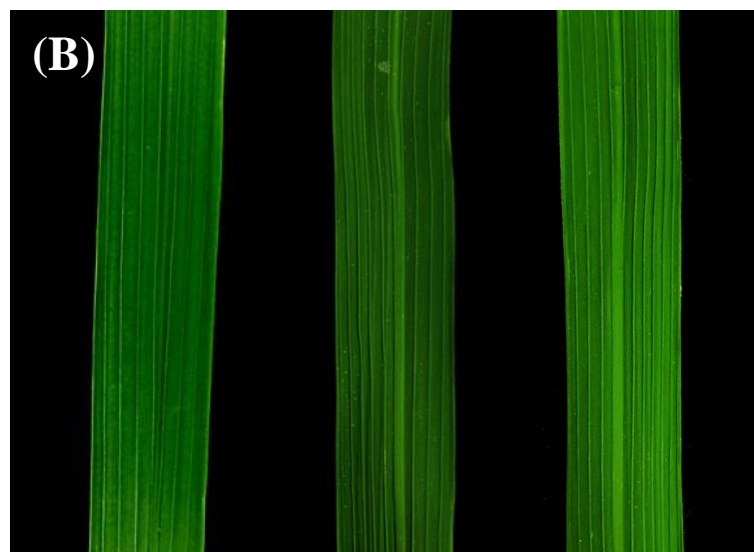
Supplemental Figure S1. Protein sequence alignment of AtPLGG1 and rice candidates. Protein sequences of two rice homologs, OsPLGG1 (LOC_Os01g32830) and OsPLGG2 (LOC_Os10g42780), were aligned with that of AtPLGG1 (At01g32080). Green color indicates a predicted chloroplast targeting peptide.



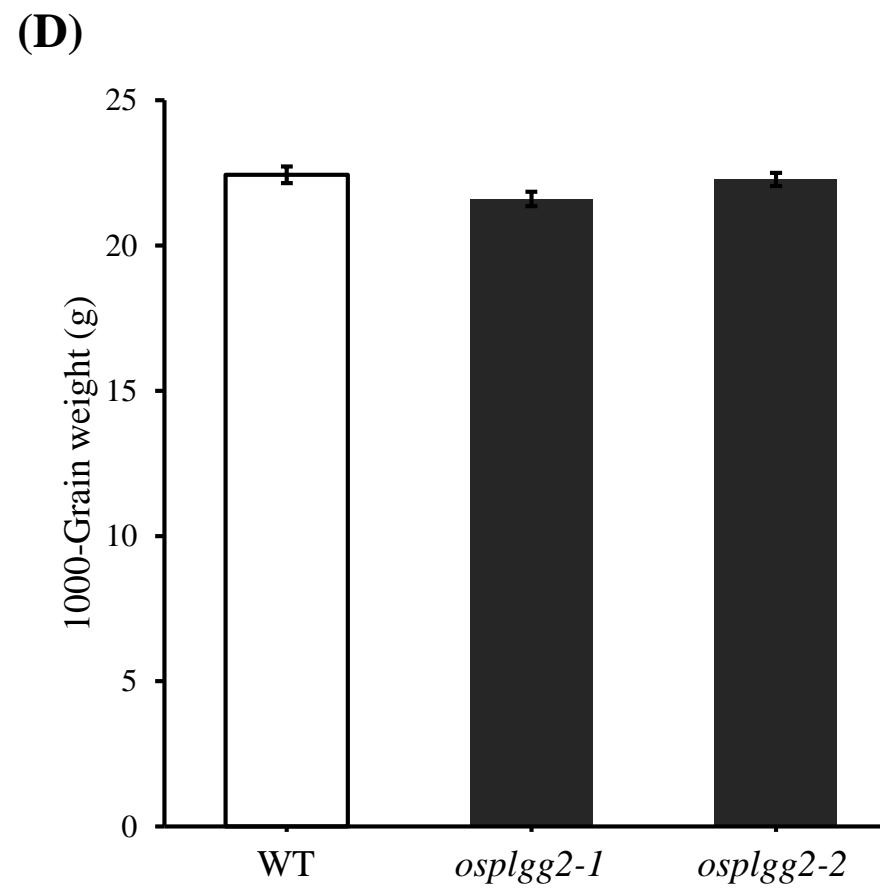
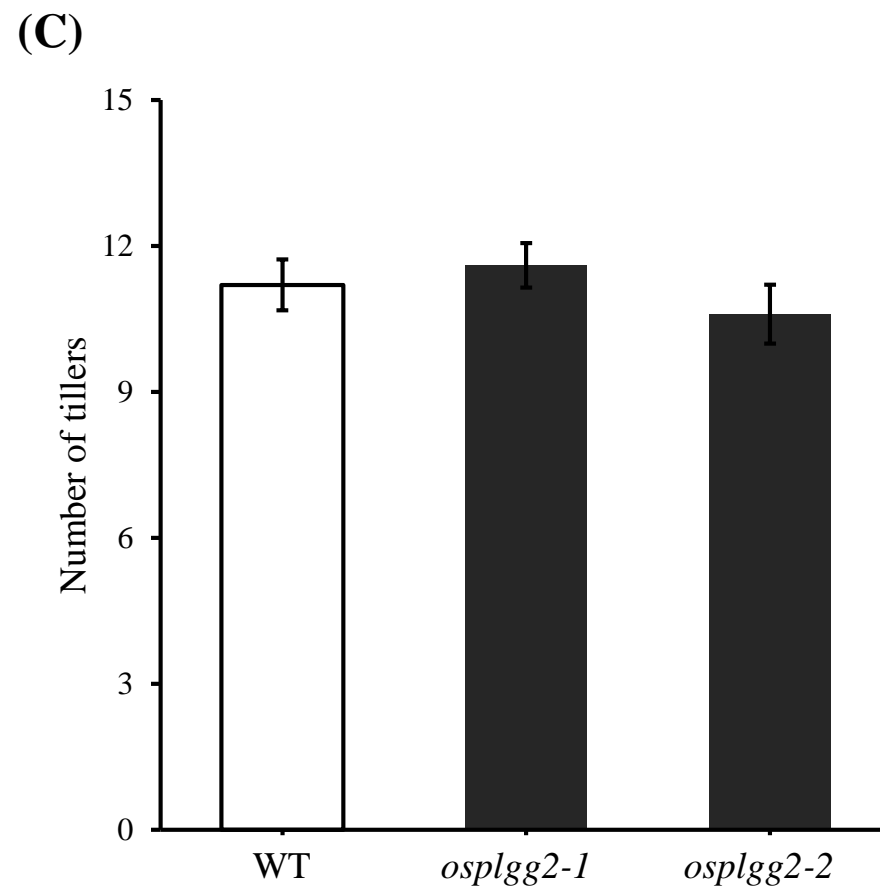
Supplemental Figure S2. Heat map expression analysis of OsPLGG1 (top) and OsPLGG2 (bottom) using Affymetrix rice microarray data downloaded from NCBI GEO.



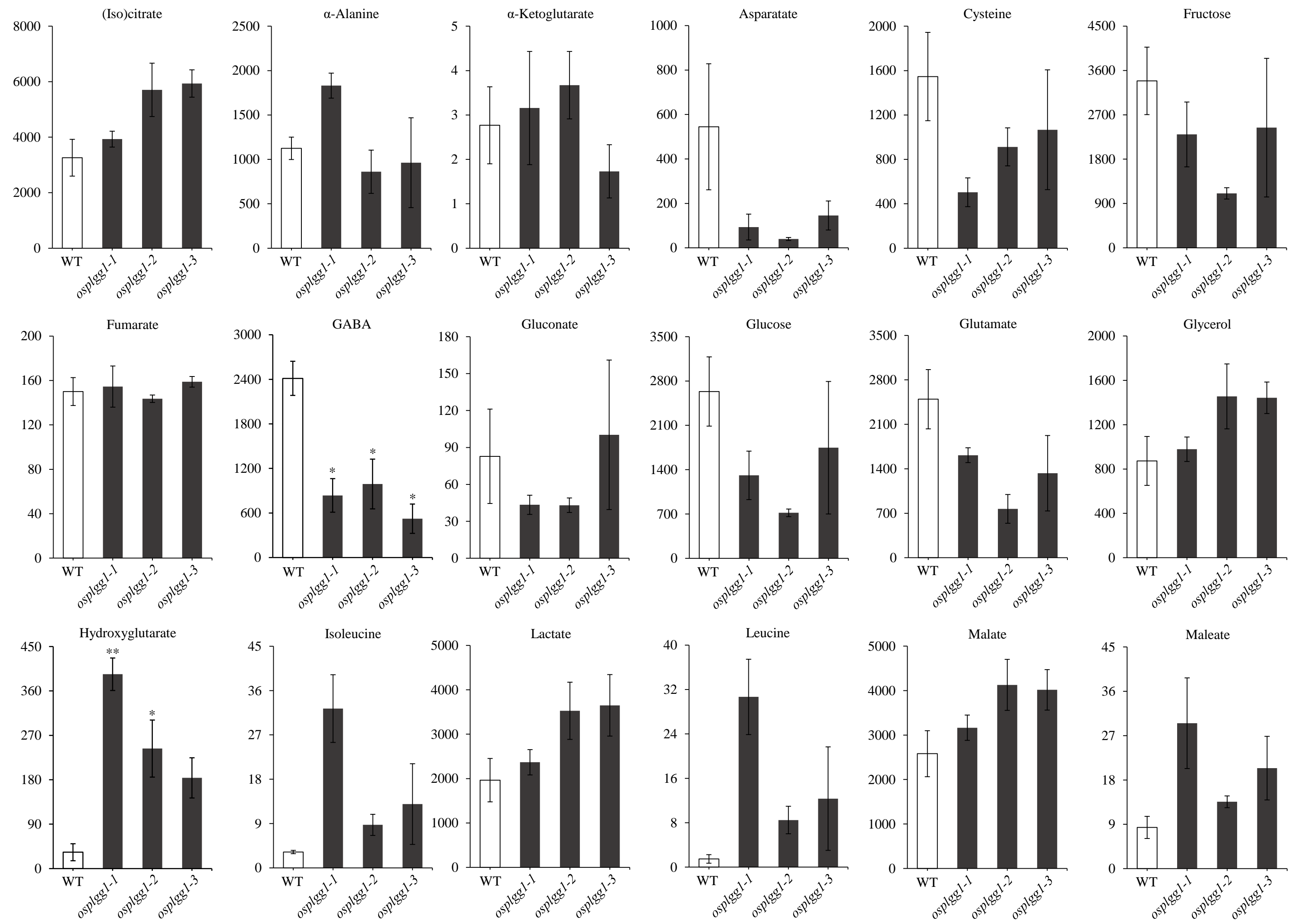
WT *osplgg2-1* *osplgg2-2*

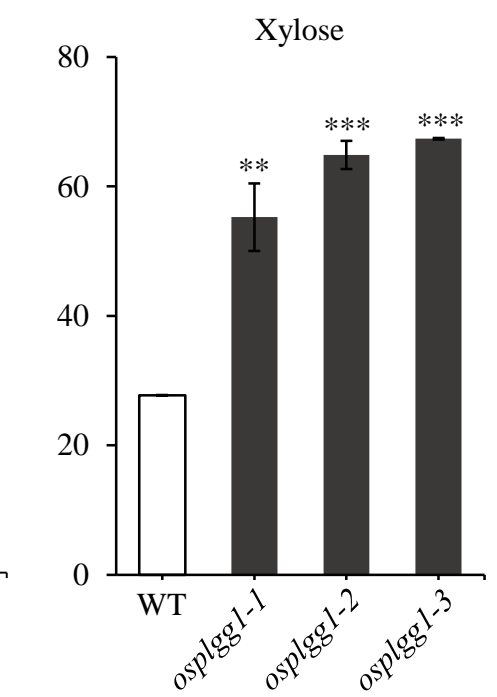
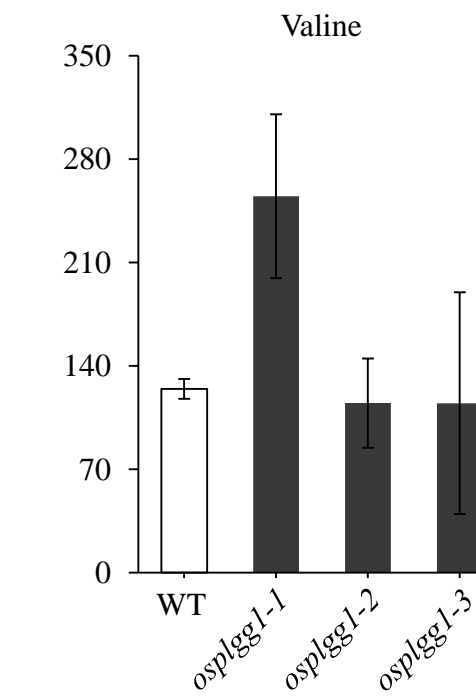
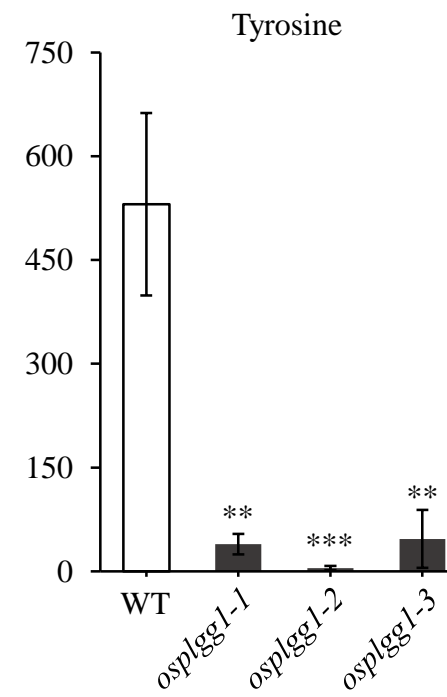
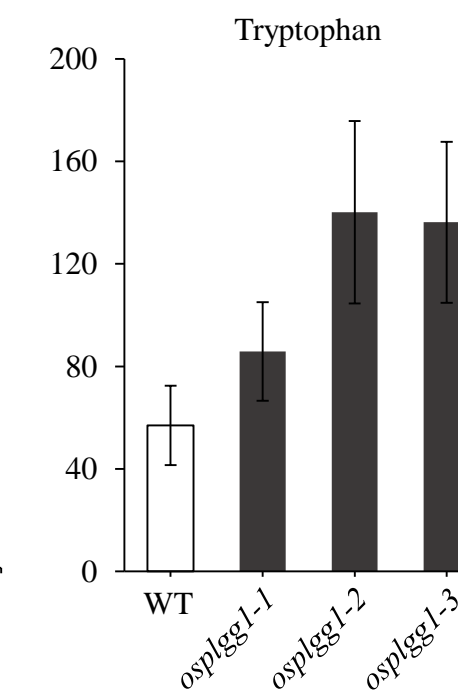
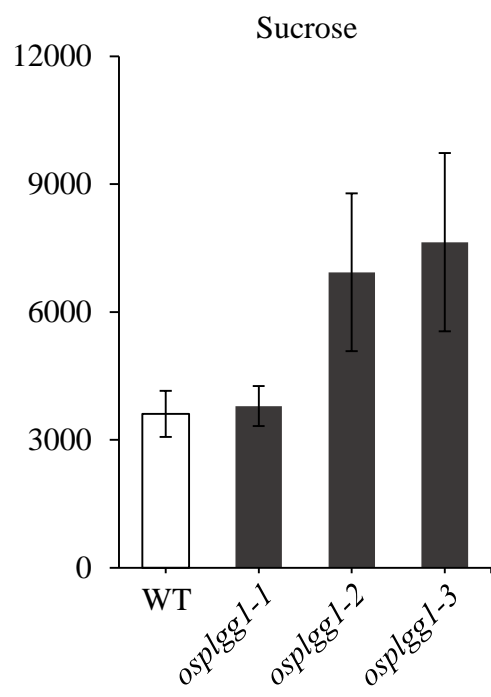
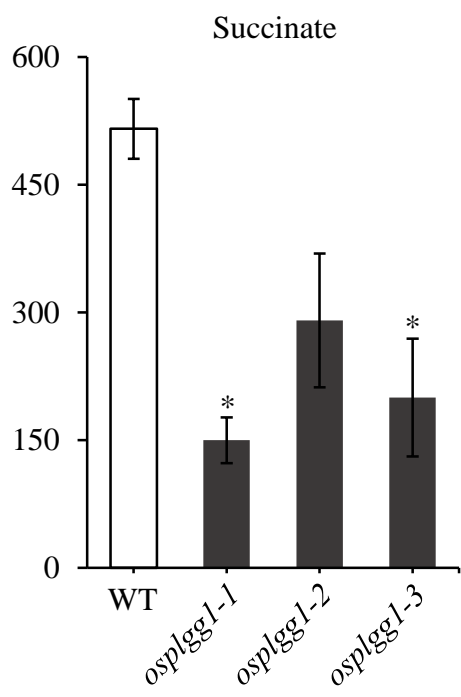
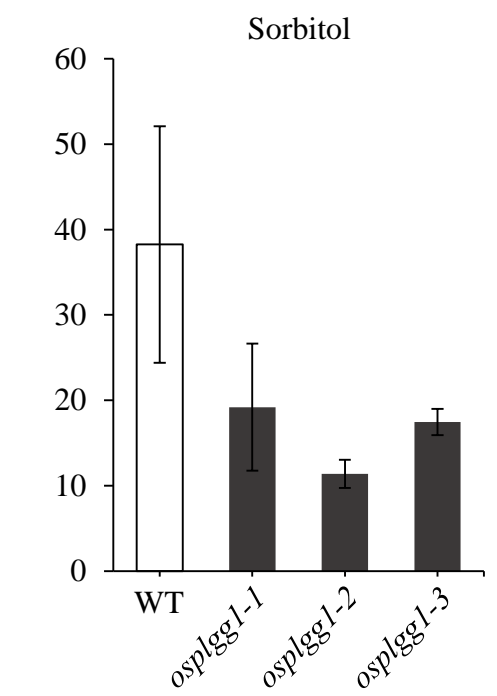
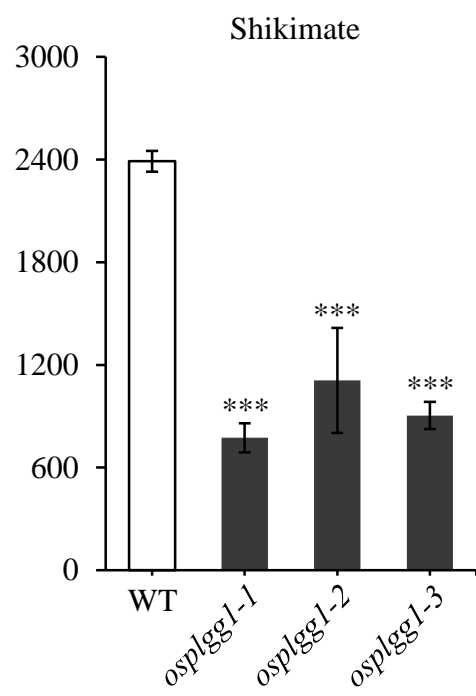
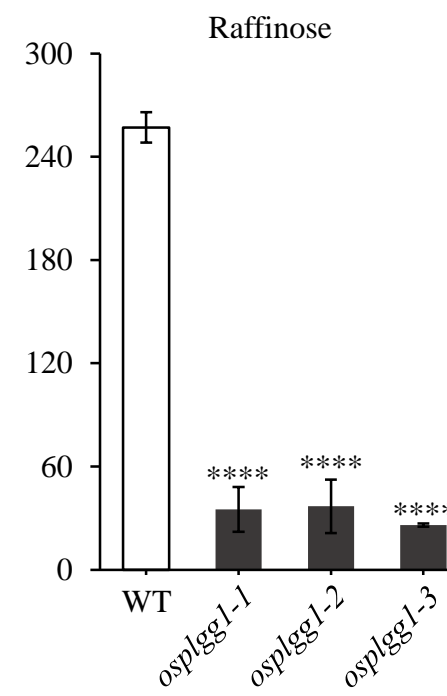
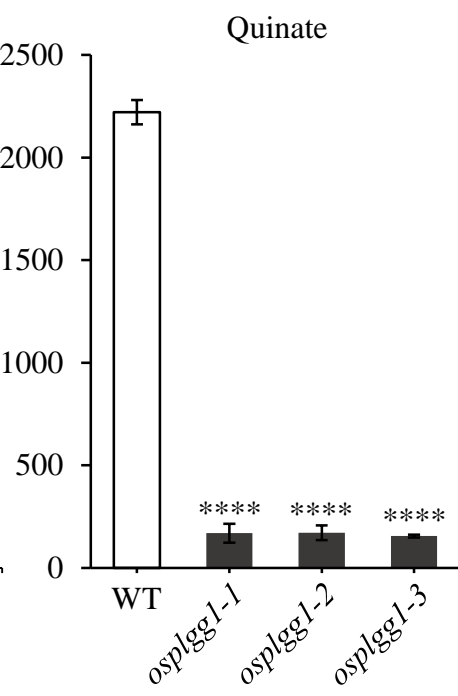
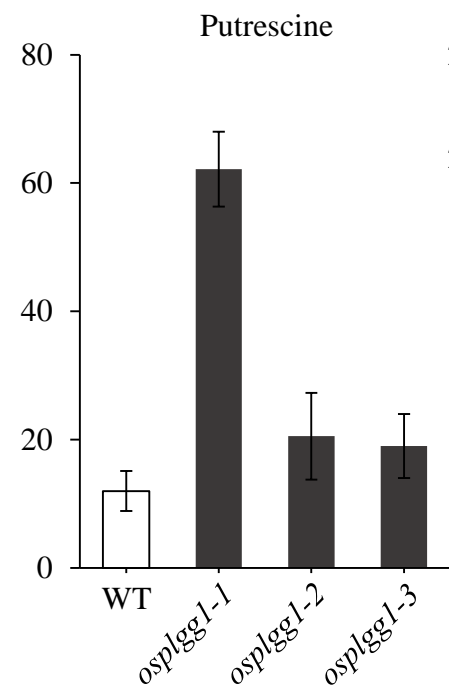
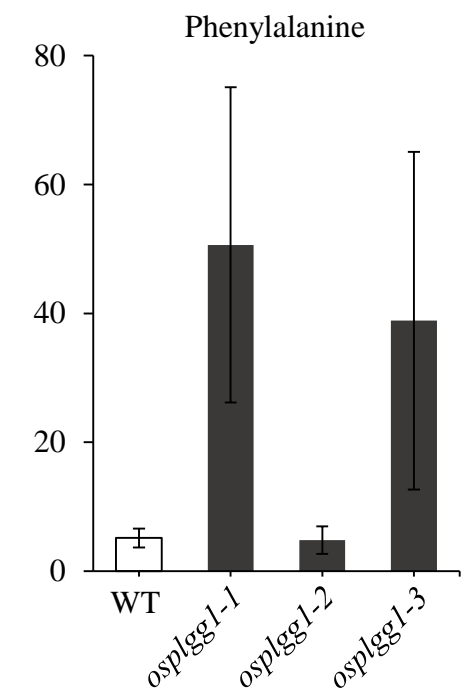
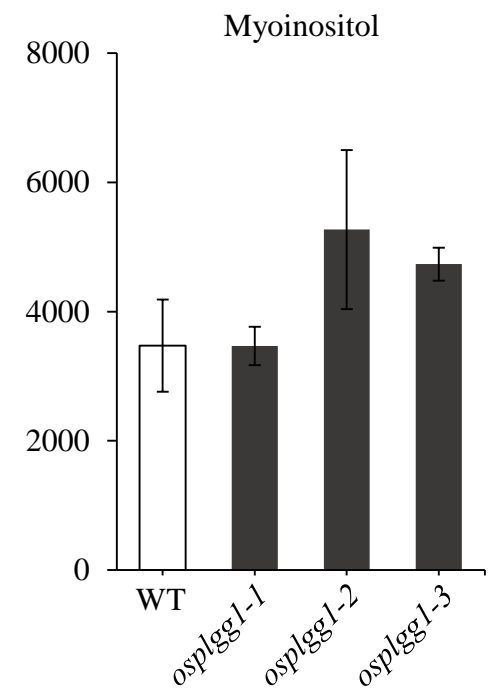
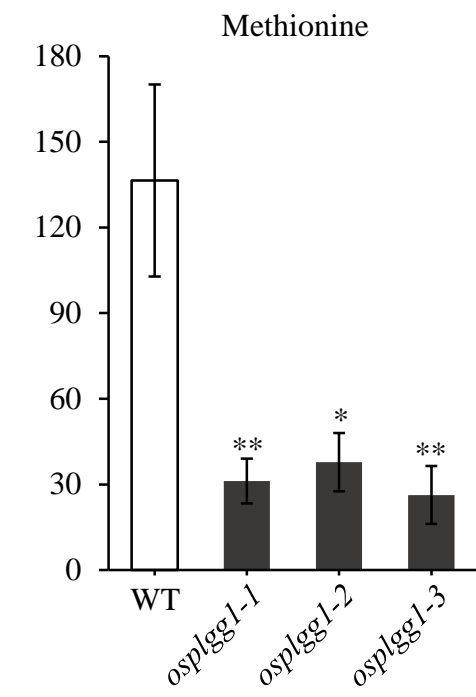
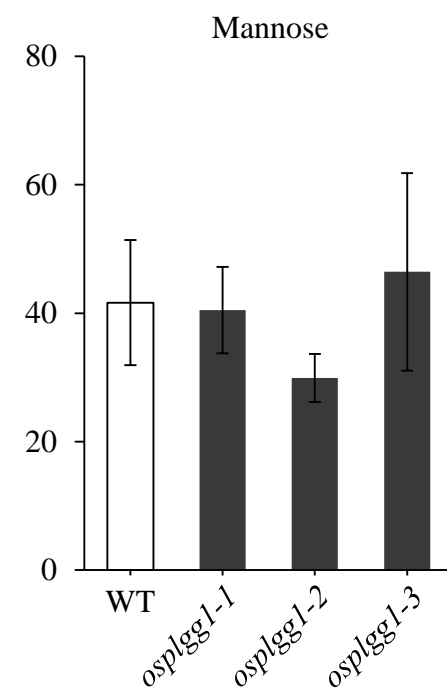
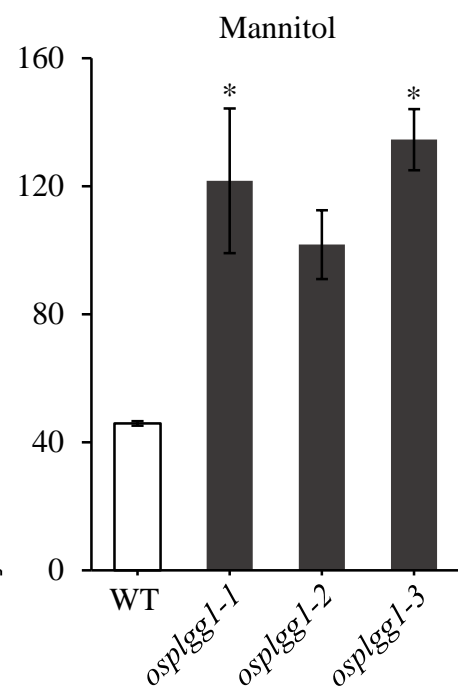
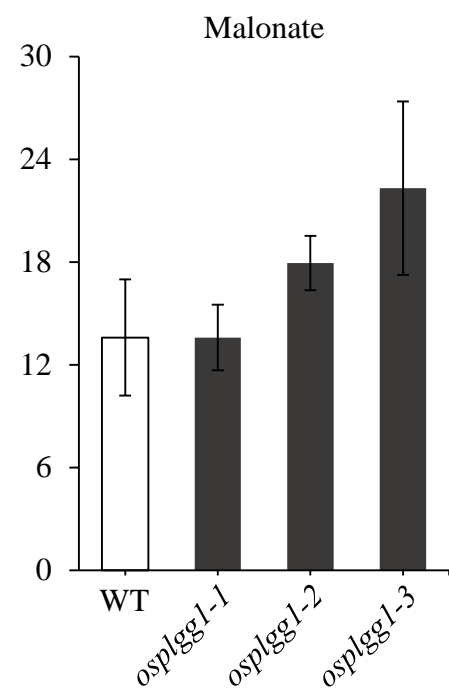
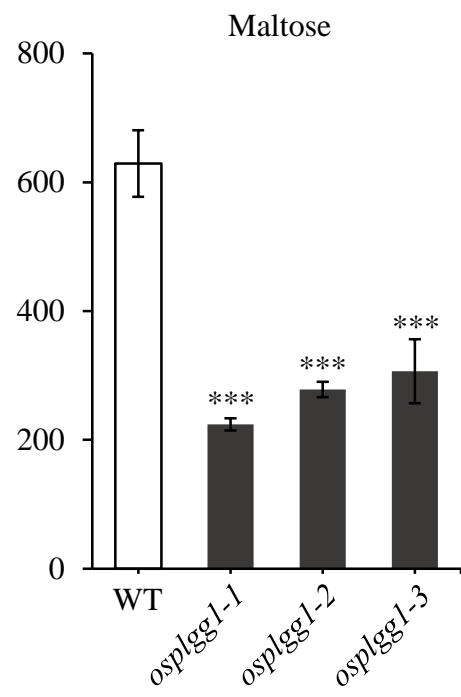


WT *osplgg2-1* *osplgg2-2*



Supplemental Figure S3. Phenotypic analysis of *osplgg2* mutants. (A, B) Mature plants (A) and leaf blades (B) of WT, *osplgg2-1* and *osplgg2-2* mutant plants grown for three months in the paddy field. Bar = 10 cm. (C, D) Number of tillers (C) and 1000-grain weight (D) of WT, *osplgg2-1* and *osplgg2-2* plants. The experiment consisted of five independent plants per each line. Error bars indicate SEM. $P > 0.05$ according to Student's *t*-tests.





Supplemental Figure S4. Relative abundances of metabolites which are not intermediates of photorespiration in leaves of one-month-old WT and *osplgg1* mutant plants grown in the paddy field. The relative metabolite levels were normalized to an internal standard (ribitol) and the fresh weight of the samples. Three independent biological replicates were used in the experiment, each having three technical replicates. Error bars indicate SEM. Student's *t*-test was used to show statistical differences. *P < 0.05; **P < 0.01; ***P < 0.001; ****P < 0.0001.