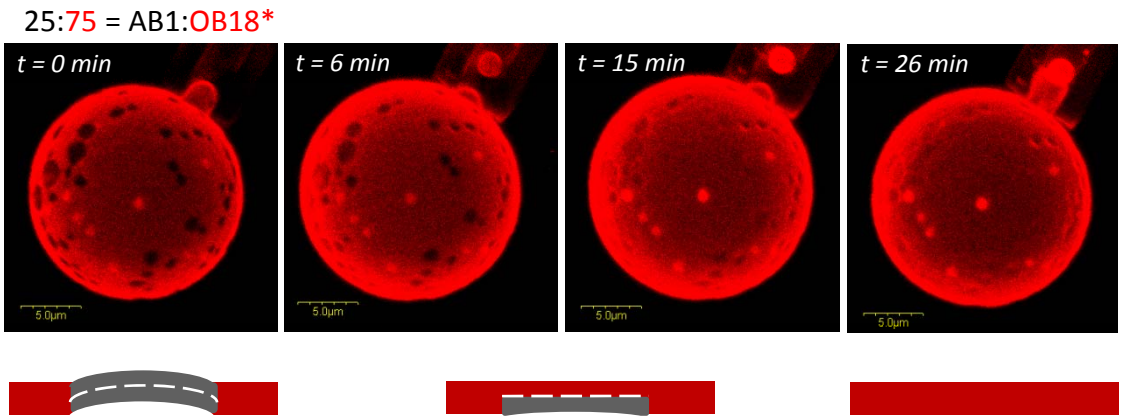
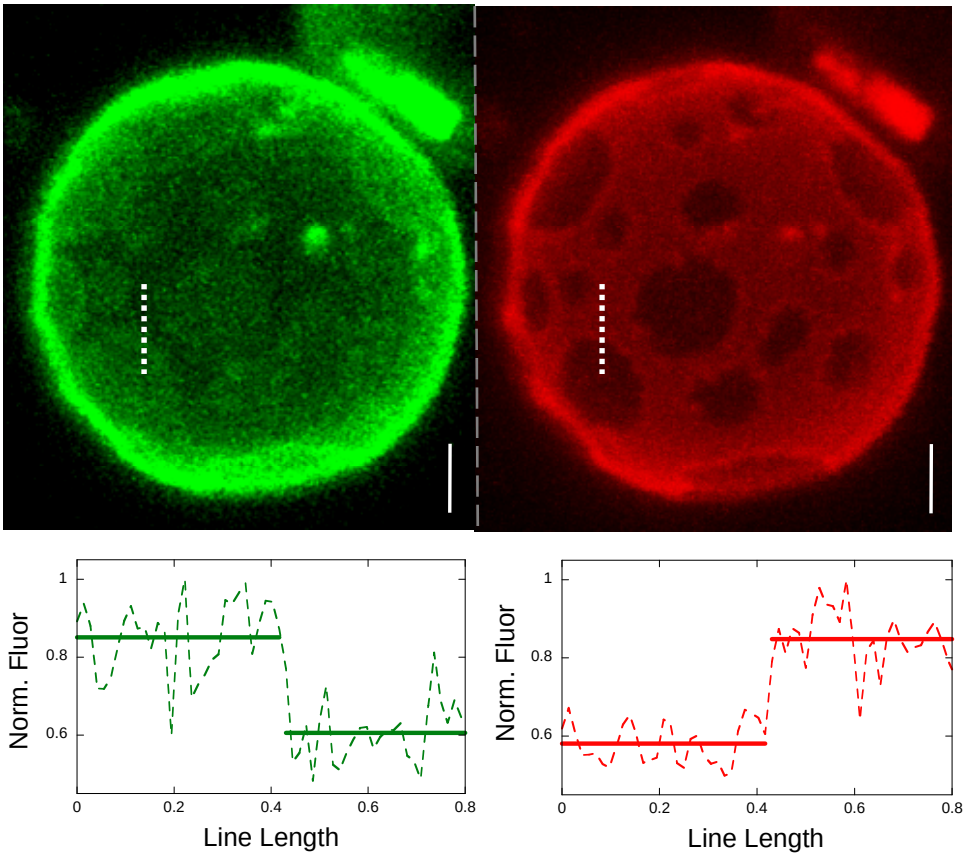
Supplementary Table 1

AB1:OB18* ratio	25:75	50:50	75:25
AB1 Area Fraction in Polymersomes	0.22 ± 0.10 (S.D., n = 5)	0.48 ± 0.08 (S.D., n = 11)	0.76 ± 0.03 (S.D., n = 3)
OB18* Length Fraction in Cylinder Micelles	0.76 ± 0.12 (S.D., n = 31)	0.58 ± 0.09 (S.D., n = 15)	0.22 ± 0.10 (S.D., n = 27)

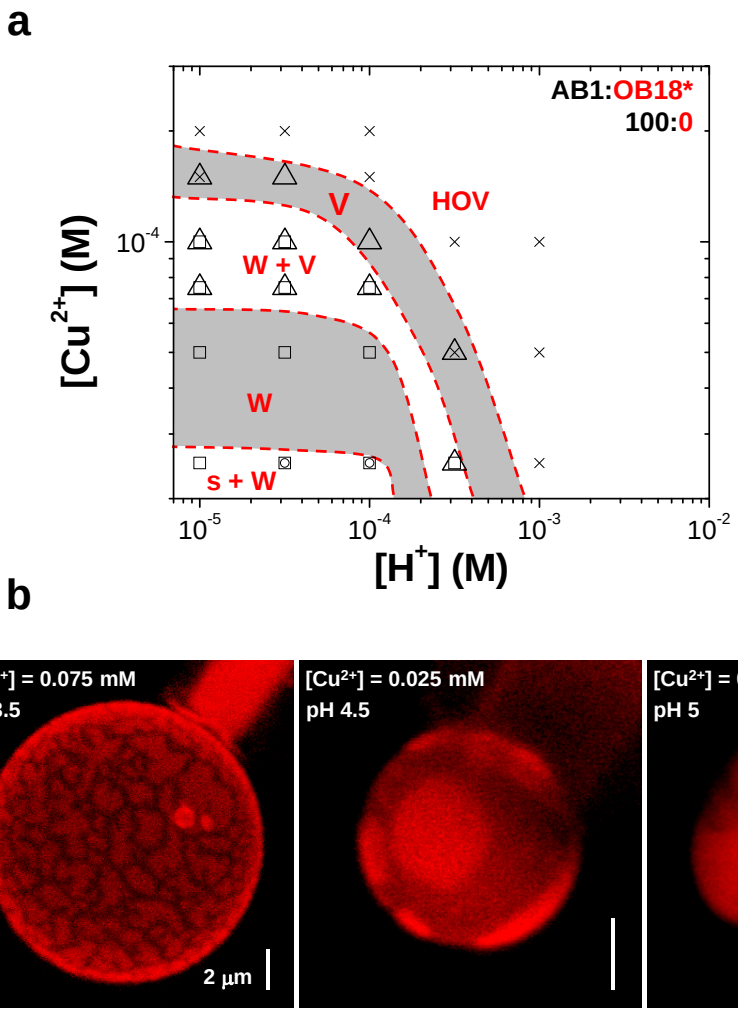
Supplemental Figure 1 Removal of AB1 domains by chelation of Ca^{2+} with EDTA



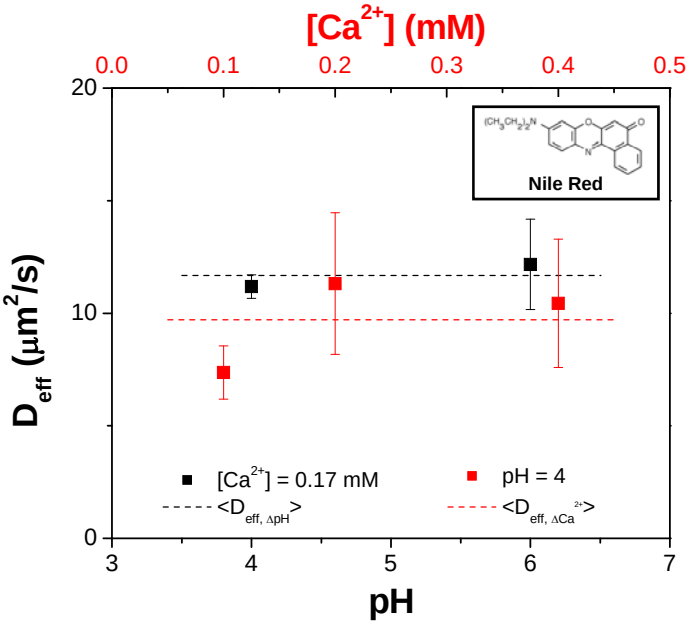
Supplemental Figure 2 Fluorescence intensity analysis of unmodified images of PIP2-BodipyFL enrichment in AB1 domains of phase separated polymersomes.



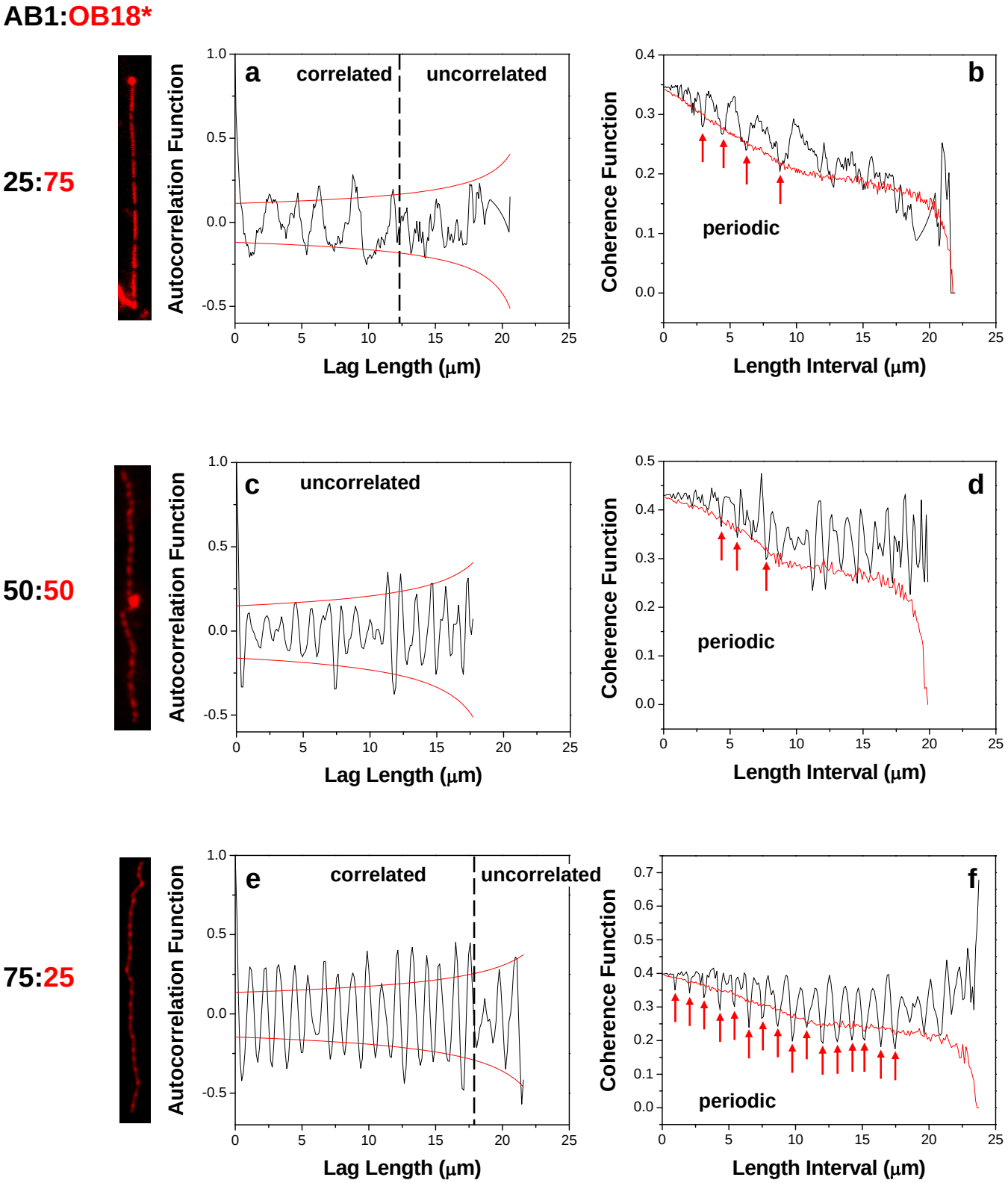
Supplemental Figure 3 Copper induced morphological changes in pure AB1 assemblies and domain formation in vesicles of AB1:OB18* = 50:50



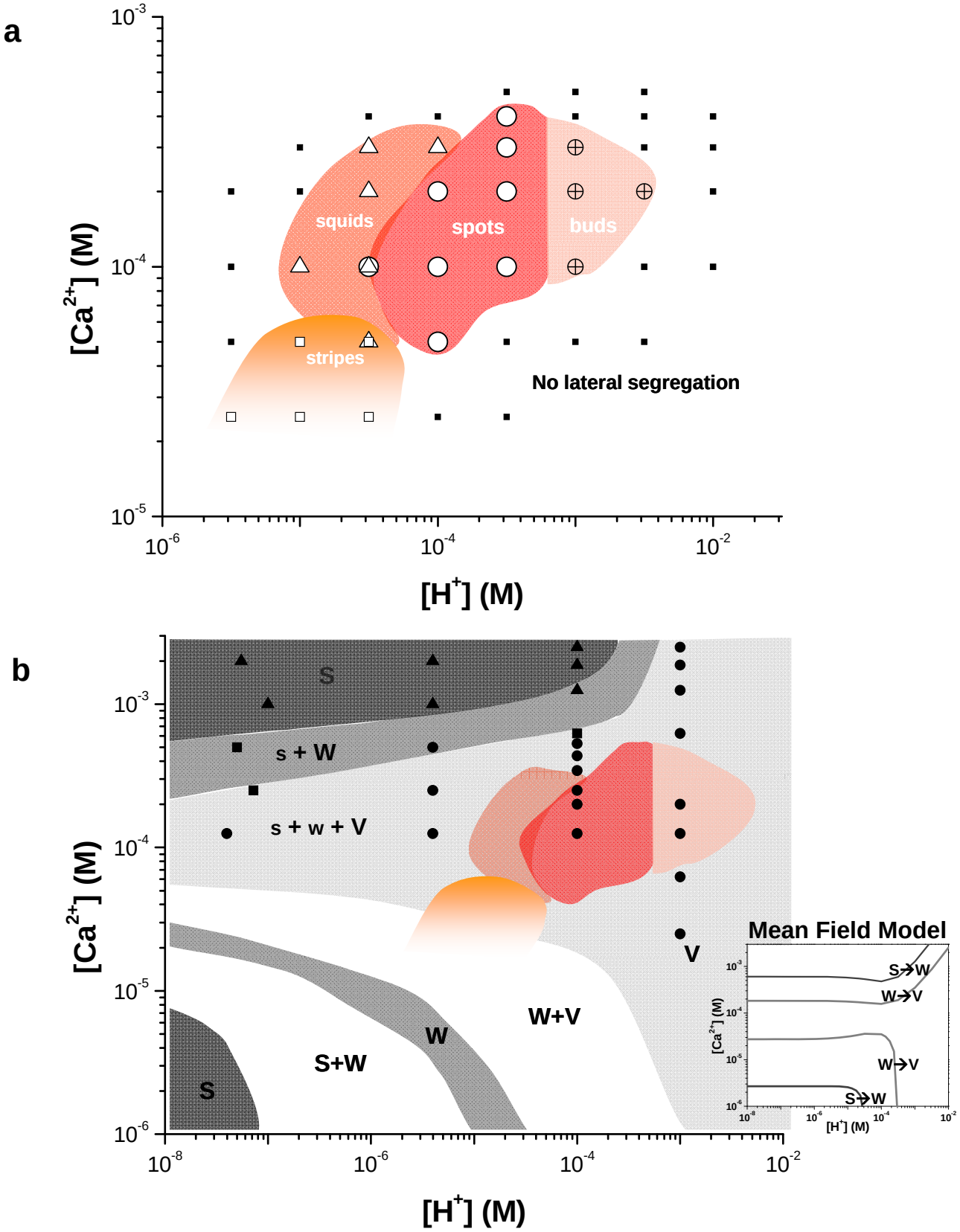
Supplemental Figure 4 Effective diffusivity of Nile Red in pure AB1 polymersomes.



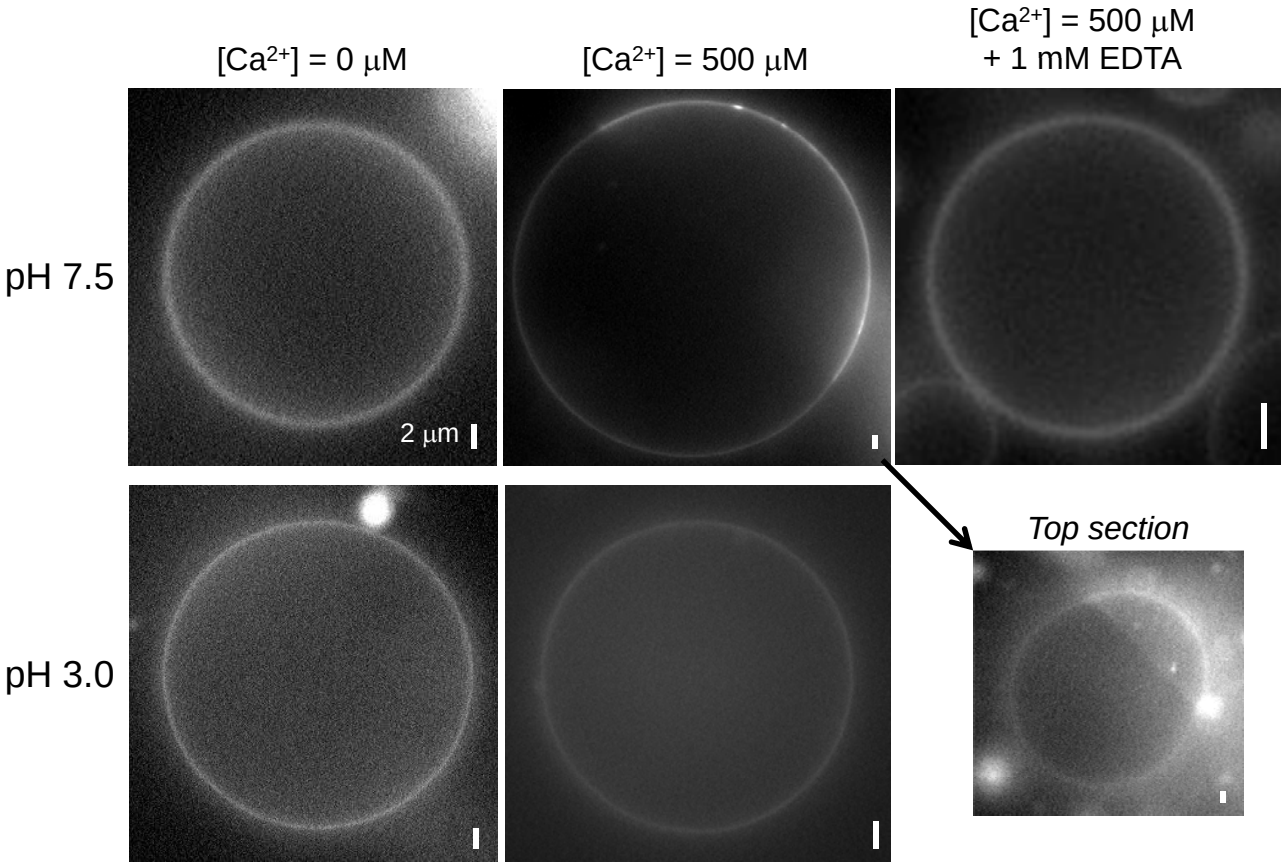
Supplemental Figure 5 Analysis of striped worm-like micelles.



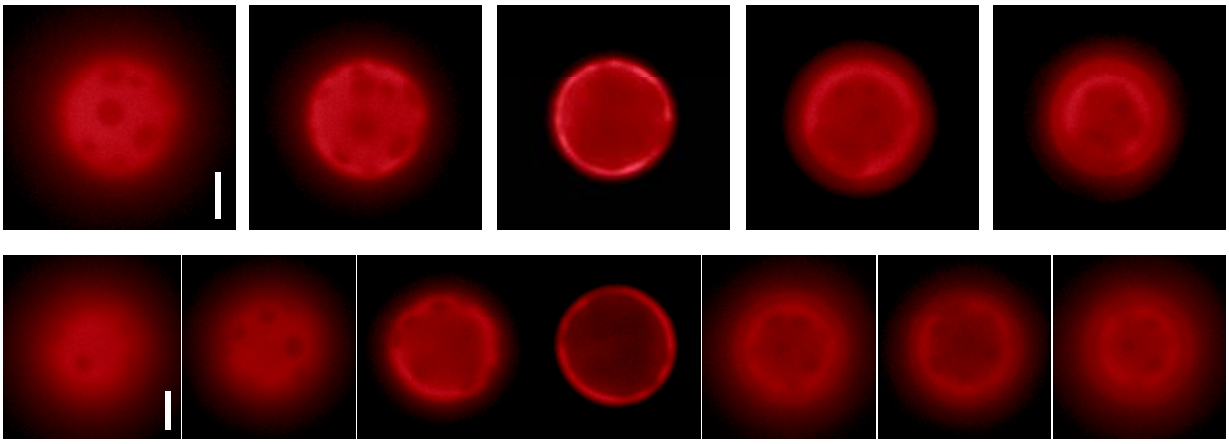
Supplementary Figure 6 Details of phase diagram for (a) AB1:OB18* = 25:75 lateral segregation and (b) calcium induced AB1 morphology changes



Supplementary Figure 7 Calcium-induced phase separation of the highly anionic lipid, PIP2, in lipid giant unilamellar vesicles as a function of pH.

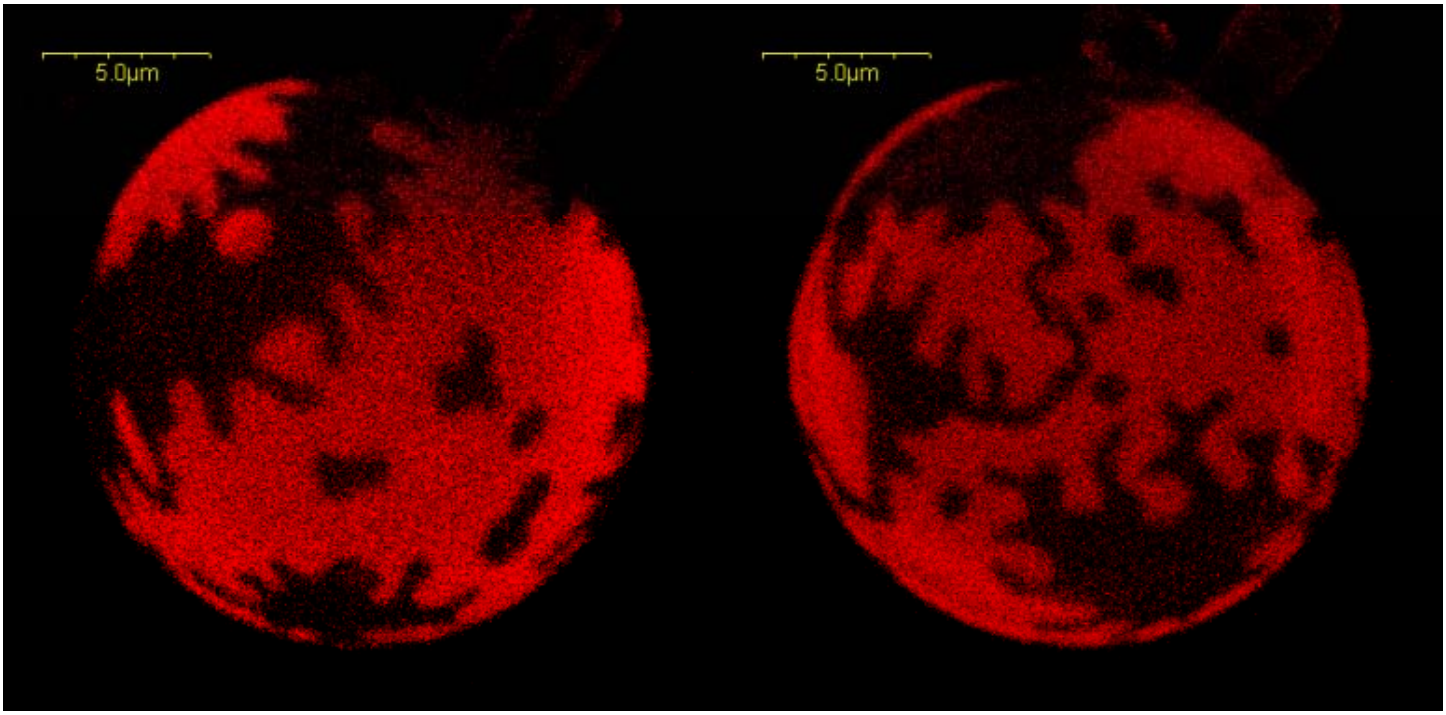


Supplementary Figure 8 Domain stability in phase separated polymersomes near physiological conditions



Possible Thumbnail images

Soft gelation → Low line tension fingering by adding NaOH



Possible Thumbnail images