

Fig. S1. Schematic diagram of PTL constructs generated in this study.

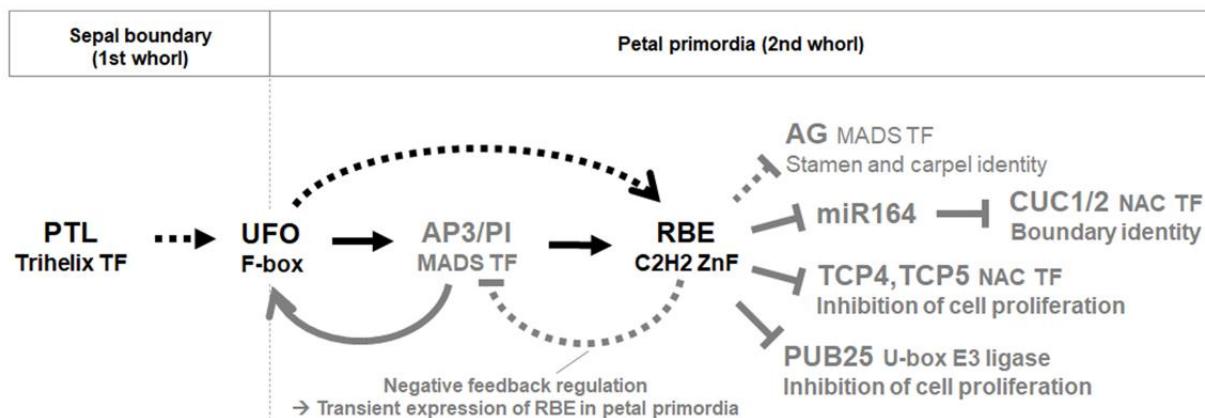


Fig. S2. Genetic pathway of PTL, UFO and RBE during petal initiation. Solid lines show direct regulation, and dotted lines are regulation that are not known whether they are direct or indirect.

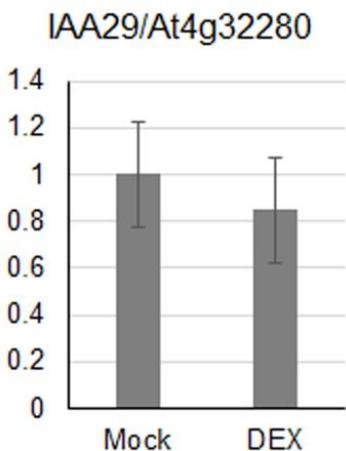


Fig. S3. RT-qPCR for IAA29/At4g32280, showing non-significant change. Expression was normalized by *AtTUB4*. Values represent the mean \pm SD. **p* value < 0.05. (Student's *t*-test, n = 3).

Table S1. Primer sequences for RT-qPCR

At1g11620_RTF	AGCCCTTGTTCCTCCTCCTC
At1g11620_RTR	TGCTGCTCTTCATCACCCA
At1g30950_RTF	CAGGAGGGTTAGTGAGTTGGG
At1g30950_RTR	AGCCTTGGCCTTGATATTGGT
At3g28470_RTF	TCAGCCAACCAAGTACCTCAA
At3g28470_RTR	ATGATGTTCGTTCTGCGTAAAAGTG
beta TUB4 F	GAGGGAGGCCATTGACAACATCTT
beta TUB4 R	GCGAACAGTTCACAGCTATGTTCA

Table S2. Floral organ number of *PTLp:DTA* plants

Line number (T1)	flower 1				flower2				Seeds
	sepal	petal	stamen	carpel	sepal	petal	stamen	carpel	
#1	4	1+1t ^a	4+1f ^a	2	2+2fu ^e	2	3+2fu ^e	2	-
#2	4	1+3f ^b	2+2s ^c	2	2+2fu ^e	2+1s ^c	4	2	-
#3			NA		3+2fu ^e	2	6	2	-
#5	4	2t	2+2s ^c	2	2+2fu ^e	1+2st ^f	4	2	-
#9	4	2+1se ^d	6	2	2+2fu ^e	1	4+1s ^c	2	-
#12	4	3	6	2	2+2fu ^e	1	4+1s ^c	2	-
#15			NA		2+2fu ^e	2	6	2	-
#19	4	3s ^c	6	2	2+2fu ^e	3s ^c	6	2	+
#21			NA		2+2fu ^e	3	6	2	+

a: thin organ

b: filament

c: small organ

d: with serration

e: fused sepal

f: stamenoid petal

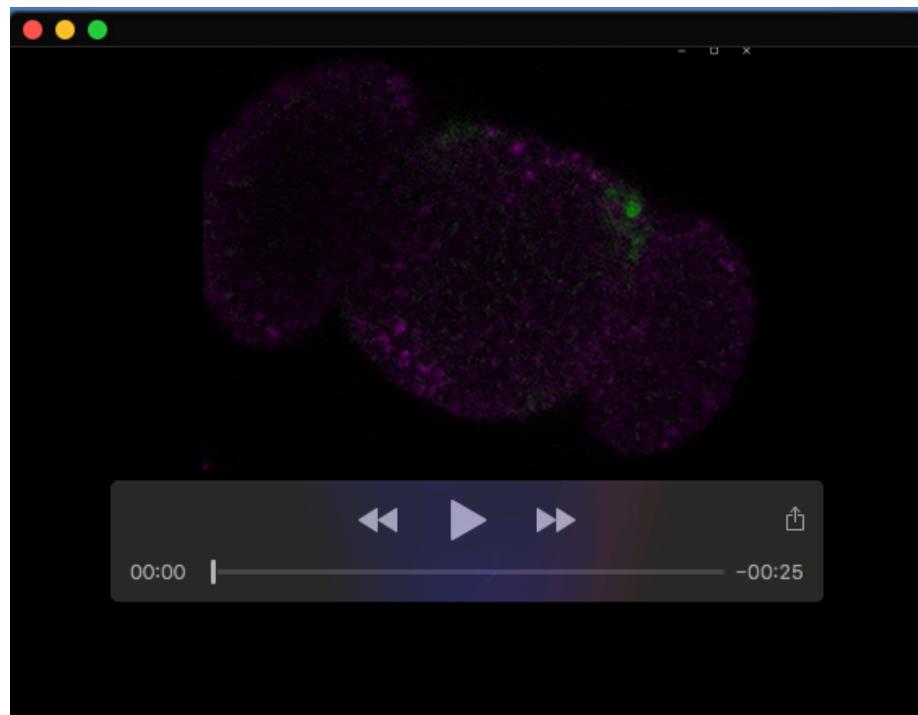
NA: not analyzed due to defectiveness in young stage

Table S3. Gene expression pattern during early flower development

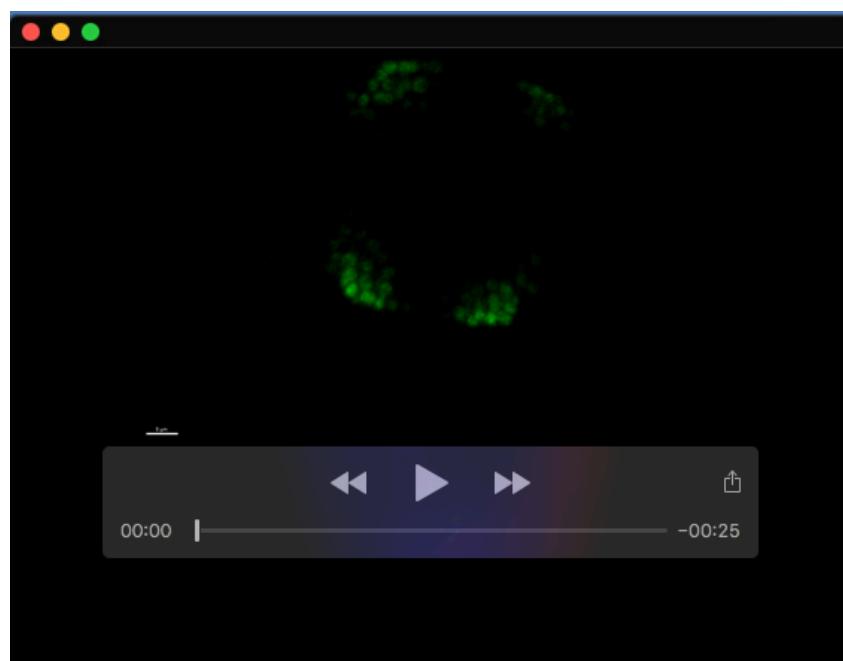
	Events*	<i>UFO</i>	<i>AP3/PI</i>	<i>PTL</i>	<i>RBE</i>
Stage 1	Flower buttress arises	-	-	Lateral flank of FM**	-
Stage 2	Flower primordia forms	Whorls 2, 3, 4	Whorls 2 and 3	Lateral indentation of FM**	-
Stage 3	Sepal primordia arise	cone-shaped including sepal and petal primordia cells	Whorls 2 and 3	Sepal boundary	Whorled pattern, petal initiation sites
Stage 4	Sepals overlie flower meristem	Whorls 2 and 3, petal initiation sites	Whorls 2 and 3	Sepal boundary	Petal initiation sites
Stage 5	Petal and stamen primordia arise	Petal primordia	Whorls 2 and 3	Sepal boundary	Petal primordia

*Smyth et al., 1990

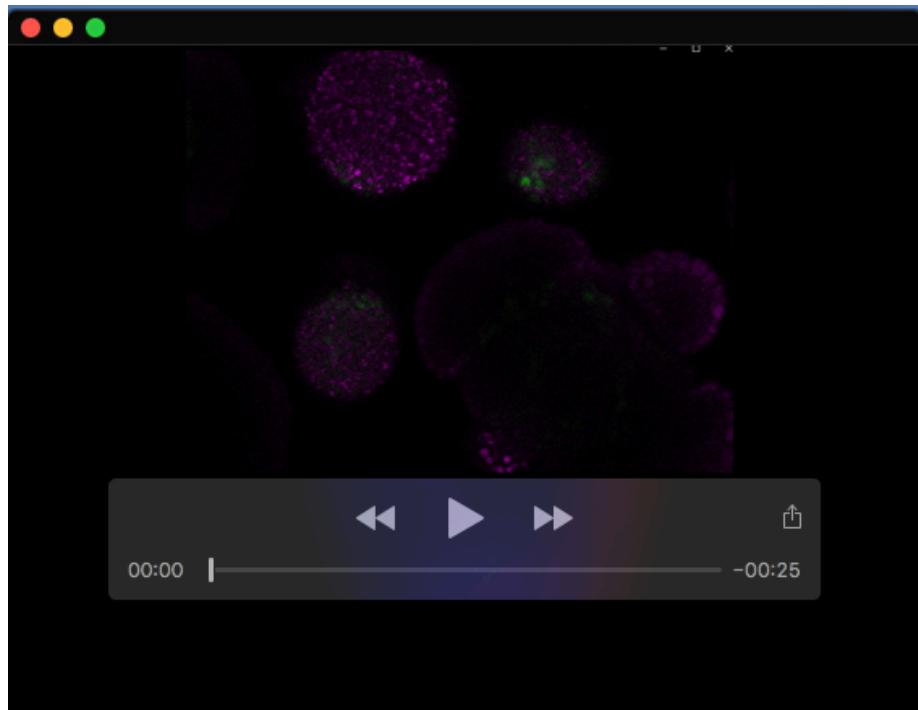
**FM: floral meristem



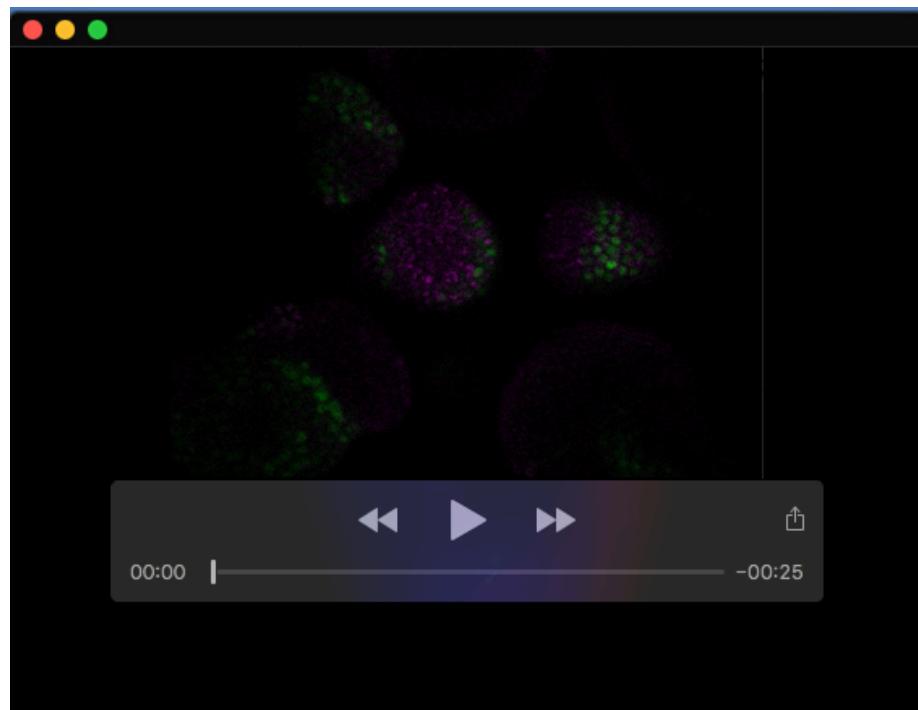
Movie 1. Serial sections of PTLg:CFP (magenta) and GFP:RBEg (green) floral bud.



Movie 2. 3D-constructed floral bud of PTLg:CFP (magenta) and GFP:RBEg (green).



Movie 3. Serial sections of PTLg:CFP (magenta) and CUC1g:GFP (green) inflorescence.



Movie 4. Serial sections of PTLg:CFP (magenta) and CUC2g:GFP (green) inflorescence.