Supporting Information

The use of aggregation-induced emission probe doped silica nanoparticles for the immunoassay of human epididymis protein 4

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1. Experimental section

1.1 Materials

Succinic anhydride and tris(hydroxymethyl)aminomethane were purchased from Energy Chemical Company (Shanghai, China). Tetraethyl orthosilicate (TEOS, 99%) was supplied by Aladdin Reagent Co., Ltd. (Shanghai, China). Pierce™ NHS-activated magnetic beads were obtained from Thermo Fisher Scientific (Shanghai, China). Hydrochloric acid, ammonium hydroxide (25%), ethanol and other reagents were purchased from Beijing Chemical Works (Beijing, China). 3-aminopropyltriethoxysilane (APTES, 99%) was purchased from Sigma (Shanghai, China). The proteins used in the experiments were all from Sangon Biotech (Shanghai, China). Pierce™ NHS-Activated Magnetic Beads (NHS-MB) (Thermo Scientific, US). Antibody was purchased from Bioss (Beijing, China). Unless otherwise noted, all reagent-grade chemicals were used as received, and water was doubly distilled and purified by a Milli-Q system (Millipore, Billerica, MA, USA).

2.2 Instrumentation

Fluorescence experiments were carried out on a Fluoromax-4 spectrofluorometer (Horiba Jobin Yvon Inc., USA). Sample solutions were excited at 350 nm and the fluorescence emission spectra were recorded. All emission spectra were collected at an ambient temperature of 25 ºC. Transmission electron microscopy (TEM) measurements were performed on a FEI TECNAI G2 high-resolution transmission electron microscope (Netherlands) operating at an accelerating voltage of 100 kV.

The UV-vis spectra were recorded on a Cary 50 Bio Spectrophotometer (Varian Inc., CA, USA).

2. Supplementary figures

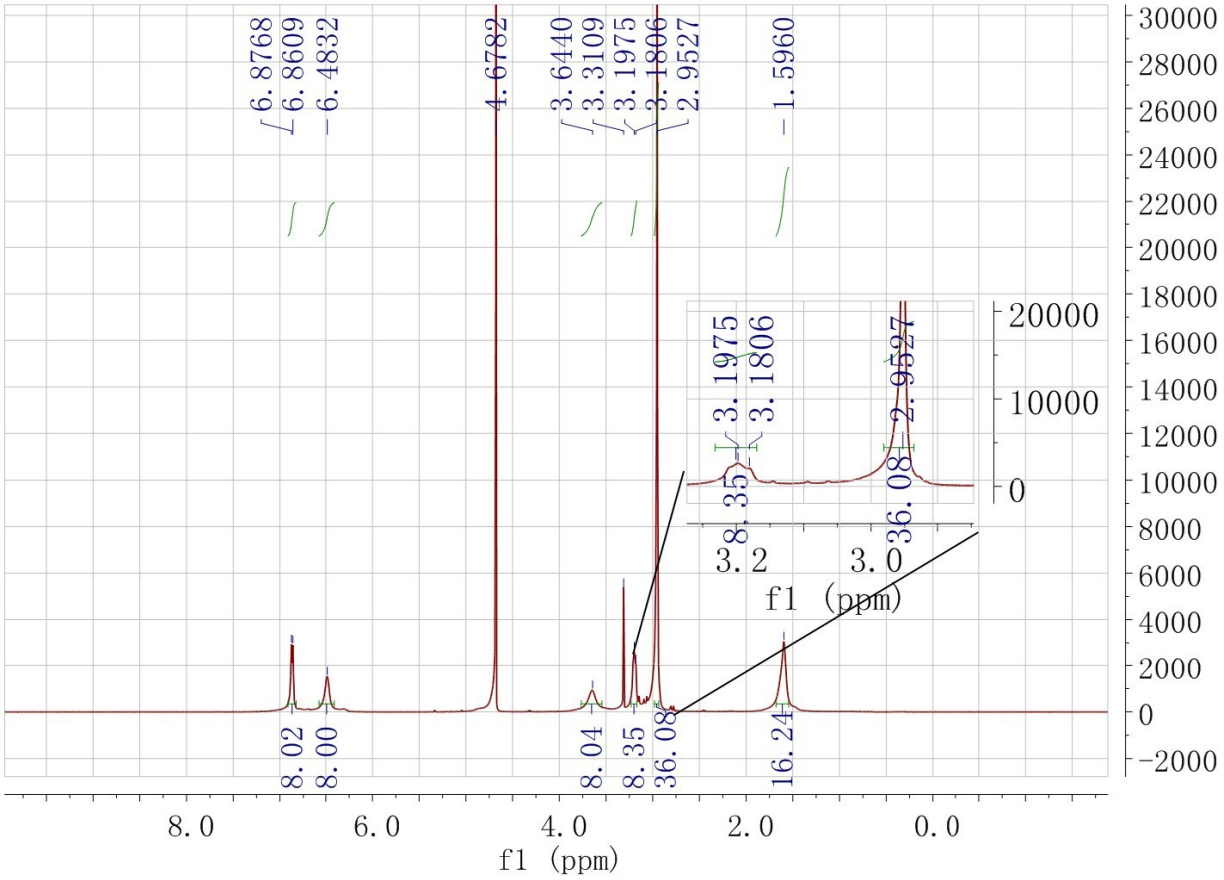

Fig. S1. ^{1}H-NMR spectrum of the TPE-C4-4 probe.

^{1}H NMR (500 MHz, D_2O): δ 6.87 (d, J = 8.0 Hz, 8H), 6.48 (s, 8H), 3.64 (s, 8H), 3.20 (t, J = 8.4 Hz, 8H), 2.95 (s, 36H), 1.60 (s, 16H).

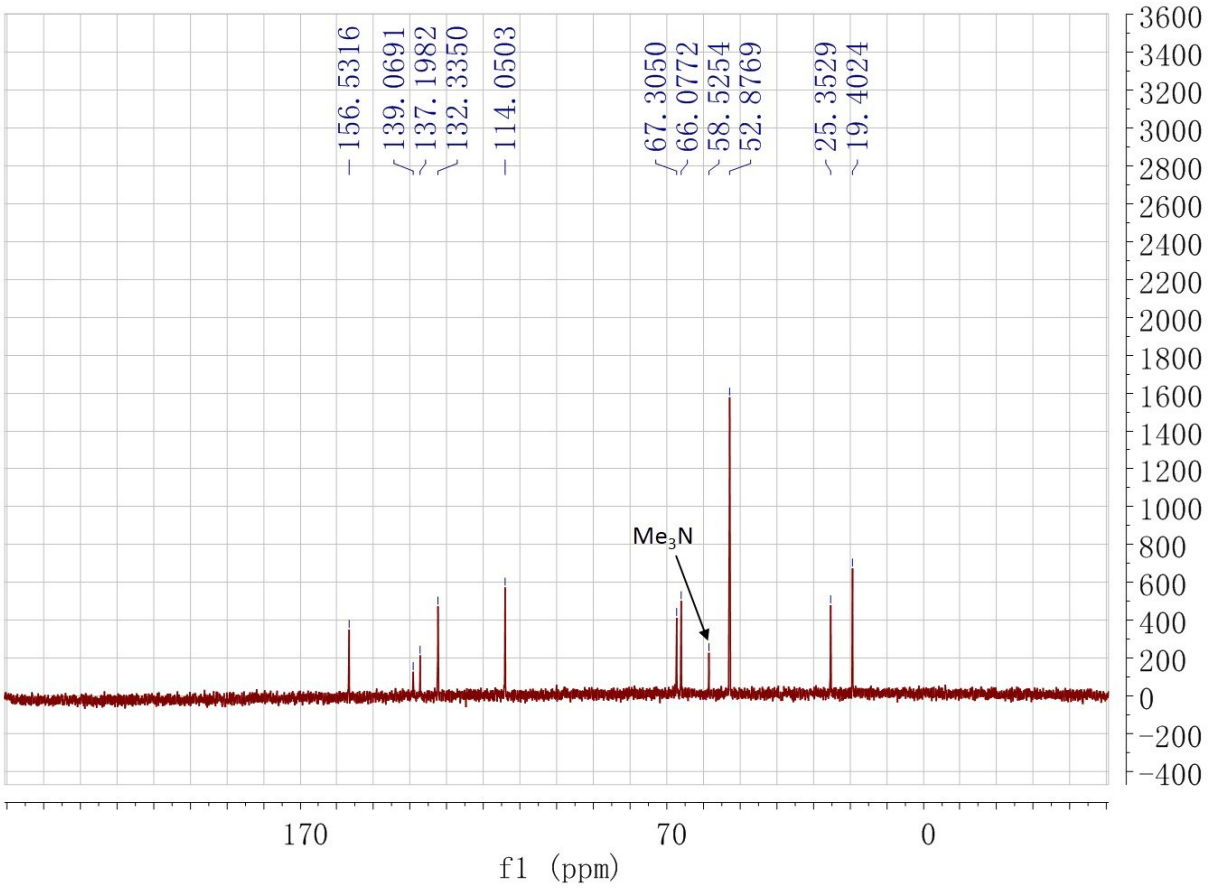

Fig. S2. ^{13}C-NMR spectrum of the TPE-C4-4 probe.

^{13}C-NMR (126 MHz, D_2O): δ 156.53, 139.07, 137.20, 132.33, 114.05, 67.30, 66.08, 52.88, 25.35, 19.40.

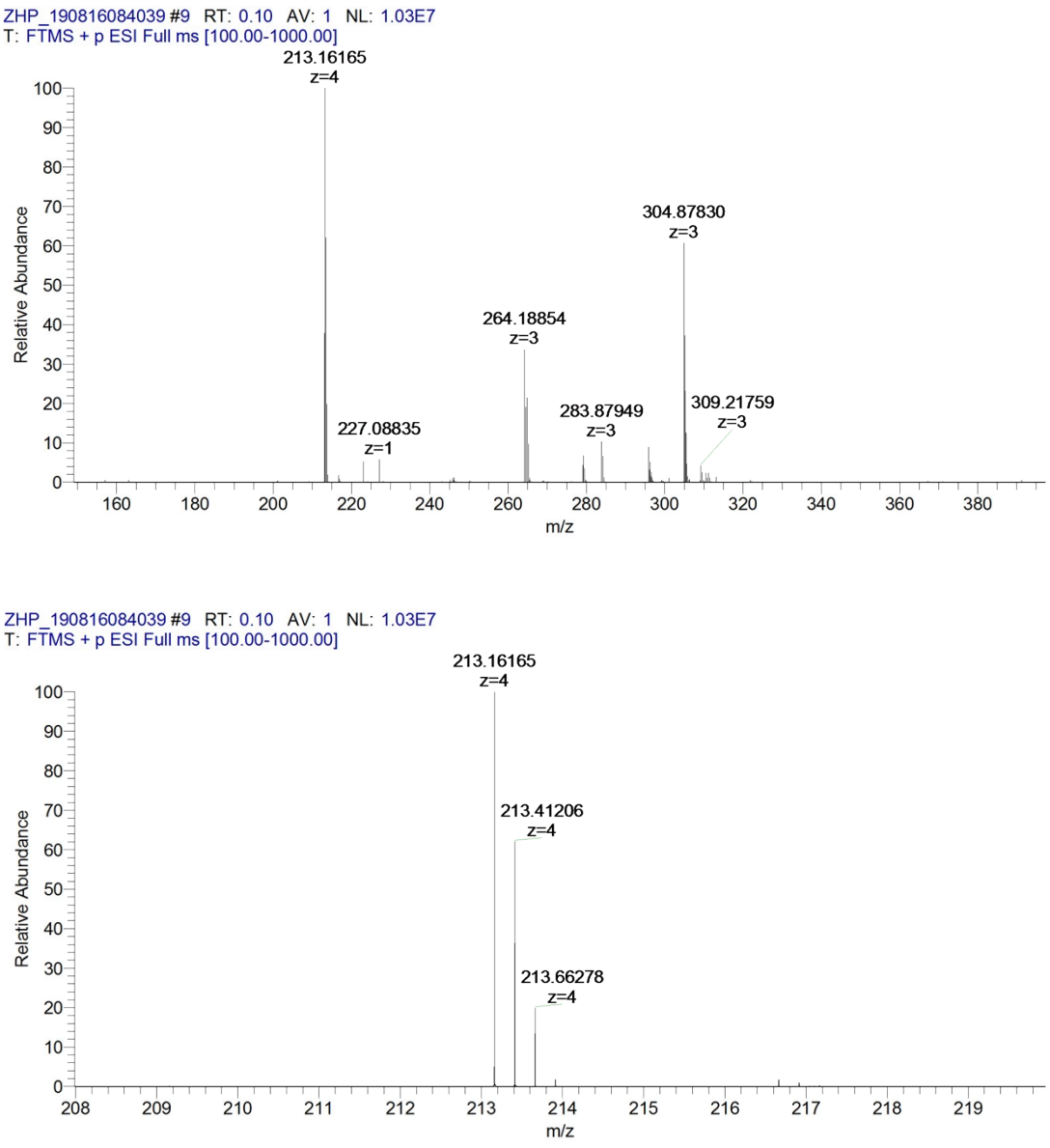

Fig. S3. HR mass spectrum of TPE-C4-4 probe.

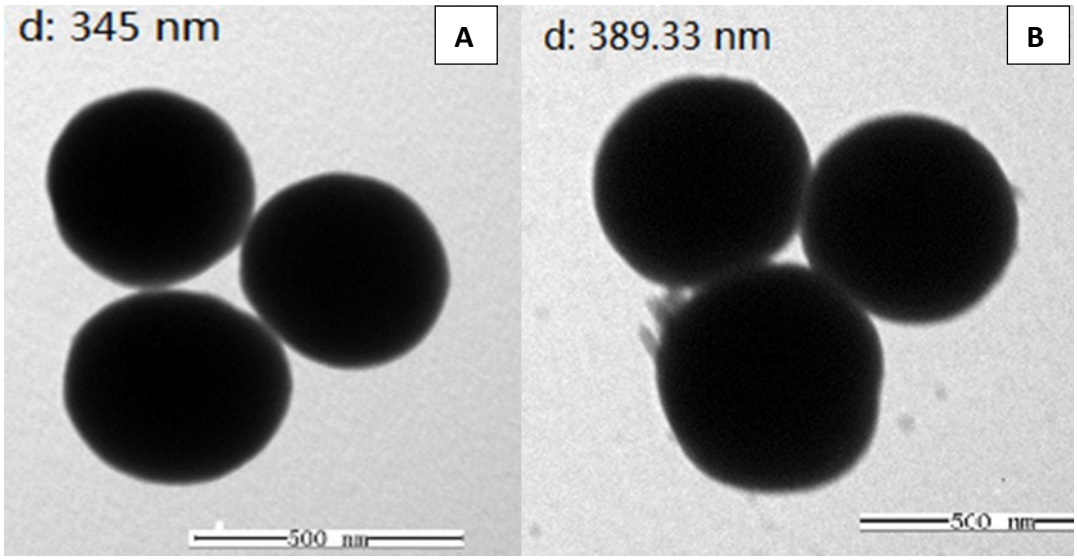

Fig. S4. The TEM images before antibody modification (A) and after antibody modification (B).