

Additional file 1: supplementary material as PDF (.pdf) file, including the following sections: materials and reagent; **table S1** Trasduzumab-Nanoparticles (Tz-NPs) characterization by DLS (dynamic light scattering); **figure S1 Particle sizing using DLS**. **figure S2** Tz-NPs recognition efficiency by ELISA of naked and conjugated antibody; **figure S3**, averaged SERS signal of 4-MBA Raman reporter; **figure S4** workflow for SERS imaging elaboration. **figure S5, PCA analysis. figure S6, LDA validation.**