Supporting Information

A General Approach to Prepare Conjugated Polymer Dot Embedded Silica Nanoparticles with a SiO_2@CP@SiO_2 Structure for Targeted HER2-Positive Cellular Imaging

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Calculation of molecular weight of PFBT dots

The density of PFBT is assumed to be 1.2 mg·mL^{-1}. The size of small PFBT dots is ~3 nm from FE-TEM images. As such, the weight of single PFBT dots can be obtained by the following equation.

$$m = \rho \times V = 1.2 \times \frac{4}{3} \times \pi \times (1.5 \times 10^{-7})^3 = 1.7 \times 10^{-20} g$$

The molecular weight of PFBT is measured to be 11 000 g·mol^{-1} using GPC. So the weight of one PFBT chain (m') is estimated from the below equation.

$$m = \frac{M}{N_a} = \frac{11000}{6.02 \times 10^{23}} = 1.8 \times 10^{-20} g$$

The estimation equal of the above calculation means that one single dot observed under FE-TEM images is composed with one CP chain.

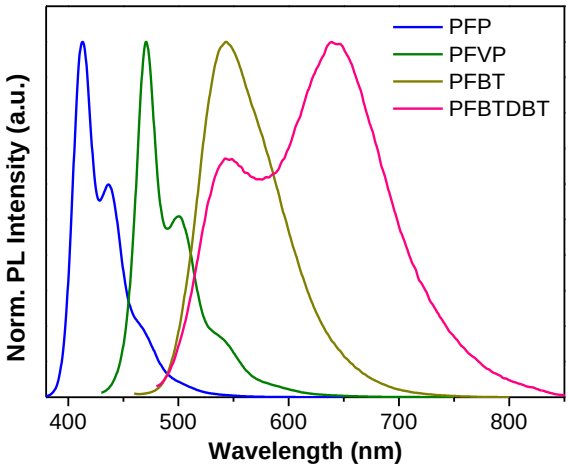


Figure S1. Normalized PL spectra of PFP, PFVP, PFBT, PFBTDBT in THF.

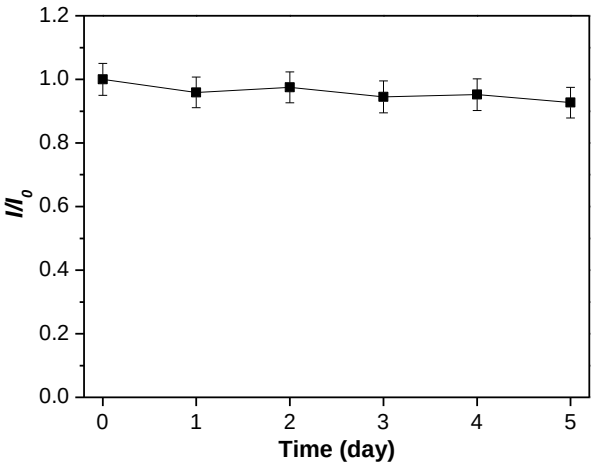


Figure S2. Fluorescence intensity evolution of 100 μg·mL^{-1} SiO_2@PFBT@SiO_2 NPs in 1× PBS at 37 °C, where I_0 is the fluorescence intensity at the beginning and I is the fluorescence intensity at the corresponding time.

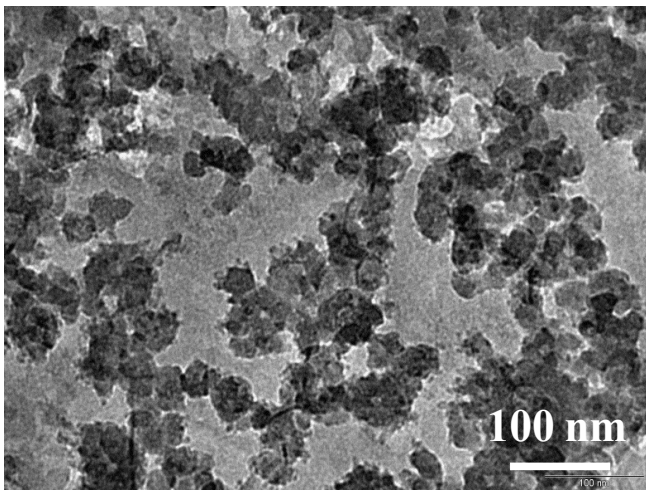


Figure S3. FE-TEM images of PFBT dots in ethanol/water mixture (v/v = 9:1) upon sonication.

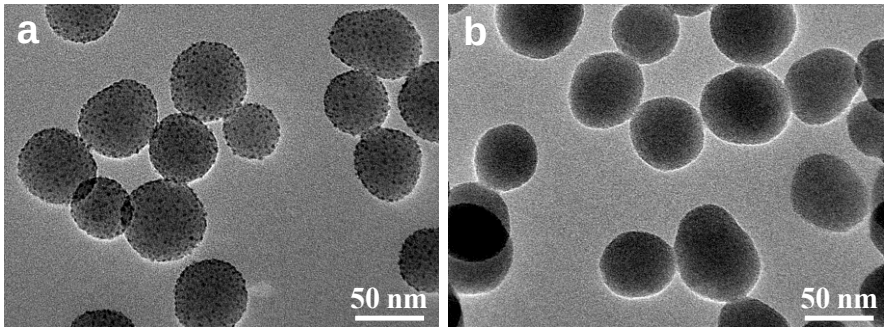


Figure S4. FE-TEM images of the mixture of SiO_2 NPs and CP dots before APTES addition (a) and further reaction for 12 h in the presence of APTES (b).

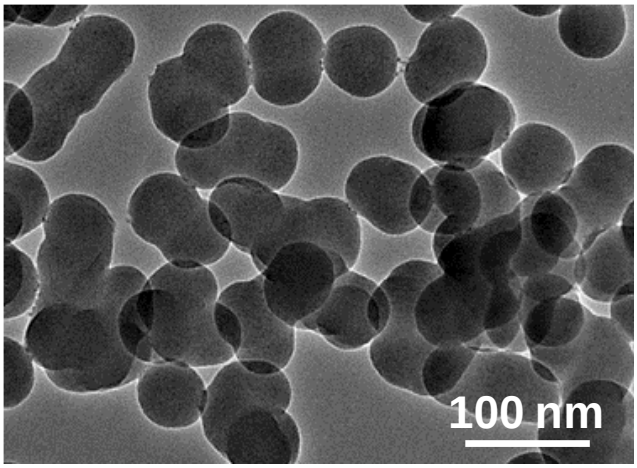
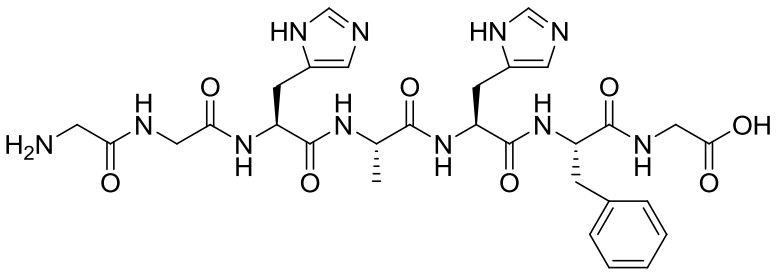


Figure S5. FE-TEM images of SiO_2@PFBT@SiO_2 NPs with adding 200 μL TEOS as the precursor.



Scheme S1. The chemical structure of peptide, GGHAHFG.

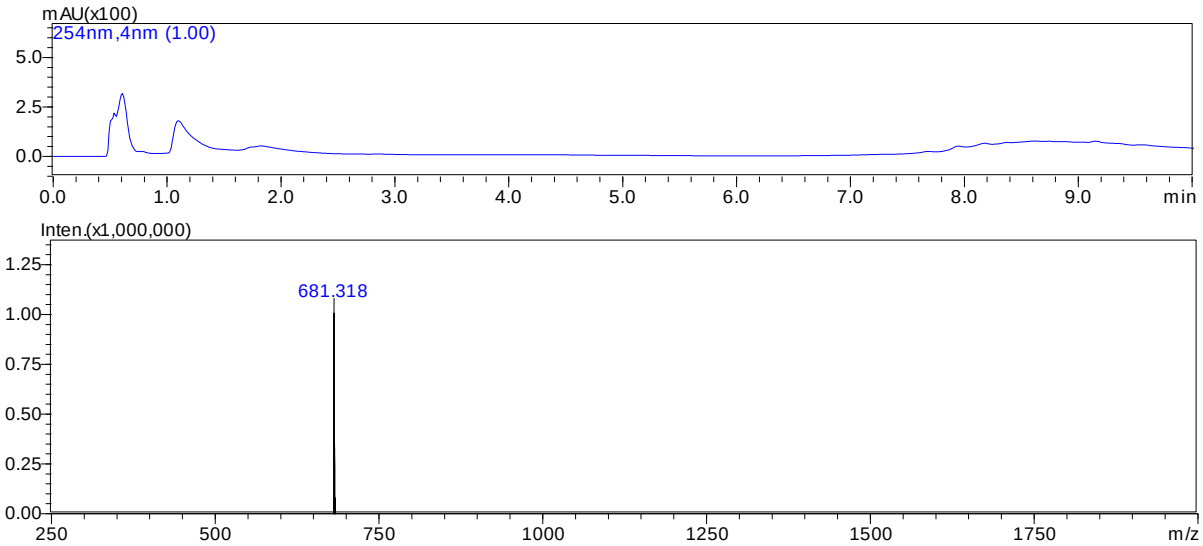


Figure S6. LC-MS characterization of peptide, GGHAHFG.

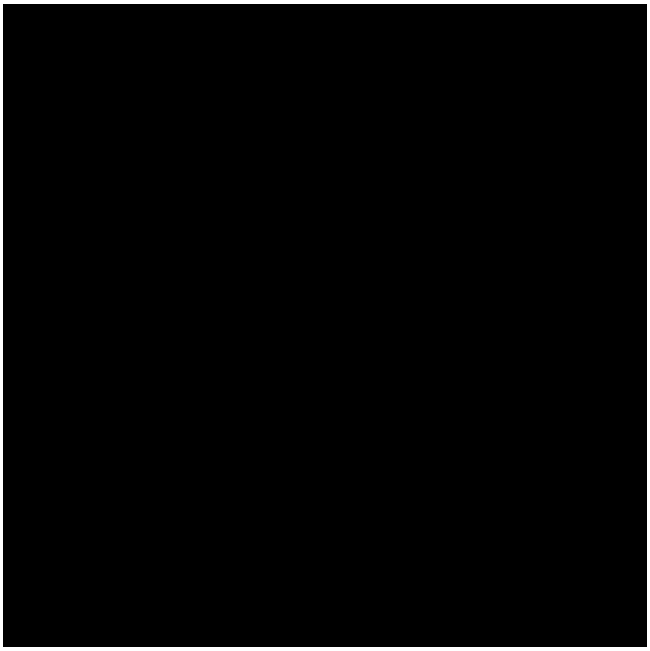


Figure S7. CLSM fluorescence image of SKBR-3 breast cancer cells without incubation with SiO_2@PFBT@SiO_2 NPs.

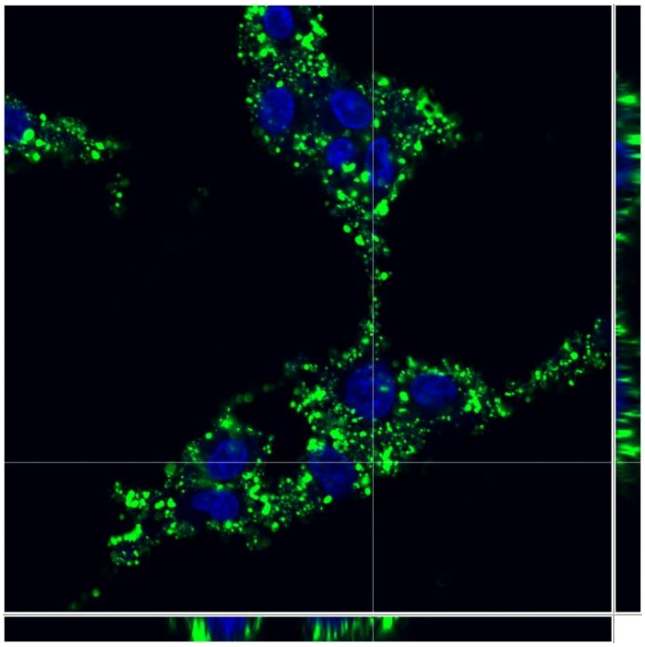


Figure S8. 3D CLSM fluorescence image of SKBR-3 breast cancer cells incubated with SiO_2@PFBT@SiO_2-pep NPs.

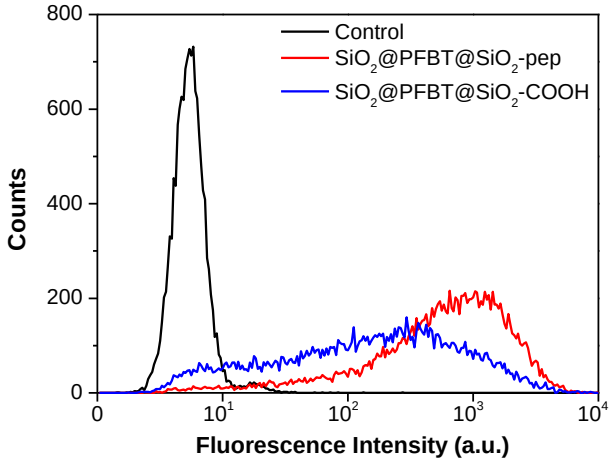


Figure S9. Flow cytometry histograms of pure SKBR-3 breast cancer cells without NP incubation (black) and SKBR-3 breast cancer cells after 2 h incubation with SiO_2@PFBT@SiO_2-Pep NP (red) and SiO_2@PFBT@SiO_2-COOH NP (blue) suspensions at 100 $\mu g \cdot mL^{-1}$ NPs.