

Supplementary Materials

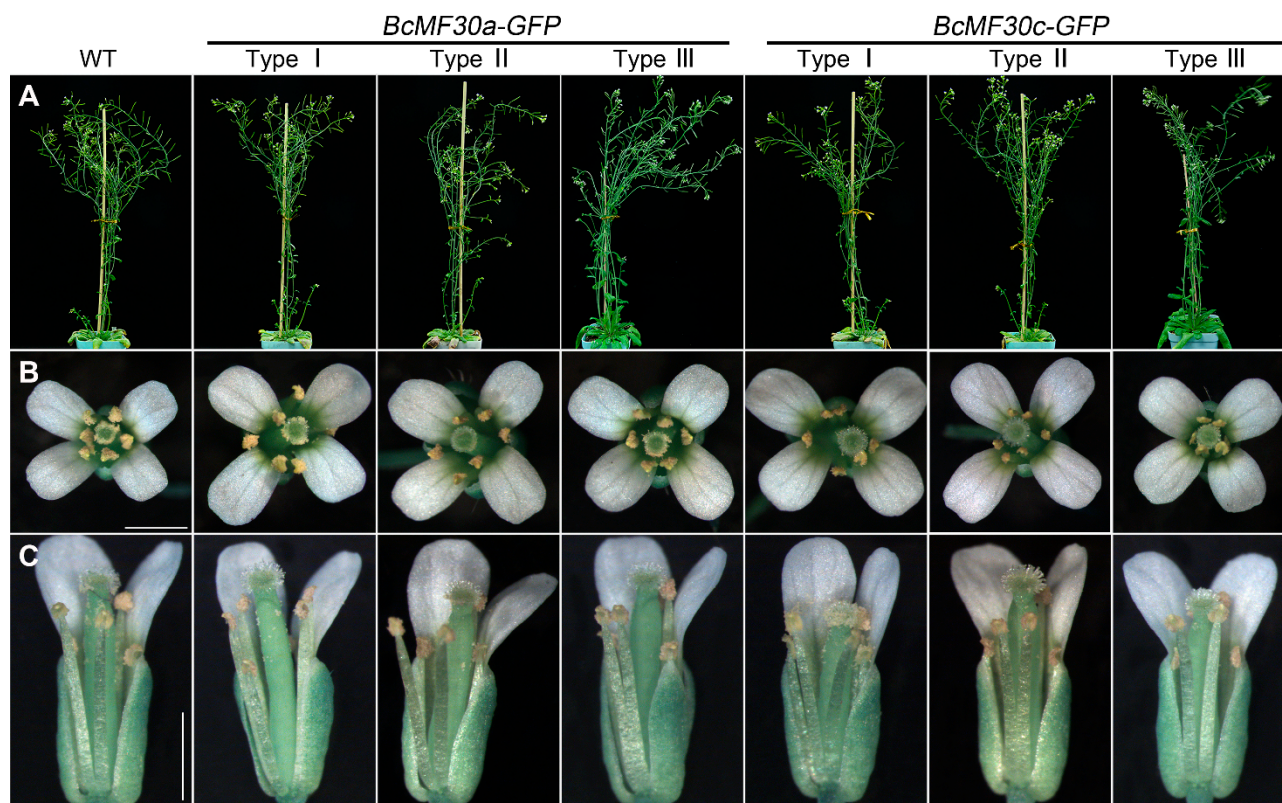


Figure S1. Heterologous expression of *BcMF30a* and *BcMF30c* in *Arabidopsis* does not affect the morphology of plants and floral organs. **(A)** Morphological observation of different types of *BcMF30a-GFP* and *BcMF30c-GFP* transgenic plants. Top views **(B)** and side views **(C)** of flowers from different types of *BcMF30a-GFP* and *BcMF30c-GFP* transgenic plants. Bars = 1mm in **(B, C)**.

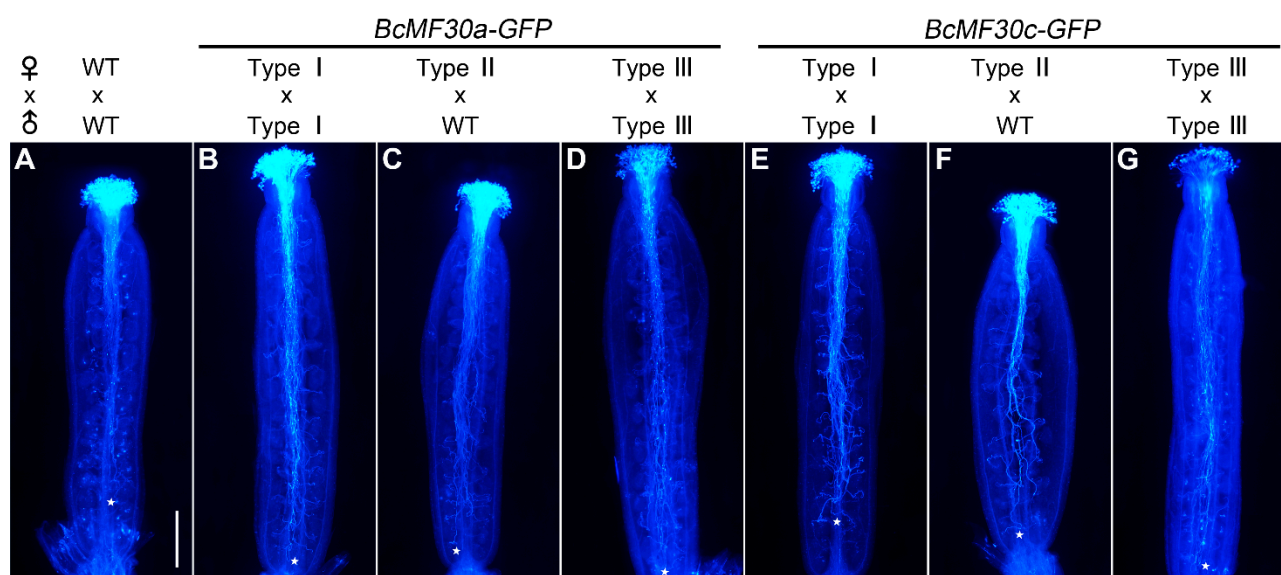


Figure S2. *In vivo* pollen germination tests showed that the pistils of all types of *BcMF30a-GFP* and *BcMF30c-GFP* transgenic plants developed normally. Self-pollination or wild-type pollen grains pollinated on the pistils of transgenic plants for 24 h. The asterisks indicated the end position of pollen tubes. Bars = 100 μ m.

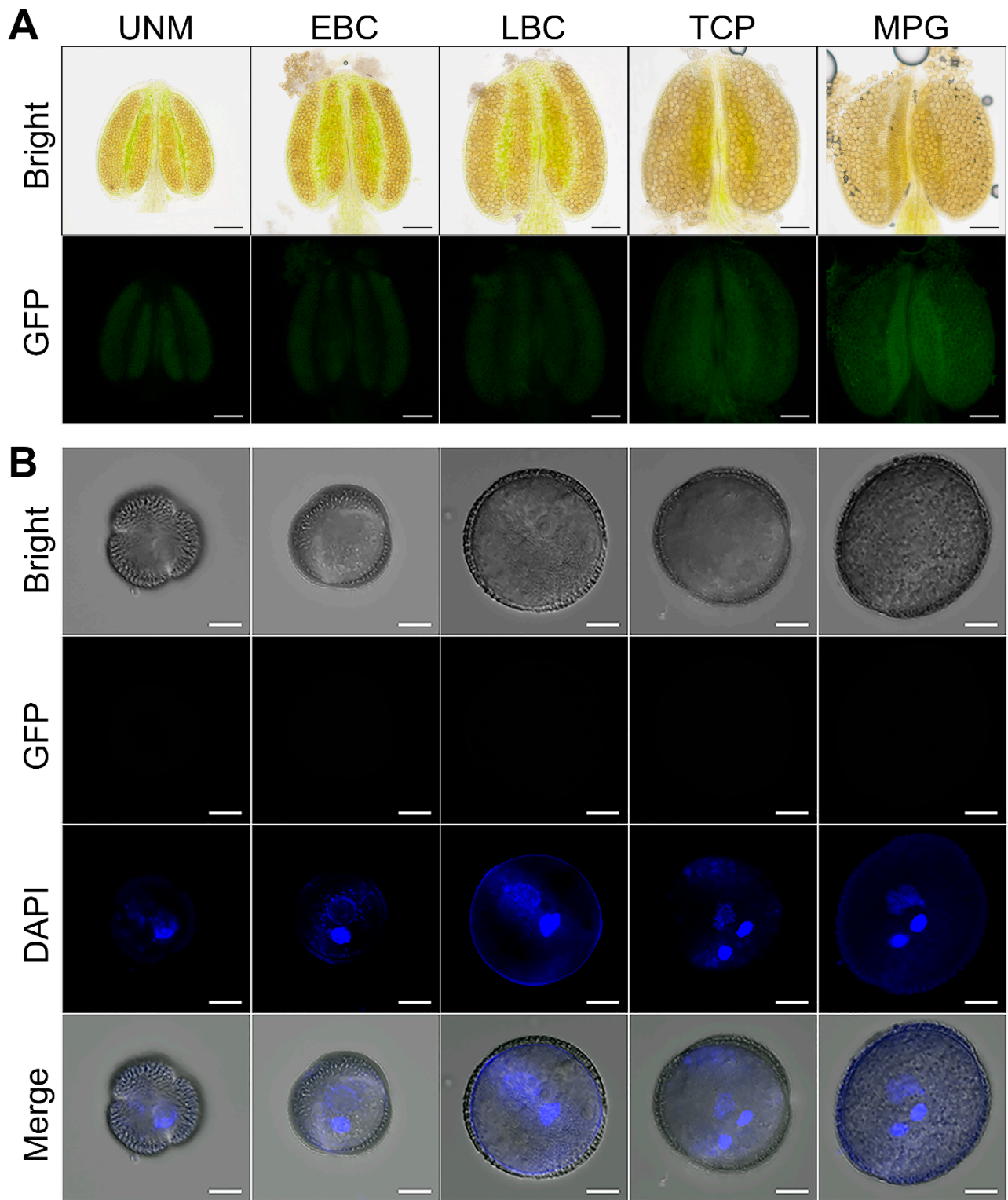


Figure S3. The anther development (**A**) and pollen development (**B**) of wild-type plants. UNM, uninucleate microspore; EBC, early bicellular pollen; LBC, late bicellular pollen; TCP, immature tricellular pollen; and MPG, mature pollen grain. Bars = 100 μ m in (**A**), 5 μ m in (**B**).

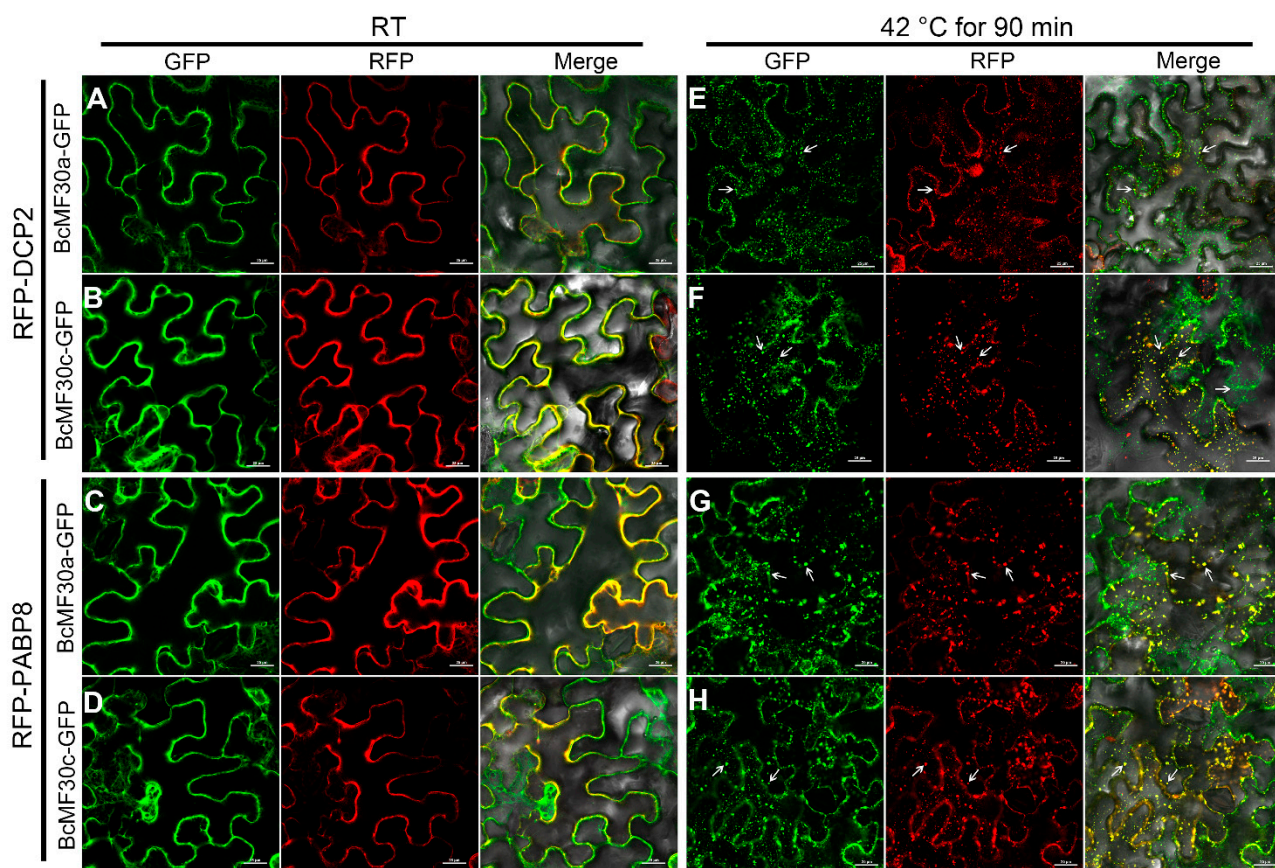


Figure S4. BcMF30a-GFP and BcMF30c-GFP can co-localized with PB and SG marker proteins in *Nicotiana benthamiana* leaf epidermal cells after heat treatment. DCP2 and PABP8 are marker proteins of PB and SG, respectively. Both BcMF30a-GFP and BcMF30c-GFP were dispersed in cytoplasm at room temperature (RT) when co-expressed with RFP-DCP2 (A,B) and RFP-PABP8 (C,D), respectively. After heat treatment at 42°C for 90 min, both BcMF30a-GFP and BcMF30c-GFP formed cytoplasmic foci and co-localized with RFP-DCP2 and RFP-PABP8 (E–H). Pictures represent white field images (Bright), epifluorescence (GFP and RFP) and merged images (Merge). Bar =25 μm.

Table S1 Sequences of primers used in this study.

Experiment	Primer Name	Sequence-F(5'-3')	Sequence-R(5'-3')
GFP CDS	GFP-F/R	GACAGTTACCATGGTGAGCAAG GGCG	TGATCCCGGGGATCCCTAGGATCCCT TGTACAGCTC
NOS PCR	NOS-1F/R	TCTAGAGGATCCCCGGGATCAA CAACTCTCCTGGCG	GACGGCCAGTGAATTCCCGATCTAG
pBI121(-GUS) Test	NOS-2F/R	AACGCAATTAATGTGAGTTAGC	GACGGCCAGTGAATTCCCGATCTAG
<i>BcMF30a-GFP</i> Test	BcMF30a-F/R	AGGACGGTTGTGCTATCT	TGTAAAACGACGGCCAGT
<i>BcMF30c-GFP</i> Test	BcMF30c-F/R	CGGAGAATCCATTGTGAA	TGTAAAACGACGGCCAGT
qRT-PCR	qRT-PCR-F/R	ATTACTCCTACCTCGGCTTCT	AACCGTTCTGCTTGTTCTT
TUB4 qRT-PCR	TUB4-F/R	AAGGCTTTCCTTCATTGGTACA	CTCTCCGGCTGTAGCATCTT