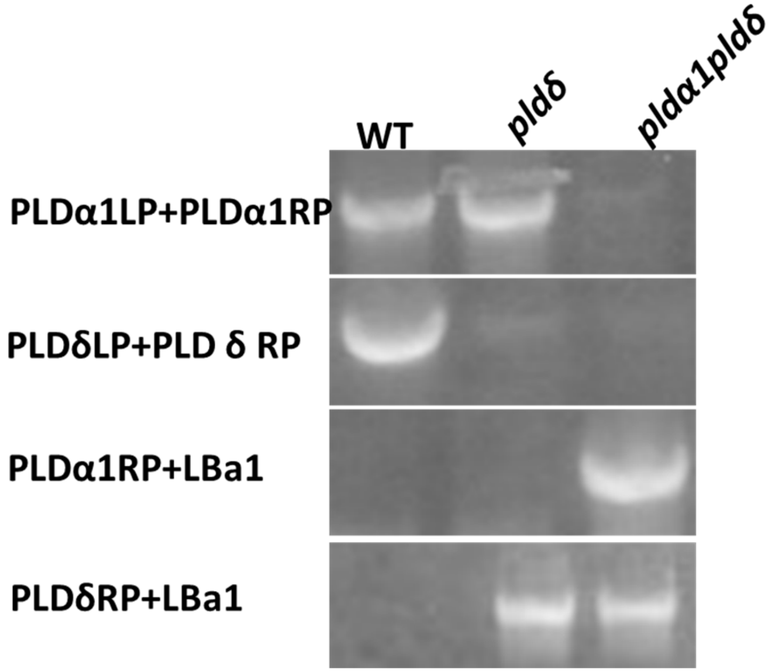
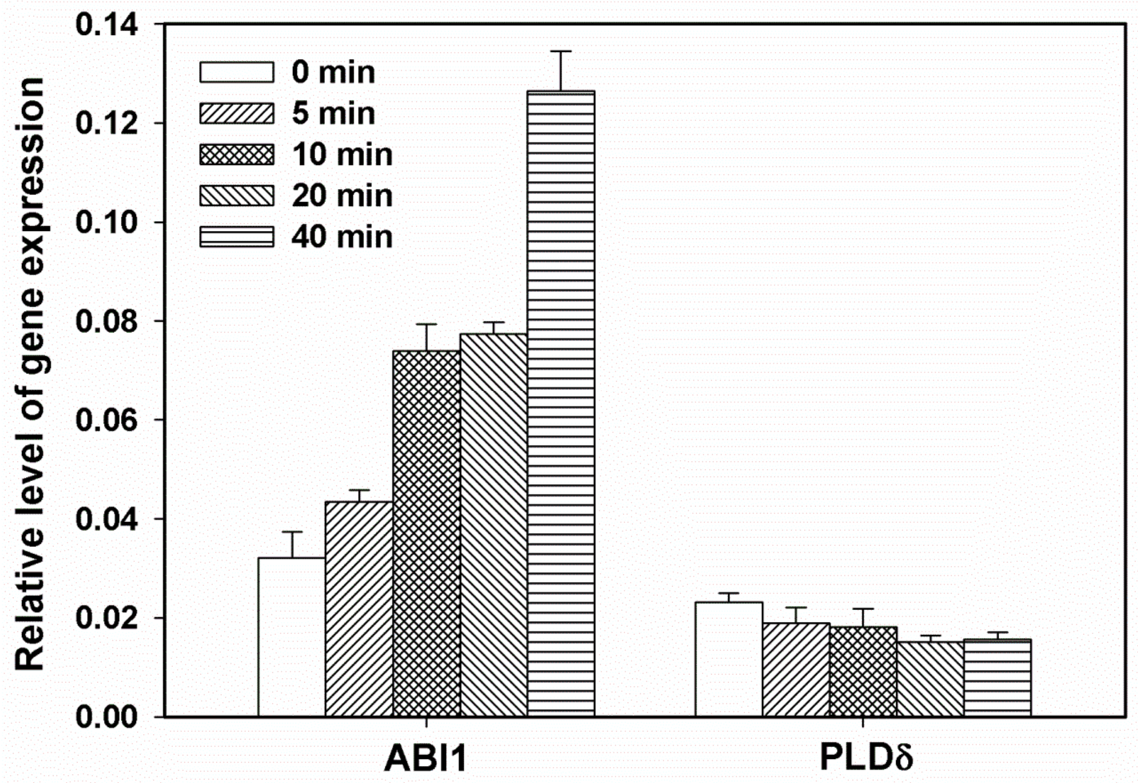
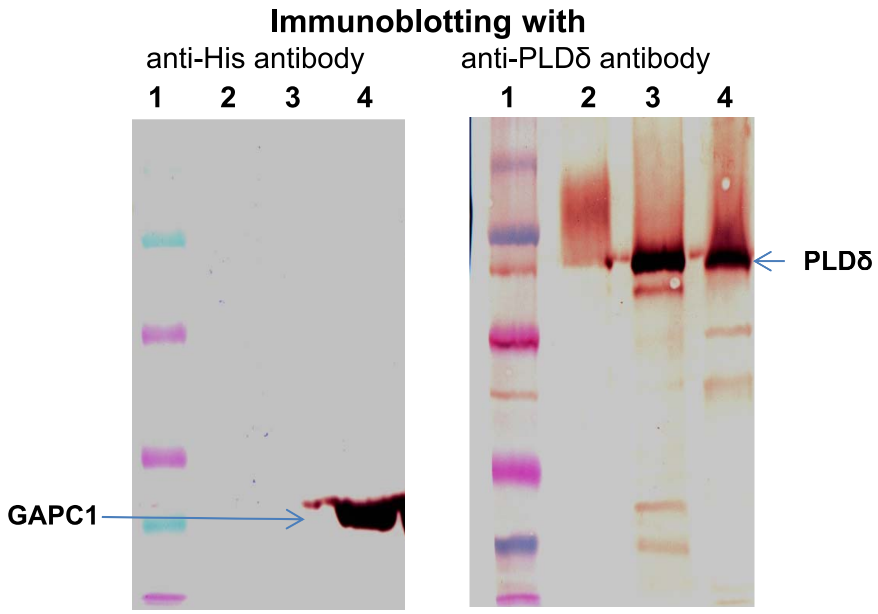


Supplemental Figure 1. Confirmation of homozygous T-DNA insertion PLD mutants by PCR. PCR was conducted using genomic DNA extracted from plant leaves with a pair of gene specific primers (PLDα1RP+PLDα1LP for *PLDα1* and PLDδRP+PLDδLP for *PLDδ*) or a combination of a T-DNA left border primer (LBa1) and gene specific primers (PLDα1RP and PLDδRP). The presence of a T-DNA band and lack of a *PLDα1* or *PLDδ* band indicate that *pldδ* and *pldα1pldδ* are homozygous T-DNA mutants. The primers used for PCR are listed in Table S1.

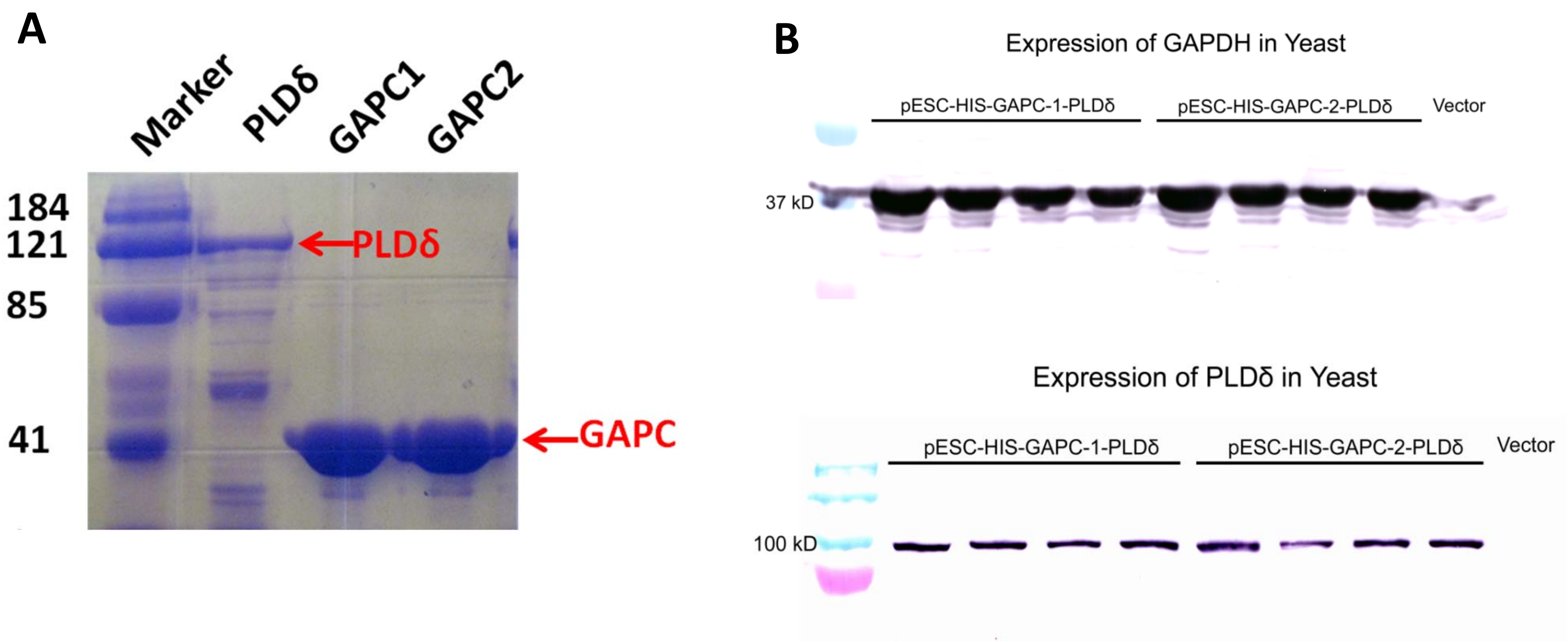


Supplemental Figure 2. Expression level of *PLDδ* in response to ABA.
RNA was extracted from leaves sprayed with 100 μM ABA with 0.01% Triton X-100. *PLDδ* transcript level was measured by real-time PCR normalized to *UBQ10.* The ABA response gene *ABI1* was used as a positive control. The experiment was repeated three times with similar results. Values are means ± SE (n = 3) for one representative experiment. The primers for real-time PCR are listed in Table S1.



Lane 1, Protein Kd standards
Lane 2, Nickel-bead pulldown of Arabidopsis microsomal proteins without His-GAPC
Lane 3, Total leaf microsomal extracts
Lane 4, Nickel-bead-pulldown from microsomal proteins with added His-GAPC

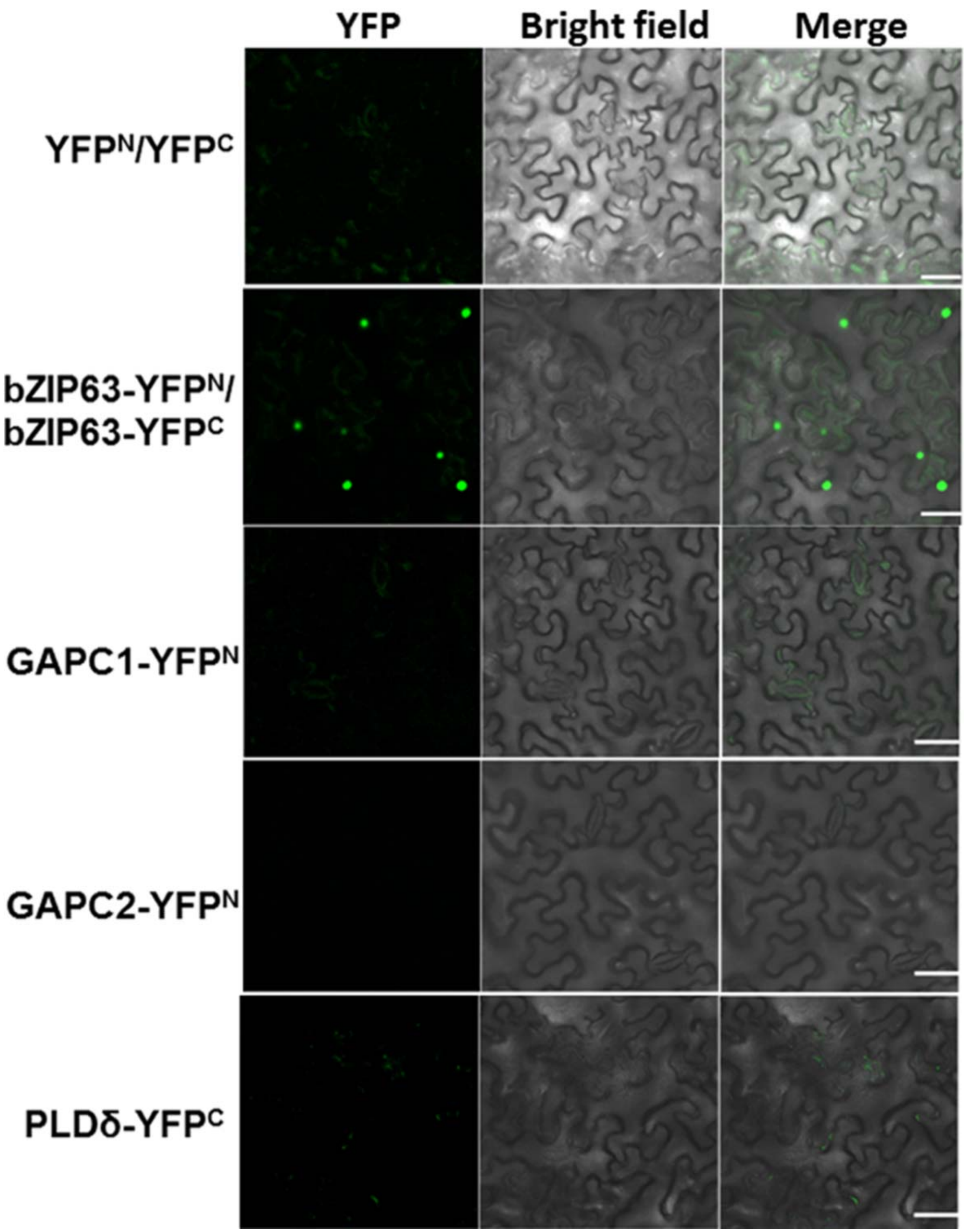
Supplemental Figure 3. PLDδ-GAPC association as identified by GAPC1 co-precipitation of PLDδ from microsomal proteins of *Arabidopsis* leaves.
Immunoblotting using anti-PLDδ (*Right*) or anti-His-tag (*Left*) antibodies of GAPC1-copulldown from *Arabidopsis* leaf microsomal extracts. *Arabidopsis* GAPC1 was fused with a His-tag, purified from *E. coli*, and incubated with leaf microsomal proteins. Microsomal fraction was isolated and dissolved in buffer A containing 0.5% Triton X-100, following a procedure described previously (Wang and Wang, 2001). Precipitates with nickel-sepharose beads were washed five times in PBS containing 0.5% Triton X-100, subjected to 10% SDS-PAGE, immunoblotted with anti-His (*Left*) or anti-PLD (*Right*) antibodies, and visualized using alkaline phosphatase staining.



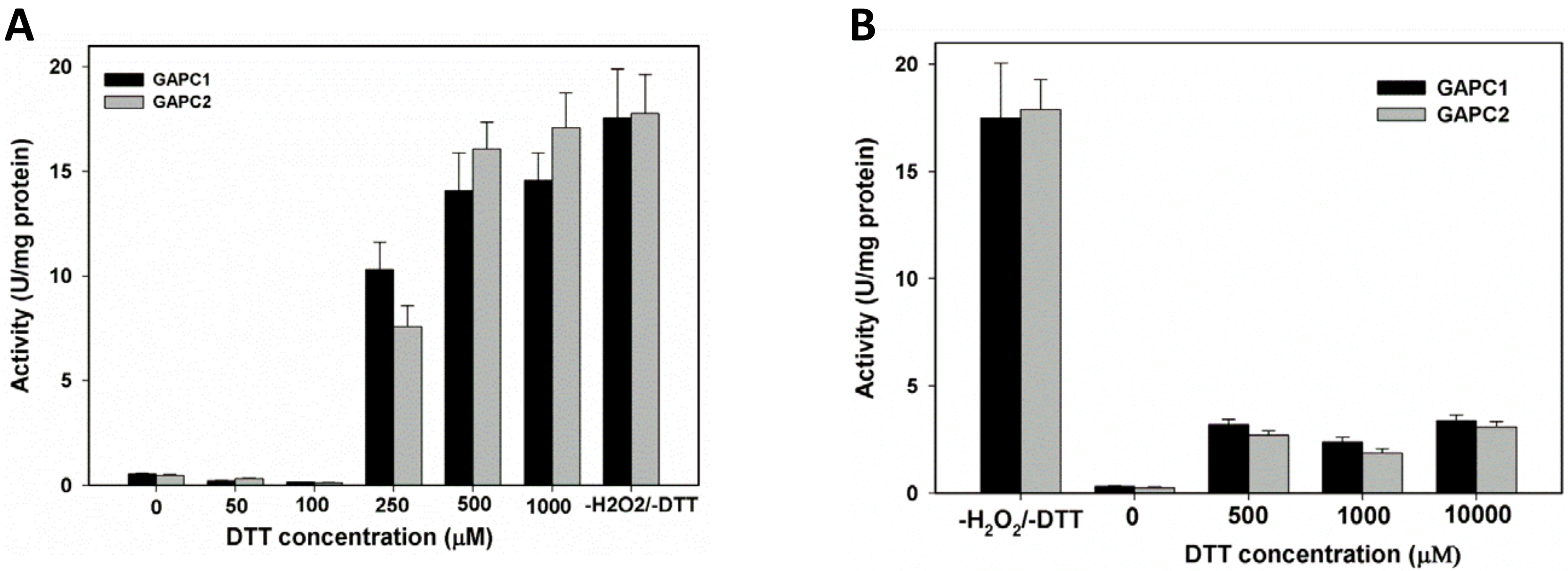
Supplemental Figure 4. Purification and immunoblotting of PLDδ and GAPCs produced in *E. coli* and yeast.

(A) Coomassie blue staining of purified PLDδ and GAPCs. PLDδ was expressed in *E. coli* as a GST fusion. GAPC1 and GAPC2 were fused with His tag and expressed in *E.coli*. PLDδ was purified using GST beads and GAPCs were purified using Ni-NTA agarose. Proteins were separated on a 10% SDS-PAGE gel followed by Coomassie blue staining.

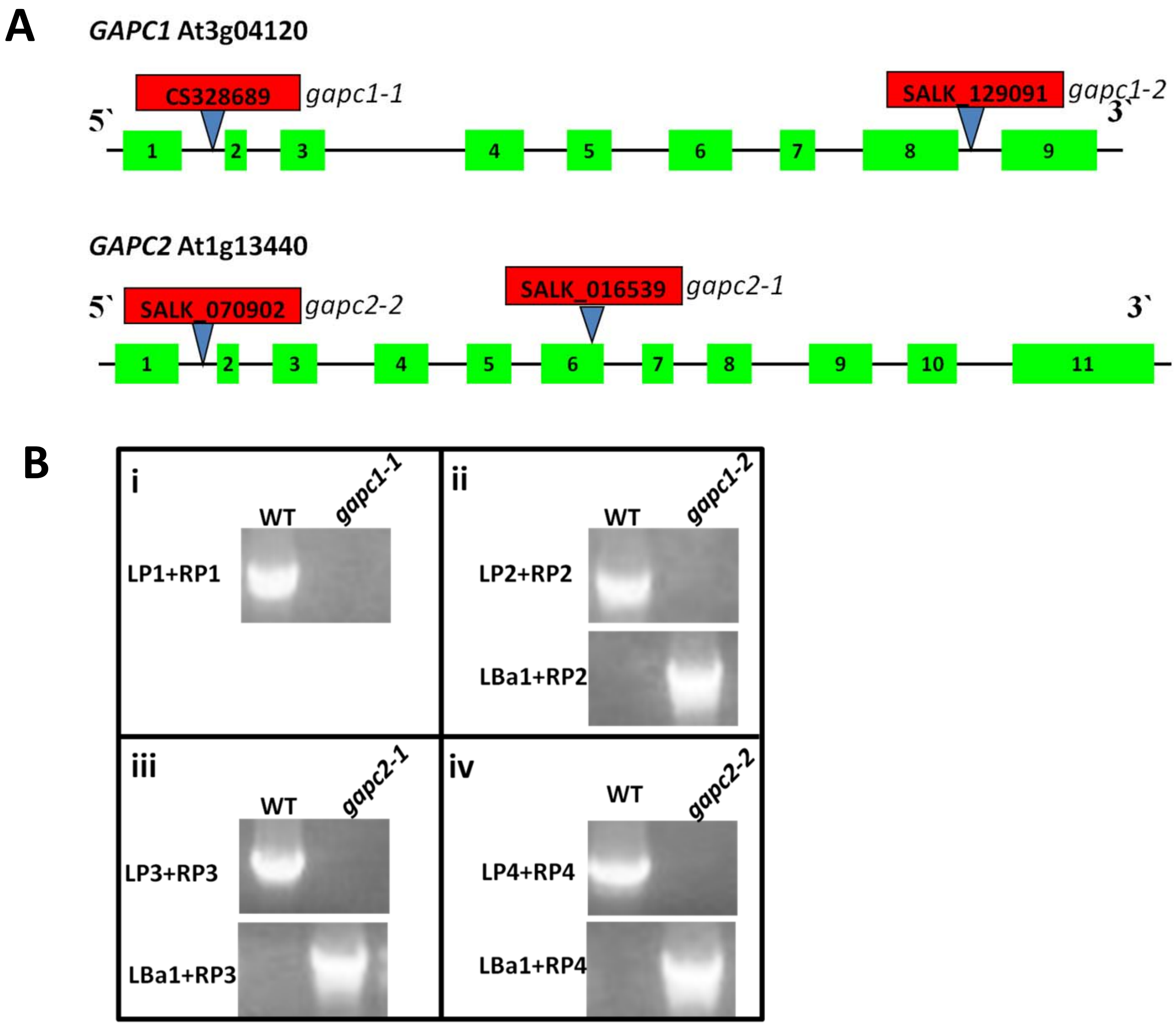
(B) Immunoblotting of PLDδ and GAPCs expressed in yeast. PLDδ was co-expressed with GAPC1 or GAPC2 in yeast. Total protein (10 µg) extracted from yeast was loaded on a 10% SDS-PAGE gel. PLDδ was immunoblotted with anti-FLAG antibody conjugated with alkaline phosphatase. GAPC1 and GAPC2 were immunoblotted with anti-cMyc antibody conjugated with alkaline phosphatase.



Supplemental Figure 5. Negative and positive control for BiFC.
Empty vectors (YFP^N/YFP^C) were used as negative control and did not show YFP fluorescence. The positive control bZIP63-YFP^N was co-expressed with bZIP63-YFP^C. Green color (spot) in the lower panel represents YFP fluorescence, indicating formation of dimers of bZIP63 in the nucleus of plant cells. The constructs were co-transformed into tobacco leaves by infiltration. GAPC-YFP^N and PLDδ-YFP^C were transformed separately and did not generate YFP fluorescence on their own. Photographs were taken with a Zeiss LSM 510 confocal microscope. Scale bar = 50 μm.



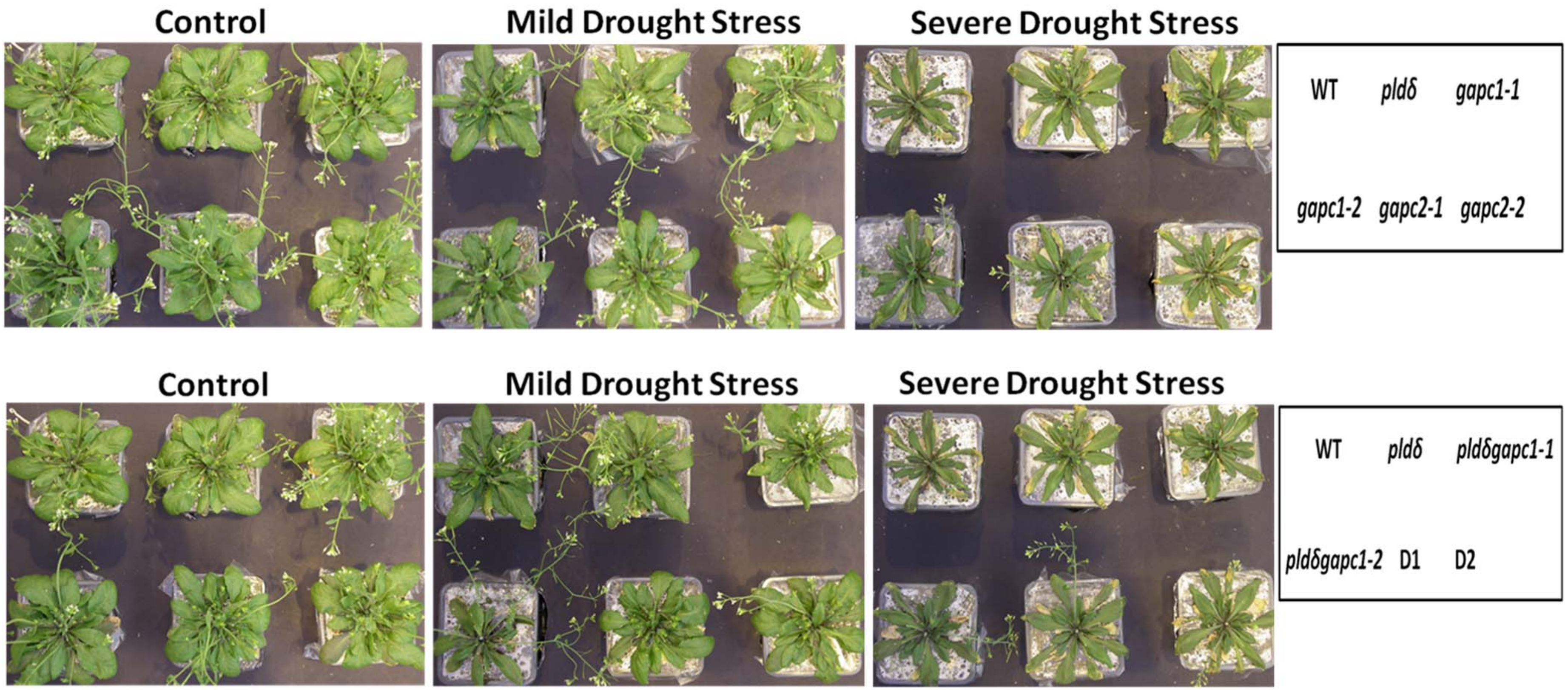
Supplemental Figure 6. DTT protection of GAPC activity.
(A) GAPC activity in the presence of increasing concentrations of DTT followed by addition of 50 μM H_2O_2.
(B) DTT recovery of GAPC activity after H_2O_2 treatment for 10 min. Values are means ± SE (n = 3).



Supplemental Figure 7. Isolation of *GAPC* T-DNA homozygous lines.

(A) Gene structure with the sites of T-DNA insertion. Two individual T-DNA insertion lines were isolated for *GAPC1* and *GAPC2*, respectively.

(B) PCR genotyping of mutants. All four lines were homozygous mutants as shown by the absence of gene-specific bands in mutants (LP+RP). PCR was done with genomic DNA and the primers are listed in Table S1.



Supplemental Figure 8. Growth phenotype of WT and GAPC and PLDδ mutants under control and drought conditions. Photos were taken at the end of experiment when plants were 6-week old. Three experiments were performed with similar results. D1 represents *gapc1-1gapc2-1* and D2 *represents gapc1-1gapc2-2*.

Supplemental Table: Primer list

Purpose	Gene	Primer Sequence
T-DNA confirmation	T-DNA	Lba1: 5`-TGGTTCACGTAGTGGGCCATCG-3`
pldα1 screening	*PLDα1*	PLDα1RP: 5`-CAAGGCTGCAAAGTTTCTCTG-3` PLDα1LP: 5`-ATTAAGTGCAGGGCATTGATG-3`
pldδ screening	*PLDδ*	PLDδRP: 5`-TCCGTTTGACCAGATCCATAG-3` PLDδLP: 5-`TTGCGATTATTACCAACAGCC-3`
gapc1-1 screening	*GAPC1*	RP1: 5`-CTGATGCCGAAAACAGTGACT-3` LP1: 5`- CTAGATCATTCCGACCCCTC-3`
gapc1-2 screening	*GAPC1*	RP2:5`-CGAAAACGACAAATTCAGACC-3` LP2: 5`-GAAGGTTGTTATCTCTGCCCC-3`
gapc2-1 screening	*GAPC2*	RP3: 5`-AGTGTTCACGGTCAGTGGAAG-3` LP3: 5`-GGTTAGGACTGAGGGTCCTTG-3`
gapc2-2 screening	*GAPC2*	RP4: 5`-TGTCTGCAACAAATCGATACC-3` LP4: 5`-AATGGTTGGAGTAATGTTGCT G-3`
GAPC1 cloning/ expression in *E.coli*	*GAPC1*	Forward: 5`-GCGGGATCCATGGCTGACAAGAAGA-3` Reverse: 5`-GCGAAGCTTTTAGGCCTTTGACATGT-3`
GAPC2 cloning/ expression in *E.coli*	*GAPC2*	Forward: 5`- GCGGGATCCATGGCTGACAAGAAGATCAGA-3` Reverse: 5`- GCGAAGCTTTTAGGCCTTTGACATGTGAA-3`
GAPC1 cloning/ expression in yeast	*GAPC1*	Forward: 5`-GCGGATCCGATGGCTGACAAGAAGATTAGG-3` Reverse: 5`-GCGGGCCCTTGGCCTTTGACATGTGGACGAT-3`
GAPC2 cloning/ expression in yeast	*GAPC2*	Forward: 5`-GCGGATCCGATGGCTGACAAGAAGATCAGA-3` Reverse: 5`-GCGGGCCCTTGGCCTTTGACATGTGAACG -3`
PLDδ cloning/ expression in yeast	*PLDδ*	Forward: 5`-GCCCCGGGTATGGCGGAGAAAGTATCGGA-3` Reverse: 5`-GCGTCGACTTACGTGGTTAAAGTGTCAGGAAG-3`
GAPC1 BiFC	*GAPC1*	Forward: 5`-GCG TCTAGAATGGCTGACAAGAAG AT-3` Reverse: 5`-CGC GGTACCGGCCTTTGACATGTG GA-3`
GAPC2 BiFC	*GAPC2*	Forward: 5`- GCGTCTAGAATGGCTGACAAGAAGATCAGA-3` Reverse: 5`- CGCGGTACCGGCCTTTGACATGTGAACG-3`
PLDδ BiFC	*PLDδ*	Forward: 5`-GCGGGCGCGCCATGGCGGAGAAAGT-3` Reverse: 5`-CGCCCCGGGCGTGGTTAAAGTGTCA-3`
pldδ Complementation	*PLDδ*	Forward: 5`-TGGATGGATTTATGGATCAGT-3` Reverse: 5`-GGGTGCAAAATGTAGAGATCG-3`
RT-PCR	*GAPC1*	GAPC1-3`UTR: 5`-GAPCCCTATCATTCGAGATCTGCTTC-3`
RT-PCR	*GAPC2*	GAPC2-3`UTR: 5`-TCAACCACACACAAACTCTCG-3`
RT-PCR	*18S rRNA*	Forward: 5`- TGGTCTTAATTGGCCGGGTC-3` Reverse: 5`-CTAAGAACGGCCATGCACCAC-3`
Realtime PCR	*PLDδ*	Forward: 5`-TGGGCGCATACCAACCTAATCA-3` Forward: 5`-TGGCTCCACAAACTCATCTCCA-3`
Realtime PCR	*ABI1*	Forward: 5`-TGTGGTGGTGGTTGATTTGAAGCC-3` Reverse: 5`-GCCTCAGTTCAAGGGTTTGCTCTT-3`
Realtime PCR	*UBQ10*	Forward: 5`-CACACTCCACTTGGTCTTGCGT-3` Reverse: 5`-TGGTCTTTCCGGTGAGACTCTTCA-3`