Mitochondria-Targeting Nanoparticles for Enhanced Microwave Ablation of Cancer

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To determine the concentration of MZCNs in the follow-up experiment. The experiment was divided into six groups, the HepG2 cells were added into 96-well plates to incubate for 8h, and than treated with different concentrations of MZCNs (10, 50, 100, 200, 400 and 600µg/ml) with HepG2 hepatoma cells for 24 hours, and the inhibition of cell proliferation by MZCNs at different concentrations was measured by CCK-8 test. The results are shown in Figure S1.

The proliferation of HepG2 cells in the range of MZCNs concentration 10µg/ml to 100µg/ml was not inhibited compared with the control group, and the proliferation rate at 200µg/ml concentration was 92.8%, p>0.05, and the difference was not statistically significant. When MZCNs concentration was 400µg/ml, the cell proliferation was inhibited. The proliferation rate was 74.8%, and the proliferation rate of p<0.05 and MZCNs 600µg/ml was 72.7%, p<0.05. In order to avoid MZCNs’s inhibition of cell proliferation in cell warming, 100µg/ml and 200µg/ml were selected. In flow cytometry, the concentration of 100µg/ml was selected to avoid the effect of nanomaterial itself on the cell, rather than from the microwave heat treatment.

Figure S1: Figure 7: Inhibition of proliferation of HepG2 cells by MZCNs at different concentration, *: The difference was statistically significant compared with the control group.
Figure S2: Figure 3: Correlation analysis of Mito-Tracker green (green fluorescence) and DOX (red fluorescence). Picture a: TPP+iRGD $r=0.78 \ P<0.05$; b: TPP $r= 0.721 \ P<0.05$; c: iRGD, $r=-0.369 \ P<0.01$; d: non-target, $r=0.236, \ P<0.01$. Pearson's $r$ was analyzed by SPSS Statistics 22.

Through colocalization analysis of the red and green fluorescence, we can find that MZCNs can gather in the mitochondria Selectively.