**Polyelectrolyte multilayers with perfluorinated phthalocyanine selectively entrapped inside the perfluorinated nanocompartments**

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**Supplementary Information**

1. FT-IR, \(^{19}\text{F}-\text{NMR}\) and EI-MS spectra of perfluorinated phthalocyanine MgPcF\(_{64}\) are shown below in Figs S1 – S3.

![Figure S1. IR spectrum of F\(_{64}\)PcMg (KBr pellet).](image-url)
Figure S2. $^{19}$F-NMR spectrum of F$_{64}$PcMg (CDCl$_3$, CFCl$_3$ std).

Figure S3. EI-MS spectrum of F$_{64}$PcMg (molecular ion peak 2024 m/z).
2. DLS size analysis of loaded and unloaded micelles of aqueous solution of the Ak-St-F polymer.

**Figure S4.** DLS data of Ak-St-F polymer in aqueous solution before and after solubilization of the probe.
3. AFM images of grain size analysis of the Ak-St-F/PSS films with solubilized MgPcF$_{64}$ molecule

**Figure S5.** AFM grain size analysis of (left to right): one bilayer, three bilayers and five bilayers-thick Ak-St-F/PSS films with corresponding histograms.