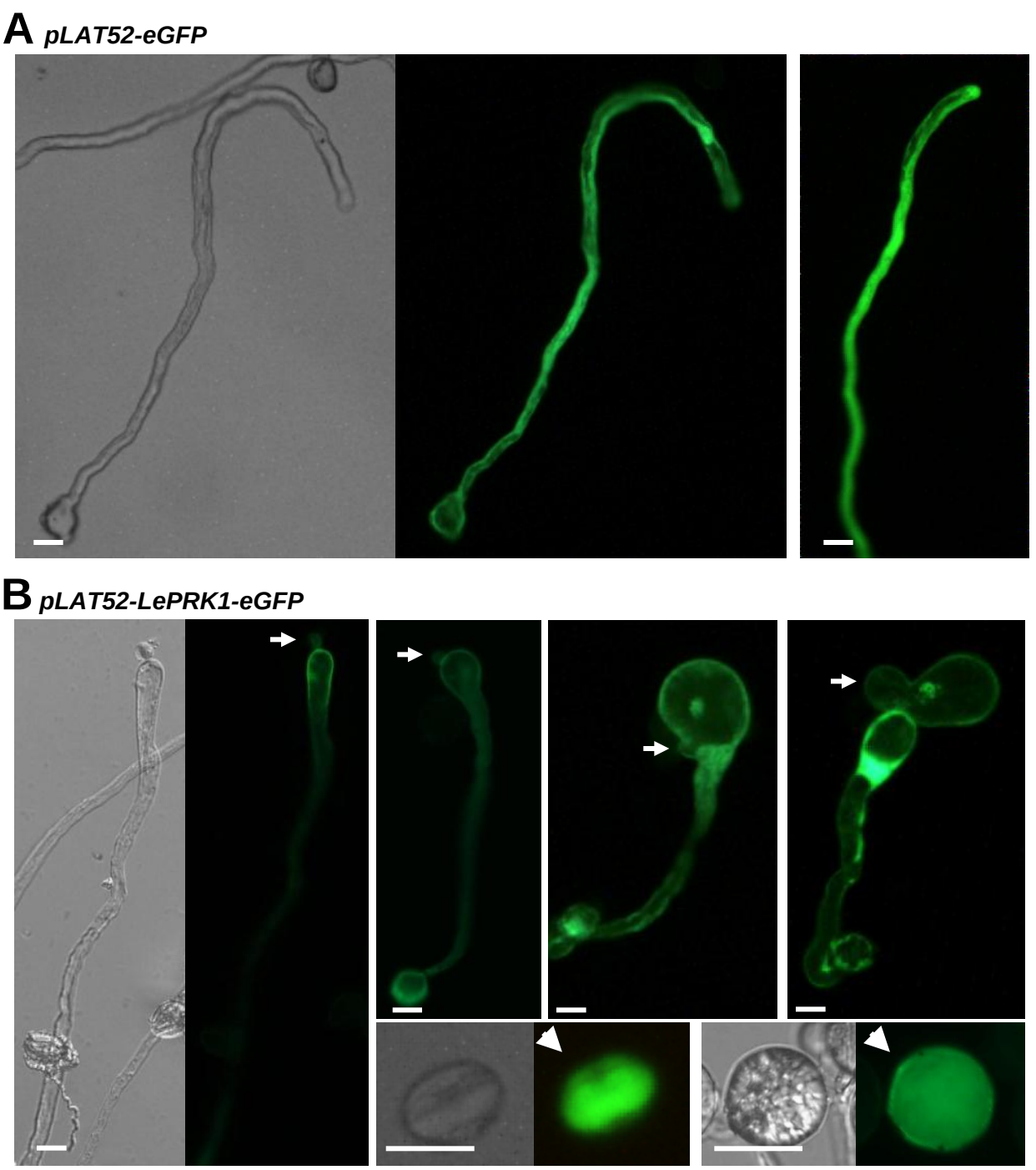
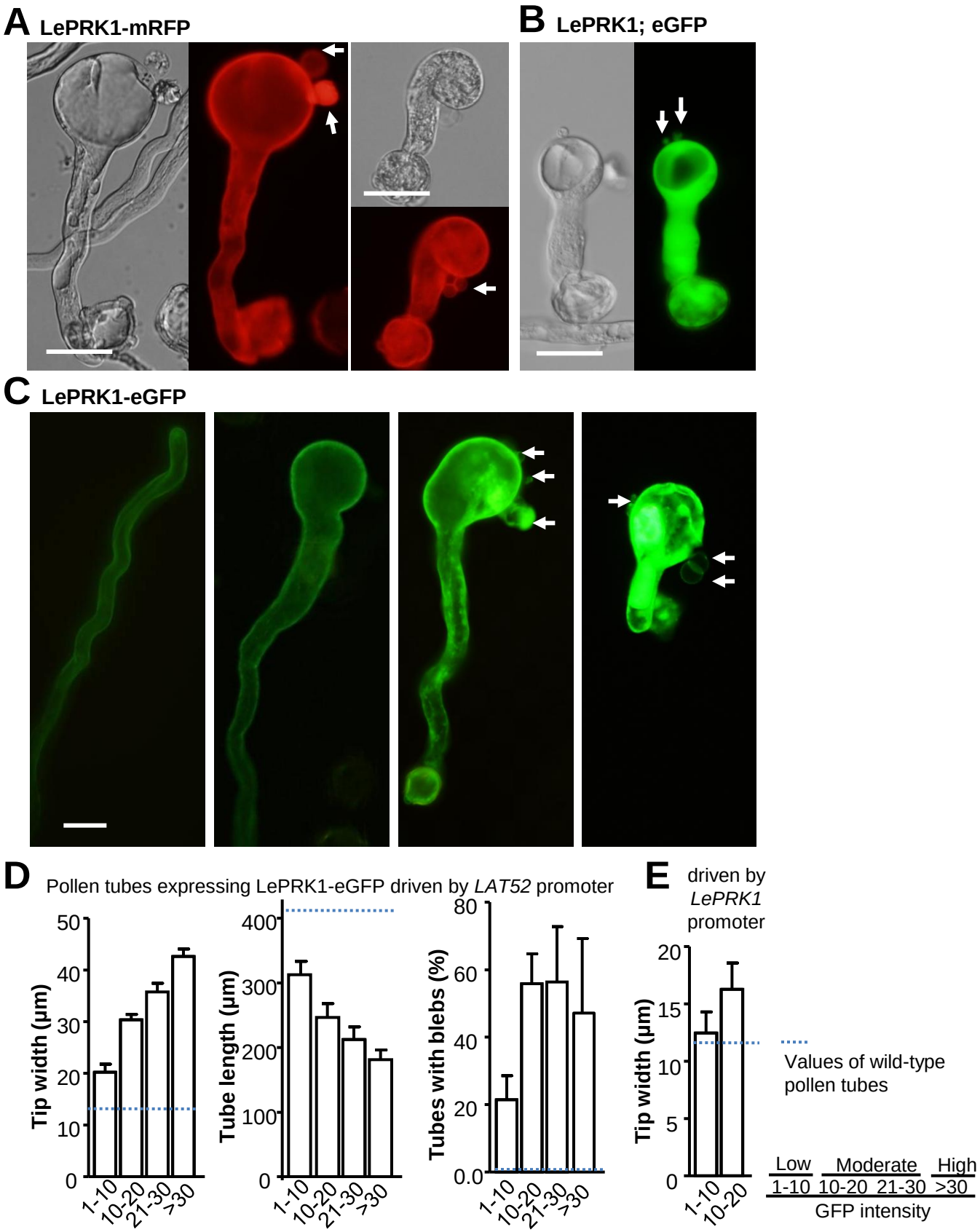
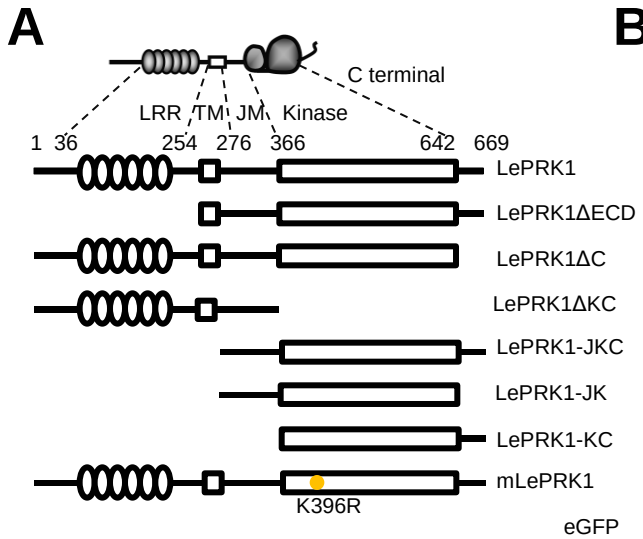


Supplemental Figure 1. Transient overexpression of LePRK1 in tomato pollen causes blebbing. Representative pollen and pollen tubes expressing *pLAT52-eGFP* (A) or *pLAT52-LePRK1-eGFP* (B). Arrows point to blebs. Arrowheads point to non-germinated pollen. Scale bar = 20 μm.

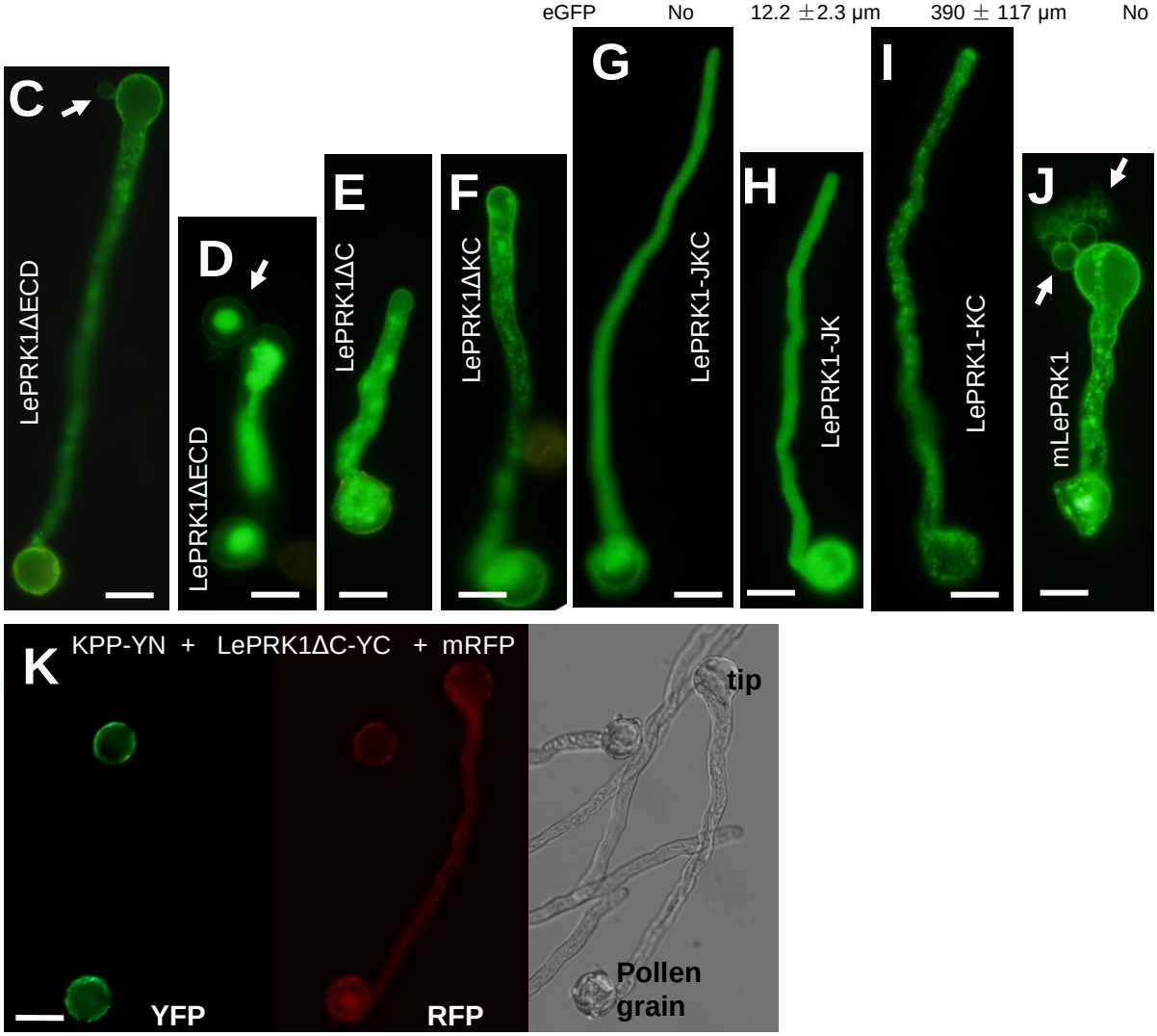


Supplemental Figure 2. Analysis of tobacco pollen tubes overexpressing LePRK1.
(A) Representative pollen tube expressing LePRK1-mRFP. (B) Representative pollen tube expressing LePRK1 and eGFP separately. (C) Representative images of pollen tubes transiently expressing LePRK1-eGFP at different levels, ranging from low (left) to high (right). Arrows point to blebs. Scale bar = 30 μm. (D) Measurements of pollen tubes expressing LePRK1-eGFP grouped based on their fluorescence intensity ranges (X-axis). All the genes in A to D were driven by the *LAT52* promoter. (E) Measurements of tip width of pollen tubes expressing LePRK1-eGFP driven by the native LePRK1 promoter, note that these pollen tubes fell into the 1-10 and 10-20 intensity range categories. More than 20 pollen tubes were measured in each group. Error bars indicate SE.



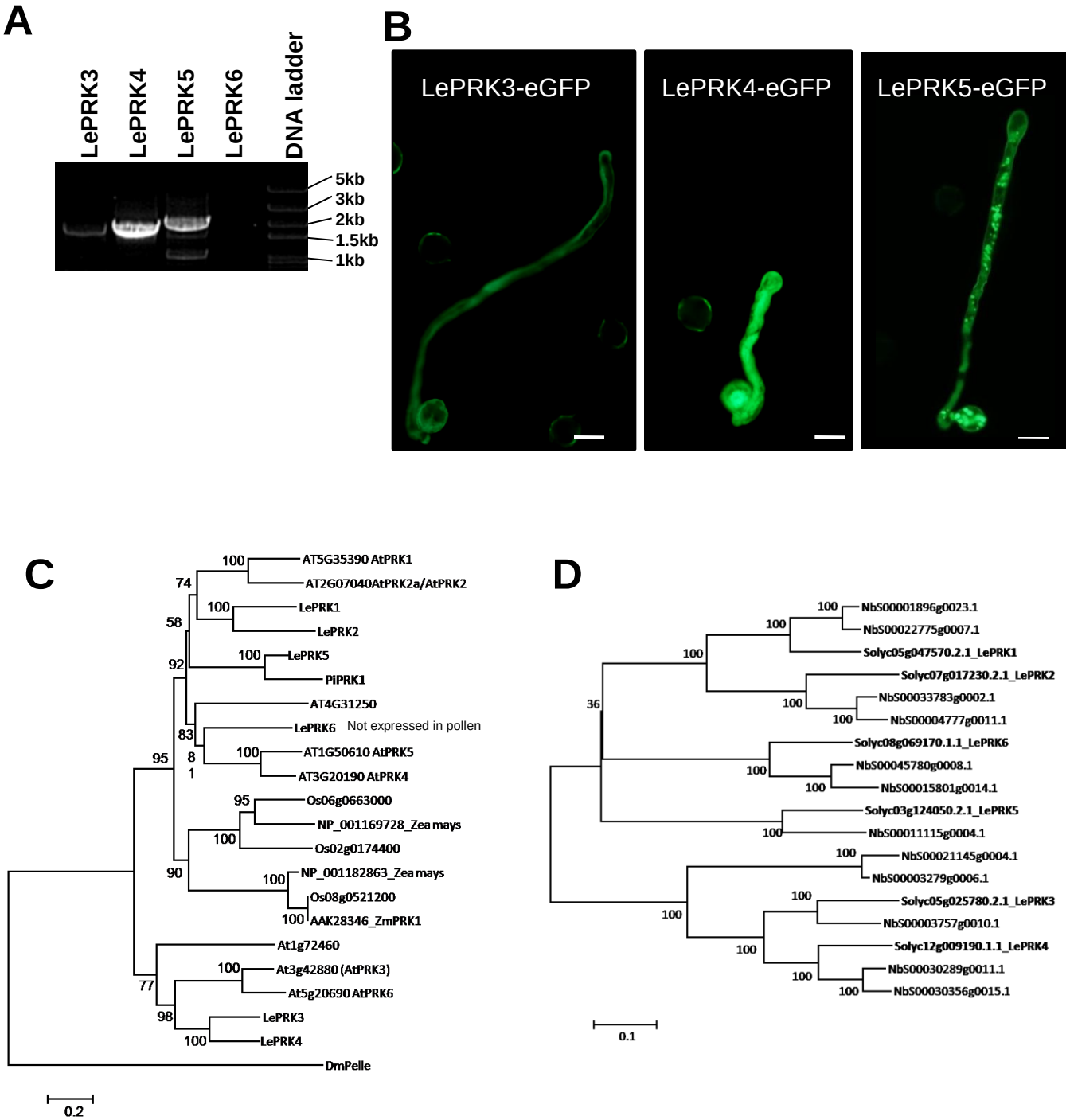
B

	PM localization	Tip width	Tube length	Tube with blebs (% if yes)
LePRK1	Yes	36.5 ±7.4 μm (*)	267 ±56 μm (*)	Yes (42%)
LePRK1ΔECD	Yes	30.6 ±7.1 μm (*)	189 ±115 μm (*)	Yes (61%)
LePRK1ΔC	Yes	17.9 ±3.6 μm (*)	270 ±111 μm (*)	No
LePRK1ΔKC	Yes	15.7 ± 3.7 μm (*)	276 ±38 μm (*)	No
LePRK1-JKC	No	8.9 ±1.0 μm	310 ±79 μm	No
LePRK1-JK	No	10.1±2.1 μm	318 ±104 μm	No
LePRK1-KC	No	10.1±0.7 μm	412 ±116 μm	No
mLePRK1	Yes	42.0 ±9.7 μm (*)	174 ±98 μm (*)	Yes (60%)
eGFP	No	12.2 ±2.3 μm	390 ± 117 μm	No



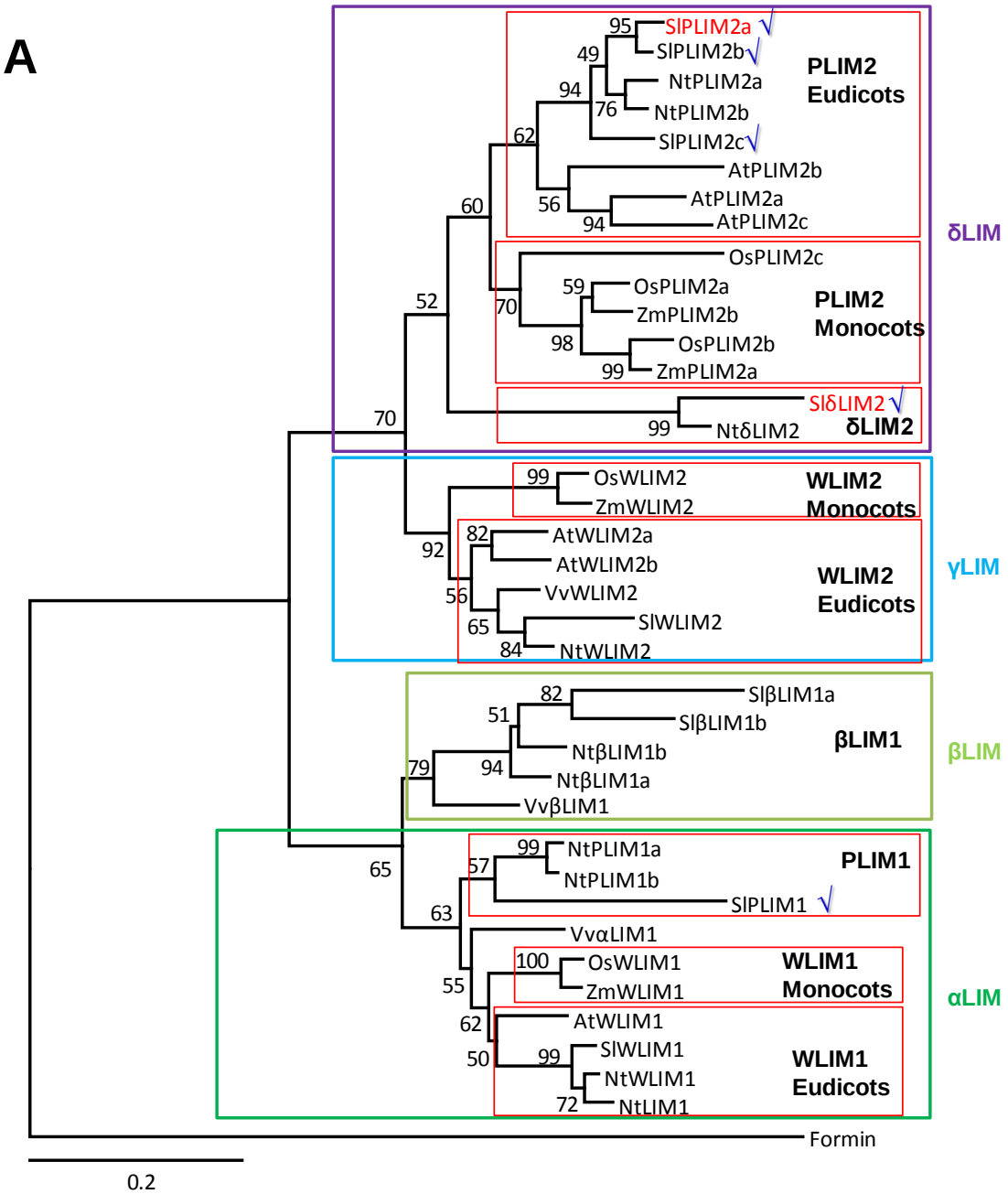
Supplemental Figure 3. The C-terminal tail and membrane localization of LePRK1, but not its kinase activity, are required for blebbing pollen tubes.

(A) Diagram of LePRK1 variants used in this work. The orange dot indicates the point mutation. (B) A summary table of the subcellular localization patterns and phenotypic measurements of the LePRK1 variants in transient overexpression. PM: plasma membrane. Yes under PM localization indicates at least partial PM localization. All were compared to pollen tubes expressing eGFP only. *, $P<0.01$ (Student's *t* test). n=3 independent experiments. (C)-(J), Representative pollen tubes transiently overexpressing truncations or mutants as labeled. (K) A representative pollen tube expressing BiFC constructs as labeled. All genes were driven by the *LAT52* promoter. Arrows point to blebs. Scale bar = 30 μm.



Supplemental Figure 4. Mild phenotypes when LePRK3, 4 or 5 are transiently overexpressed in tobacco pollen. (A) RT-PCR detection of LePRK3-6 expression in pollen tubes. Primers as below: LePRK3F1 ATGGCCGCTCATGTCCTTATT; LePRK3R1 CATTAAATCTGTTATCTCTTCTATCC; LePRK4F1 ATGGCCGCCGTTCCCC; LePRK4R1 TATTAAACTTATCTCTTCTATCCTCC; LePRK5F1 ATGACGGAGGTGGAGGATG; LePRK5R1 AACTCCATCATCAACTTGATCGT; LePRK6F1 ATGGCTTCTTCAGCAAGAAACC; LePRK6R1 AGCATTTCTAGAAAAGGAAAAATCATC. (B) Pollen tubes transiently overexpressing LePRK3, LePRK4 or LePRK5. Scale bar = 30 μm. (C) Phylogenetic tree of PRK proteins from tomato, Arabidopsis, rice and maize. PiPRK1 is the first identified PRK in this clade from *Petunia inflata* (Mu et al., 1994). AtPRKs are named after Chang et al., 2013. (D) Phylogenetic tree of tomato and *Nicotiana benthamiana* PRKs. The lengths of the branches are proportional to the expected numbers of amino acid substitutions per site; scale provided at the bottom. At, *Arabidopsis thaliana*, Le, *Solanum lycopersicum*, Os, *Oryza sativa*, Zm, *Zea mays*. Nb, *Nicotiana benthamiana*.

Supplemental Figure 5. LePRK1 is phosphorylated in tomato pollen.
Membrane fractions from mature pollen (200 µg) were separated by two dimensional gel electrophoresis (pI 10-3) and immunoblotted with anti-LePRK1 antibodies. The three spots recognized by anti-LePRK1 antibody are similar in molecular weight but different in pI, possibly representing different phosphorylated forms of LePRK1.

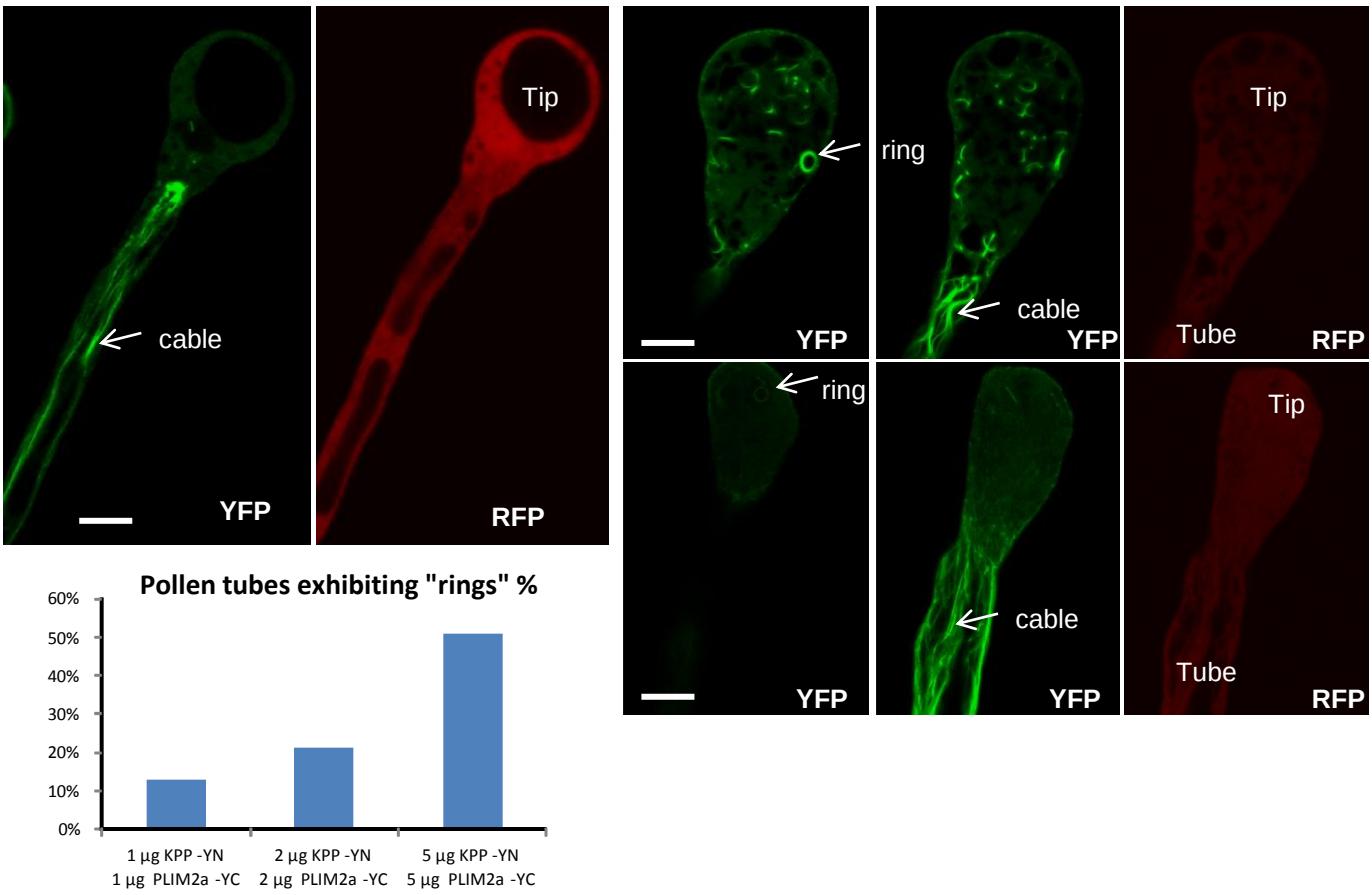


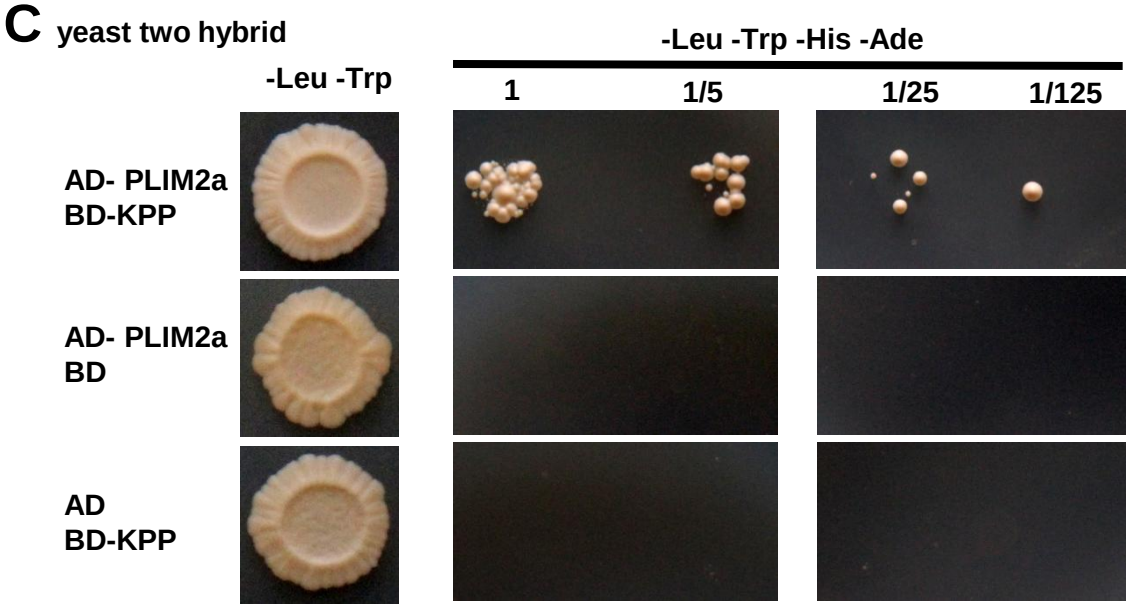
Supplemental Figure 6A. Phylogenetic tree of plant LIM domain proteins.
Groups or subgroups are boxed. The lengths of the branches are proportional to the expected numbers of amino acid substitutions per site; scale at bottom. At, *Arabidopsis thaliana,* Nt, *Nicotiana tabacum*; Os, *Oryza sativa,* Sl, *Solanum lycopersicum,* Vv, *Vitis vinifera*; Zm, *Zea mays*. Formin is an outgroup. The two LIMs implicated in LePRK1 function are in red. The five tomato pollen-expressed LIMs are checked in the right.

	Locus ID
SlPLIM1 √	Solyc11g044740.1.1
SlPLIM2a √	Solyc01g094320.2.1
SlPLIM2b √	Solyc10g017520.2.1
SlPLIM2c √	Solyc05g049870.2.1
SlWLIM1	Solyc04g077780.2.1
SlWLIM2	Solyc05g052780.2.1
SlβLIM1a	Solyc06g071310.2.1
SlβLIM1b	Solyc03g114000.2.1
SlδLIM2 √	Solyc08g007940.2.1

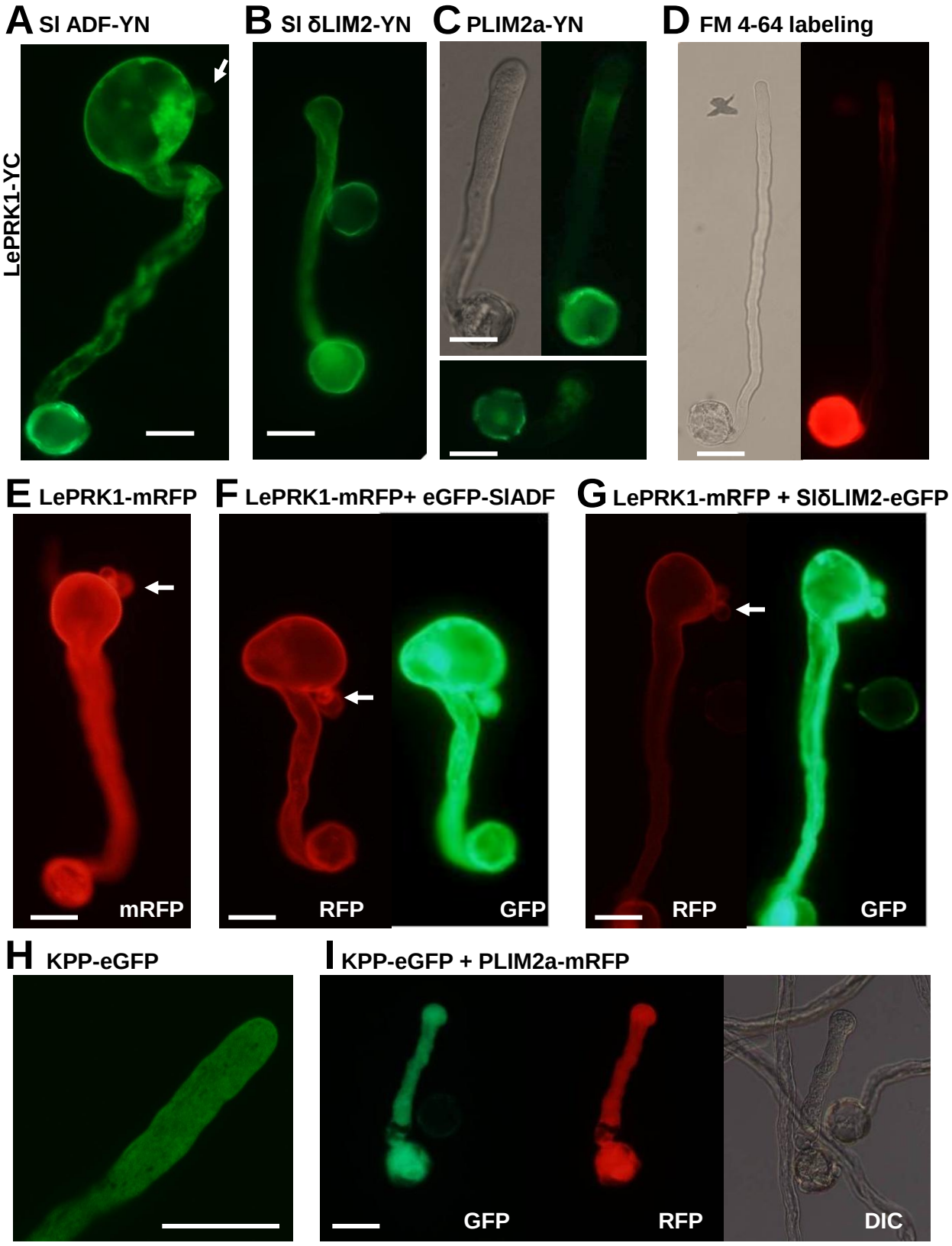
	Locus ID
AtWLIM1	At1g10200
AtWLIM2a	At2g39900
AtWLIM2b	At3g55770
AtPLIM2a	At2g45800
AtPLIM2b	At1g01780
AtPLIM2c	At3g61230

	Locus ID
OsWLIM1	LOC_Os12g32620
OsLIM	LOC_Os06g13030
OsWLIM2	LOC_Os03g15940
OsPLIM2a	LOC_Os02g42820
OsPLIM2b	LOC_Os04g45010
OsPLIM2c	LOC_Os10g35930

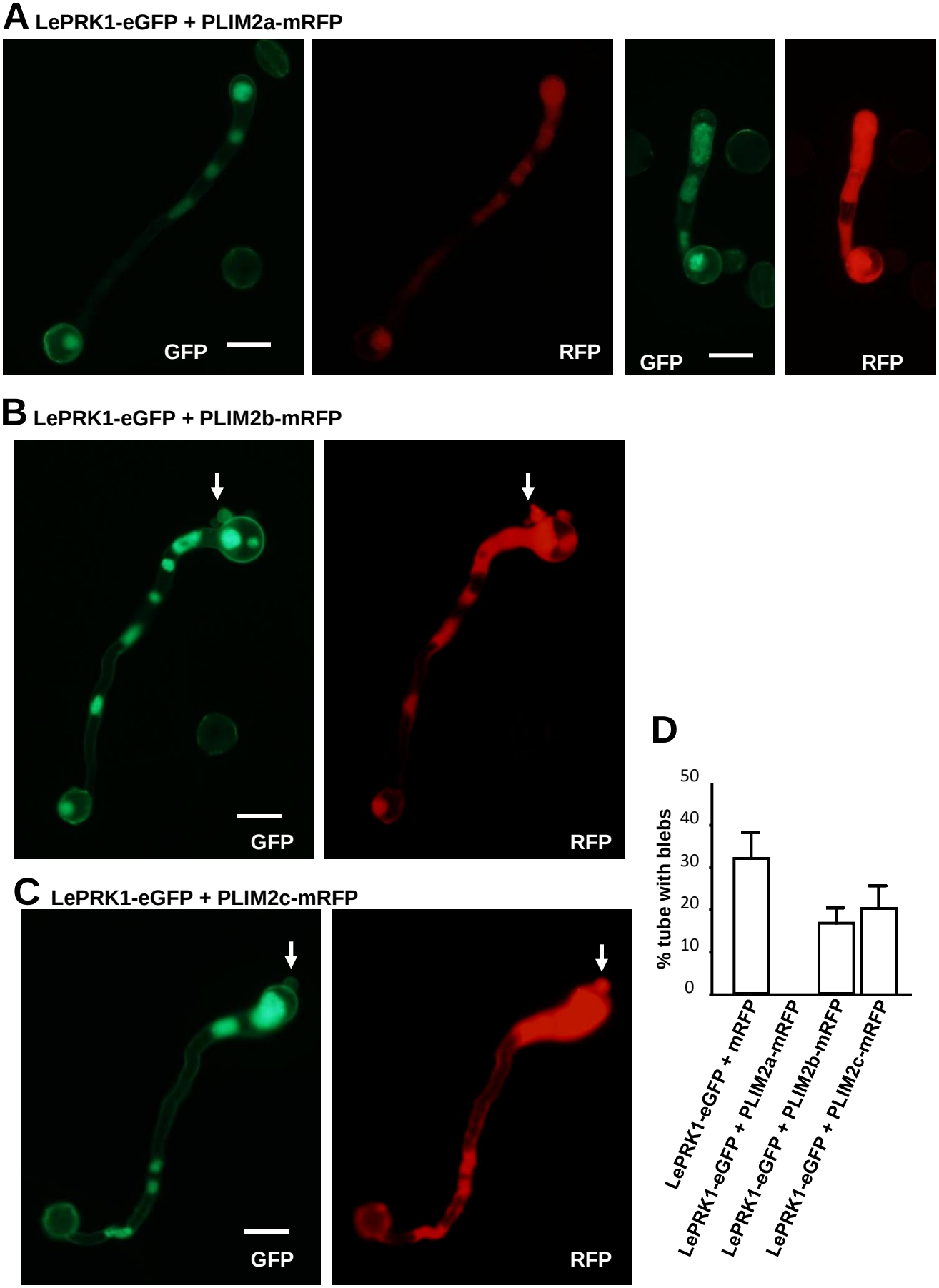




Supplemental Figure 6B-C. B. Confocal images at different planes of representing tobacco pollen tubes expressing BiFC constructs assaying PLIM2a-KPP interaction, mRFP channel was shown to help view the whole pollen tube tip region. Scale bar = 10 µm. C. Yeast two hybrid assay showing PLIM2a-KPP interaction.

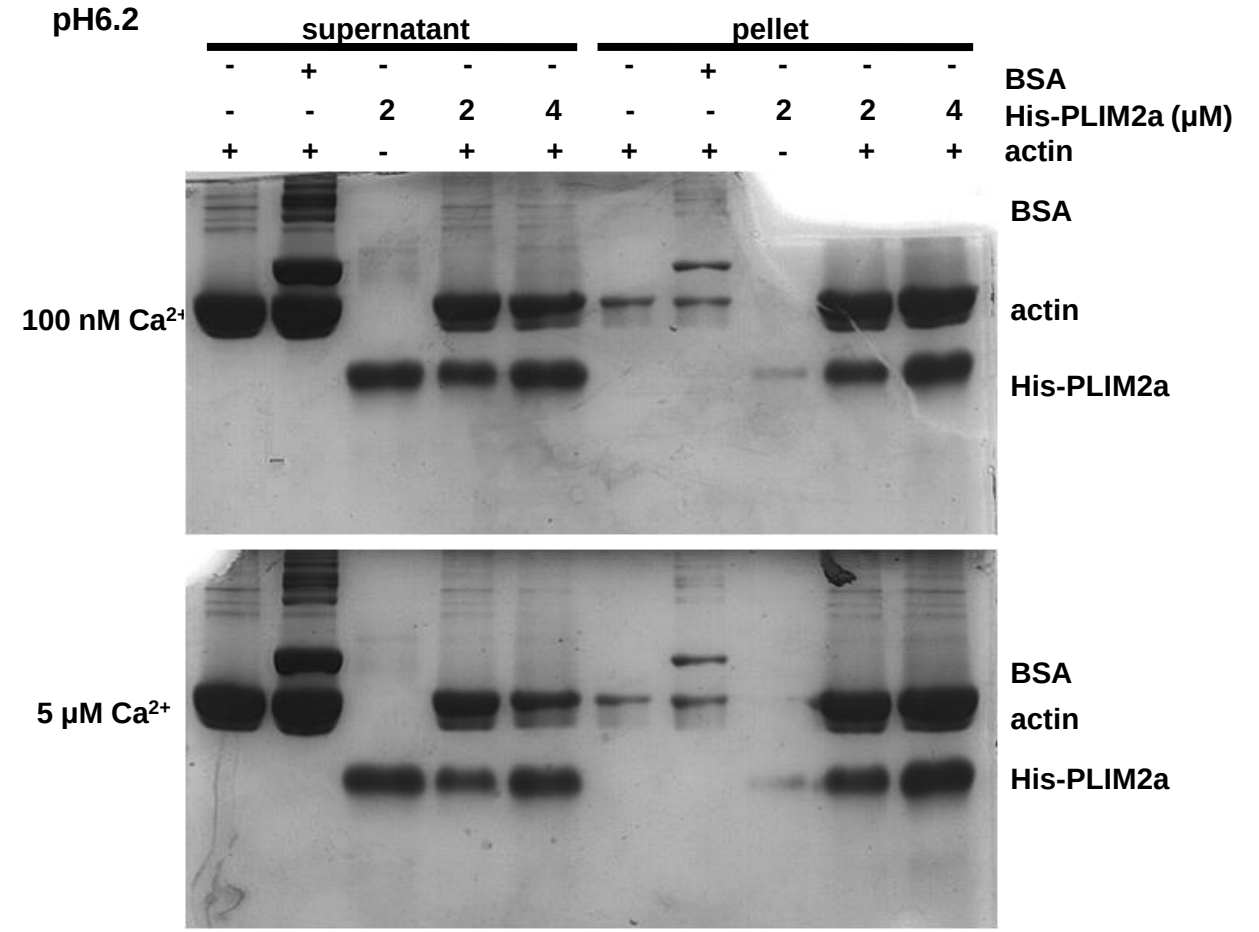


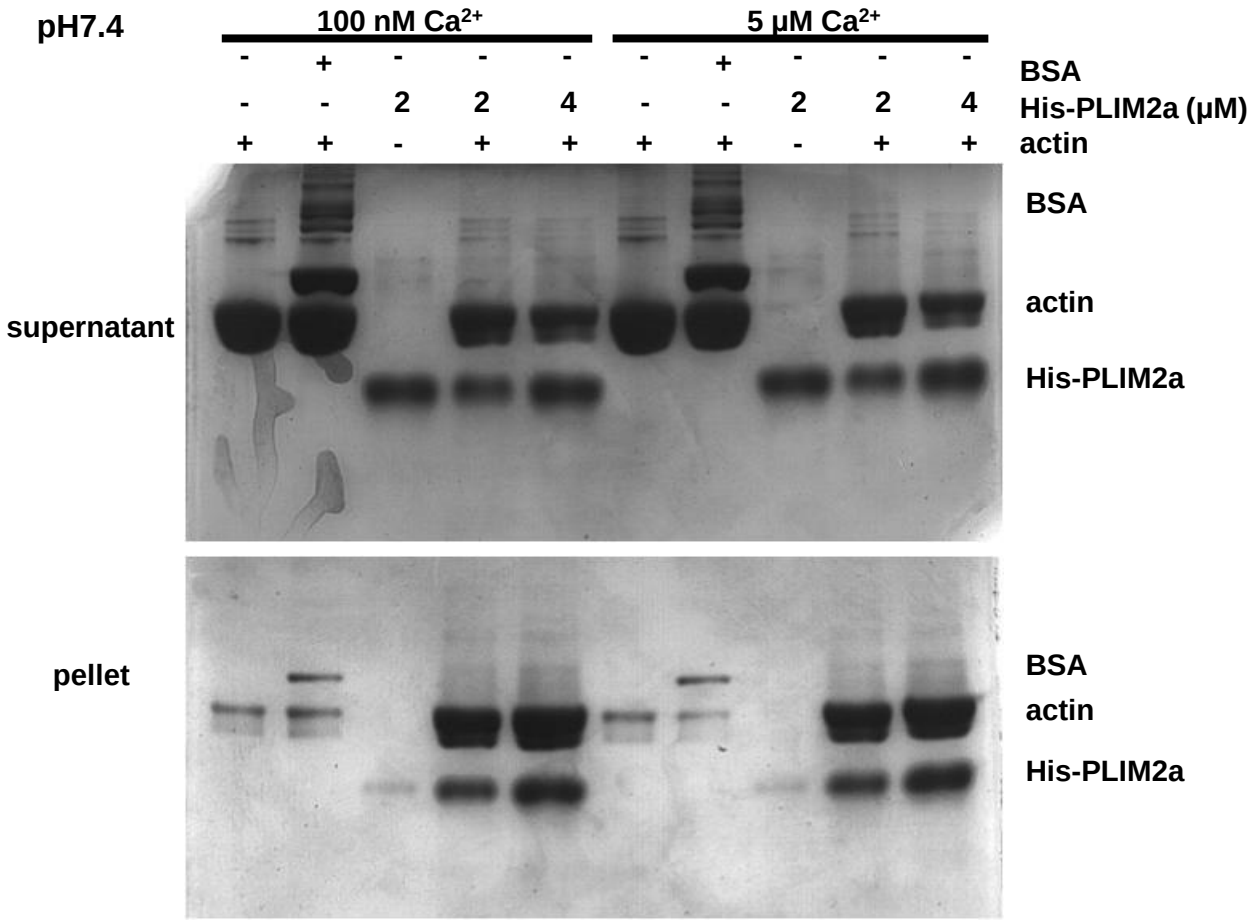
Supplemental Figure 7. Sl ADF and Sl δLIM2 form a complex with LePRK1 but neither interferes with the pollen tube blebbing caused by LePRK1 overexpression.
(A)-(C) Representative pollen tubes co-expressing BiFC constructs LePRK1-YC with SlADF-YN (A), SlδLIM2-YN (B) or PLIM2a (C). (D) Representative FM 4-64 labeling of a tobacco pollen tube.
(E) Representative pollen tube overexpressing LePRK1-mRFP. (F) and (G) Representative pollen tubes overexpressing LePRK1-mRFP and eGFP-SlADF (F) or SlδLIM2-eGFP (G). (H) and (I) Representative tobacco pollen tubes transiently expressing KPP-eGFP (H) or KPP-eGFP and PLIM2a-mRFP (I). Arrows indicate blebs. Scale bar = 30 μm.



Supplemental Figure 8. PLIM2b and PLIM2c did not abolish pollen tube blebbing when transiently co-expressed with LePRK1.

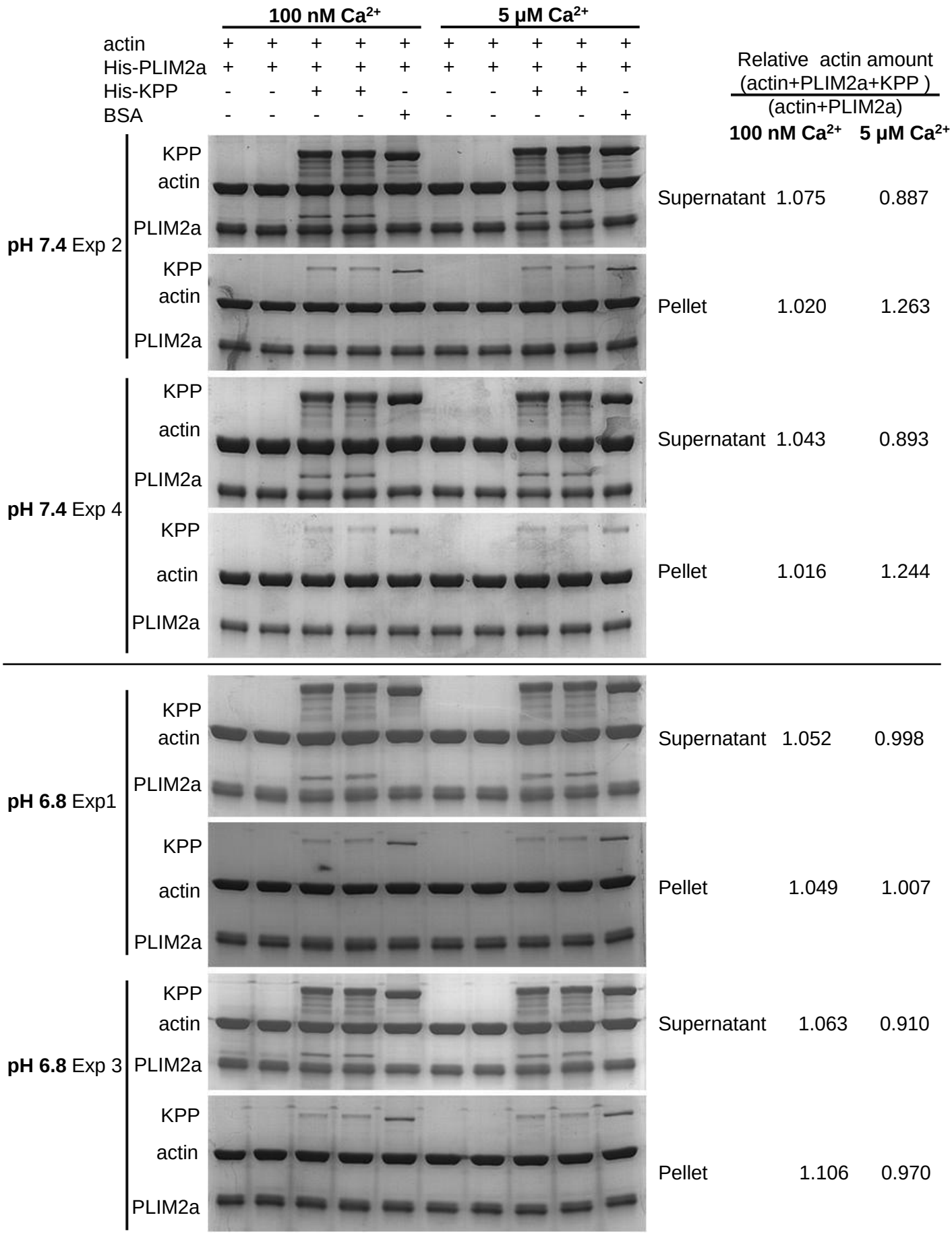
(A)-(C) Representative tobacco pollen tubes expressing the denoted constructs. Arrows indicate blebs. Scale bar = 30 μm. (D) Measurements of blebbing tubes. Error bars indicate SD.



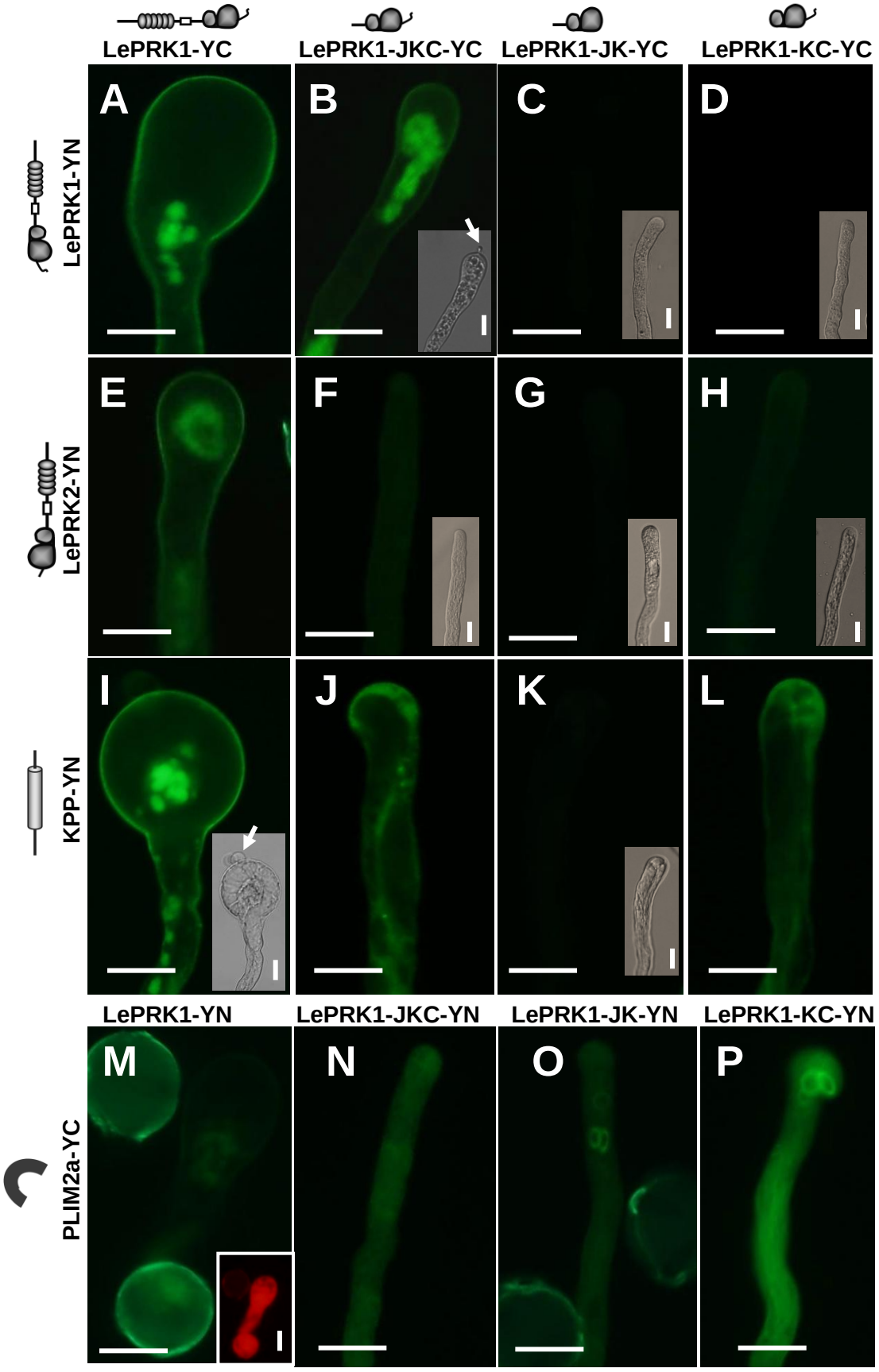


Supplemental Figure 9. Low speed sedimentation assay for actin bundling activity assessment.

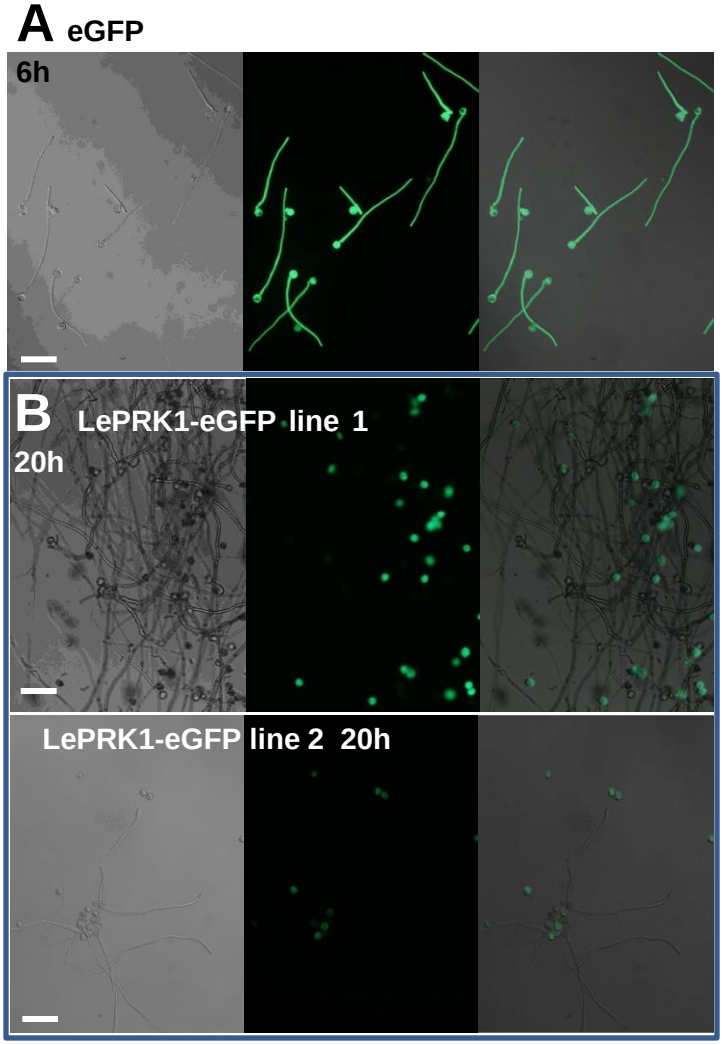
Low-speed co-sedimentation 15,000 g

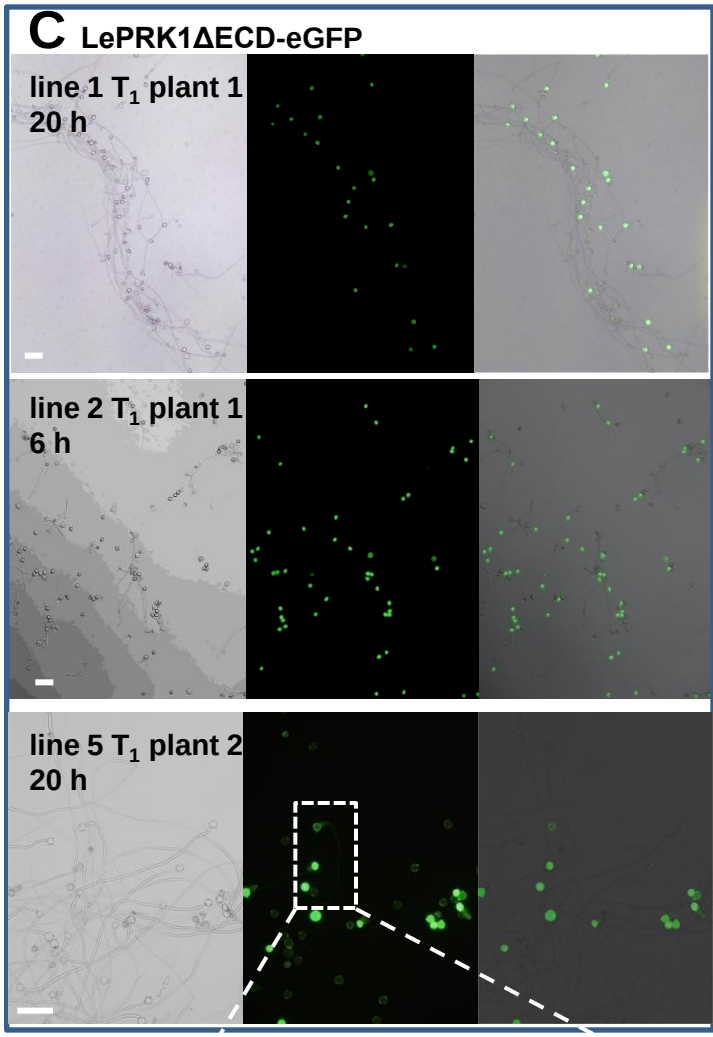


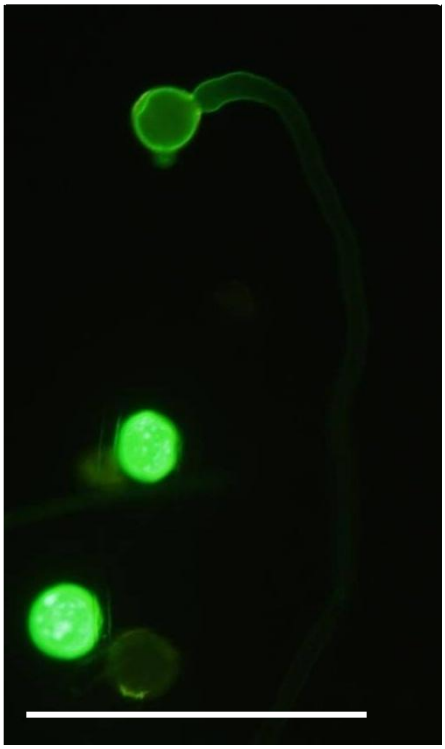
Supplemental Figure 10. Low speed sedimentation assay for actin bundling promotion effects. His-KPP, His-PLIM2a, BSA 2 μM each.



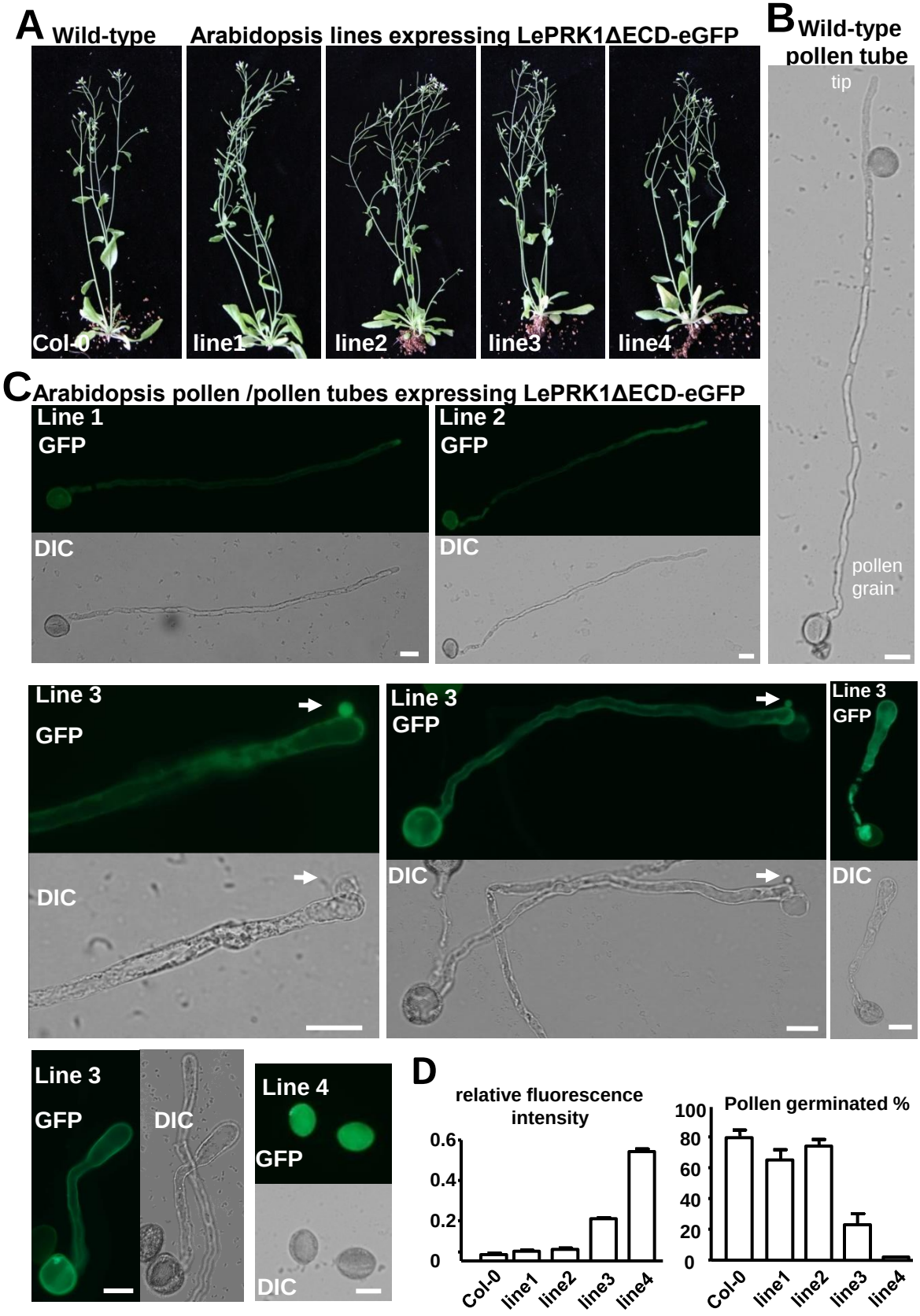
Supplemental Figure 11. LePRK1 lacking the JM or C-terminal prevents LePRK1 from forming a complex with itself, but facilitates LePRK1 forming a complex with PLIM2a and the formation of ring-like structures.
(A) to (P) Representative pollen tubes coexpressing BiFC construct pairs, one fused with full length or truncated LePRK1 (as indicated by the diagram at the top), and the other fused with full length LePRK1, LePRK2, KPP or PLIM2a, (as indicated on the left). Insets show the DIC pictures or co-expressed mRFP pictures to visualize the contour of pollen tubes in cases where BiFC signals are weak. Arrows point to blebs which may not visible in YFP channel. All genes were expressed transiently in tobacco pollen tubes and driven by the *LAT52* promoter. Scale bar = 20 μm.



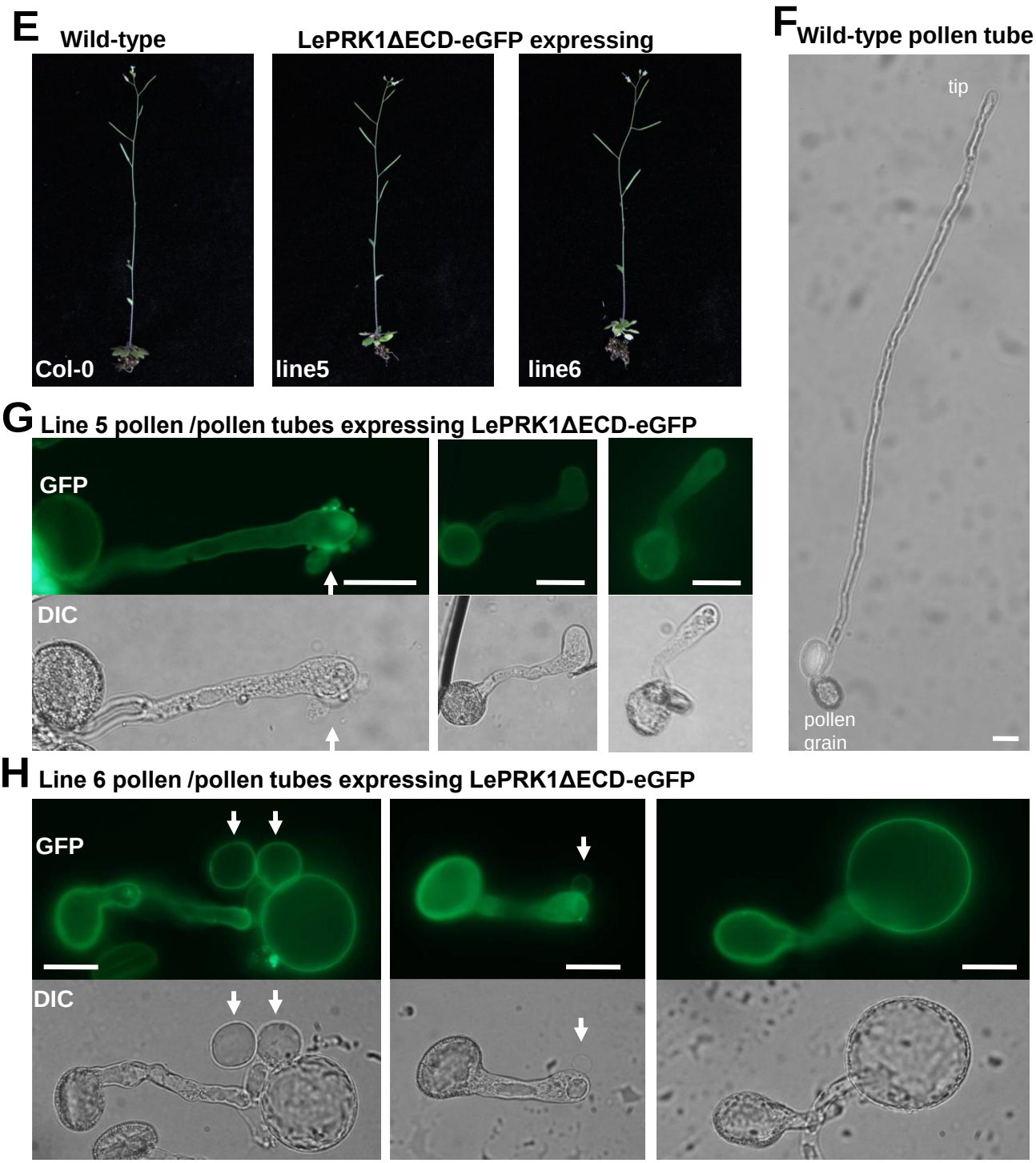




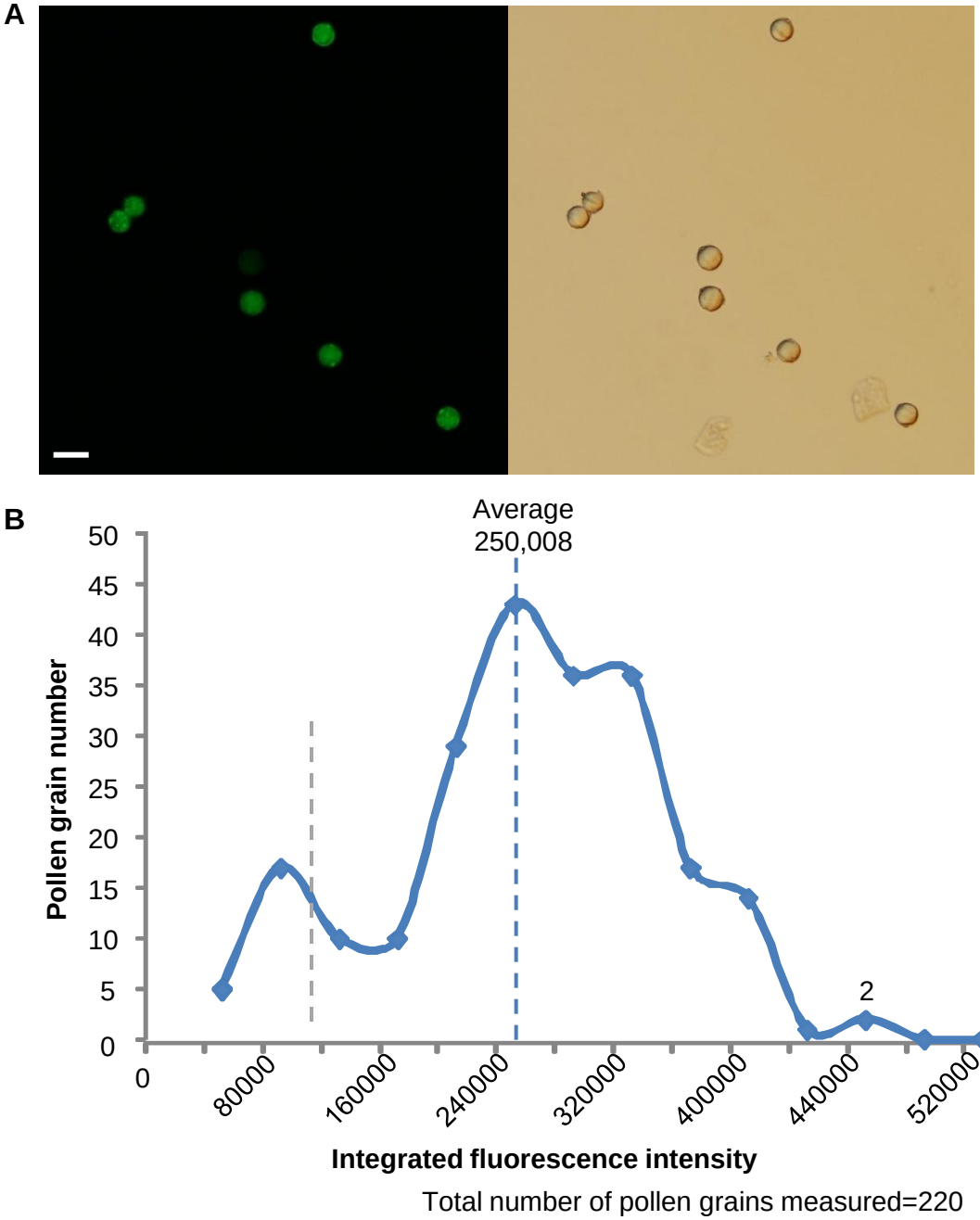
Supplemental Figure 12. Pollen of transgenic tomato plants overexpressing LePRK1-eGFP or LePRK1ΔECD-eGFP did not geminate.
(A) Transgenic pollen tubes expressing only eGFP.
(B) Transgenic pollen expressing LePRK1-eGFP.
(C) Transgenic pollen expressing LePRK1ΔECD-eGFP. The boxed area is enlarged in the bottom, showing a rare tube; note that the fluorescence is only located at the shank near the grain. Scale bar = 100 μm.



Supplemental Figure 13. Analysis of Arabidopsis lines expressing pLAT52-LePRK1ΔECD-eGFP.
(A) Representative images of Arabidopsis transgenic plants with LePRK1ΔECD-eGFP driven by LAT52 promotor and Arabidopsis thaliana Col-0 plant.
(B) A representative pollen tube of wild-type Arabidopsis.
(C) Representative pollen/ pollen tubes from Arabidopsis transgenic lines with LePRK1ΔECD-eGFP. Arrow point to blebs.
(D) Measurements of mature pollen relative fluorescence intensity and germination percentage from Arabidopsis. Scale bar= 20 μm.



Supplemental Figure 13. (continued)
(E) Representative images of Arabidopsis transgenic plants with LePRK1ΔECD-eGFP driven by LAT52 promotor and Arabidopsis thaliana Col-0 plant.
(F) A representative pollen tube of wild-type Arabidopsis.
(G) (H) Representative pollen/ pollen tubes from Arabidopsis transgenic lines with LePRK1ΔECD-eGFP. Arrows point to blebs. Scale bar= 20 μm.



Supplemental Figure 14. Fluorescence variation among individual pollen from a single flower of a homozygous LePRK1ΔECD-eGFP transgenic tomato plant.

Pollen grains from a single flower of homozygous plant expressing LePRK1ΔECD-eGFP driven by the LAT52 promoter were hydrated in pollen germination medium, and then imaged within 30min using an Olympus BX51 epifluorescence microscope (20 ms exposure in the GFP channel). (A) shows a representative view. GFP signal of 220 pollen grains were measured using Image J Elliptical tool. (B) shows the distribution of LePRK1ΔECD-eGFP expression levels represented by integrated intensities (background subtracted). 22 pollen (left to the gray broken line, 10%), whose expression level was below 80,000, were considered dead. Two pollen with highest integrated intensities (443,267 and 454,348) were about 1.8 fold of the average intensities.

Supplemental Table 1. Constructs

Use	Construct	Plasmid name	Insert or PCR product	Primers	Template	Plasmid backbone	Cloning method
Transient expression in tobacco pollen tubes	ProLAT52:eGFP	W33	Previously generated in Zhang *et al.,* 2008				
	ProLAT52:mRFP	Pzd-05					
	ProLAT52:LePRK1-eGFP	W42	LePRK1	P1/P2	LePRK1	W33	NcoI/SacI
	ProLAT52:LePRK1-mRFP	Pzd-06	LePRK1	P1/P2	LePRK1	Pzd-05	NcoI/SacI
	ProLAT52:LePRK2-eGFP	K2GFP	LePRK2	P3/P4	LePRK2	W33	NcoI/Aor51HI
	ProLAT52:LePRK2-mRFP	Pzd-07	LePRK2	P5/P6	LePRK2	Pzd-05	NcoI/SacI
	ProLAT52:KPP-mRFP	Pzd-15	KPP	P7/P8	KPP cDNA	Pzd-05	NcoI/NheI
	ProLAT52:LePRK3-eGFP	K3GFP	LePRK3	P9/P10	LePRK3	W33	NcoI/Aor51HI
	ProLAT52:LePRK4-eGFP	K4GFP	LePRK4	P11/P12	LePRK4	W33	NcoI/Aor51HI
	ProLAT52:LePRK5-eGFP	K5GFP	LePRK5	P13/P14	LePRK5	W33	NcoI/Aor51HI
	ProLAT52:LePRK1-KC-mRFP	G134	LePRK1-KC	P15/P16	LePRK1	Pzd-05	NcoI/SacI
	ProLAT52:LePRK1-JKC-eGFP	G22	LePRK1-JKC	P17/P16	LePRK1 cDNA	W33	NcoI/SacI
	ProLAT52:LePRK1-JK-eGFP	G23	LePRK1-JK	P17/P18	LePRK1	W33	NcoI/SacI
	ProLAT52:LePRK1-KC-eGFP	G24	LePRK1-KC	P15/P16	LePRK1	W33	NcoI/SacI
	ProLAT52:LePRK1ΔECD-eGFP	G135	LePRK1ΔECD	P19/P16	LePRK1 cDNA	W33	NcoI/SacI
	ProLAT52:LePRK1ΔC-eGFP	G21	LePRK1ΔC	P1/P20	LePRK1	W33	NcoI/SacI
	ProLAT52:LePRK1ΔKC-eGFP	LePRK1dKCGFP	LePRK1ΔKC	P58/P59	LePRK1 cDNA	W33	NcoI/Aor51HI
	ProLAT52:mLePRK1-eGFP	mLePRK1GFP	mLePRK1	P60/P61	W42	W42	Fast mutagenesis
	ProLAT52:Lifeact-eGFP	LifeactGFP	Lifeact-eGFP	P62/P63	W33	W33	NcoI/SalI
	ProLAT52:mRFP-mTalin	G44	mTalin/mRFP	P66/P67	Pzd-05/mTalin	Pzd-05	EcoRI/BamHI
				P68/P69			BamHI
	ProLAT52:PLIM2a-eGFP	LIM2aGFP	PLIM2a	P21/P22	PLIM2a cDNA	W33	NcoI/Aor51HI
	ProLAT52:PLIM2a-mRFP	G145	PLIM2a	P23/P24	PLIM2a cDNA	Pzd-05	NheI
	ProLAT52:PLIM2b-mRFP	LIM2bRFP	PLIM2b	P25/P26	PLIM2b cDNA	Pzd-05	SacI/NheI
	ProLAT52:PLIM2c-mRFP	LIM2cRFP	PLIM2c	P27/P28	PLIM2c cDNA	Pzd-05	SacI/NheI
	ProLAT52:SlδLIM2-eGFP	δLIM2GFP	SlδLIM2	P70/P71	SlδLIM2	W33	NcoI/Aor51HI
	ProLAT52:eGFP-SlADF	G104	SlADF	P29/P30	Sl ADF cDNA W33	W33	NcoI/Aor51HI
				P31/P32			NotI/BamHI
	ProLePRK1:eGFP	G87	LePRK1 promoter	P72/P73	LePRK1	W33	PstI/NcoI
	ProLePRK1:LePRK1-eGFP	G88	LePRK1 promoter	P74/P75	LePRK1	W42	PstI/NcoI
	ProLAT52:LePRK1-ProLAT52:eGFP	G39	LePRK1	P1/P33	LePRK1 cDNA	w33	NcoI/NheI
	ProLAT52:YN	YN	YN	P34/P35	YFP	W33	NcoI/BamHI
	ProLAT52:YC	YC	YC	P36/P37	YFP	W33	NcoI/BamHI
	ProLAT52:KPP-YN	K291	YN	P38/P39	YFP	Pzd-15	NheI/BamHI
	ProLAT52:KPP-YC	K299	YC	P40/P41	YFP	Pzd-15	NheI/BamHI
	ProLAT52:Sl ADF-YN	ADF-YN	Sl ADF	P42/P43	Sl ADF cDNA	K307	NcoI/Aor51HI
	ProLAT52:Sl δLIM2-YN	δLIM2YN	YN	P38/P39	YFP	δLIM2GFP	NheI/BamHI
	ProLAT52:PLIM2a-YN	G151	YN	P44/P45	YFP	G145	NotI/BamHI
	ProLAT52:PLIM2a-YC	G152	YC	P46/P47	YFP	G145	NotI/BamHI
	ProLAT52:LePRK1-YN	K307	YN	P38/P39	YFP	W42	NheI/BamHI
	ProLAT52:LePRK1-YC	K309	YC	P40/P41	YFP	W42	NheI/BamHI
	ProLAT52:LePRK2-YN	K308	YN	P38/P39	YFP	K2GFP	NheI/BamHI
	ProLAT52:LePRK2-YC	K310	YC	P40/P41	YFP	K2GFP	NheI/BamHI
	ProLAT52:LePRK1ΔC-YC	G121	YC	P40/P41	YFP	G21	NheI/BamHI
	ProLAT52:LePRK1-JKC-YC	G122	YC	P40/P41	YFP	G22	NheI/BamHI
	ProLAT52:LePRK1-JK-YC	G123	YC	P40/P41	YFP	G23	NheI/BamHI
	ProLAT52:LePRK1-KC-YC	G124	YC	P40/P41	YFP	G24	NheI/BamHI
	ProLAT52:LePRK1ΔC-YN	G115	YN	P38/P39	YFP	G21	NheI/BamHI
	ProLAT52:LePRK1-JKC-YN	G116	YN	P38/P39	YFP	G22	NheI/BamHI
	ProLAT52:LePRK1-JK-YN	G117	YN	P38/P39	YFP	G23	NheI/BamHI
	ProLAT52:LePRK1-KC-YN	G118	YN	P38/P39	YFP	G24	NheI/BamHI

Supplemental Table 1. Constructs (continued)

Recombinant protein expression in *E.coli*	His-PLIM2a	G154	PLIM2a	P48/P49	PLIM2a cDNA	pET28a	NdeI/XhoI
	His-KPP	K526	KPP	P50/P51	KPP cDNA	pET28a	NdeI/BamHI
	GST-KPP	K386	KPP	P52/P53	KPP cDNA	pGEX4T3	SacI/NotI
	GST	pGEX4T3	GST only			pGEX4T3	
Yeast two hybrid	AD-PLIM2a	G156	PLIM2a	P54/P55	PLIM2a cDNA	pGADT7	NdeI/XhoI
	BD-KPP	K413B	KPP	P56/P57	KPP cDNA	pGBKT7	NcoI/NotI
	AD	pGADT7				pGADT7	
	BD	pGBKT7				pGBKT7	
Stable expression in transgenic plants	LePRK1-RNAi-mRFP	09-114	LePRK1 RNAi casset	P76/P77	LePRK1 cDNA	09-71	XhoI/EcoRV
				P78/P79			SpeI/NdeI
	ProLAT52:LAT52 intron:35S terminator	09-71	ProLAT52:LAT52 intron:35S terminator	Previously generated in Huang *et al.,* 2014			
	ProLAT52:eGFP	W33T	ProLAT52:eGFP:35S terminator		W33	pCAMBIA 2300	SalI/HindIII
	ProLAT52:LePRK1-eGFP	W42T	ProLAT52:LePRK1-eGFP:35S terminator		W42	pCAMBIA 2300	SalI/HindIII
	ProLAT52:mLePRK1-eGFP	G6	ProLAT52:mLePRK1-eGFP:35S terminator		mLePRK1GFP	pCAMBIA 2300	SalI/HindIII
	ProLAT52:LePRK1ΔECD-eGFP	G35	ProLAT52:LePRK1ΔECD-eGFP:35S terminator		G135	pCAMBIA 2300	SalI/HindIII
	ProLAT52:LePRK1ΔC-mRFP	G70	ProLAT52:LePRK1ΔC-mRFP:35S terminator		G130	pCAMBIA 2300	SalI/HindIII

Huang, W.J., Liu, H.K., McCormick, S., and Tang, W.H. (2014). Tomato pistil factor STIG1 promotes in vivo pollen tube growth by binding to phosphatidylinositol 3-phosphate and the extracellular domain of the pollen receptor kinase LePRK2. Plant Cell doi: 10.1105/tpc.114.123281

Zhang, D., Wengier, D., Shuai, B., Gui, C.P., Muschietti, J., McCormick, S., and Tang, W.H. (2008). The pollen receptor kinase LePRK2 mediates growth-promoting signals and positively regulates pollen germination and tube growth. Plant Physiol. **148**: 1368–1379.

Supplemental Table 2. Primers

Primer	Sequence (5'-3')
P1	CCATGGCGGTGGCTTATCGTTATAG
P2	GAGCTCATGTTCATCGAAACCTGAGTATAA
P3	CCATGGCCATGTCATCACAAAAAAACTACAAAAACAAACA
P4	AGCGCTTCTTGAAGTATGCATATTGTCAACTTCATTA
P5	CCATGGCATCACAAAAAAACTACAAAAAC
P6	GAGCTCCTTGAAGTATGCATATTGTCAACT
P7	CCATGGCGAGCTCGGTTCGAGCAGTAGAGGAAG
P8	GCTAGCGTGGCGTGCTGTTGGACTTCTGGAA
P9	CCATGGCCGCTCATGTCCTTATTGTTTTATTTG
P10	AGCGCTCATTAAATCTGTTATCTCTTCTATCCTCCTTATGG
P11	CCATGGCCGCCGTTCCCCTAACCCTTCATCTCCTTC
P12	AGCGCTTATTAAACTTATCTCTTCTATCCTCCTTAATGCTTCCTTC
P13	CCATGGCCATGACGGAGGTGGAGGATGCCGGCCTGT
P14	AGCGCTAACTCCATCATCAACTTGATCGTCCTTGTCATTTAAGGC
P15	CCATGGATCTATTAAAGGCTTCAGCTG
P16	GAGCTCATGTTCATCGAAACCTGAGTATAATCATCGG
P17	CCATGGTTCGTCGGGGCAAGCAGACAC
P18	GAGCTCTCAATCCTTTCCATTGCTTCCTT
P19	CCATGGCAATTATATTGGTGGTTATCGCAGTTG
P20	GAGCTCTCAATCCTTTCCATTGCTTCCTTTATGTCAAACCTCTTTTTCA
P21	CCATGGCATTCACAGGAACATTGGATAAATGCTCAGCTTGT
P22	AGCGCTTGATTCTTGTGATTCCTCTGCATTTTCAGGCTCTTTA
P23	GCTAGCATGGCATTCACAGGAACATTG
P24	GCTAGCTGATTCTTGTGATTCCTCTGCATT
P25	GAGCTCATGTCATTCACAGGAACATTGGATAAATGCAAAGCTT
P26	GCTAGCTTCTTGTGACTCTTCCTCATGAGGTTCCTTTTCTGGTTGC
P27	GAGCTCATGGCATTCACAGGGACATTGGATAAATGCAAAGCT
P28	GCTAGCAGATTGCTCATTTTCATCATTAGGTTCCTTCTCATCTGCCTT
P29	CCATGGTGAGCAAGGGCGAGGAGCTGTTCACCGGGGTGG
P30	AGCGCTCTTGTACAGCTCGTCCATGCCGAGAGTGATCCCGGCGGCG
P31	GCGGCCGCCATGGCAAATGCTGTGTCTGGAACGGCAGTAC
P32	GGATCCTTAGTAGGCTCGCGATTTAATAAGATCTAAGCT
P33	GCTAGCTTAGTTCATCGAAACCTGAGT
P34	CCATGGTGAGCAAGGGCGAGGAGCTGTTCACCGGGGTG
P35	GGATCCTTAGTCCTCGATGTTGTGGCGGATCTTGAAGTTCACCTTGA
P36	CCATGGGCAGCGTGCAGCTCGCCGACCACTAC
P37	GGATCCTCACTTGTACAGCTCGTCCATGCCGAGAGTGATCCCG
P38	GCTAGCGTGAGCAAGGGCGAGGAGCTGTTCACCGG
P39	GGATCCTTAGTCCTCGATGTTGTGGCGGATCTTGAAGTT
P40	GCTAGCGGCAGCGTGCAGCTCGCCGACCACTACC
P41	GGATCCTCACTTGTACAGCTCGTCCATGCCGAGA
P42	CCATGGCAAATGCTGTGTCTGGAACGGCAGTAC
P43	AGCGCTGTAGGCTCGCGATTTAATAAGATCTAAGCTCATTTCACTAG
P44	GCGGCCGCCGTGAGCAAGGGCGAGGAGCTGTTCACC
P45	GGATCCTTAGTCCTCGATGTTGTGGCGGATCTTG
P46	GCGGCCGCCGGCAGCGTGCAGCTCGCCGACCACTACCAGC
P47	GGATCCTCACTTGTACAGCTCGTCCATGCCGA
P48	CTCGAGTCATGATTCTTGTGATTCCTCTGCATTTTCAGGC
P49	CATATGGCATTCACAGGAACATTGGATAAATGCTCAG
P50	CATATGATGGCGAGCTCGGTTCGAGCAGTAGAGGAAGAGA
P51	GGATCCTTAGTGGCGTGCTGTTGGACTTCTGGAACCAGTTAAAT
P52	GAGCTCGGTTCGAGCAGTAGAGGAAGAGAAATTA
P53	GCGGCCGCTTAGTGGCGTGCTGTTGGACTTCTGGAACCAGTT
P54	CATATGGCATTCACAGGAACATTGGATAAATGC
P55	CTCGAGTCATGATTCTTGTGATTCCTCTGCATT
P56	CCATGGCGAGCTCGGTTCGAGCAGTAGAGGAAGAGAA
P57	GCGGCCGCTTAGTGGCGTGCTGTTGGACTTCTGGAACCAGTTAAAT
P58	CCATGGCCATGTCGGTGGCTTATCGTTATAGCAA
P59	AGCGCTTAATAGATCTGGCAAATCAAATTTTTCAAT
P60	TGCACTAAGCAGGGGACGCGTTATGGTTGTCCGGAGGTTTAGGCAA ATGAATAATGTA
P61	TACATTATTCATTTGCCTAAACCTCCGGACAACCATAACGCGTCCCCT GCTTAGTGCA
P62	CCATGGGTGTCGCAGATTTGATCAAGAAATTCGAAAGCATCTCAAAG GAAGAAACAACTTTGTATACAAAAGTTGTGGTGAGCAAGGGCG
P63	GTCGACTTACTTGTACAGCTCGTCCATGCCGAGAGTGATCCCGGCG
P66	GAATTCATGGCCTCCTCCGAGGACGTCATCAAGGAG
P67	GGATCCGGCGCCGGTGGAGTGGCGGCCCTCGGCGCGCTCGTA
P68	GGATCCATCCTAGAAGCTGCCAAGTCCATCGCTGCAGCCAC
P69	GGATCCTTAGTGCTCGTCTCGAAGCTCTGAAGGCAAGAACTT
P70	CCATGGCCATGTCAAGTTTTGGTACCCAAACAAAATGCA
P71	AGCGCTATCTTGAGTCTCTTCAACAGGAGGCTGTGGTGG
P72	CTGCAGGTCGGGTAACGTCCTCCACAACCACATCTTGGCAGTTGATC
P73	CCATGGTTGCATCAAAAGCATTCCAATAATAGGTTTGTGGTGAAACTT AAATCTCTA
P74	CTGCAGGTCGGGCAGTATCTTGTAGCCTTGCCTAGAGTCGTAGGTG
P75	CCATGGATCTGGTCGGTACTCTTTTGTCTTTAGTTATGACGTTCCAAG AAGTTTGG
P76	CTCGAGATGTCGGTGGCTTATCGTTATAG
P77	GATATCGATTGTTACCAAGATGAAGT
P78	ACTAGTATGTCGGTGGCTTATCGTTATAG
P79	CATATGTGATTGTTACCAAGATGAAGT

RT-PCR primers	
The primers used to amplify a 100-bp fragment of LePRK2	
F	CTTGCCTGATTTGTTGAAAGCC
R	AACAACCATGACAGGGCCA
The primers used to amplify a 122-bp fragment of LePRK1	
F	GGCCTGAAGTACAAGCAGTACAACA
R	CGAACCAAACACACCGCTA
The primers used to amplify a 123-bp fragment of *Sl Actin4* (Solyc04g011500.2.1)	
F	GCGAGAAATTGTCAGGGACGT
R	TGCCCATCTGGGAGCTCAT