

Electronic Supplementary information for

**Optimized Rhodamine B labeled mesoporous silica nanoparticles as
fluorescent scaffold for the immobilization of Photosensitizer: a
theranostic platform for optical imaging and photodynamic therapy**

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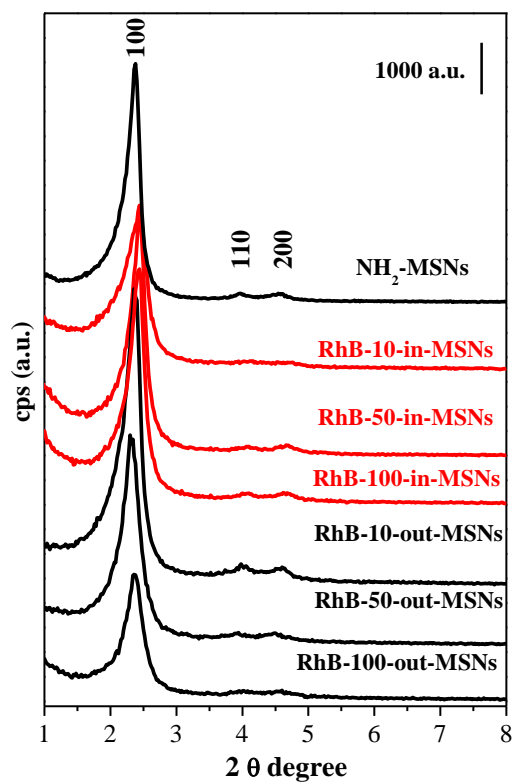


Figure S1 - XRD patterns of RhB-MSNs with different RhB loading. The XRD pattern of NH₂-MSNs, after CTAB removal, is also reported for comparison.

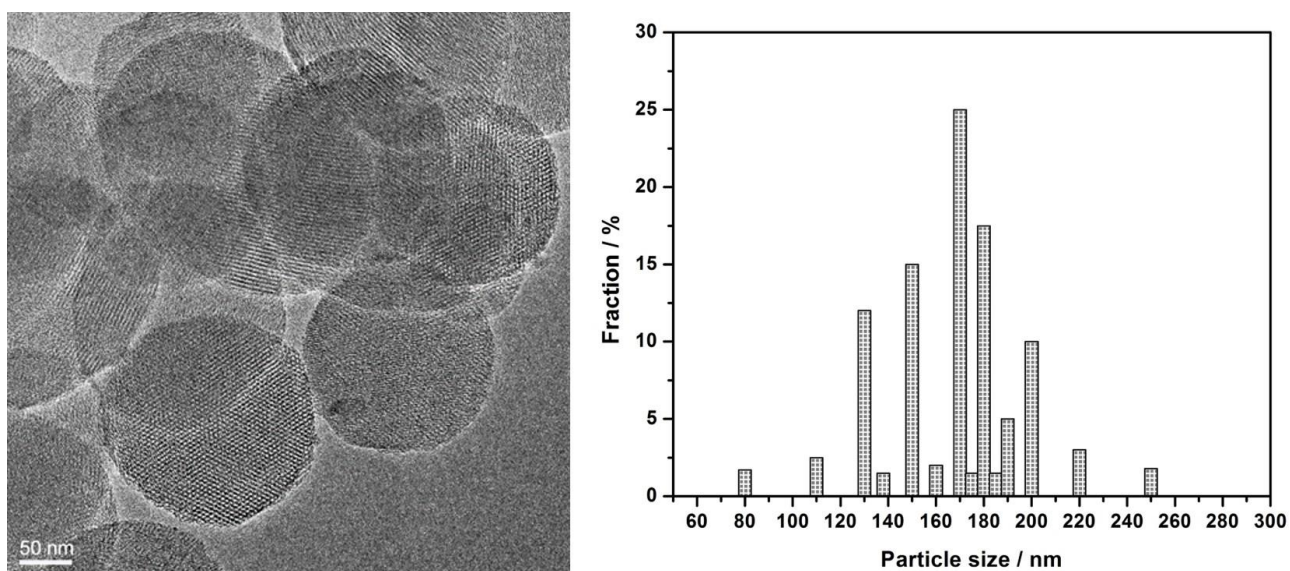


Figure S2 – HRTEM images of RhB-MSNs and particles size distribution

Table S1 – Average particle size obtained by DLS

SAMPLE	Average diameter (nm)
NH ₂ -MSNs	181±18
RhB-10-in-MSNs	195±23
RhB-50-in-MSNs	207±19
RhB-100-in-MSNs	219±35
RhB-10-out-MSNs	198±37
RhB-50-out-MSNs	215±35
RhB-100-out-MSNs	206±20

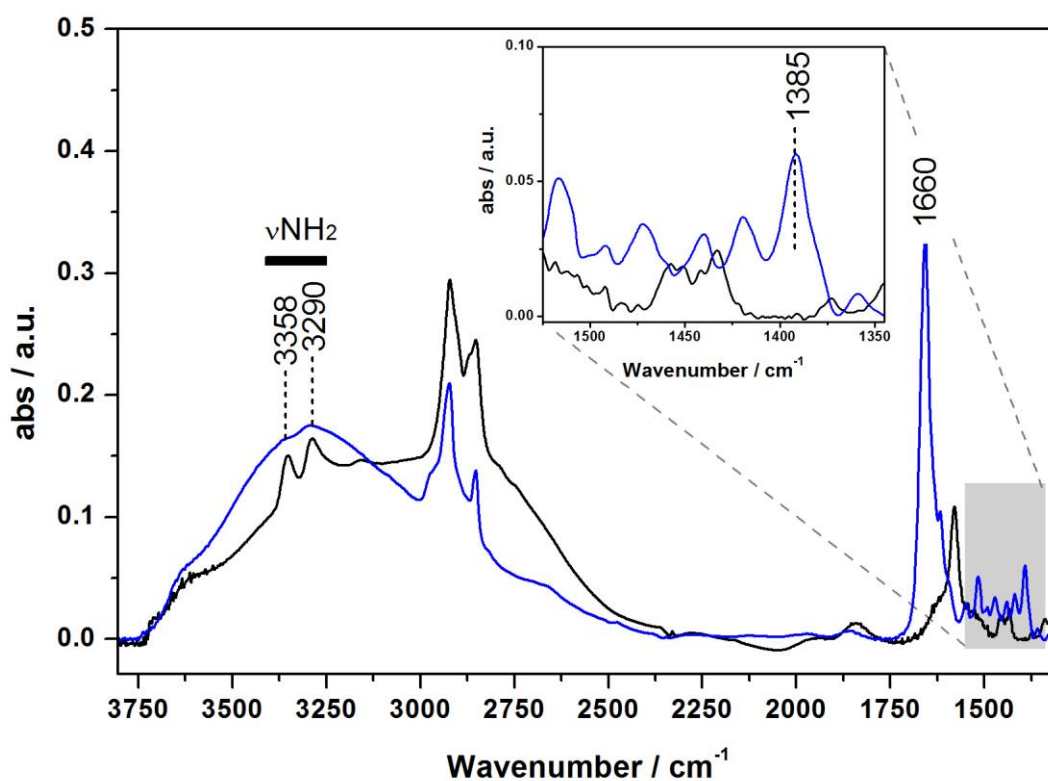


Figure S3 – FTIR spectra of NH₂-MSNs (black curve) and RhB-100-in-MSNs (blue curve)

Table S2. Textural properties of RhB-MSNs with different RhB loadings.

	SS_{ABET} (m²g⁻¹)	d_{DFT} (Å)	Pore Volume (cm³ g⁻¹)
RhB-10-in-MSNs	1235	37.7	1.072
RhB-50-in-MSNs	1125	36.2	1.015
RhB-100-in-MSNs	1079	35.3	0.956

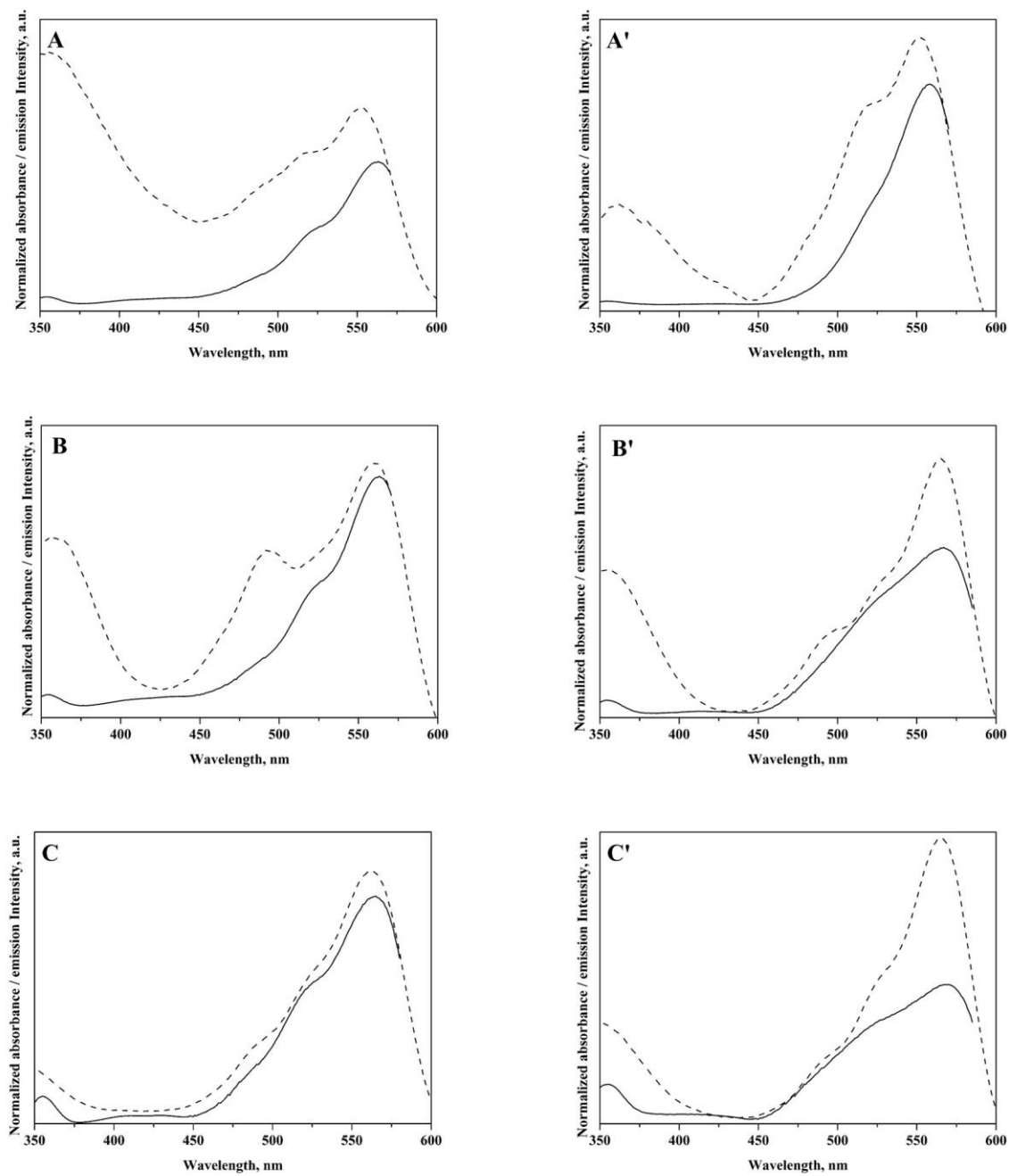


Figure S4 – DR UV-Vis (dashed lines) and excitation (solid lines) spectra of RhB-MSNs in solid form. RhB-10-in-MSNs (A), RhB-50-in-MSNs (B), RhB-100-in-MSNs (C), RhB-10-out-MSNs (A'), RhB-50-out-MSNs (B'), RhB-100-out-MSNs (C').

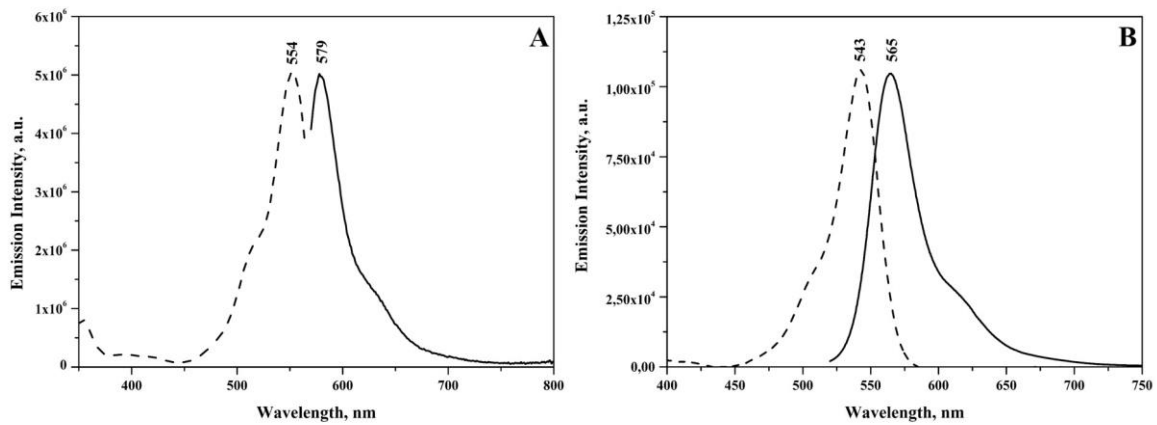


Figure S5 – Excitation ($\lambda_{em}= 590$ nm) and emission ($\lambda_{exc}= 510$ nm) spectra of Rhodamine B in (A) water solution and (B) ethanol solution.

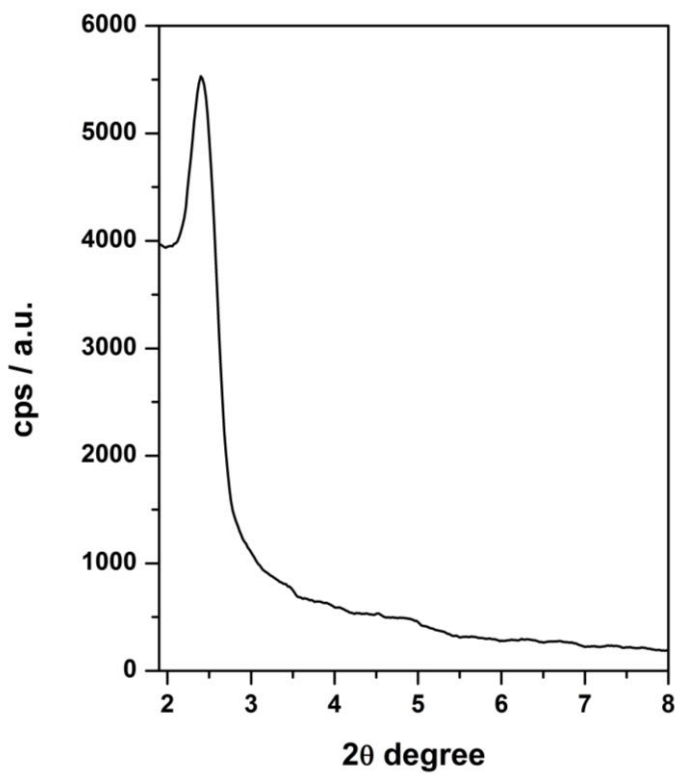


Figure S6 – XRD pattern of Ver-RhB-10-in-MSNs sample

Table S3 – Textural properties of Ver-RhB-10-in-MSNs

	SSA (m²g⁻¹)	Pore Volume (cm³ g⁻¹)
RhB-10-in-MSNs	1235	1.072
Ver-RhB-10-in-MSNs	274	0.65