**ELECTRONIC SUPPLEMENTARY INFORMATION**

for the Article

Encapsulation of photoactive porphyrinoids in polyelectrolyte hollow microcapsules viewed by Fluorescence Lifetime Imaging Microscopy (FLIM)

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SUPPLEMENTARY INFORMATION

1. Porphyrin/Polyelectrolyte interactions

**TSPP/PAH**

![Fig S1 Absorption (A) and emission spectra (B, $\lambda_{exc} = 400$ nm) of TSPP (5 $\mu$M) with increasing concentrations of oppositely charged polyelectrolyte PAH (concentrations are given in $\mu$M).](image1)

**TMPyP/PSS**

![Fig S2 Absorption (A) and emission spectra (B, $\lambda_{exc} = 400$ nm) of TMPyP (5 $\mu$M) with increasing concentrations of oppositely charged polyelectrolyte PSS (concentrations are given in $\mu$M).](image2)
**BOPYP/PSS**

**Fig. S3** Absorption (A) and emission spectra of BOPYP (B. $\lambda_{\text{exc.}} = 440$ nm) with increasing concentrations of PSS at pH = 2.0 (concentrations are given in $\mu$M).

**BOPYP/PAA**

**Fig. S4** FLIM images of polyelectrolyte microcapsules (PAA/PSS)$_4$BOPYP, after CaCO$_3$ dissolution. B) Circular aggregate formed between BOPYP and polyelectrolyte PAA prior to adsorption procedure. C) Fluorescence decay and lifetime histogram (inset) from image A.
2. Mechanism of TCPP-PAH synthesis

Fig. 55 Labelling of the positive polyelectrolyte (PAH) with a hydrophobic porphyrin (TCPP) using amide coupling reaction in two steps.

Fig 56 Absorption and emission spectra of coupled TCPP/PAH incorporated in PAH/PSS polyelectrolyte microcapsules. The pH of the colloidal suspension is 7.0; the emission spectrum was obtained with an excitation at the maximum of the Soret absorption band.
3. Hollow Microcapsules with Phthalocyanines

Fig. S7 (A) and (B) FLIM images of AlPcS₄ in PAH/PSS microcapsules; (C) Fluorescence decay of a point in the image; and (D) Histogram of the lifetimes obtained from analysis of several point decays, obtained from different images.
4. Microcapsules with Gold Nanoparticles (AuNPs) and AlPCS₄

![Absorption and emission spectra of a tetra-sulfonated phthalocyanine (AlPcS₄) superimposed to the red-edge of the surface plasmon resonance absorption of AuNPs.](image)

**Fig. S8** Absorption and emission spectra of a tetra-sulfonated phthalocyanine (AlPcS₄) superimposed to the red-edge of the surface plasmon resonance absorption of AuNPs.