Supporting Information

Enhanced Capture and Release of Circulating Tumor Cells Using Hollow Glass Microspheres with Nanostructured Surface

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Cancer cell isolation process
Cancer cells were detached by 0.05% trypsin/EDTA and spiked in blood samples. The spiked blood and NS HGMSs were then distributed in 0.5 mL low binding Eppendorf tubes (0.1 mL per tube). After rotation on a Hula mixer, the Eppendorf tubes were flipped and allowed to stand for 5 min. All NS HGMSs floated toward the tip of Eppendorf tube and uncaptured cells sank down because of gravity. The blood cells and uncaptured cancer cells were transferred to a 96 well plate. Then the NS HGMSs were collected by pipet with low binding pipet tips to a silane-treated PDMS microwell (hydrophobic surface) where a cover slide was used to cover the top surface of liquid to evenly distribute NS HGMSs. Therefore, all NS HGMSs floated at the same height and can be counted under a microscope. Also, uncaptured cancer cells in the 96 well plate were counted under a microscope. The total number spiked cancer cells (m+n) was calculated by adding up the number of captured cancer cells from the PDMS microwell (m) and uncaptured cancer cells from the 96 well plate (n).

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\text{Capture efficiency} = \frac{\text{Number of captured cancer cells (m)}}{\text{Total number of spiked cancer cells (m+n)}}
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Supplementary Figures
Fig. S1. Diagram of cancer cell isolation process.