A simple approach to synthetize folic acid decorated magnetite@SiO$_2$ nanostructures for hyperthermia applications

S. Bettini,$^a*$ G. Giancane,$^b$ R. Pagano,$^b$ V. Bonfrate,$^a$ L. Salvatore,$^a$ M. Madaghiele,$^a$ A. Buccolieri,$^c$ D. Manno,$^d$ A. Serra,$^d$
G. Maruccio,$^d$ A. G. Monteduro,$^e$ Z. Syrgiannis,$^f$ L. Valli$^c*$ and M. Prato$^{gh,*}$

$^a$ Department of Engineering for Innovation, University of Salento, 73100, Lecce, Italy Email: simona.bettini@unisalento.it
$^b$ Department of Cultural Heritage, University of Salento, 73100, Lecce, Italy
$^c$ Department of Biological and Environmental Sciences and Technologies, DISTEBA, University of Salento, 73100, Lecce, Italy Email: ludovico.valli@unisalento.it
$^d$ Department of Mathematics and Physics “Ennio De Giorgi”, University of Salento, 73100, Lecce, Italy
$^e$ National Institute of Gastroenterology “S. De Bellis” Research Hospital, via Turi 27, 70013, Castellana Grotte (Bari) Italy
$^f$ Center of Excellence for Nanostructured Materials (CENMAT), INSTM UdR di Trieste, Dipartimento di Scienze Chimiche e Farmaceutiche, University of Trieste, Piazzale Europa 1, TS I-34127 (Italy) Email: prato@units.it
$^g$ Carbon Nanobiotechnology Laboratory, CIC biomaGUNE, Paseo de Miramón 182, San Sebastian, Spain
$^h$ Basque Fdn Sci, Ikerbasque, Bilbao 48013, Spain.

Figure S1. Chemical structure of folic acid.
**Figure S2.** Calibration curve of folic acid realized recording the absorbance value at 283 nm. Based on Lambert-Beer law it was possible to estimate that the 97% of the initial concentration was conjugated to the silica shell.

<table>
<thead>
<tr>
<th>Equation</th>
<th>$y = a + bx$</th>
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<tbody>
<tr>
<td>Adj. R-Sq</td>
<td>0.99326</td>
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<table>
<thead>
<tr>
<th>Value</th>
<th>Standard Err</th>
</tr>
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<tbody>
<tr>
<td>B Intercept</td>
<td>0</td>
</tr>
<tr>
<td>B Slope</td>
<td>2.58173E 95050, 76404</td>
</tr>
</tbody>
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**Figure S3.** A) UV-Vis spectrum of FA treated in the absence of the NPs in a methanol-glycerol-water mixture (45:45:10) for 24 hours at R.T. under stirring. B) UV-Vis spectra recorded during the stability assay of IO@SiO$_2$@FA at different time points up to 20 days treatment: 1 ml aliquot of PBS was withdrawn and the UV-Vis spectrum in the 200-800 nm range was acquired. The presence of a small amount of folic acid in solution was recorded only after 20 days by the presence of the typical absorption at 283 nm.
Figure S4. XRD pattern of the IO nanoparticles.

Figure S5: Low resolution TEM images of a) SPIONs, b) SPIO@SiO2 NPs, c) SPIO@SiO2@FA NPs.
Figure S6: ζ-potential measurements performed on SPIONS, SPIO@SiO$_2$ and SPIO@SiO$_2$@FA.

Figure S7: MTT assay performed onto HeLa cells treated for 24 h with SPIONS, SPIO@SiO$_2$, SPIO@SiO$_2$@FA nanostructures.
Figure S8. Optical microscopy micrograph of HeLa cells treated with IO@SiO$_2$@FA for 72 hours (20x magnification).

Figure S9. Comparison between $\Psi$ values of cellular membrane (black line) and IO@SiO$_2$@FA aggregates linked by the FR (red line). The data were obtained from the maps reported in the Figure 9 of the main manuscript and repeated on different point.
Figure S10 Ellipsometric contrast images of 3T3 cells (a and b) uploaded with IO@SiO$_2$@FA. No nanostructure agglomerates are evident in the pictures, confirming that the internalization via potocytosis is ruled by the presence of FA receptors.