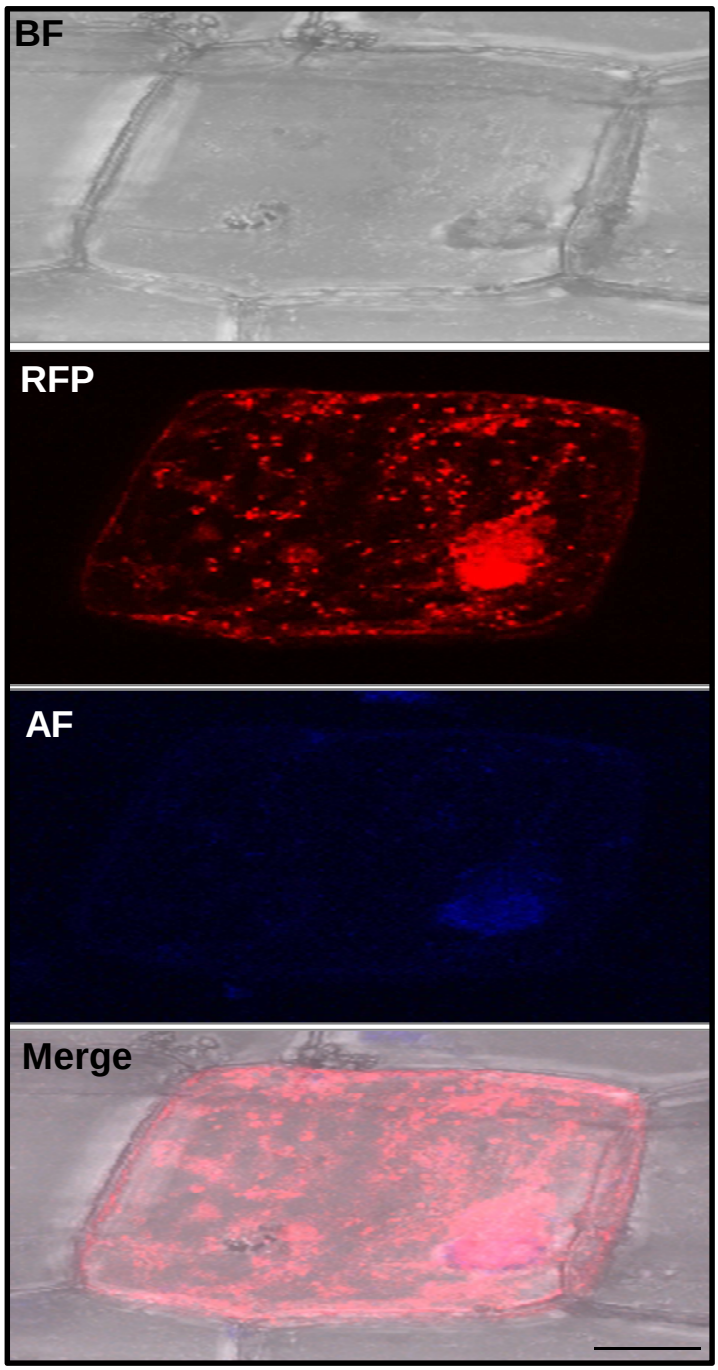
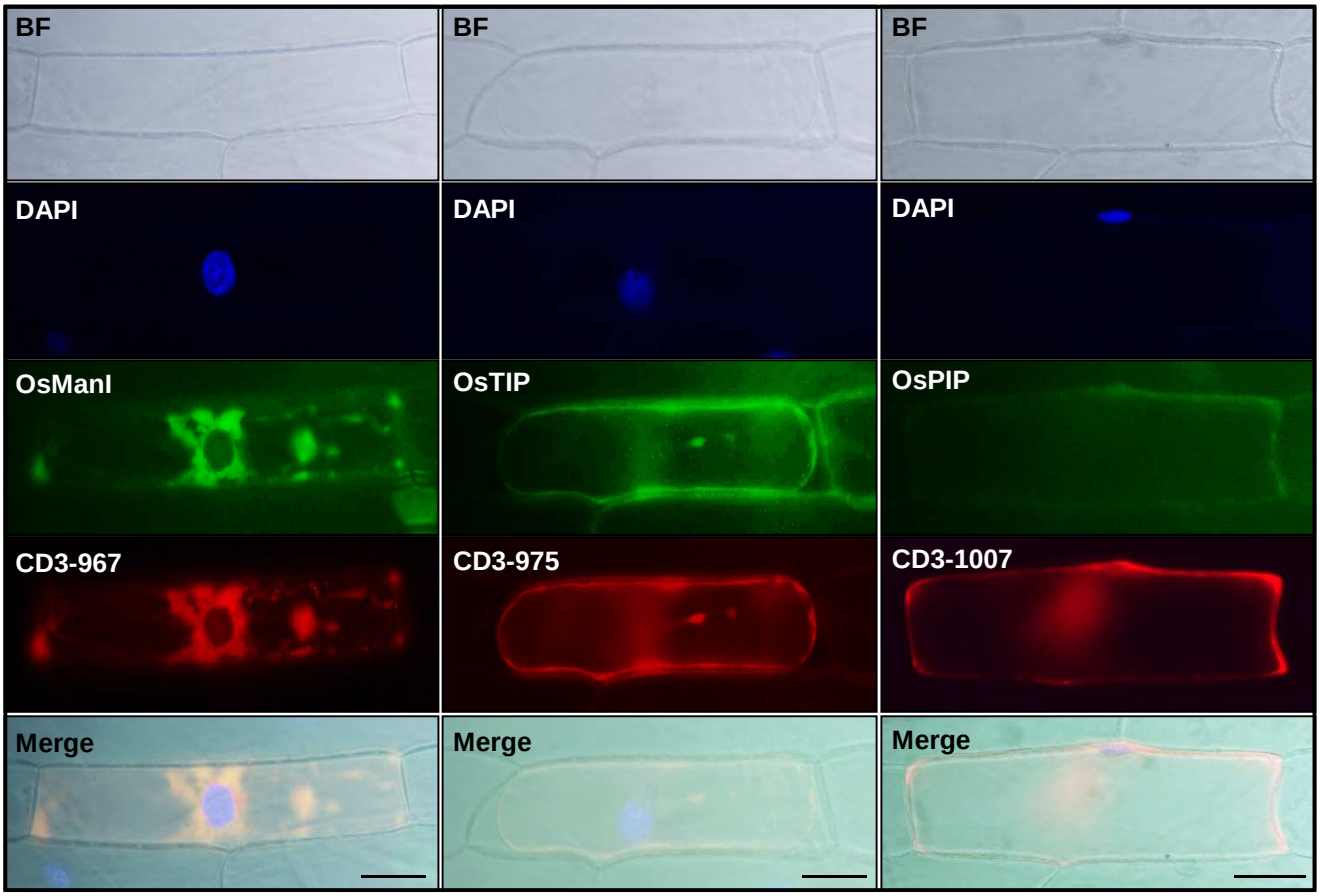
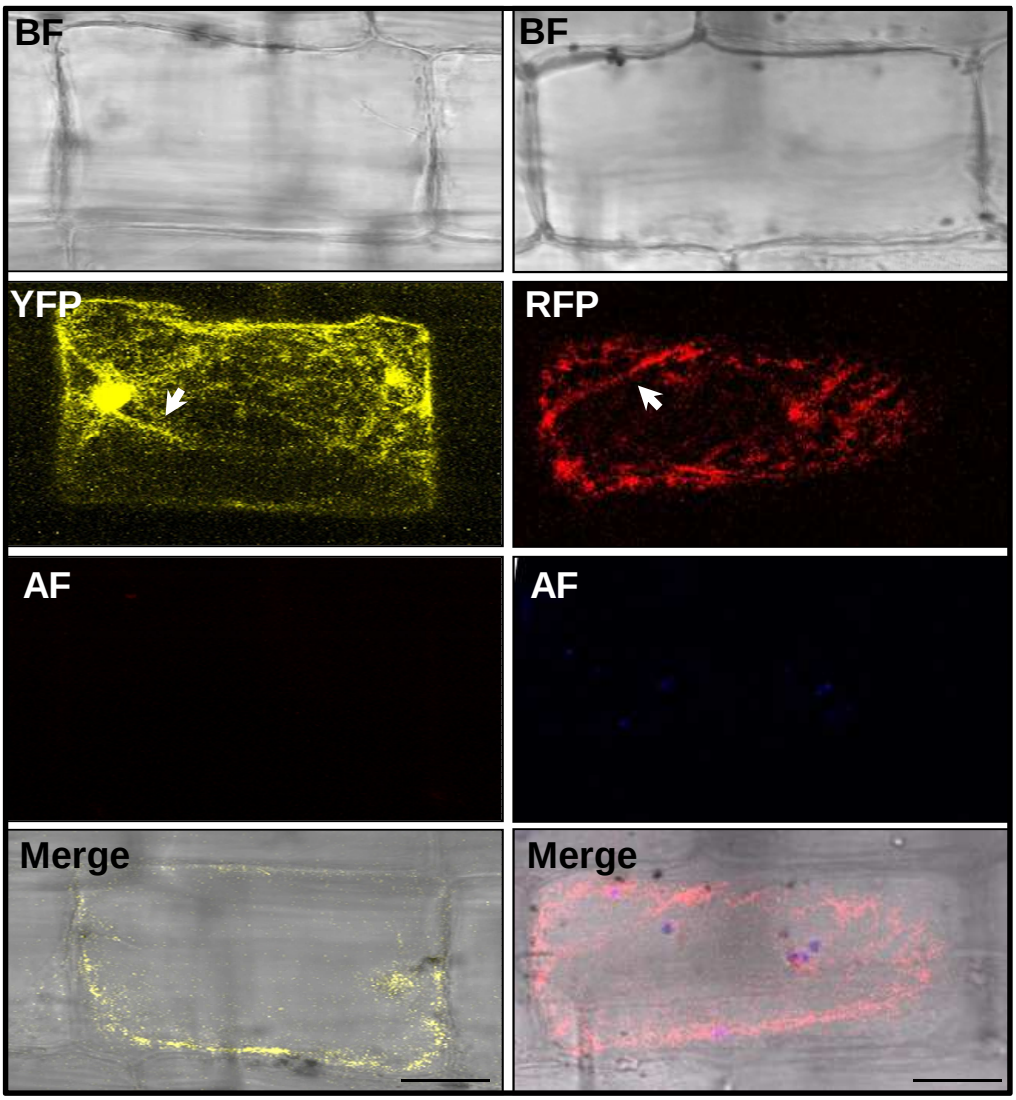


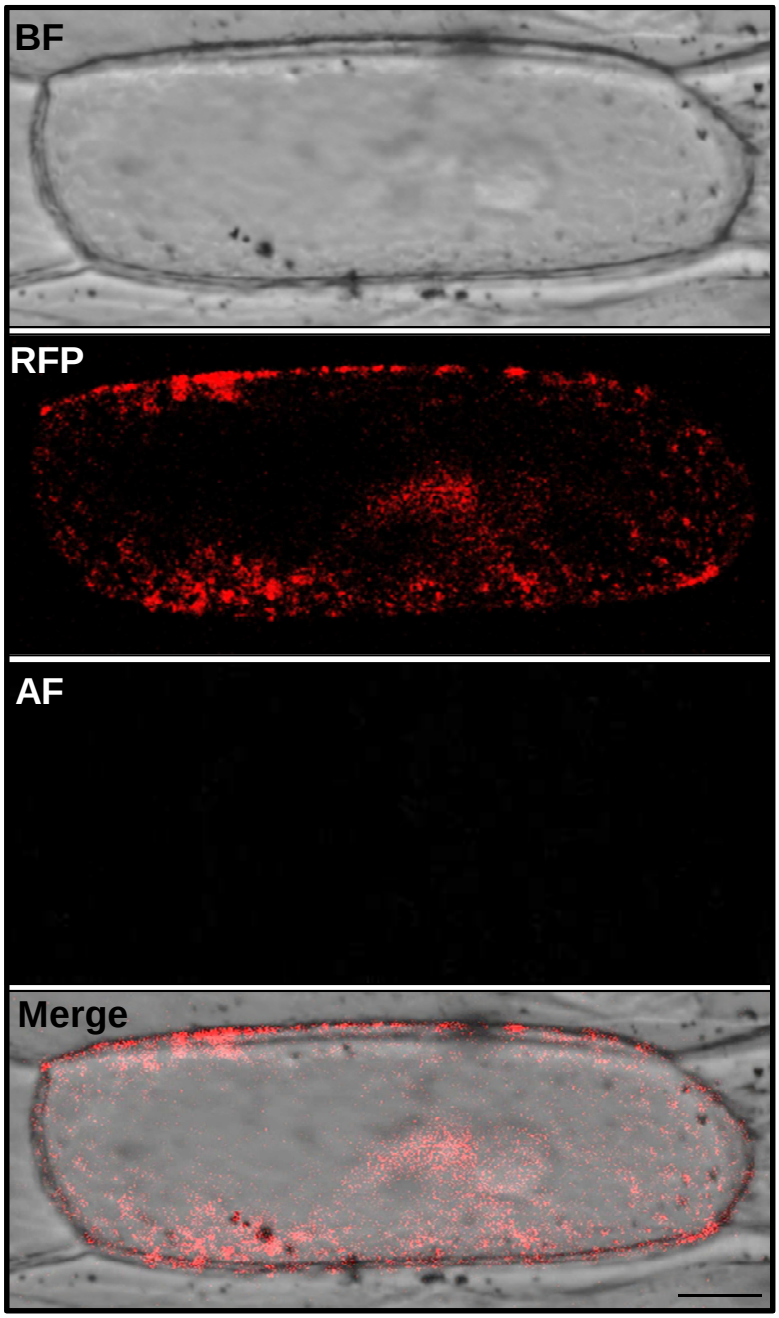
Supplementary Fig. S1. Subcellular localization of mRFP tagged peroxisome marker in rice cells. The mRFP-fused peroxisome marker (*OsAPx3*) was transformed into rice cells by biolistic bombardment. The microscopic images were taken using confocal microscope (Leica, TCS SP5). *BF* Bright field, *AF* Autofluorescence. *Scale bars* 20 µm.



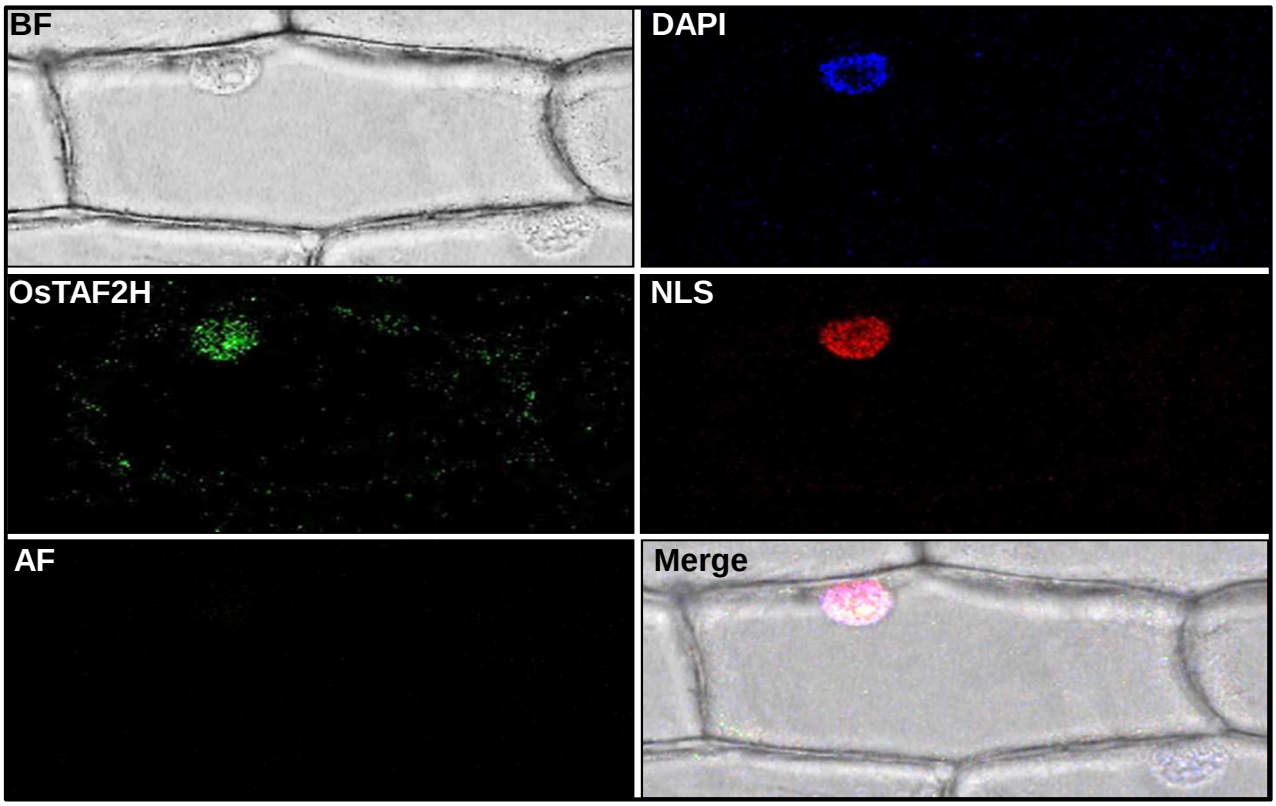
Supplementary Fig. S2. Co-localization of rice Golgi bodies, Tonoplast and Plasma membrane markers with mCherry-tagged *Arabidopsis* organelle markers. The G3GFP tagged OsManI, OsTIP and OsPIP2.1 were co-expressed with CD3-967, CD3-975 and CD3-1007 respectively in onion epidermal cells. The microscopic images were taken by Zeiss microscope equipped with axioplan 2 imaging system using bright field, DAPI, GFP and mCherry filters. *Scale bars* 20 µm.



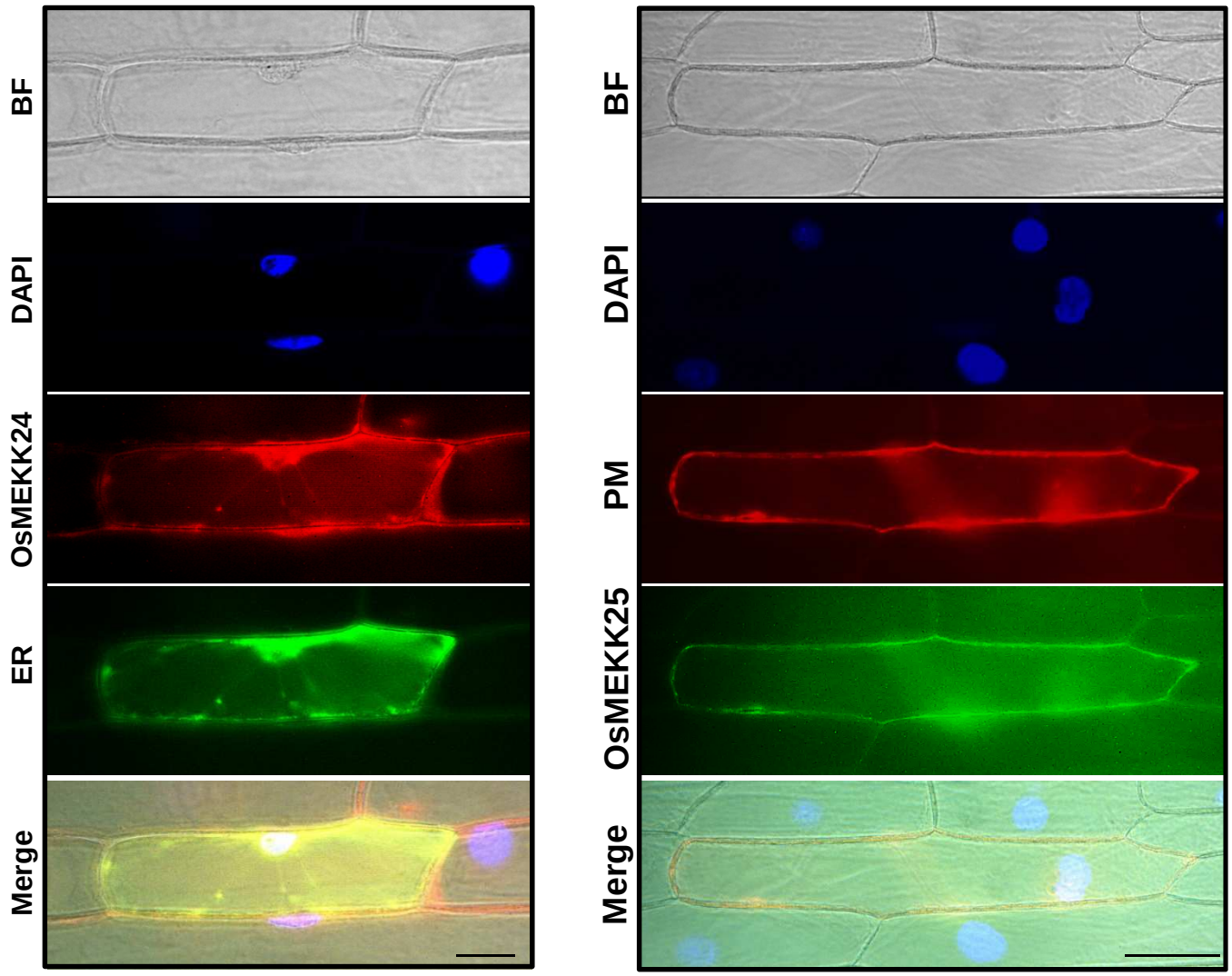
Supplementary Fig. S3. Localization of EYFP and mRFP fused endoplasmic reticulum (ER) targeting marker in rice epidermal cells. The rice cells were transiently transformed with EYFP and mRFP fused ER marker (*OsSPP1*) by biolistic bombardment. The microscopic images were taken using confocal microscope (Leica, TCS SP5). *BF* Bright field, *AF* Autofluorescence. *Scale bars* 20 µm.



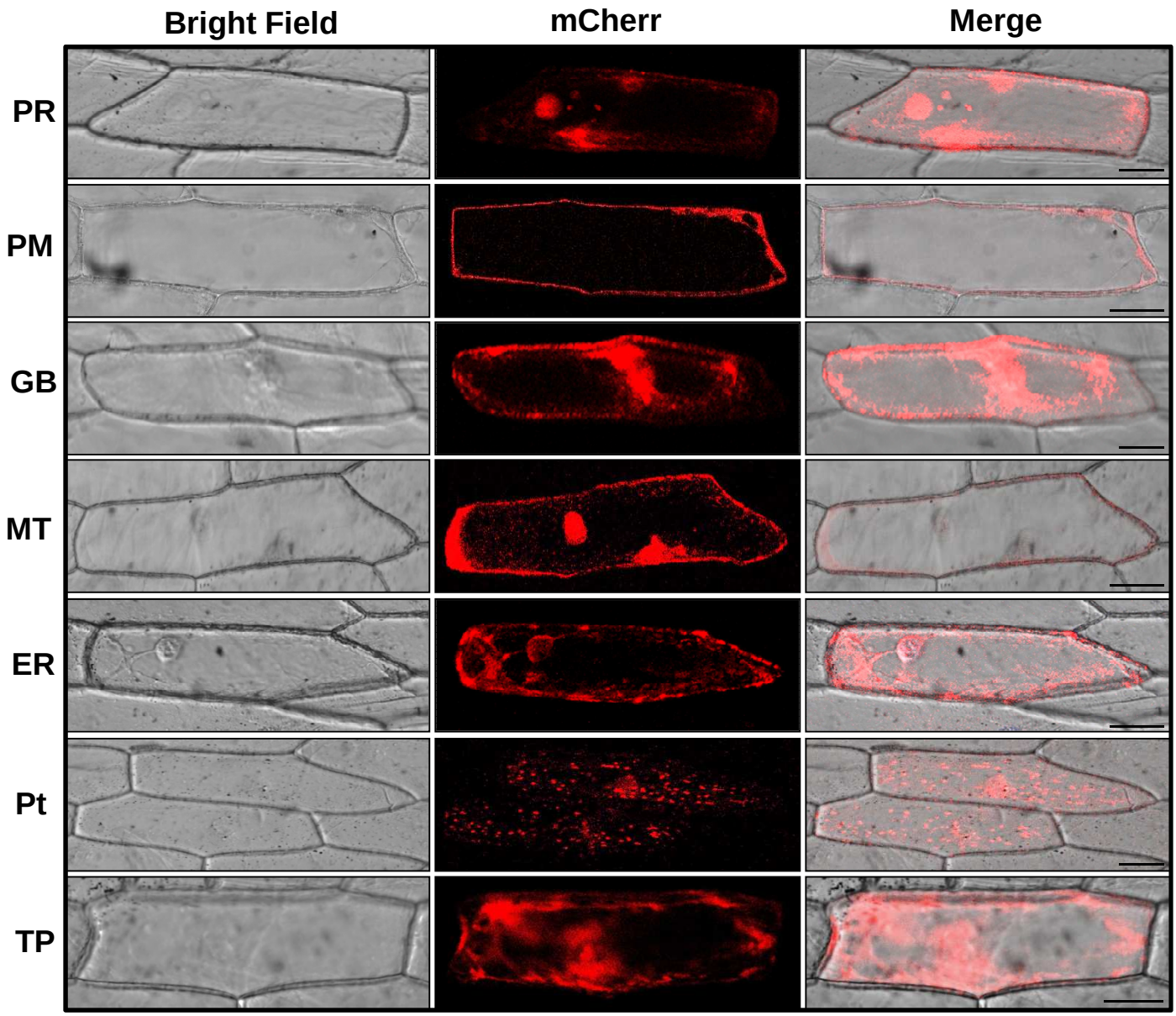
Supplementary Fig. S4. Visualization of mRFP fused chloroplast targeting marker in onion epidermal cells. The onion cells were transiently transformed with mRFP-fused chloroplast marker (*OsERD1*) by biolistic bombardment. The microscopic images were taken using confocal microscope (Leica, TCS SP5). *BF* Bright field, *AF* Autofluorescence. *Scale bars* 20 µm.



Supplementary Fig. S5. Co-localization of nuclear localization sequence (NLS) with nucleus marker (OsTAF2H) on onion epidermal cells. The mRFP fused NLS (35S:mRFP:NLS) and G3GFP fused nucleus marker (35S:G3GFP:OsTAF2H) were transiently co-expressed onion epidermal cells. Merged images of both GFP and mRFP shows a clear co-localization of NLS with rice nucleus marker. The microscopic images were taken with a confocal microscope (Leica, TCS SP5) using bright field (BF), GFP, RFP and DAPI filters. *AF* autofluorescence. *Scale bars* 20 µm



Supplementary Fig S6. Co-localization of uncharacterized proteins with rice markers. The mRFP fused rice MAP3K *OsMEKK24* and G3GFP fused *OsMEKK25* were co-expressed with G3GFP fused endoplasmic reticulum (ER) and mRFP fused plasma membrane (PM) markers respectively on onion epidermal cells. Merged images of both GFP and RFP shows a clear co-localization of *OsMEKK24* with ER and *OsMEKK25* with PM markers. The microscopic images were taken with a Zeiss microscope equipped with axioplan 2 imaging system using bright field (BF), GFP, RFP and DAPI filters. *Scale bars* 20 µm.



Supplementary Fig. S7. Subcellular localization of mCherry-tagged *Arabidopsis* organelle markers in onion epidermal cells. The mCherry-tagged *Arabidopsis* organelle targeting markers CD3-983, peroxisomes (PR); CD3-1007, plasma membrane (PM); CD3-967, golgi bodies (GB); CD3-991, mitochondria (MT); CD3-959 endoplasmic reticulum (ER); CD3-999, plastids (Pt) and CD3-975, tonoplast (TP) obtained from The Arabidopsis Information Resource (TAIR) were expressed in onion epidermal cells. The microscopic images were taken by confocal microscope (Leica, TCS SP5) using bright field and mCherry filters. *Scale bars* 20 µm.

Supplemental Table S1. Primers Used in this Study

Organelle	Primer name	Primer Sequence
Nucleus	Dest NU	Forward: 5'-AAAAAGCAGGCTGGATGATGGGGAGCAACAGC-3'
		Reverse: 5'-AGAAAGCTGGGTCTCTTCTCTTGCTGCAGGAG-3'
Endoplasmic reticulum	Dest ER	Forward: 5'-AAAAAGCAGGCTCCGTGACAATGAAAACTCA-3'
		Reverse: 5'-AGAAAGCTGGGTCTCCTCCTTTTTGTTCTGTT-3'
Plasma membrane	Dest PM	Forward: 5'-AAAAAGCAGGCTCAATGGCGAAAGACATTGAG-3'
		Reverse: 5'-AGAAAGCTGGGTGGCGTTGCTCCGGTAGGACC-3'
Mitochondria	Dest MT	Forward: 5'-AAAAAGCAGGCTTCATGGCGGCAAGGAGGGCT-3'
		Reverse: 5'-AGAAAGCTGGGTGGGATCCACCGTCGCGAACG-3'
Tonoplast	Dest TP	Forward: 5'-AAAAAGCAGGCTTCATGCCGATCCGCAACATC-3'
		Reverse: 5'-AGAAAGCTGGGTGTCGGTGGTGGGGAGCTGCT-3'
Chloroplast	Dest CHL	Forward: 5'-AAAAAGCAGGCTTCATGGACATACCCTTCTCC-3'
		Reverse: 5'-AGAAAGCTGGGTGAATGTCCGTGTCGGATCAG-3'
Golgi body	Dest GB	Forward: 5'-AAAAAGCAGGCTTCATGGCTCGTCGGTCCTCC-3'
		Reverse: 5'-AGAAAGCTGGGTCGACTGTCGATCCCAGAAGG-3'
Peroxisome	Dest PR	Forward: 5'-AAAAAGCAGGCTCACCTCTCCTCGGATCGTCA-3'
		Reverse: 5'-AGAAAGCTGGGTCCAAGCCTCTTGTTGGATTC-3'
Nucleus	Dest NLS	Forward: 5'-AAAAAGCAGGCTTCATGCCAAAAAAGAAG-3'
		Reverse: 5'-AGAAAGCTGGGTTTAAGATCCTACCTTTC-3'
Endoplasmic reticulum	Dest OsMEKK24	Forward: 5'-AA AAA GCA GGC TTC ATG GCG TCG CGG -3'
		Reverse: 5'-AGAAAGCTGGGT TCA CAG TAC TGT ATT -3'
Plasma membrane	Dest OsMEKK25	Forward: 5'- AA AAA GCA GGC TTC ATG GAA TCT GGG -3'
		Reverse: 5'-AGAAAGCTGGGTCTA ATA GCA GCACTG-3'