Electronic Supplementary Material (ESI) for RSC Advances.

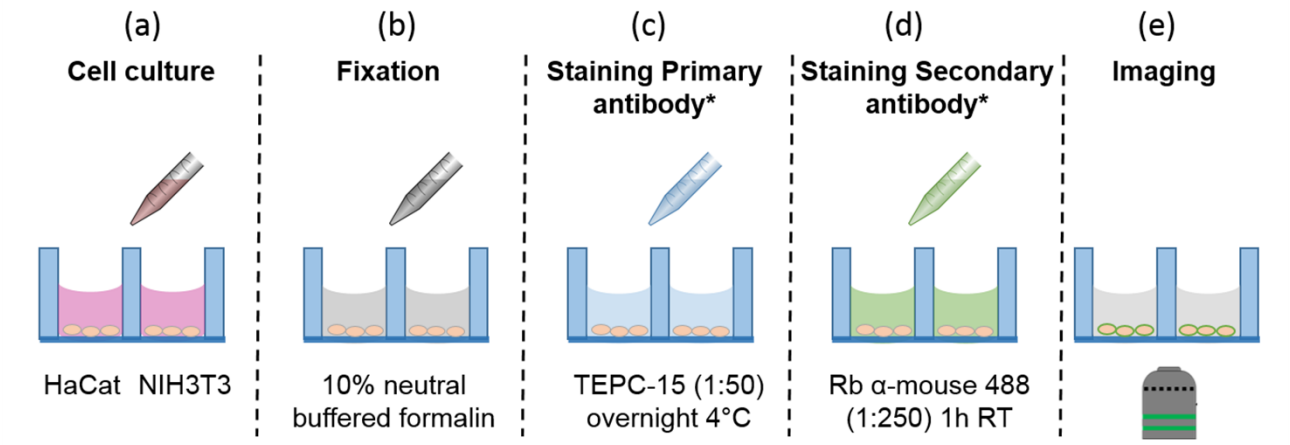

Figure S1: Schematization of the cell staining procedure. (a) HaCat and NIH3T3 cells were grown in multiwell µ-plate in DMEM medium supplemented with L-glutamine 200 mM, 10% fetal bovine serum and the appropriate amount of penicillin/streptomycin in a humidified atmosphere containing 5% CO_2 in air. (b) Cells were fixed with 10% neutral buffer formalin. (c) Primary anti-PC antibody, TEPC-15, were added at a dilution of 1:50 overnight at 4°C. (d) Secondary antibody, Rb α-mouse 488, was added at a dilution of 1:250 for 1h at room temperature (RT) in dark. (e) Imaging of the sample with CLSM. * Washing steps with PBS to remove unbound antibodies.

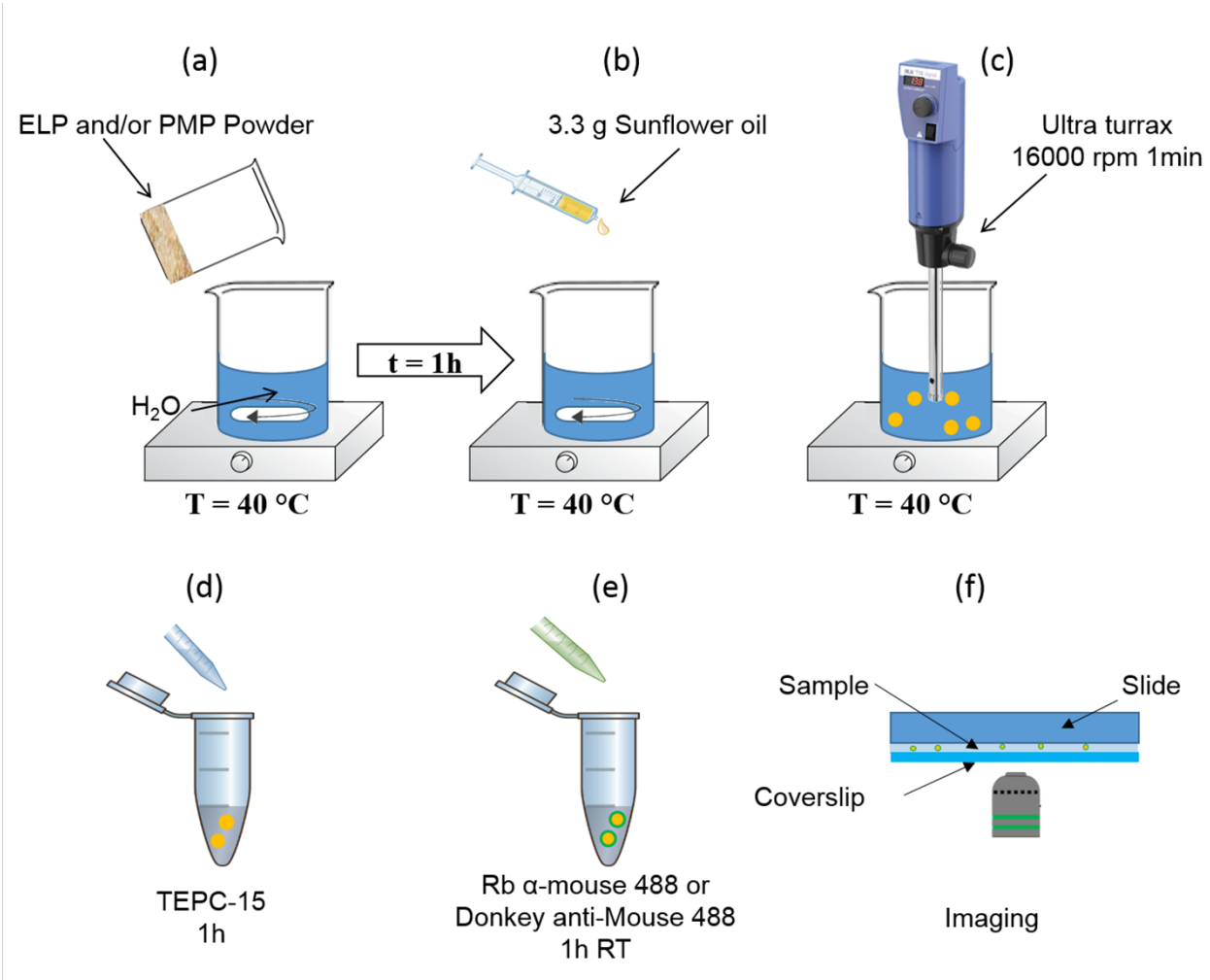

Figure S2: Schematization of the emulsion staining procedure. (a) ELP (0.10 g) and/or PMP (5.63 g) powders were added to the water at 40°C for 1h under gentle stirring until complete dissolution of the powder. (b) Addition of 3.3g of sunflower oil to the solution. (c) Emulsification with an Ultra-Turrax T18 digital homogenizer at 16000 rpm for 1 min. (d) TEPC-15 at a dilution ranging from 1:200 to 1:10 was added to 100 µL of emulsion and incubated for 1h at RT. (e) Rb α-mouse 488 or Donkey anti-Mouse 488 was added for 1h at RT in dark. (f) Imaging of the sample. In order to avoid movement of the droplets, the sample was mixed with a drop of agarose solution 0.5%.

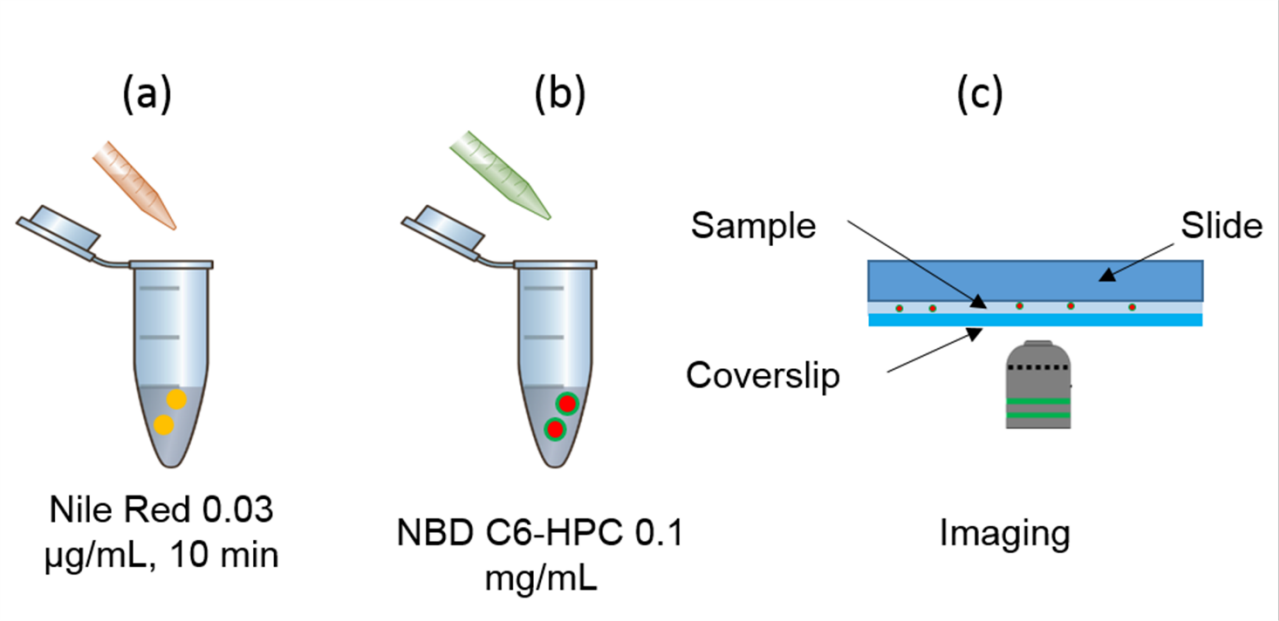

Figure S3: Double staining of the emulsion. (a) Nile red was added to the oil phase before emulsification at a concentration of 0.03 µg/mL. (b) Addition of NBD C6-HPC at a concentration of 0.1 mg/mL just before imaging. (c) Imaging of the sample.

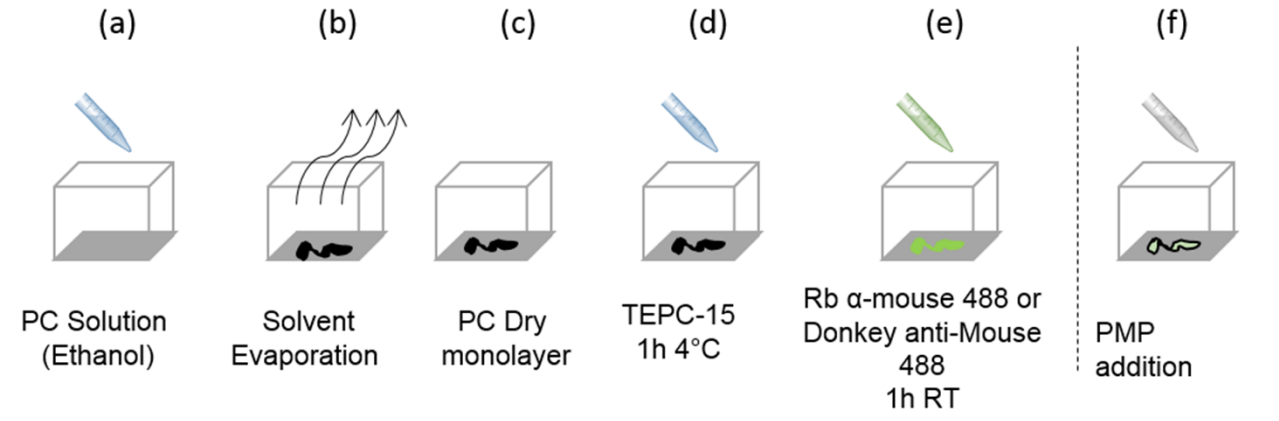

Figure S4: Schematization of the PC film staining procedure. (a) 0.4 µL of Purified egg L-α-phosphatidylcholine suspended in ethanol was uniformly distributed on the bottom of a µ-Slide 8 Well. (b) Ethanol was left to evaporate at RT. (c) A dry monolayer of PC was obtained. (d) TEPC-15 was added at a dilution of 1:10 for 1h at RT. (e) Rb α-mouse 488 at a dilution of 1:250 was added for 1h at RT in dark. Washing steps were omitted to avoid loss of materials. (f) In order to study the effect of proteins, 150 µL of PMP solution were added and images of the sample were recorded at different times.

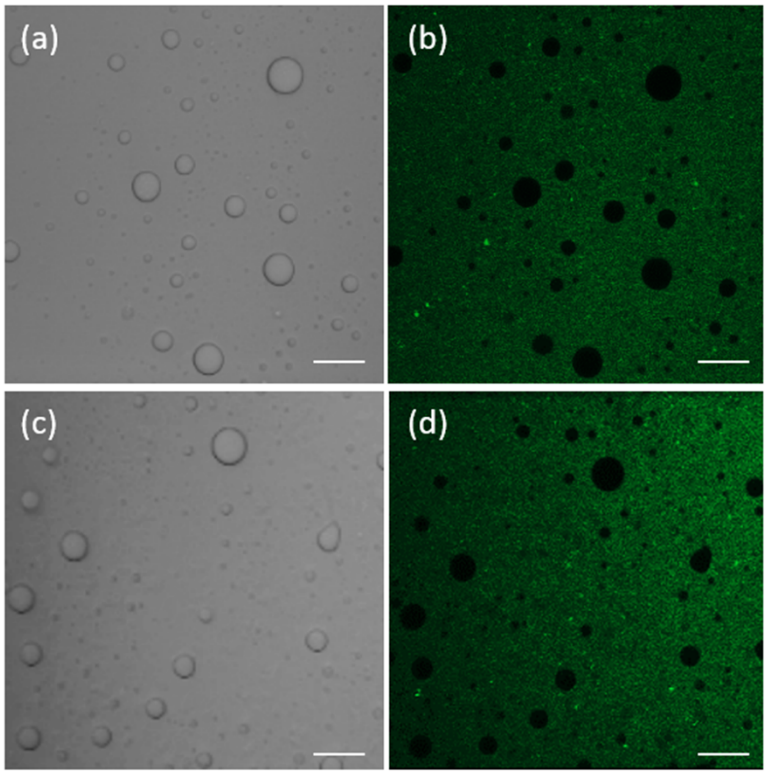

Figure S5: Negative control experiment. The emulsion was stabilized with proteins only (no phospholipids added). 100 µL of emulsion was incubated with TEPC-15 at a dilution of 1:10 for 1h. Then, Rb α-mouse 488 was added at a dilution of 1:100 and incubated for 1h in the dark. Images were acquired in the brightfield mode (a-c) or confocal mode (b-d), where it is noticeable that antibodies are in the bulk and not at the droplet interface. White bars are 10 µm.