Supplemental material for:

Mutations in the Prokaryotic Pathway Rescue the *fab1* Mutant in the Cold

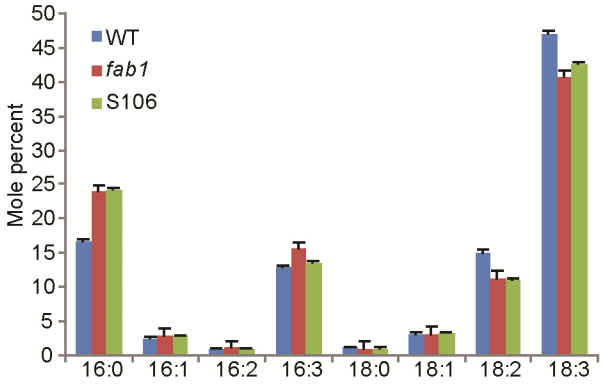
Jinpeng Gao, James G. Wallis, and John Browse
Institute of Biological Chemistry, Clark Hall, Washington State University, Pullman, WA 99164-6340, USA

Supplemental table SI. Lipidomics data from analysis of wild type, *fab1,* and *fab1* suppressors. See Excel spreadsheet.

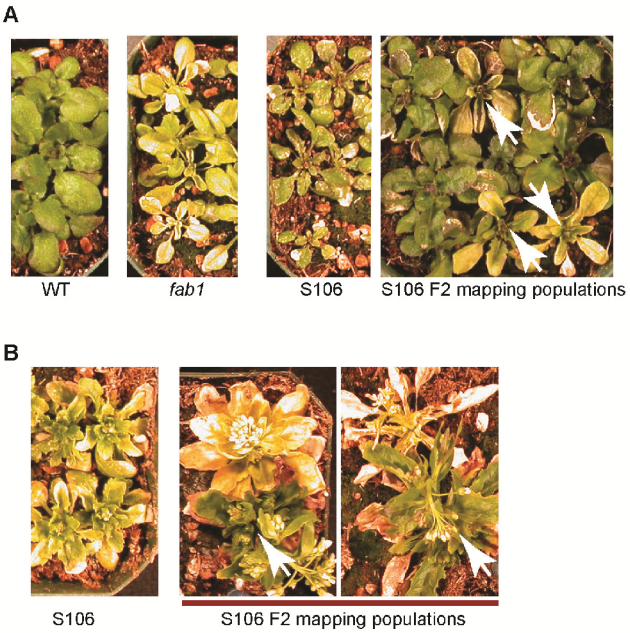
Supplemental Table SII. Primers used in this study. The primer sequence and corresponding restriction enzyme (RE), if any, are provided. Names on the left refer to the locus confirmed (Cleaved Amplified Polymorphic Sequences (CAPS), derived CAPS (dCAPS) markers and simple sequence length polymorphism (SSLP)) and the construct cloned. The 4 bp nucleotide sequence underline is used for ligation with TOPO cloning. The primers of 11.02M and 13.1 M gene markers were adapted from (Gao *et al.*, 2009). P1 and P2 indicated forward or Reverse primer respectively.

Name	Sequence (5' to 3')	Restriction enzyme
PB2GW7ACT1	P1: CACCATGACTCTCACGTTTTCCTCCTCCGC P2: CTAATTCCAAGGTTGTGACAAAGAGACC	
fab1 CAPS	P1:TTCAGCAAACCACATTATTAAAGGTGAAGC P2:TCCCATCACGAAACCATCTCGATT	Ban II; 330bp in WT; 500bp in *fab1*.
lpat1-3 CAPS	P1:TTTCTCCCACATTTTTCAAGTGTTTTGCTT P2:TCAGAGACGCAGCAAAAGACAACTTCT	HhaI; 500bp in WT; 260bp in *lpat1-3*.
act1-6 (S96) dCAPS1768	P1:CTTGAAGCACAATCTCCTTTCATAGGAGAG P2:AAAAGAGGATCAGTGATGACTCGATCACCGG	HaeIII, 120bp in WT; 149bp in *act1-6*.
lpat1-4 (S106) dCAPS	P1:GCAAGACAGGGATATTCGTAATCC P2:AAGTTCCATGCAGCGTTTTAAGCAATCCTA	MnlI 225bp in WT; 200 in *lpat1-4*.
F9F13, SSLP	P1 CCATTCAACTAACCACACTAATTC P2 GGATTGTTTAGGTAGAAGTCAAAAC	
F14M19, CAPS	P1 GATGAAGTTCGTCTTAGGATTTATG P2 CTAAGCTACTAACAAACACAAGAGCC	HinfI

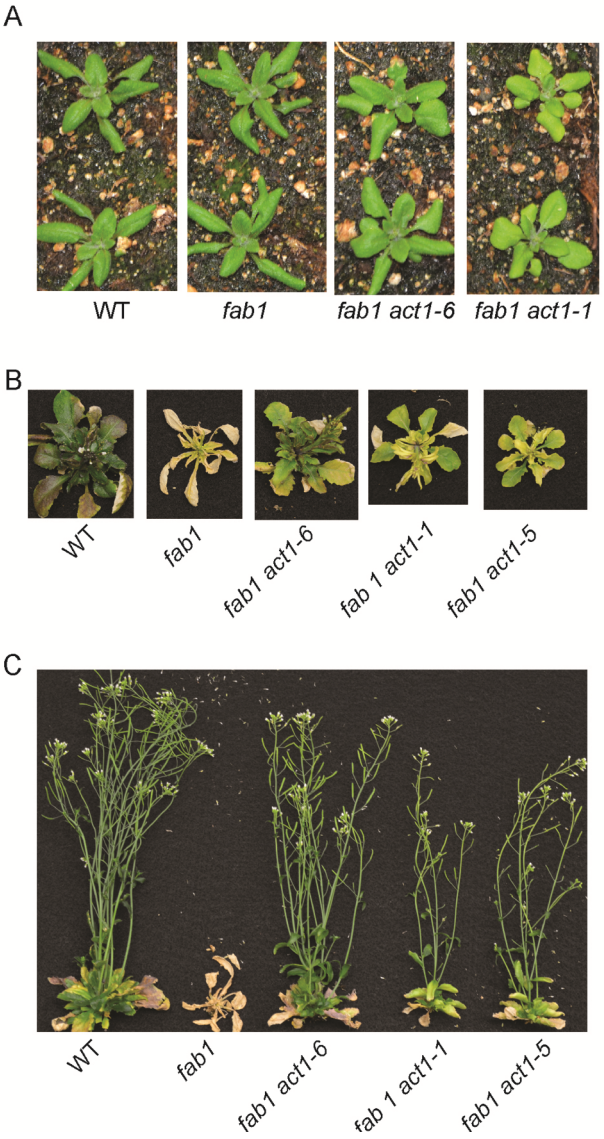
Gao JP, Ajjawi I, Manoli A, Sawin A, Xu CC, Froehlich JE, Last RL, Benning C. 2009. FATTY ACID DESATURASE4 of Arabidopsis encodes a protein distinct from characterized fatty acid desaturases. *Plant Journal* **60**, 832-839.



Supplemental Figure S1. Fatty acid profiles in leaves of WT, *fab1* and the S106 suppressor. Plants were grown at 22°C in soil for three weeks. Values are means +SE of 10 biological replicates.



Supplemental Figure S2. Identification of S106 putative mutants in the F2 mapping population. A, Arabidopsis grown at 2°C for one month. In the mapping population, WT plants were culled and *fab1* mutants allowed to continue growth. B, After three additional months at 2°C, some *fab1* mutants survive and are likely S106 (marked by arrows).



Supplemental Figure S3. An act1 mutation in line S96 (*fab1 act1-6*) suppresses the *fab1* phenotype. A, The *fab1 act1-1* mutants grown at 22°C for 17d, are smaller than WT, *fab1* or *fab1 act1-6* plants. B, Plants grown at 2°C for 65 days after 4 weeks at 22 °C. C, Plants recovered from chilling stress after they were transferred back to normal conditions for 7 more days.