Supporting information

Cancer photothermal therapy based on near infrared fluorescence CdSeTe/ZnS quantum dots

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1. Specific steps of hepatoma cells culture

1. Preparation: We prepare 50ml of corresponding complete culture medium or restore the culture medium stored in refrigerator to room temperature.

2. Observation: We take out culture bottles（75 cm^2） of Huh7 with cell coverage rate greater than 80% from CO_2 incubator, and observe cell morphology, cell distribution and pollution under inverted microscope.

3. Washing, digestion and transfer: If the adherent cells need to be washed first, then digested, and then transferred. We should discard the medium, add 5 mL 1 × PBS solution to the original culture bottle, shake it up slowly, then discard the liquid, add 4 mL 1 × PBS solution, shake it up slowly again, add 1mL 0.25% typsin EDTA solution to the culture bottle, and digest it in the CO_2 constant temperature incubator for 5 minutes. When the most of the cell morphology changes from radial to spherical，we add 5 ml of medium immediately and blow slowly. The digested adherent cell suspension or suspension cell suspension are transferred into 15 mL centrifuges respectively.

4. Secondary washing: we add 3 mL 1×PBS solution to the original culture bottle, blow it slowly and move it to the centrifugation tube containing precipitation, blow it slowly and suspend the precipitation again, centrifugate it at 800 rmp for 5 minutes, and discard the supernatant.

5. Inoculation: We add 2 mL of new culture medium to each hole of cell culture plate. Next，we add 1.2 mL culture medium into the centrifuge tube, slowly blow and re-suspend it, and then divide it into equal parts and add them into the holes respectively. We observed the cell morphology, cell distribution and pollution under the inverted microscope, and put them into the CO_2 constant temperature incubator (5% CO_2, 37℃) (the adherent cells are horizontal, the suspended cells are vertical) for subsequent operation.

2. Fluorescence stability of QDs

Within 20 minutes of photothermal treatment, the fluorescence intensity of QDs almost changed little compared with that at the beginning. The intensity of the radiation source

is also stable at about 80 mW/cm^2. This is enough to ensure that QDs can be used in fluorescent imaging during hyperthermia without unstable quenching.

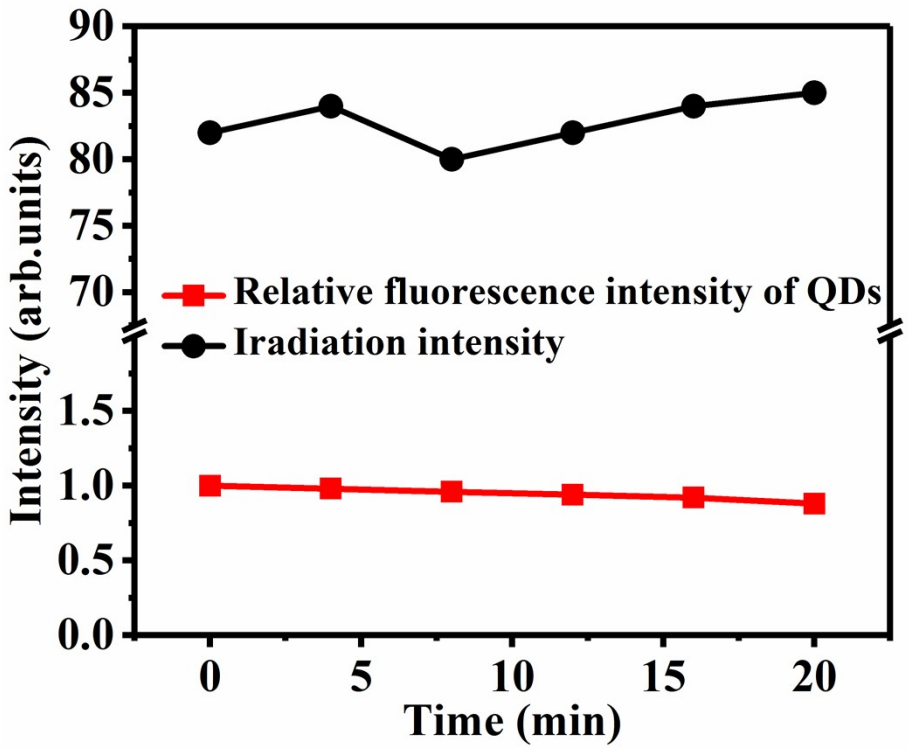

Fig. S1. Fluorescence intensity of QDs and irradiation source intensity stability

2. Infrared thermography

As shown in the Fig.S2 (a), the black dotted circle was the position of laser and QDs (the circle with diameter of 0.5 cm). The temperature of QDs after irradiation was about 48 ℃, which was significantly higher than the surrounding temperature. As shown in the Fig. S2 (b), when the qualitative filter paper was directly irradiated, the temperature in the irradiation area was only increased by 3 ℃. the temperature of QDs remained unchanged without irradiation as shown in the Fig.S1(c).

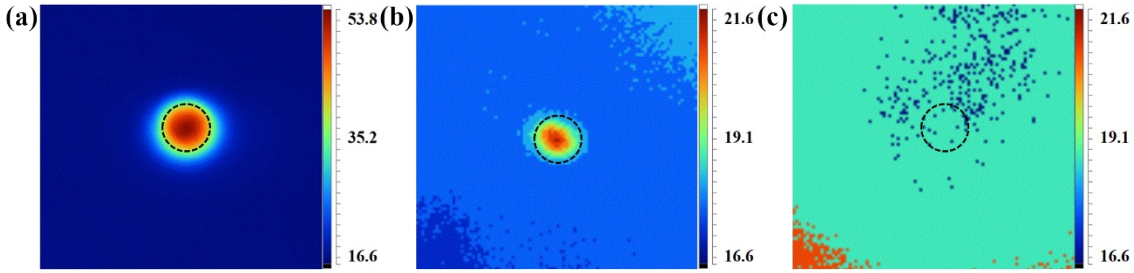

Fig. S2. Infrared thermography (a) QDs after irradiation. (b) irradiation. (c) QDs