Supplementary materials

Targeted removal of leukemia cells in the circulating system by whole-body magnetic hyperthermia in mice

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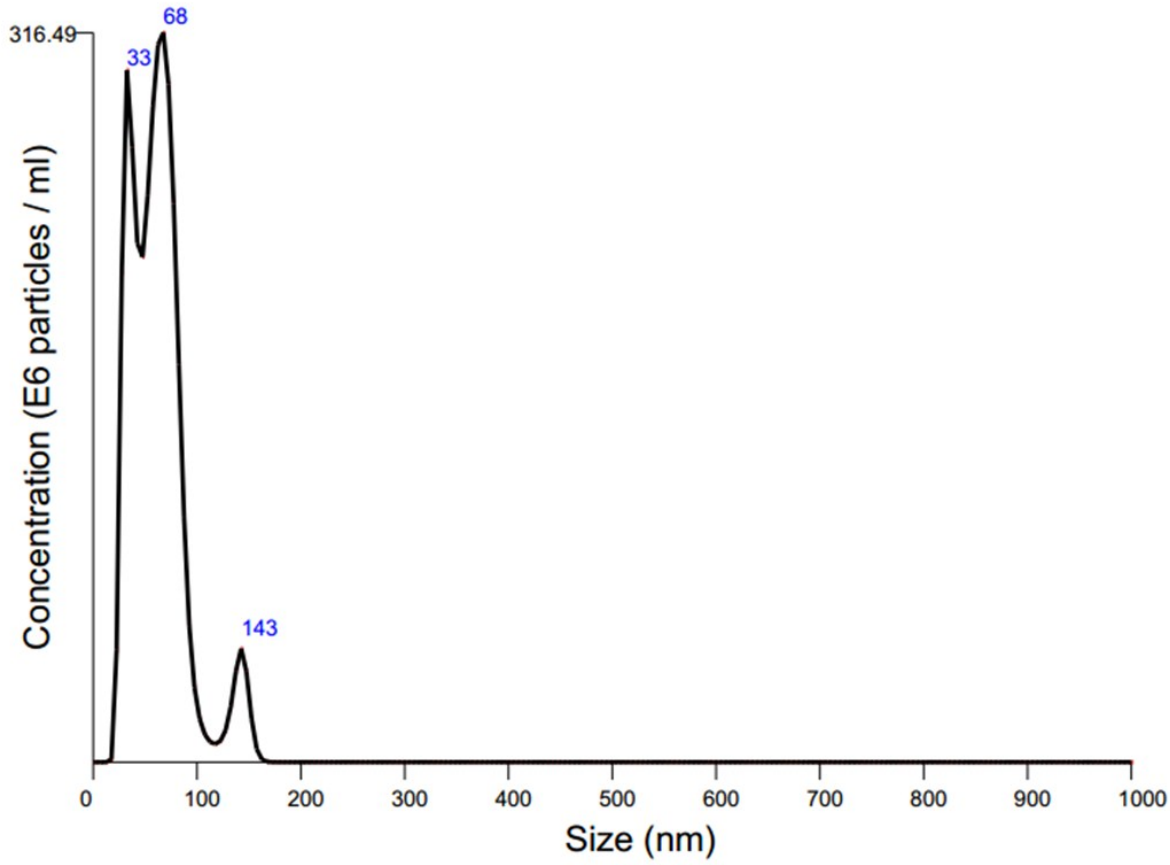

Figure S1. The concentration of hEpCAM-MNPs determined using the NanoSight LM10.

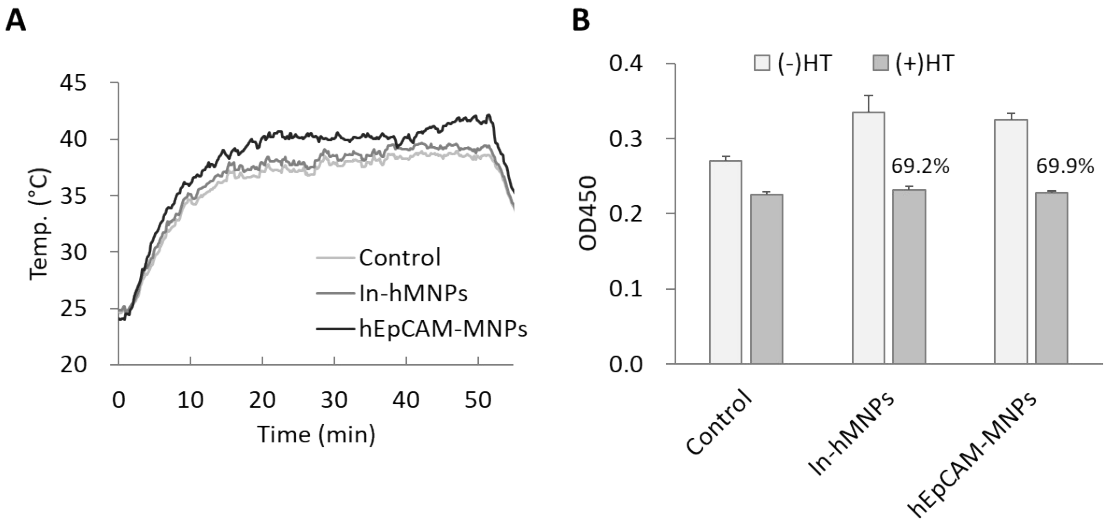

Figure S2. A) Temperature changes of TK6 cell culture media w/wo MNPs under the magnetic field (316 A, 1358 W, 310 kHz) for 50 min. (B) Cell viability assay (CCK-8) following the magnetic hyperthermia for 50 min and additional 16 h culture. The relative cell viability (%) of (+)HT cells compared to (-)HT cells is shown above each bar. For (-)HT groups, the cells were incubated at room temperature (23°C to 25°C) for the same time duration of hyperthermic treatment. hEpCAM-MNPs, human EpCAM antibody-immobilized MNPs; In-MNPs, inactivated hEpCAM antibody-immobilized MNPs.

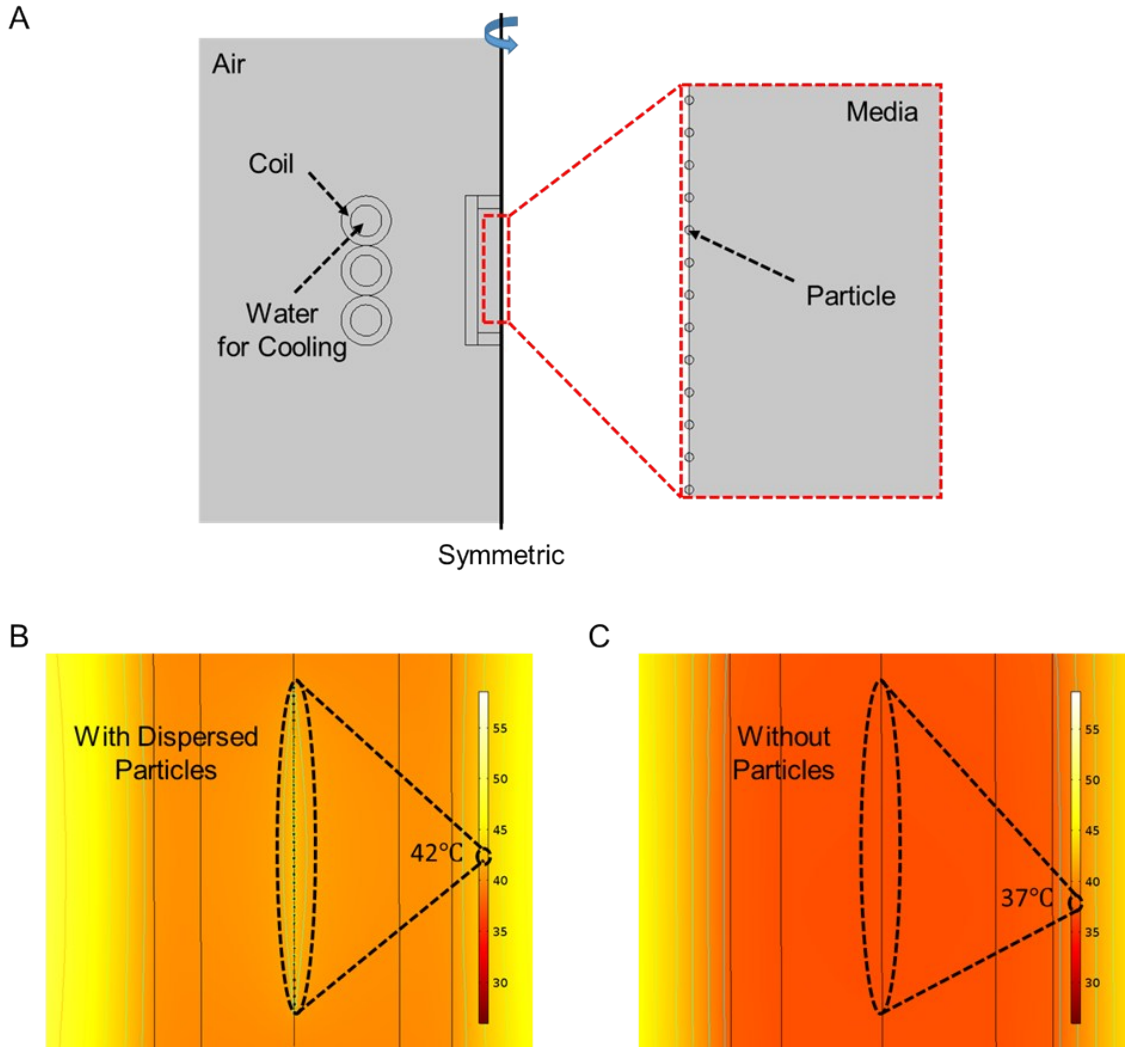

Figure S3. Simulation of AMF and heat transfer using COMSOL multiphysics (A) modeling schemes of in-vitro experiment, (B) FEM result of multiphysics (AMF and heat transfer) simulation with 41 particles of *d* (diameter) = 40 μm (dispersed particles), and (C) FEM result of multiphysics (AMF and heat transfer) simulation without particles

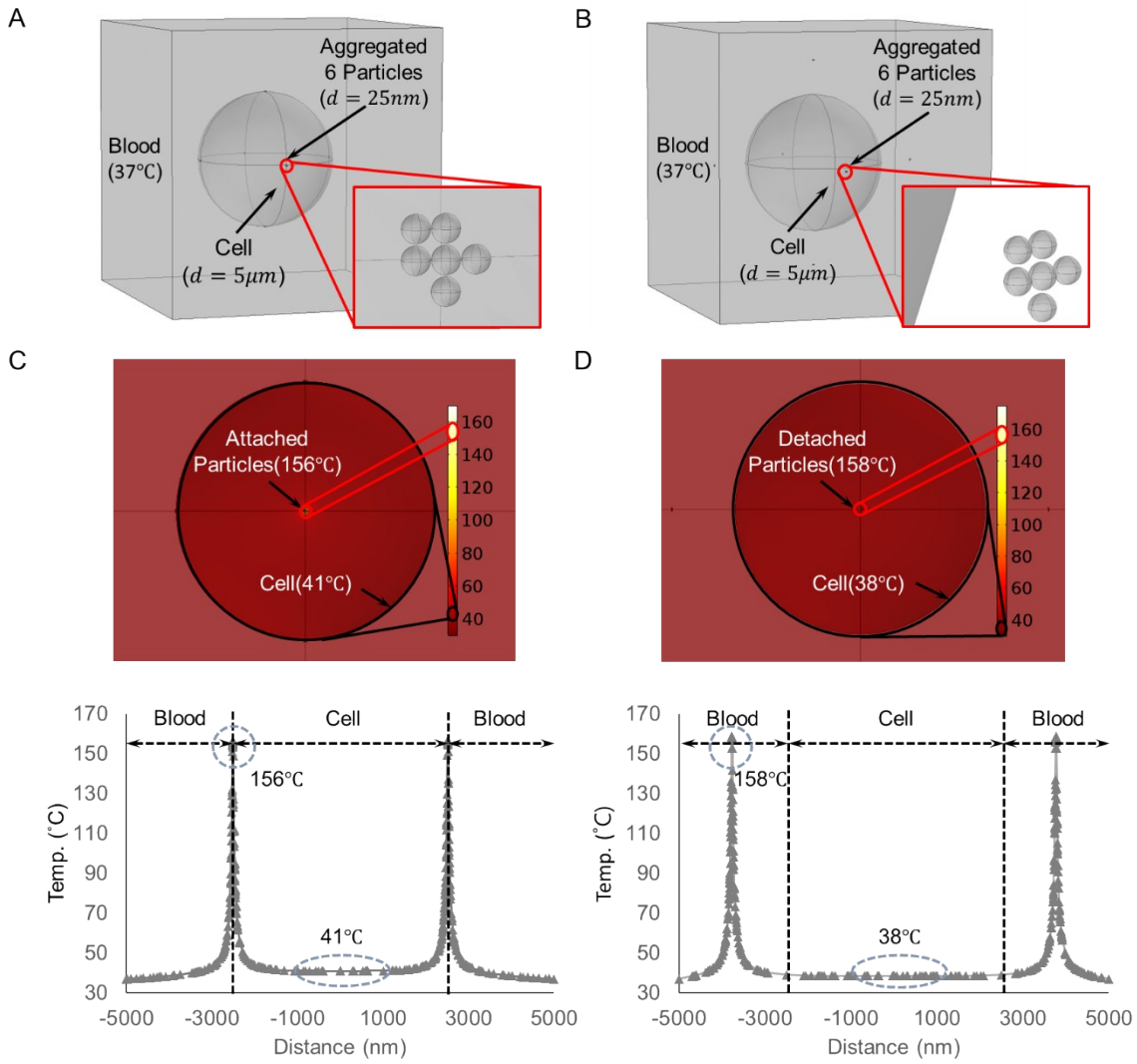

Figure S4. Simulation of heat transfer in the case of aggregated particles using a constant temperature (37℃) to predict the influence of particle aggregation on temperature change. (A) Modeling of aggregated 6 particles (mimicking EpCAM-MNPs) adhered to leukemia cells with enlarged schematic view of particles. (B) Modeling of aggregated 6 particles (mimicking In-mMNPs) detached from cells with enlarged schematic view of particles. (C) Finite element method (FEM) result of temperature distribution about modeling (A). (D) FEM result of temperature distribution about modeling (B).