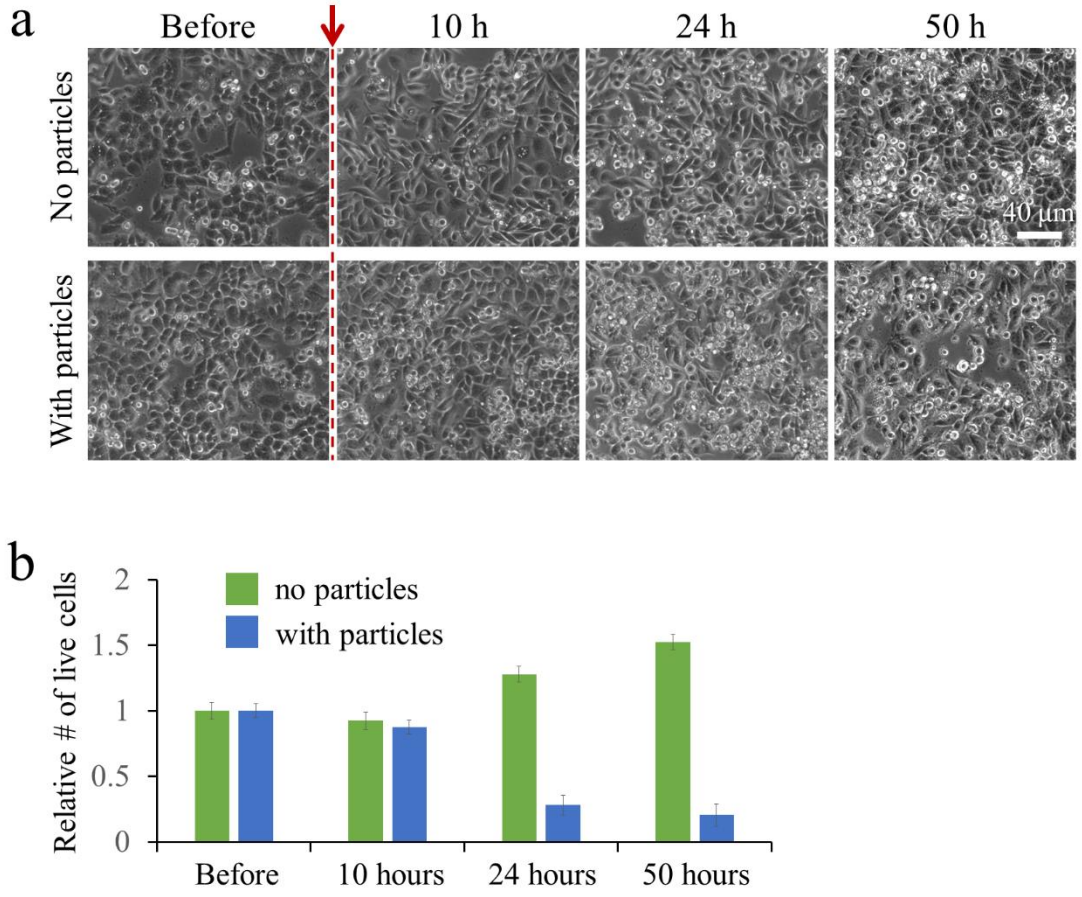
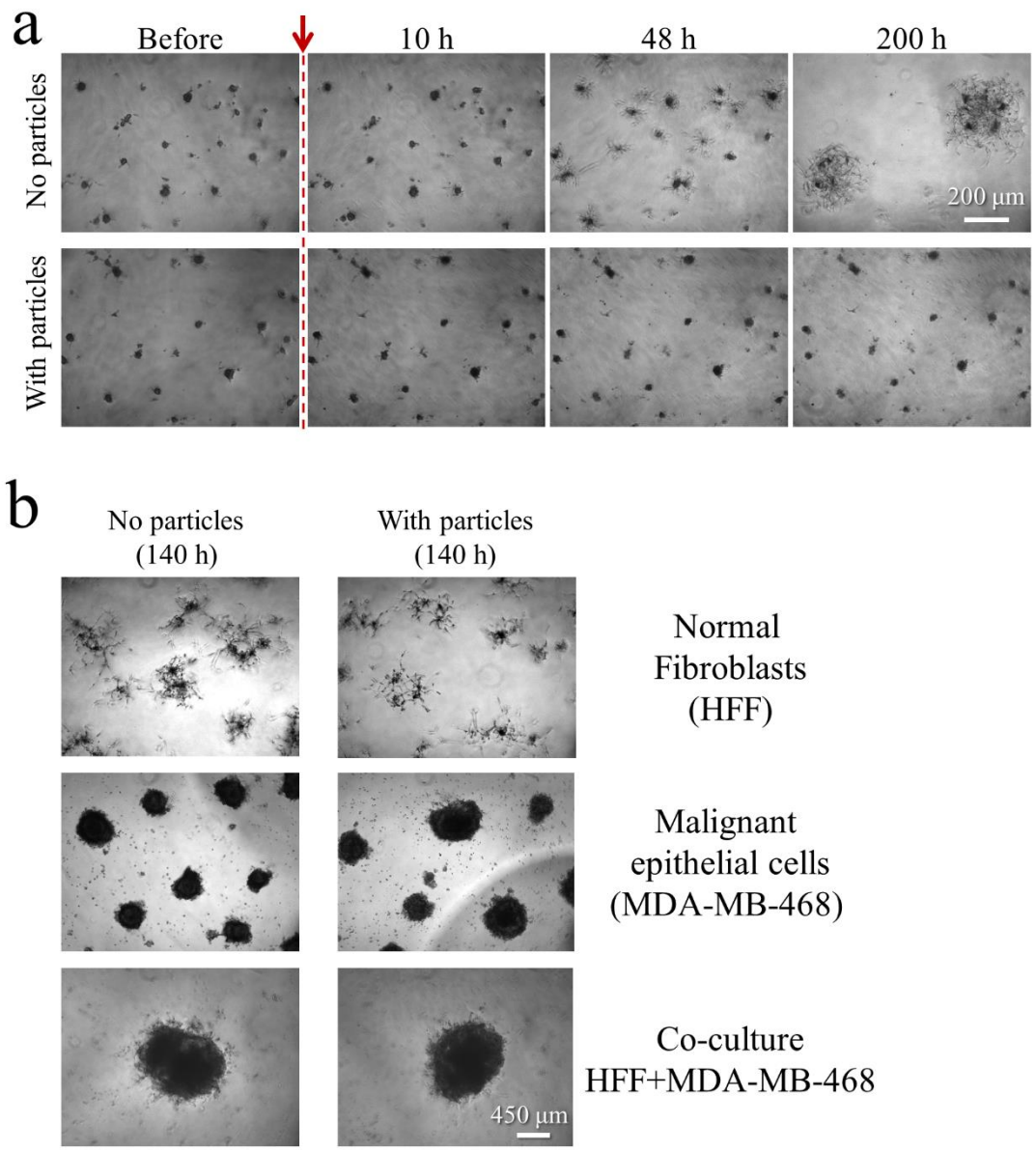
Electronic Supplementary Information



Supplementary Figure 1. a. Irradiation of MDA-MB-468 cells in a 2D culture. Nanoparticles-targeted cells stopped proliferating and cell death became evident as bright circular cells 15 h after irradiation. Adherent dark cells are viable cells; bright rounded cells correspond to dead cells. Red arrow and dashed line mark the time of irradiation. b. Fraction of the remaining living cells relative to the number of healthy cells prior to irradiation. Error bars represent the standard errors.



Supplementary Figure 2. a. Irradiation of cell cultures comprised of normal fibroblasts (HFF) alone. Without particles, HFF colonies were unaffected by laser irradiation and continued to grow into large colonies. Despite the low affinity of the nanoparticles to the HFF cells (low EGFR expression levels), irradiated cultures with gold nanoparticles seized their development and remained stationary with no visible cell spreading or branching, suggesting nonspecific particle binding to the cells or to the surrounding gel. Red arrow and dashed line mark the time of irradiation. b. The negligible effect of gold nanoparticles alone (without irradiation) on the cells. Cell

colonies of all types grew similarly with and without nanoparticles 140 hours after incubation, indicating low particle cytotoxicity.

Supplementary movie 1: Time lapse imaging of MDA-MB-468 cells irradiated by 20 pulses (45 fs) at 0.3 TW/cm^2 (without nanoparticles).

Supplementary movie 2: Time lapse imaging of nanoparticle-targeted MDA-MB-468 cells irradiated by 20 pulses (45 fs) at 0.3 TW/cm^2.

Supplementary movie 3: Time lapse imaging of a co-culture of MDA-MB-468 and human foreskin fibroblasts (HFF) in a 1:1 ratio, irradiated by 30 pulses (45 fs) at 0.3 TW/cm^2 (without nanoparticles).

Supplementary movie 4: Time lapse imaging of a co-culture of nanoparticle-targeted MDA-MB-468 and human foreskin fibroblasts (HFF) in a 1:1 ratio, irradiated by 30 pulses (45 fs) at 0.3 TW/cm^2.