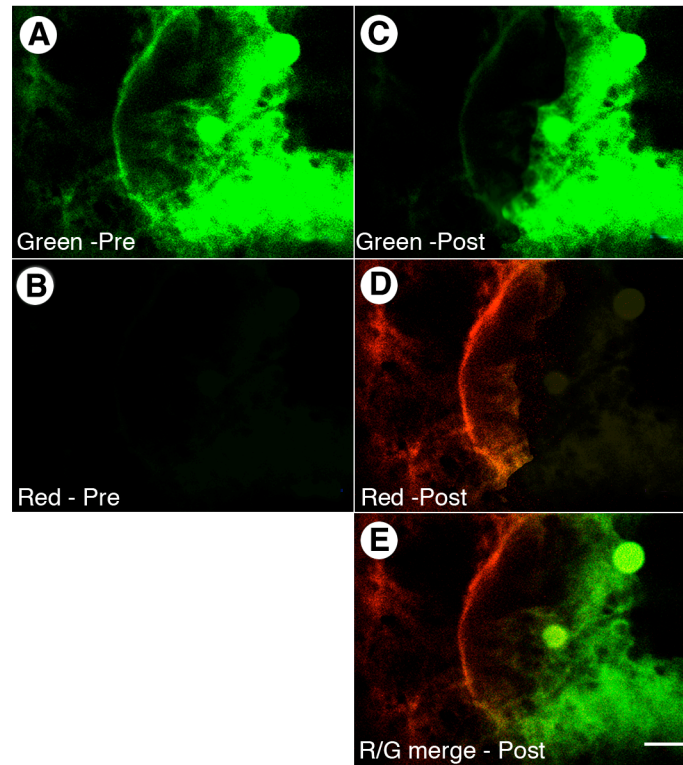


Supplementary Information**Supp. Figure 1**

Supp. Figure 1. A region lying between two onion epidermal cells transiently expressing mEosFP::PIP1 probe shows the non-converted (green) and the photo-converted (red) labeling of tubular-vesicular membranes. Panel A and B show fluorescence in green and red channels, respectively, before photoconversion whereas B and D show fluorescence obtained following photoconversion. Panel E is a merge of both green and red channels.

Supplementary Figure 2.

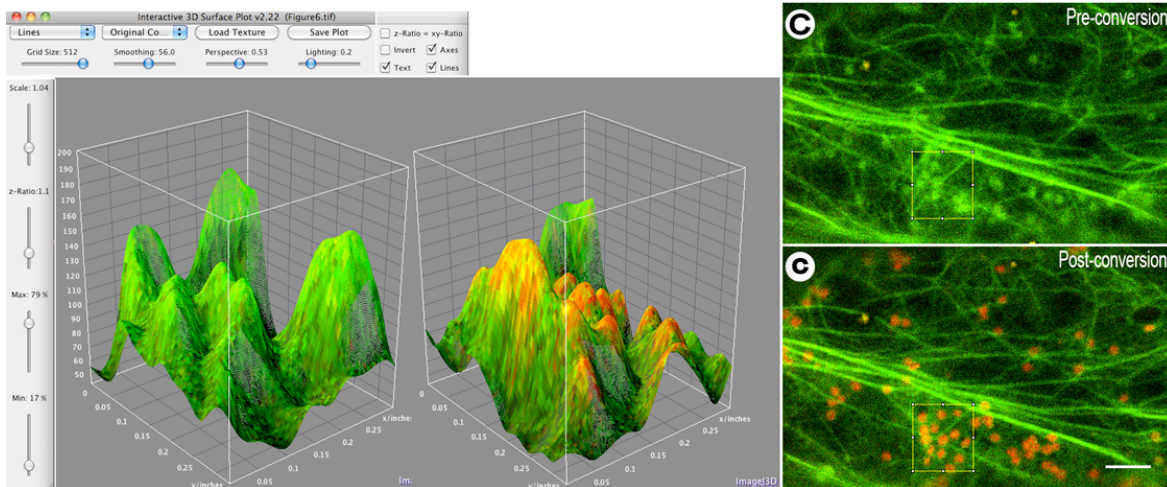


Figure 2. Golgi bodies highlighted by mEosFP::GONST1 and F-Actin (highlighted using GFP::mTalin) co-visualized before (C) and after photoconversion (c). The rapid motility of Golgi bodies does not allow direct comparisons to be drawn between pre and post conversion images in separate channels and therefore merged images acquired in both channels are presented. The inset 3D-surface plot clearly shows quantifiable changes in the color of Golgi bodies between their pre- and post- photo conversion sites.

Movie 1. mEosFP2xFYVE tub.mov

Time lapse imaging of a thin PI(3)P enriched tubule in a cell expressing mEosFP::2xFYVE probe over ca. 130 seconds. (1 frame acquired every 5 seconds; movie speeded up 10 X) The tubule shown here was specifically photoconverted earlier as a single vesicle that started exhibiting an erratic vibrational motion. During its visualization (x,y,t) the tubule changes its shape and appears to snare another photoconverted vesicles. All adjacent green vesicles have remained non-photoconverted.

Table 1. PCR primers used for creating mEosFP probes.

Supplementary Information

Table 1. Primers used for designing different mEosFP –based probes

Probe	Primers (Forward - Reverse)	RE site
mEosFP::PIP1	GCCGGCATGGAAGGCAAGGAAGAAGACG ACTAGTTTAGCTTCTGGACTTGAAGGGGATG	NaeI / SpeI
mEosFP::TIP1	GCCGGCATGGCAACATCAGCTCGTAGAGCA ACTAGTCTAGTAATCTTCAGGGGCCAAGGG	NaeI / SpeI
CX::mEosFP	GGGATCCGGTACCATGGACTACAAAGACGAT CATTCCTCCCAGCTCTTATCGTCTGGCATT	BamHI/SacI
Mito - mEosFP	ATACTAGTATGGACTACAAAGAC ATGAGCTCTTATCGTCTGGCATTGTC	SpeI / SacI
mEosFP::2xFYVE	GCCGGCATGTTCGCTGCTGAAAGAGCCCCT ACTAGTATGCCTTCTTGTTTCAGCTGCTCATA	NaeI / SpeI
mEosFP::GONST1	GCCGGCATGAAATTTACGAACACGATGGA ACTAGTTTAGGACTTCTCCCTCATTTTGGC	NaeI / SpeI
mEosFP-PTS1	ACCCAAGCTTGGTACCATGGACTACAAAGA CCTCTAGATTACAGCTTGGAGGCATTGTCA	HindIII-KpnI/ XbaI
mEosFP::ABD-MAP4	CGGTACCGCTCGATGAGTGCGATT CTTATGCGGCCGCATTGTCAGGCA	KpnI/NotI
mEosFP::FABDmTn	CCACGCTCGAGATGAGTGCGATTAAGCCA ATTATTGCCGGCTCGTCTGGCATTGTCAG	XhoI/NaeI
LIFEACT::mEosFP	GGATCCACCGAGTGCGATTAAGCCAGACATGAAG GGCGGCCGCTTATCGTCTGGCATTGTCAGGCAAT	BamHI/ NotI