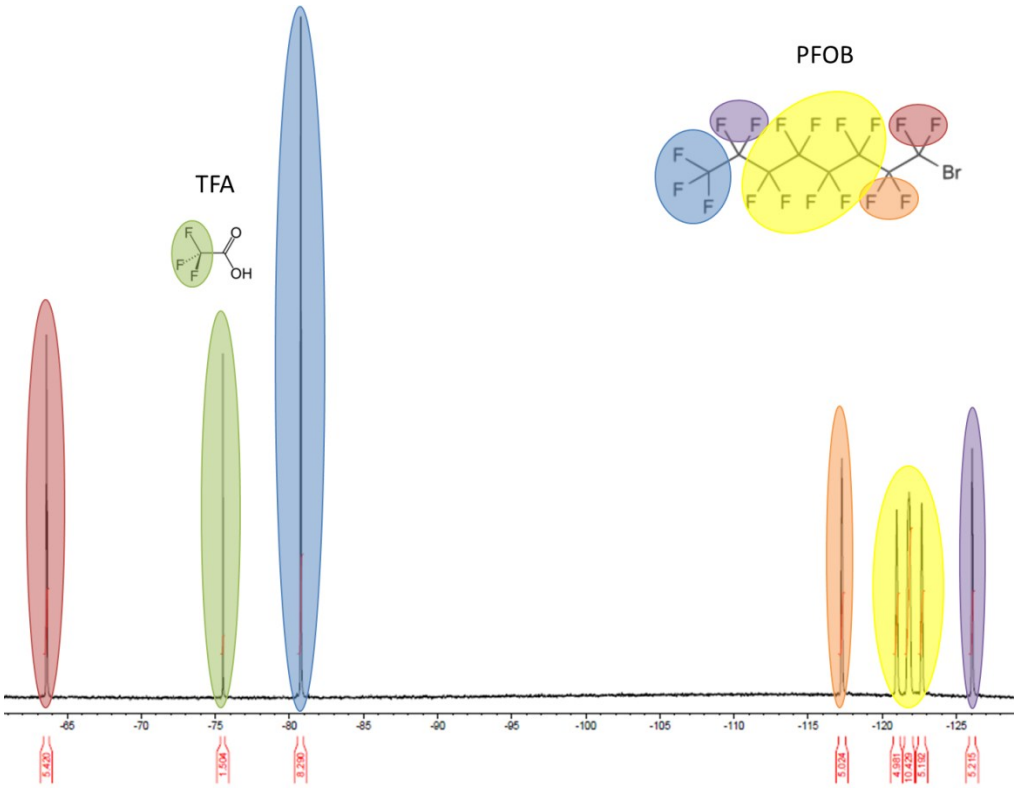
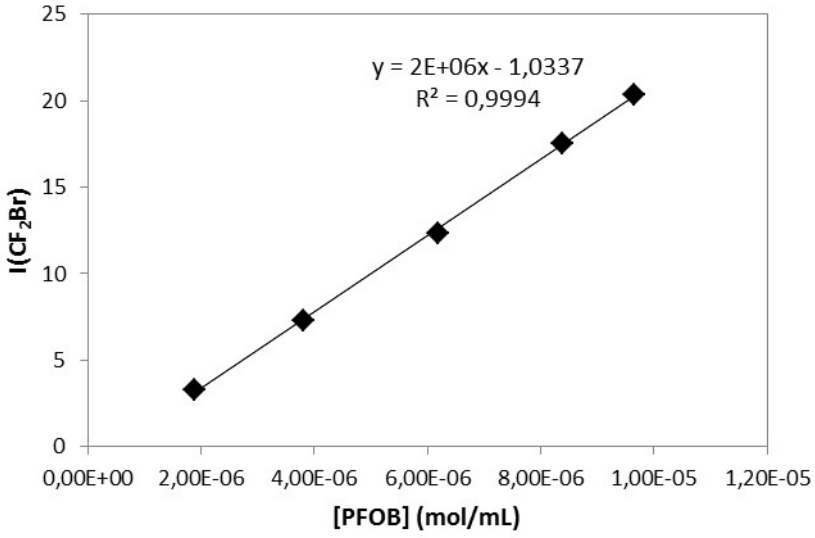
Supporting information

Calculation of PFOB encapsulation efficiency

A calibration curve with five solutions of known concentration of PFOB in chloroform was established. PFOB solutions were collected and introduced into a usual 5mm-NMR sample tube loaded with a stem coaxial insert containing TFA in D_20 as an external standard ([TFA]= 9.4 µmol.mL-1). The same insert was used for all solutions and the integration of the TFA peak at -76.5 ppm was set to 3. A typical ^{19}F NMR spectrum is shown below.



Integrations of the peak at -64.7 ppm corresponding to the CF_2Br group of PFOB were drawn as a function of PFOB concentration. A typical calibration curve is shown below.



For each NCs sample, the integration of the TFA peak was set to 3 and the resulting integration of the CF_2Br peak was used to calculate the concentration of PFOB in the tube with the equation of the curve, and therefore the amount of encapsulated PFOB n_{PFOB}. Absolute encapsulation efficiency η_{encaps} was then calculated as follows:

$$\eta_{encaps} = \frac{n_{PFOB}}{n_{PFOB}^{max}} \quad \text{with} \quad n_{max} = \frac{m_{PFOB}^{feed} \quad m_{NC}}{M_{PFOB} m_{PFOB}^{feed} + m_{polymer}^{feed} + m_{SC}^{feed}}$$

where m_{PFOB}^{feed}, $m_{polymer}^{feed}$ and m_{SC}^{feed} are the initial masses of the components introduced during NCs preparation, m_{NC} corresponds to the mass of NCs recovered after freeze-drying and M_{PFOB} is the molar mass of PFOB (498.96 g/mol).

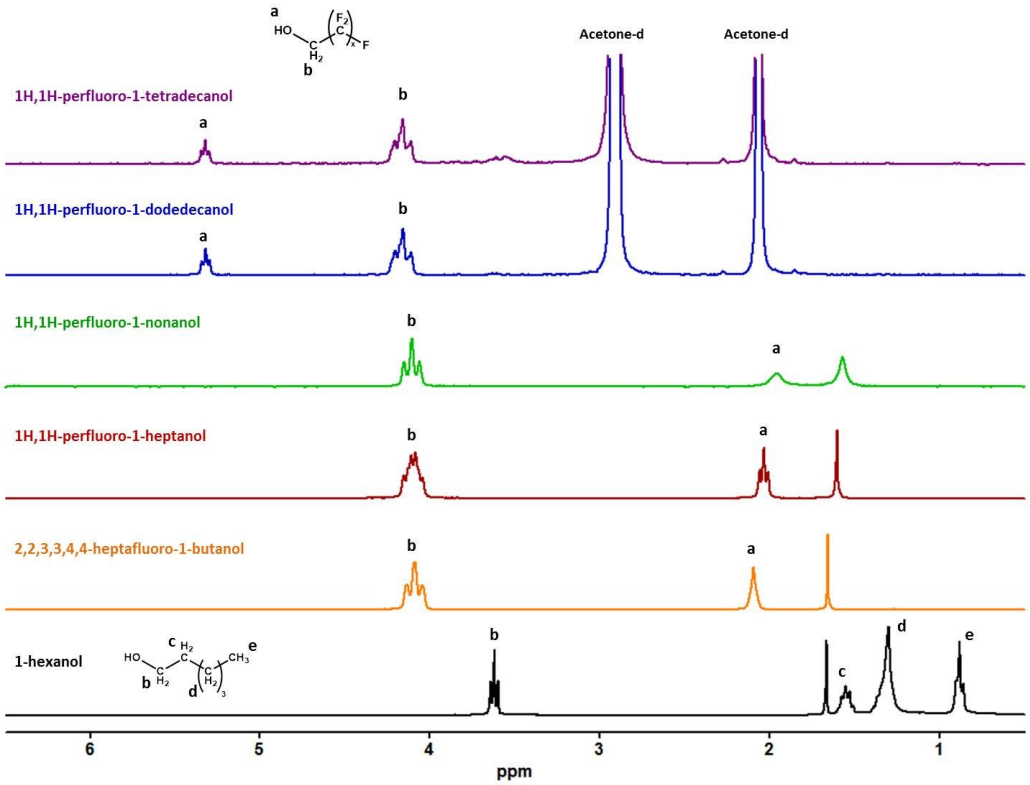


Figure S1: ^{1}H NMR spectra of the initiators used for polymers synthesis. All initiators were dissolved in $CDCl_3$ except 1H, H-perfluoro-1-tetradecanol and 1H,1H-perfluoro-1-dodecanol that were dissolved in acetone-d

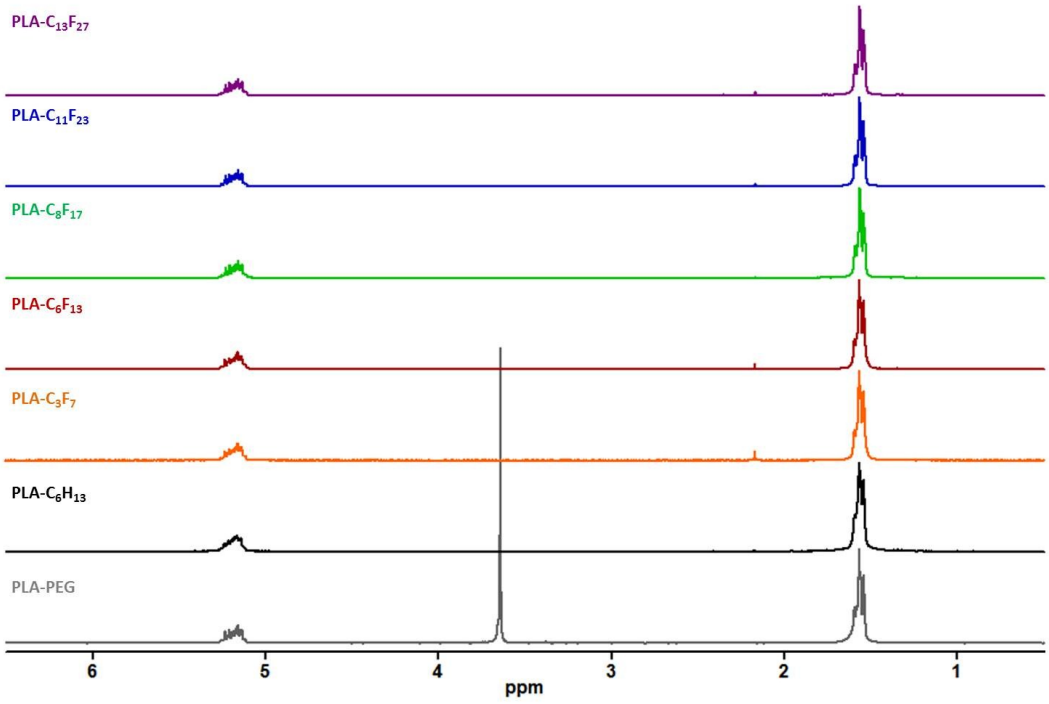


Figure S2: ^{1}H NMR spectra of all synthesized polymers in $CDCl_3$

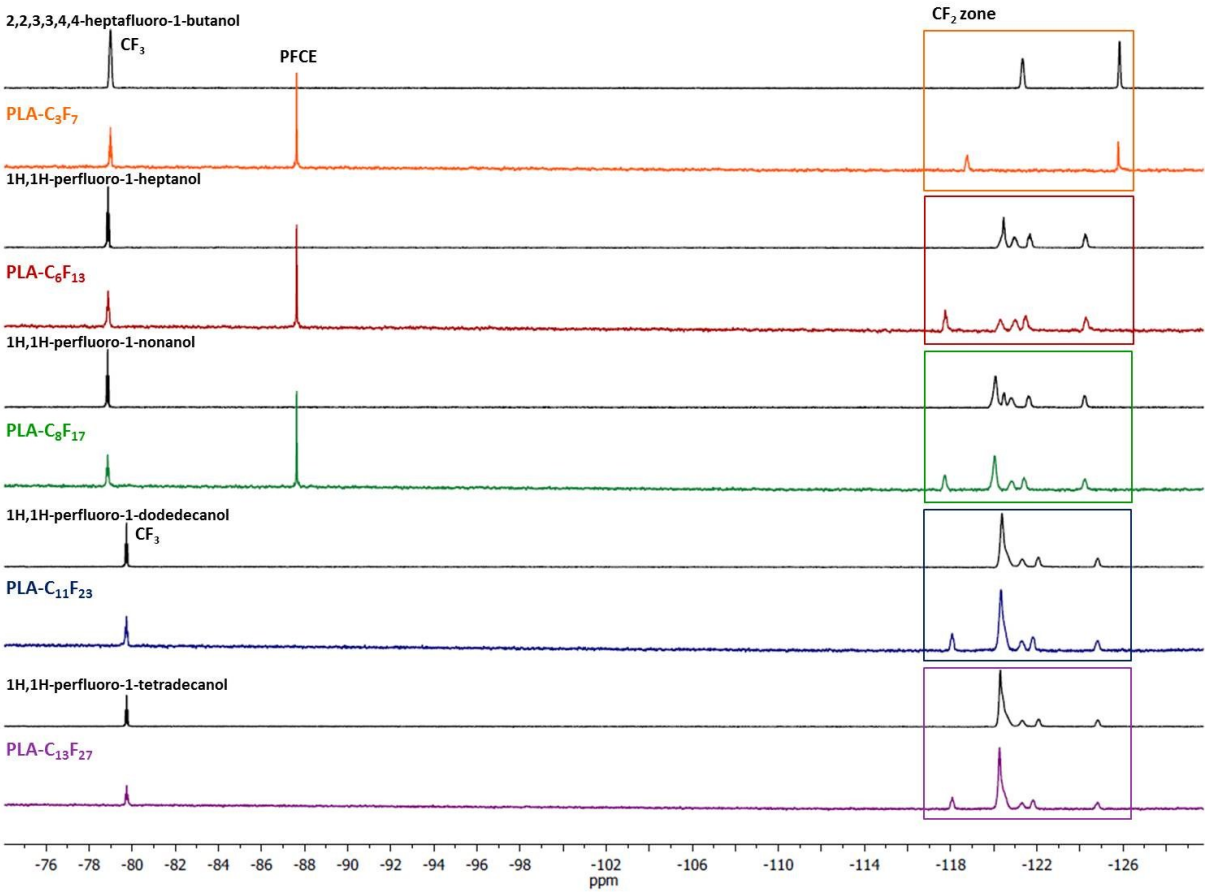


Figure S3: ^{19}F NMR spectra of the fluorinated polymers (color) and their corresponding fluorinated initiators (black) showing the shifts in the CF_2 zone. PLA-C_3F_7, PLA-C_6F_{13} and PLA-C_8F_{17} were dissolved in $CDCl_3$ with PFCE, their corresponding initiators in $CDCl_3$ without PFCE. PLA-$C_{11}F_{23}$ and PLA-$C_{13}F_{27}$ and their corresponding fluorinated initiators were dissolved in acetone-d

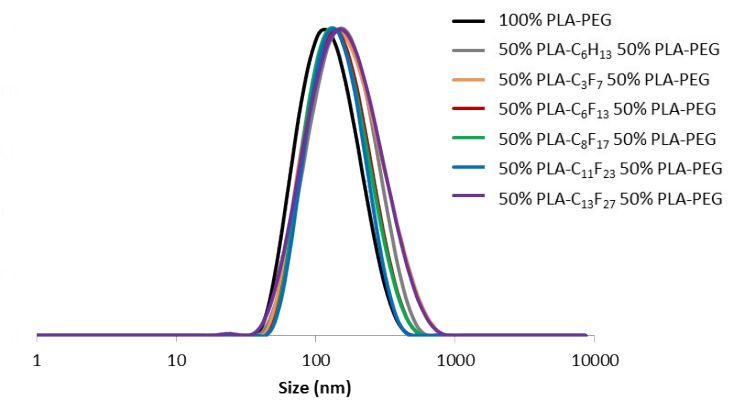


Figure S4: DLS intensity distribution of nanocapsules made from 50 mg of polymer

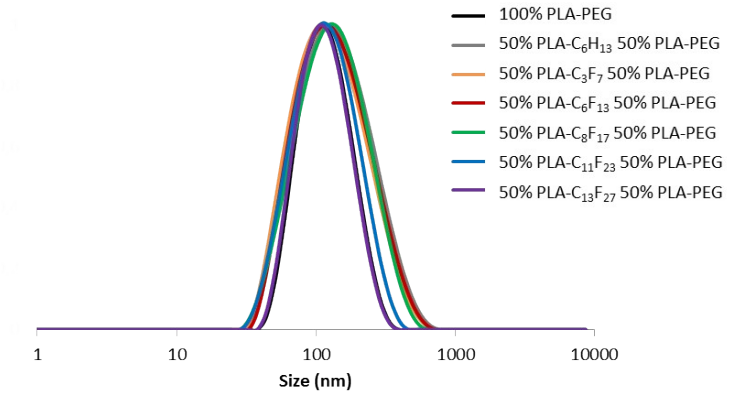


Figure S5: DLS intensity distribution of nanocapsules made from 30 mg of polymer

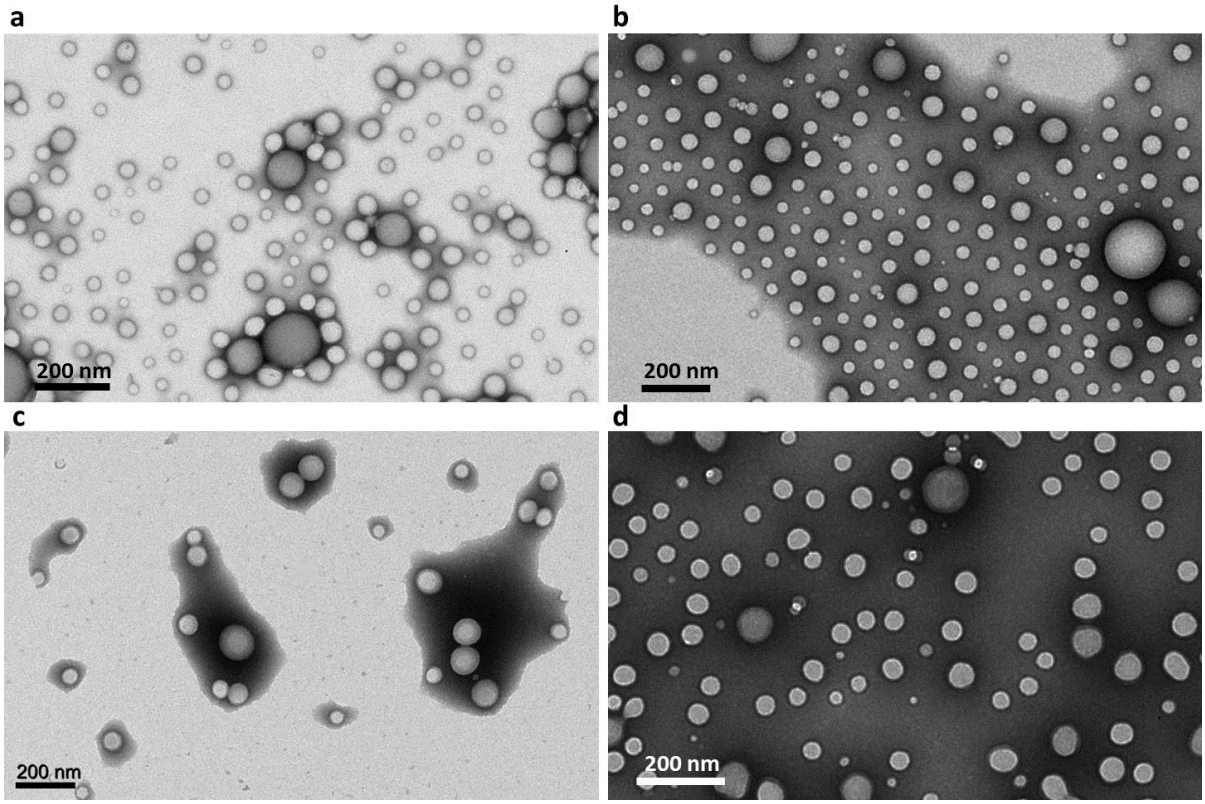


Figure S6: TEM images of NCs made from 50% PLA-C_8F_{17} / 50% PLA-PEG at 50 mg (a) and 30 mg (b), and NCs made from 100% PLA-PEG at 50 mg (c) and 30 mg (d) with negative staining

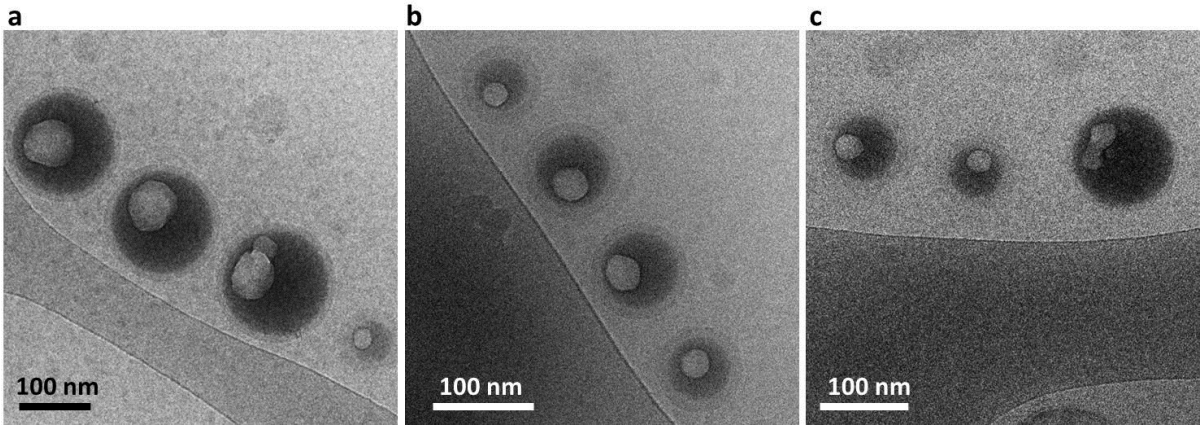
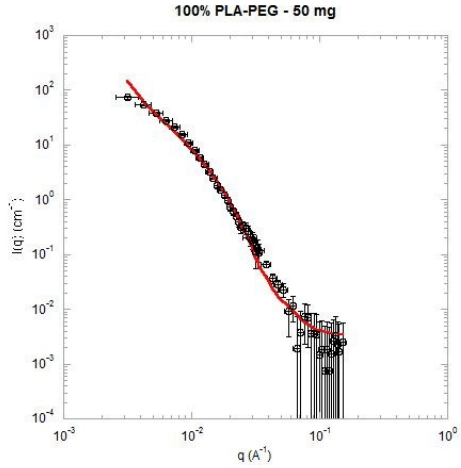
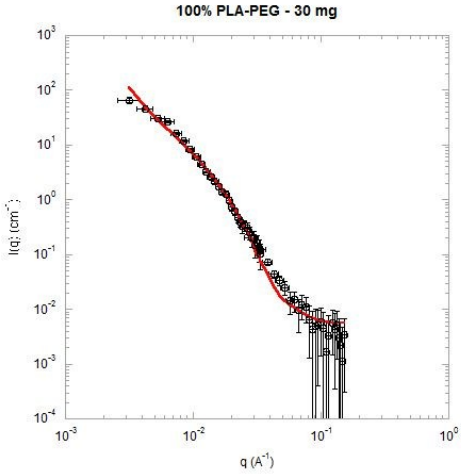
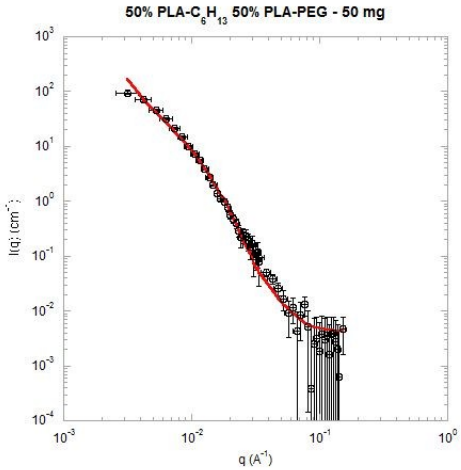
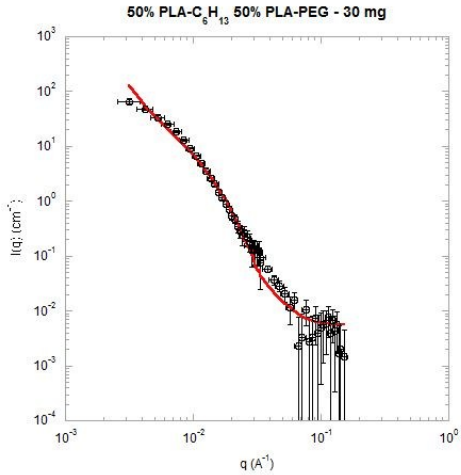


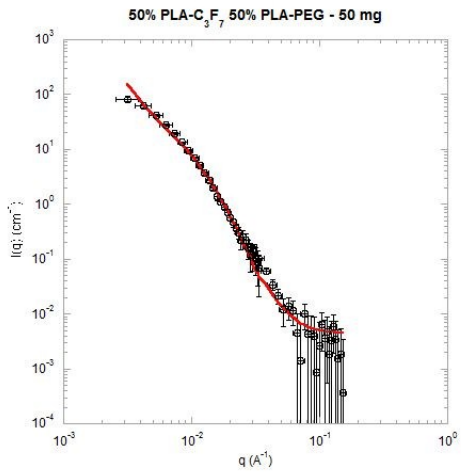
Figure S7: Cryo-TEM images of NCs made from 50% PLA-C_8F_{17} / 50% PLA-PEG at 50 mg (a) and NCs made from 100% PLA-PEG at 50 mg (b) and 30 mg (c)

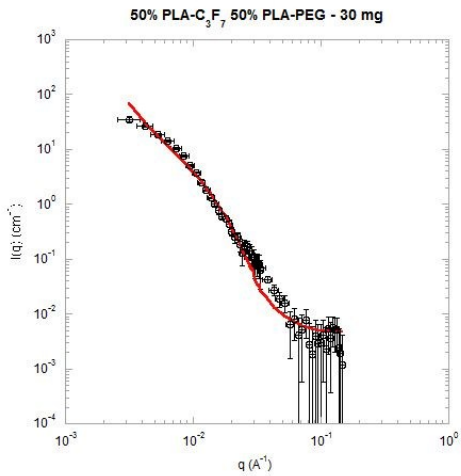

100% PLA-PEG - 50 mg
I(q; (cm^{-1})
q (A^{-1})


100% PLA-PEG - 30 mg
I(q; (cm^{-1})
q (A^{-1})


50% PLA-C$_6$H$_{13}$ 50% PLA-PEG - 50 mg
I(q; (cm^{-1})
q (A^{-1})


50% PLA-C$_6$H$_{13}$ 50% PLA-PEG - 30 mg
I(q; (cm^{-1})
q (A^{-1})


50% PLA-C$_3$F$_7$ 50% PLA-PEG - 50 mg
I(q; (cm^{-1})
q (A^{-1})


50% PLA-C$_3$F$_7$ 50% PLA-PEG - 30 mg
I(q; (cm^{-1})
q (A^{-1})

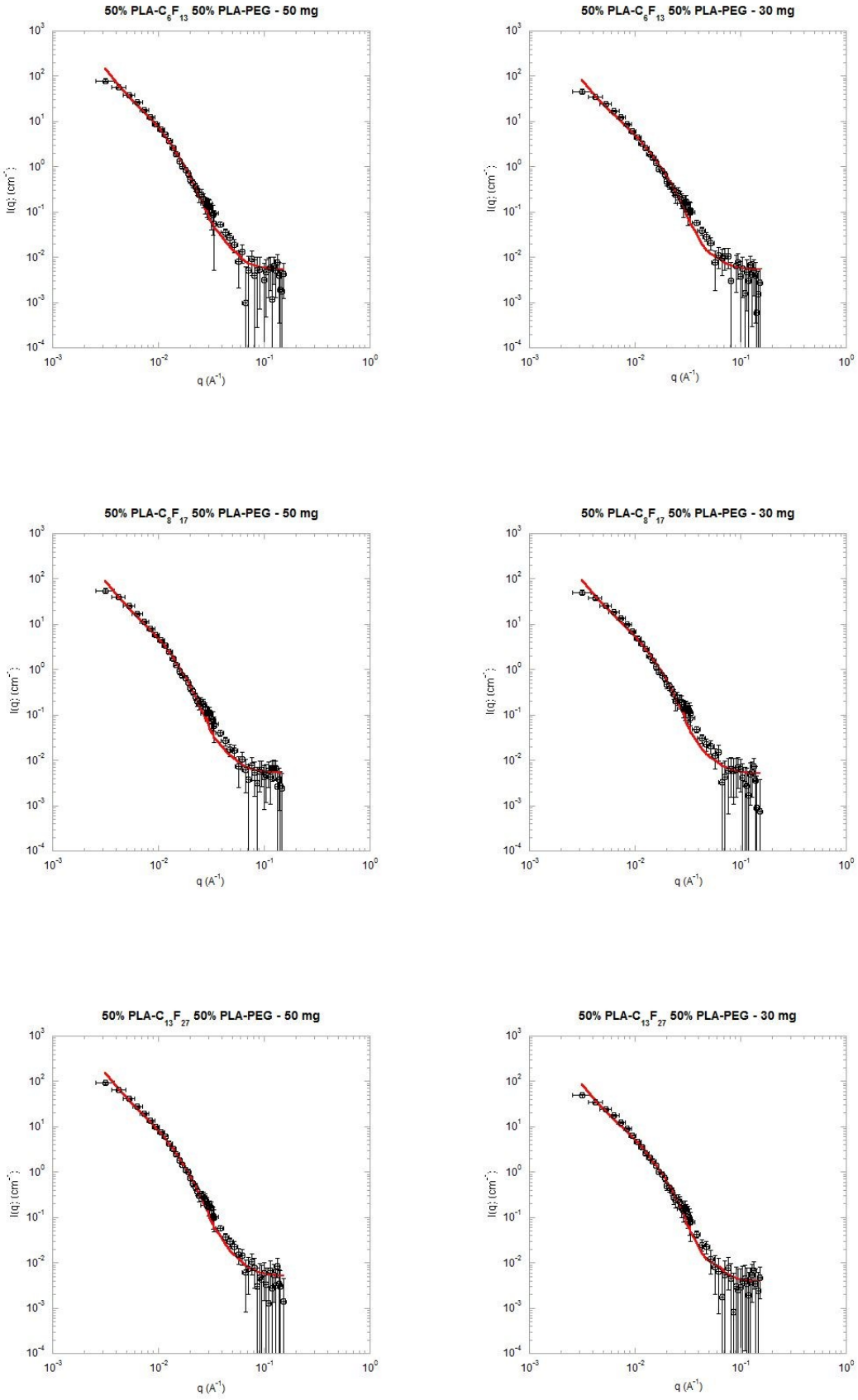
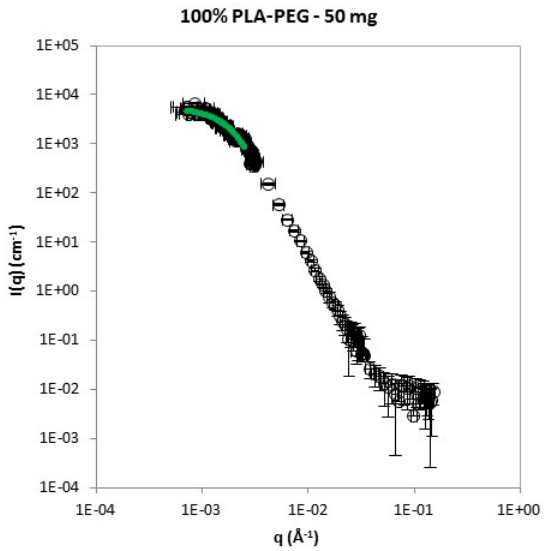
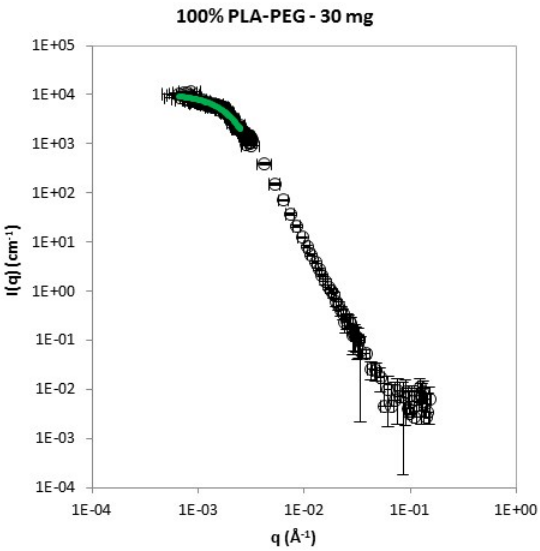
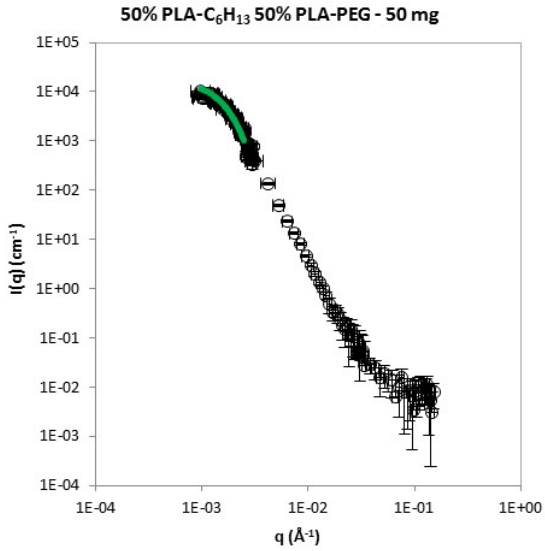
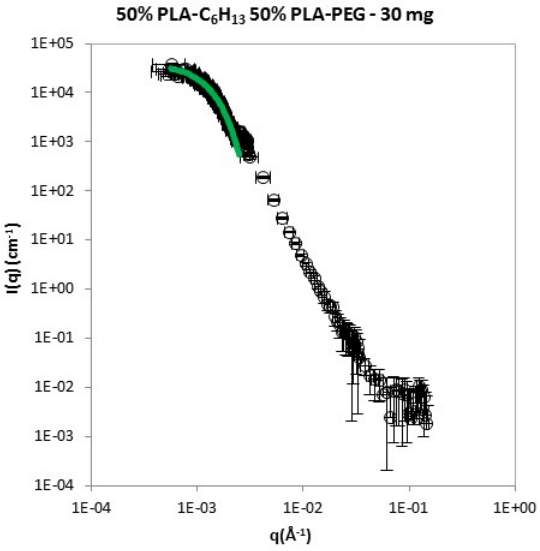


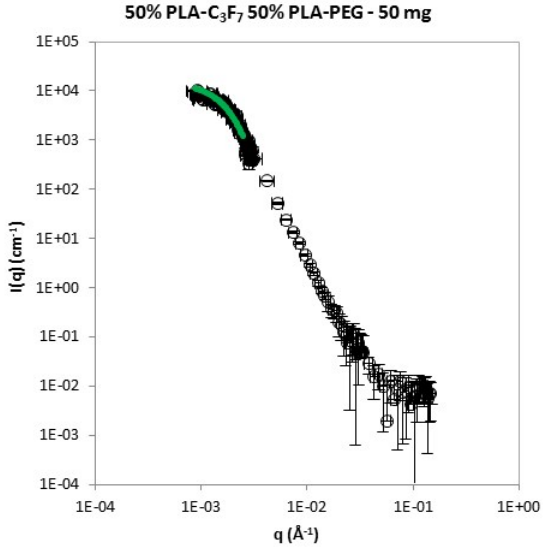
Figure S8: Experimental scattered intensity curves (black circles) in PFOB matching condition fitted with the vesicle model (red line)

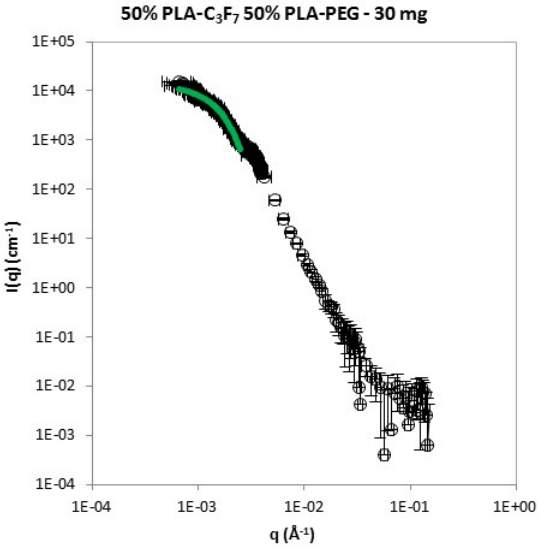

100% PLA-PEG - 50 mg
I(q) (cm-1)
q (Å-1)


100% PLA-PEG - 30 mg
I(q) (cm-1)
q (Å-1)


50% PLA-C6H13 50% PLA-PEG - 50 mg
I(q) (cm-1)
q (Å-1)


50% PLA-C6H13 50% PLA-PEG - 30 mg
I(q) (cm-1)
q(Å-1)


50% PLA-C3F7 50% PLA-PEG - 50 mg
I(q) (cm-1)
q (Å-1)


50% PLA-C3F7 50% PLA-PEG - 30 mg
I(q) (cm-1)
q (Å-1)

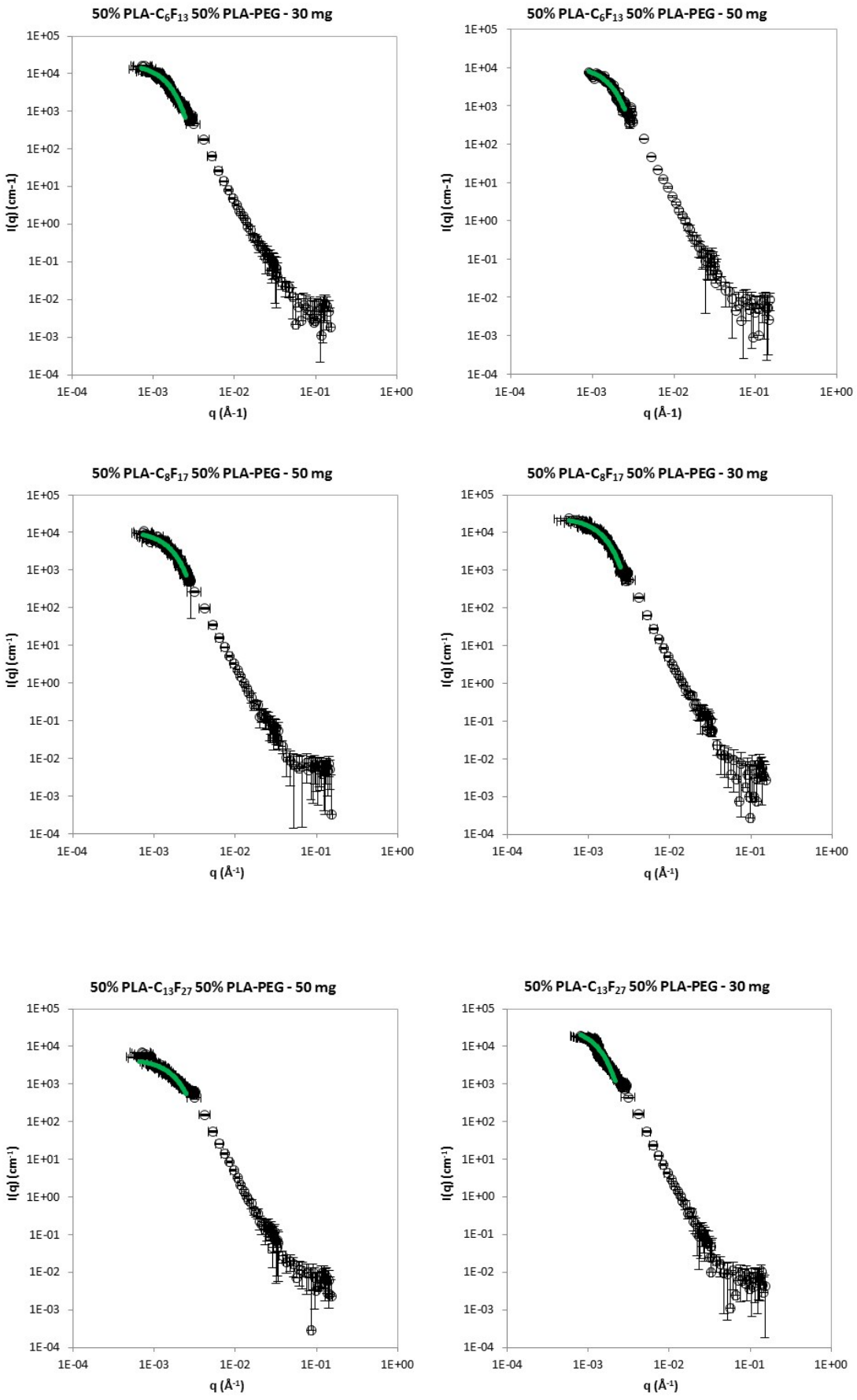


Figure S9: Experimental scattered intensity curves (black circles) in PLA matching condition fitted with the Guinier approximation for q < 0.0025 Å^{-1} (green line)

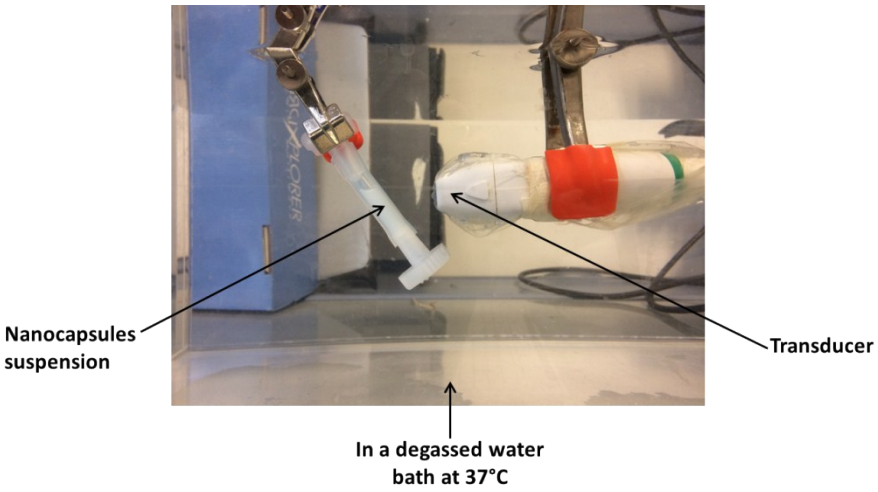


Figure S10 : Picture of the ultrasound imaging set-up