Five million MDA-MB-231 cell (300 μL of serum free DMEM) were injected subcutaneously in to the back of nude mice and allowed to establish tumors for 3 weeks (approx. 300–700 mm^3) prior to intravenous particle injection. Mice were injected with silica beads (10^7 or 10^8 in 100 μL saline) and non-spherical particles (10^8 in 100 μL saline) via tail vein (4 mice per group). Four animals were also injected with the identical volume of normal saline as a negative control. Two to six hours after the injection, the mice were sacrificed and the organs (liver, spleen, heart, lungs, kidneys, and brain) as well as tumors were excised and weighed. Retro-orbital bleeding was performed to collect peripheral blood using a plastic capillary. Each organ was divided into two parts: one for elemental analysis of Si and another for histological evaluation. End points of the experiments were chosen so that the concentration of beads left in circulation was negligibly small. It was of 2 h for the 1, 2 and 3 μm beads, 4 h for the 0.7 μm beads and of 6 h for the non-spherical particles. Frozen tissues were used for identification of vessels and scavenger macrophage. Tissue was immediately placed in OCT, and rapidly frozen in dry ice isopentane. Frozen sections were cut at 8 μm sections, fixed with acetone, treated with 3% H2O2 methanol, blocked, and probed overnight at 4 °C with rat anti-CD31 or F4/18 antibody for vessels or scavenger macrophages, respectively. The tissue sections were washed with PBS and incubated with anti-rat IgG-HRP for 30 min at room temperature. The slides were stained with metal enhanced DAB until desired color appears and followed by nuclear counter stain by Hematoxilin. Replicate serial sections from each organ were stained with H&E.