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.

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

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.

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

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 μg·mL$^{-1}$ NPs.