Supporting Information

Nanoparticulate Cellular Patches for Cell-Mediated Tumoritropic Delivery

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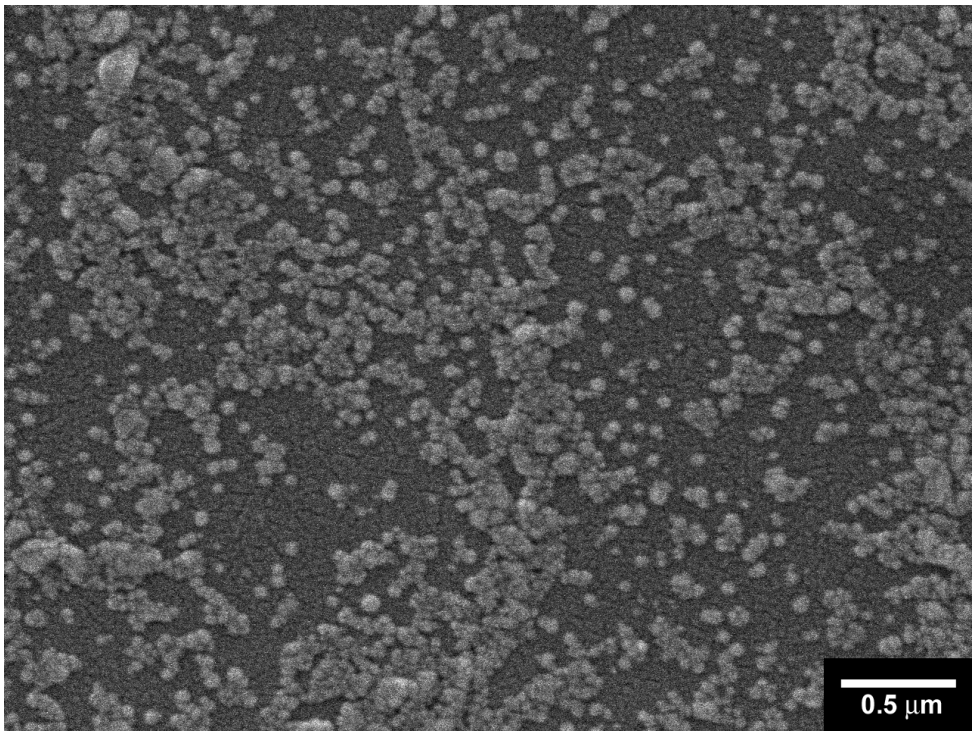

Figure S1. Scanning electron microscopy image of 40 nm nanoparticles coated with Neutravidin.

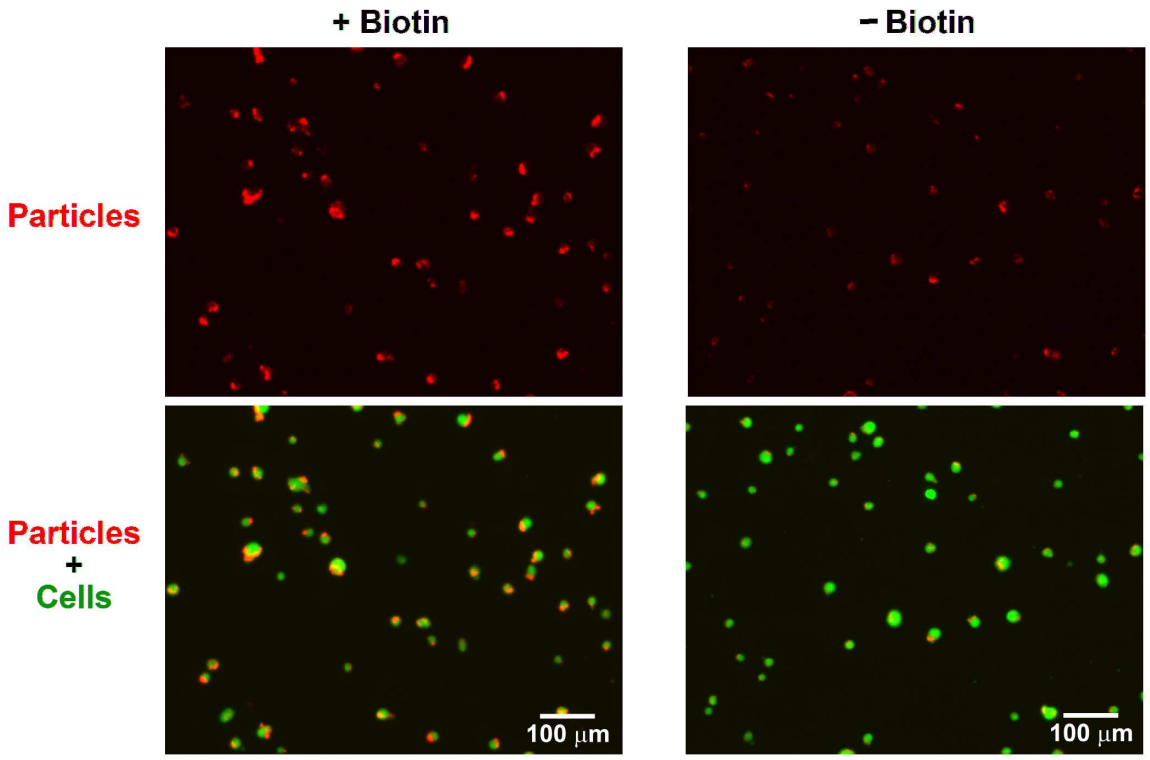

Figure S2. Neutravidin-coated 40 nm polystyrene nanoparticles binding on biotinylated(+Biotin) and nonbiotinylated(-Biotin) hMSCs. Both particles and cells were labeled with fluorescence and were shown as red and green colors in the images respectively. hMSCs were trypsinized and resuspended in medium before imaged with a fluorescence microscope. In addition to the specific biotin-neutravidin binding, the nanoparticles show some extent of nonspecific binding on cells in our experimental condition due to the uncovered hydrophobic area on the particles. Bovine serum albumin (BSA) or other protein containing solutions can be used to reduce the non-specific binding of the nanoparticles, however these solutions were not used here in order to achieve the highest possible loading of particles onto the cells.

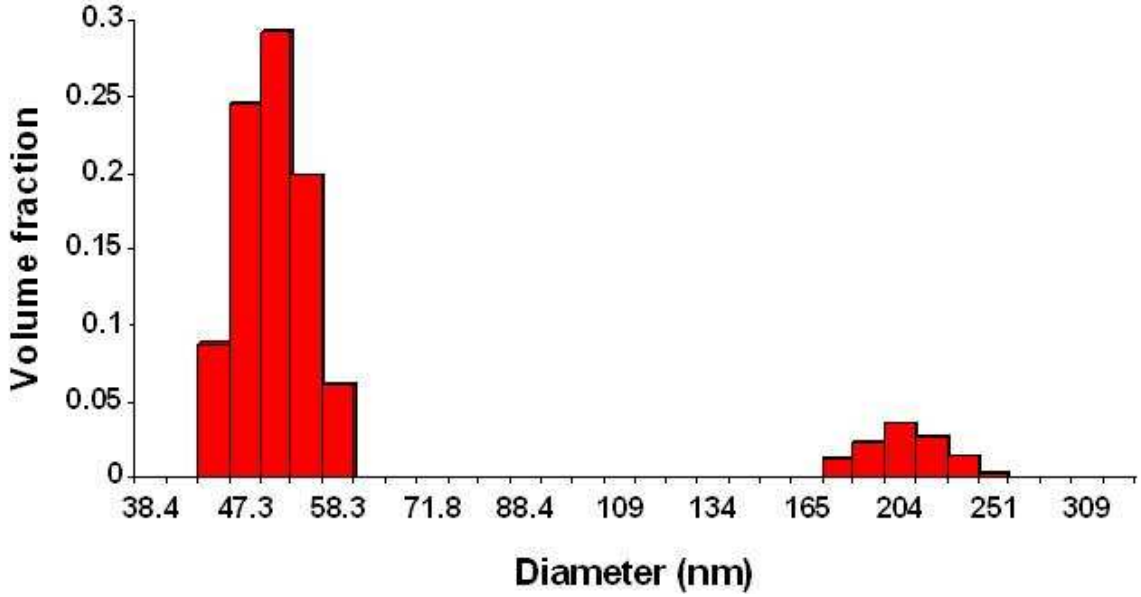

Figure S3. Size distribution of one sample of neutravidin-coated nanoparticles in DMEM buffer medium determined by phase analysis light scattering. 4 samples were measured to get statistical distribution.

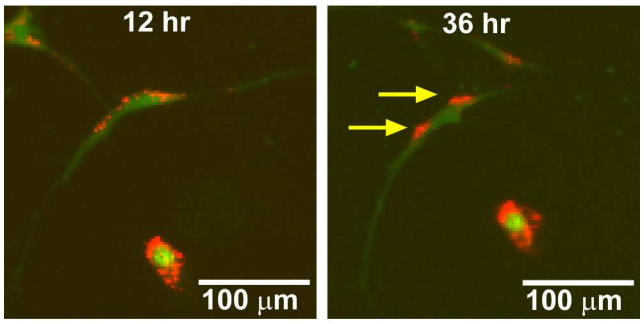

Figure S4. Timelapse fluorescence images of nanoparticle movement and clustering on a hMSC cell membrane. hMSCs were cultured in 1 mg/ml collagen gel. Images were taken at 12 hr and 36 hr respectively. Yellow arrows indicate the clusters that formed.

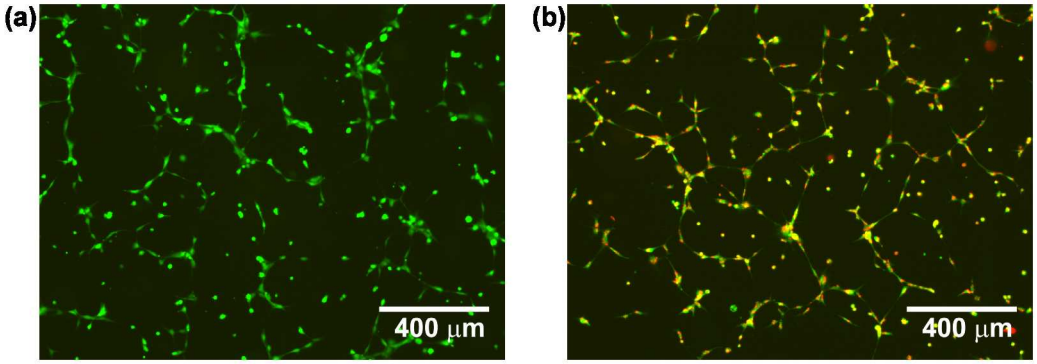

Figure S5. HUVECs coated with nanoparticles begin formation of tubular-like structures rapidly. Cells were seeded on matrigel and fluorescence images were taken after 4 hours. (a) Control experiment of HUVECs (green) without nanopartciles. (b) HUVECs (green) with nanoparticles (red).