Supplementary Materials

Laser-Ablative Synthesis of Silicon–Iron Composite Nanoparticles for Theranostic Applications

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1. *NPs synthesis*

Crystalline silicon (c-Si) wafers were used as a target for preparation of Si NPs. There are some characteristics of wafers: resistivity of 10–20 Ohm·cm and crystallographic surface orientation (1 0 0). The surface of the wafers were covered of natural silicon oxide form. In order to remove the layer of oxide we treated wafers with an aqueous solution of HF (48%) for 1–2 s. For laser ablation we used a linearly polarized beam of a femtosecond laser (Teta 10 system, Avesta Ltd., Russia) at 1030 nm with pulse duration 270 fs, energy 100 μJ per pulse, and repetition rate 10 kHz. A laser beam (3 mm in diameter) was focused onto target immersed in 10 mL of deionized water at normal incidence. The laser synthesis was done for 1 h at room temperature. Aqueous suspensions of laser-synthesized Si NPs with initial concentration of 0.1 mg/mL were centrifuged (12000 g, 20 min) to obtain the concentration of 4 mg/mL. In further experiments the suspension was diluted to get the concentration about 1 and 0.1 mg/mL to study the photoheating and optical extinction, respectively.

2. *TEM analysis*

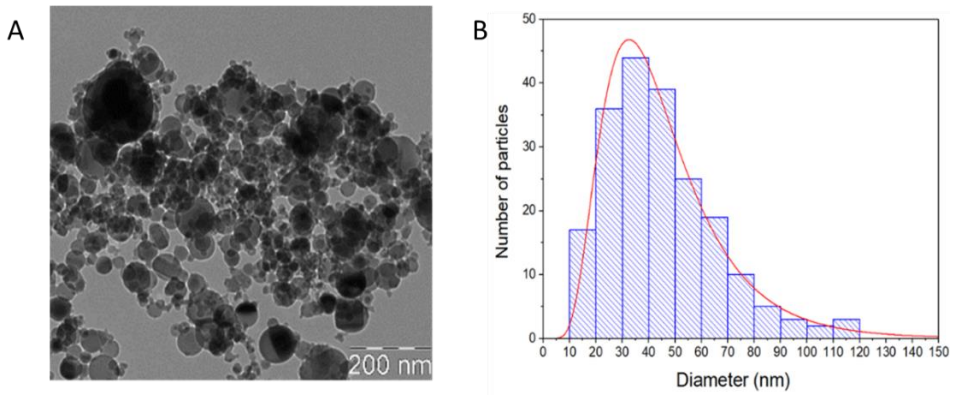

Figure S1. (A) Typical TEM image of Si NPs; (B) Size distribution of Si NPs obtained from the image in panel A where the red curve gives a fit by the lognormal function.