Supporting Information

An Integrated Nanoplatform for Theranostics via Multifunctional Core/Shell Ferrite Nanocubes

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Synthesis of 3-(3,4-Dihydroxyphenyl)propanehydrazide

The 3-(3,4-dihydroxyphenyl)propanoic acid (5 g) dissolved in methanol (20 mL), and concentrated sulphuric acid (98\%, 1 mL) was added. Then the mixture was heated to reflux for 12 h and cooled to room temperature. The prepared product was reacted with hydrazine hydrate (2 mL). The final product was dried in vacuum oven and stored for further use.

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\begin{align*}
\text{HO} & \text{HO} \\
\text{O} & \text{O} \\
\text{CH} & \text{3} \\
\text{OH} & \text{HO} \\
\text{H}_2\text{SO}_4 & \text{H}_2\text{N-NH}_2 \\
\text{(98.3 \%)} & \\
\text{CH}_3\text{OH} & \\
\text{O} & \text{CH}_3 \\
\end{align*}
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Characterization

Figure S1. $^1$H NMR spectrum of and 3-(3,4-dihydroxyphenyl) propanehydrazide.

Figure S2. The XRD pattern of the core of MNPs and MNPs.
Figure S3. The thermogravimetric analysis (TGA) of MNPs, MNPs-PEG, MNPs-PEG/HA, and MNPs-PEG/HA-DOX, respectively.

Figure S4. The hysteresis loops of MNPs, MNPs-PEG/HA, and MNPs-PEG/HA-DOX, respectively.
Figure S5. Confocal fluorescence images of HeLa cells after the incubation with MNPs-PEG/HA-DOX (100 µg/mL) with the different incubation time. Red and blue colors represent DOX fluorescence and DAPI stained cell nuclei, respectively.