Supporting Information for:

Highly selective turn-on detection of protein based on self-assembled near-infrared fluorescent nanoprobes

Experimental Section

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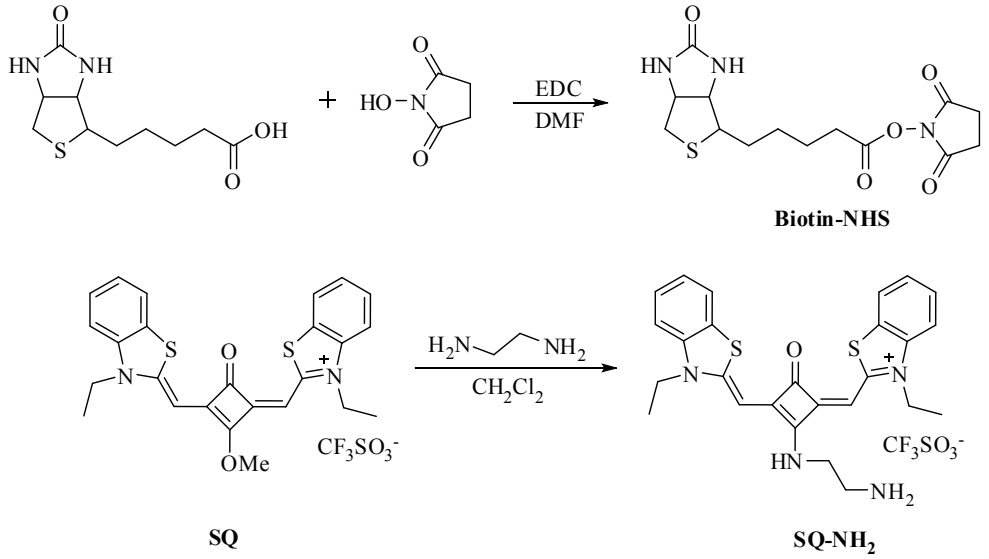

Scheme S1 The synthesis of **Biotin-NHS** and **SQ-NH_2**.

The compound **SQ**[S1] and **Biotin-NHS**[S2] were synthesized according to the procedure reported previously.

To a solution of **SQ** (497 mg, 0.84 mmol) in anhydrous CH_2Cl_2 (300.0 mL), under N_2 atmosphere, was added 1,2-diaminoethane (0.063 mL, 0.93 mmol). The reaction mixture was stirred at r.t. for 40 min. The solvent was removed under reduced pressure. The crude product was directly used to next step without purification.

S1 Y. Q. Xu, Z. Y. Li, A. Malkovskiy, S. G. Sun and Y. Pang, *J. Phys. Chem. B*, 2010, **114**, 8574.
S2 X. Jiang, M. Ahmed, Z. Deng, and R. Narain. *Bioconjugate Chem.*, 2009, **20**, 994.

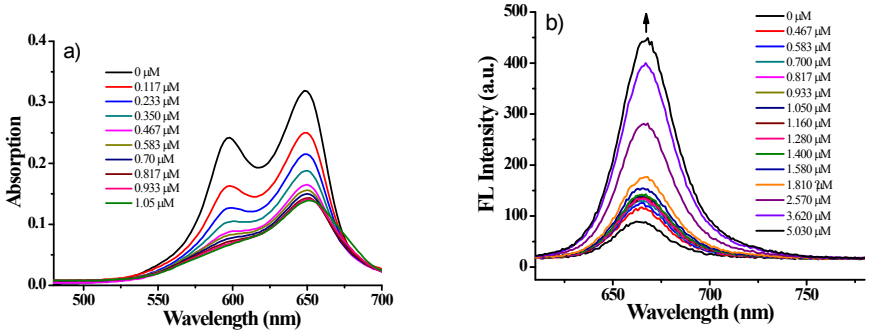

Figure S1. Spectroscopic analyses of **SQ-Biotin** to streptavidin. (a) UV-Vis absorption spectral changes of **SQ-Biotin** (5 μM) upon addition of streptavidin (0-1.05 μM). (b) Fluorescence spectral changes of **SQ-Biotin** (5 μM) upon addition of streptavidin (0-5.03 μM) (λ_{ex} = 600 nm). Fluorescence measurements were performed 1 min after adding streptavidin to the **SQ-Biotin** solution in PBS buffer (10 mM, pH=7.2).

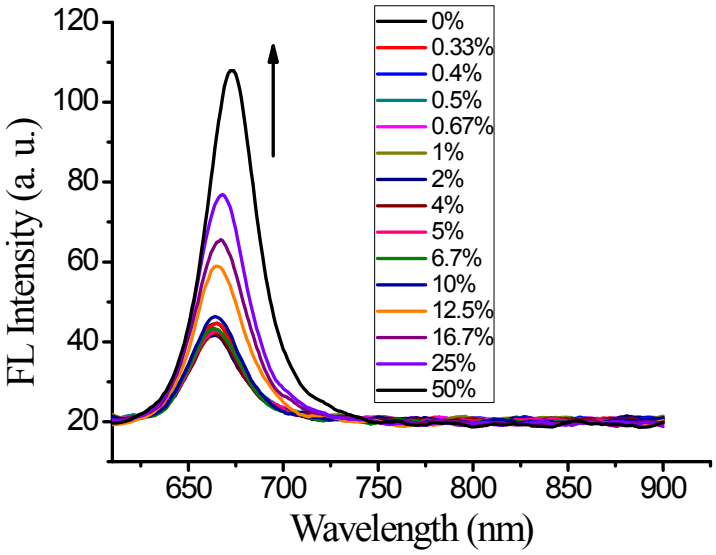

Figure S2. Fluorescence spectra change of **SQ-Biotin** (5 μM) with the methanol ratio to water increasing in PBS buffer (10 mM, pH=7.2).

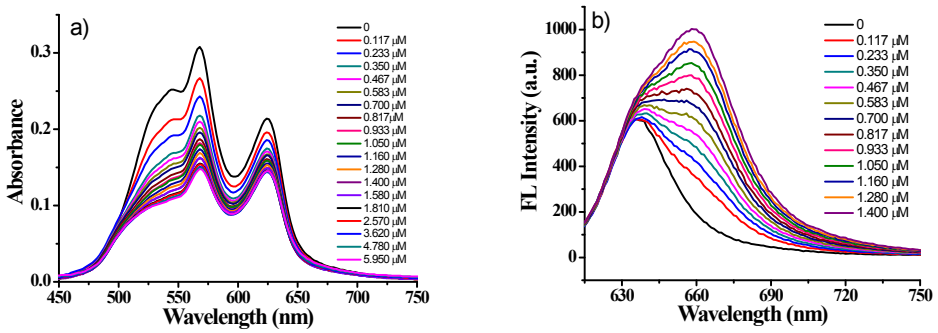

Figure S3. Spectroscopic analyses of **SQ** to avidin. (a) UV-Vis absorption spectral changes of **SQ** (5 μM) upon addition of avidin (0-1.05 μM). (b) Fluorescence spectral changes of **SQ** (5 μM) upon addition of avidin (0-5.03 μM) (λ_{ex} = 600 nm). Fluorescence measurements were performed 1 min after adding avidin to the **SQ** solution in PBS buffer (10 mM, pH=7.2).

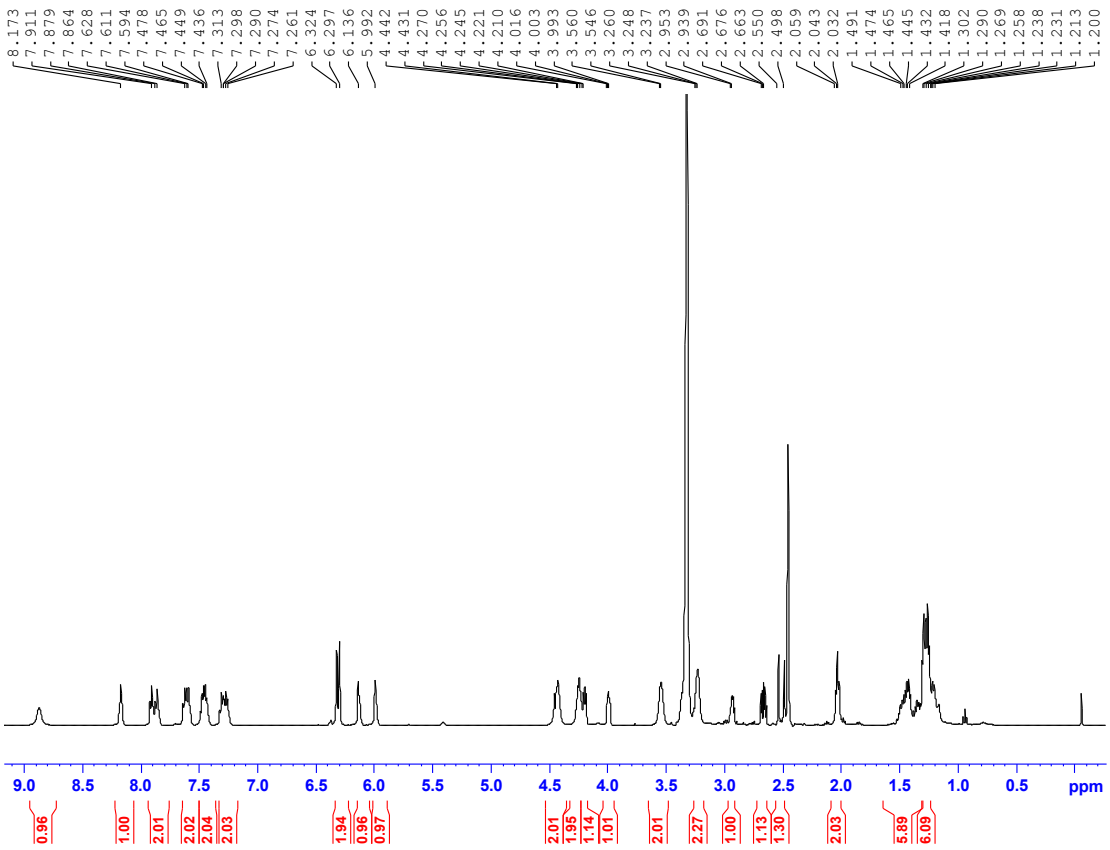

Figure S4. ^{1}H NMR of **SQ-Biotin** in DMSO-d_6. The signals at 3.3 and 2.5 ppm are attributed to H_2O and DMSO, respectively.

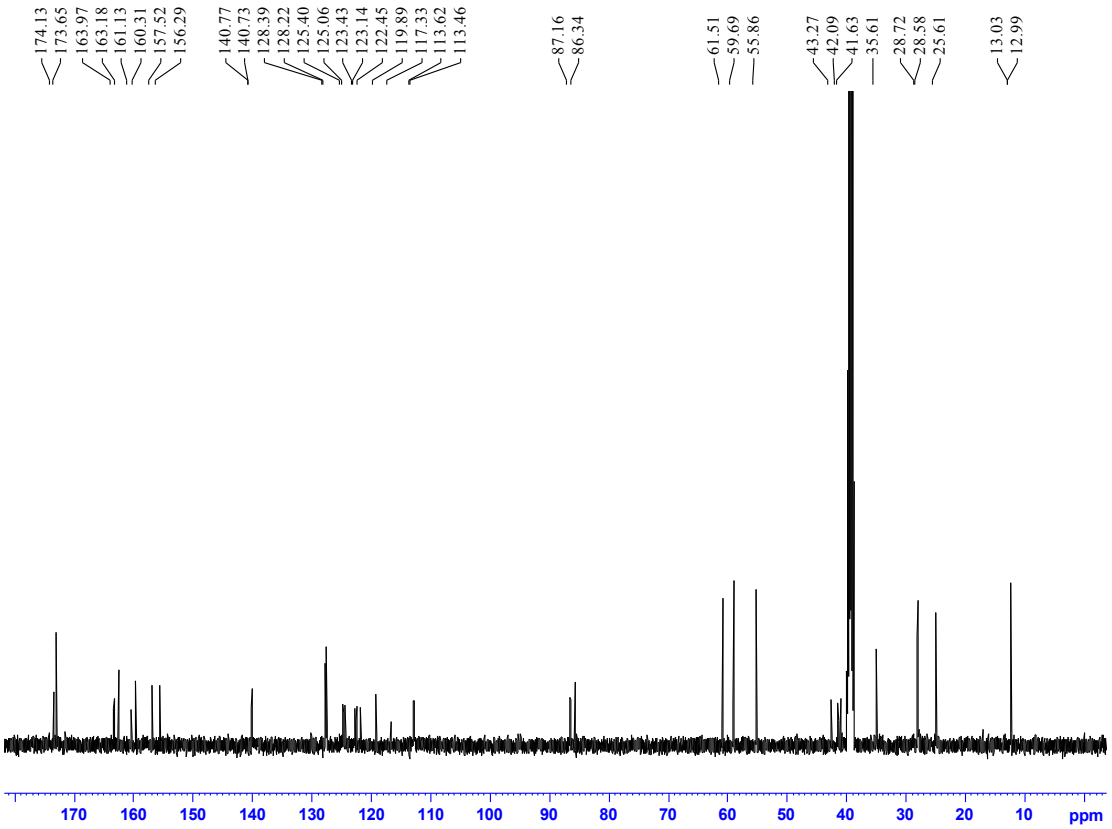

Figure S5. ^{13}C NMR of **SQ-Biotin** in DMSO-d_6. The signal at 39.52 ppm is attributed to DMSO.

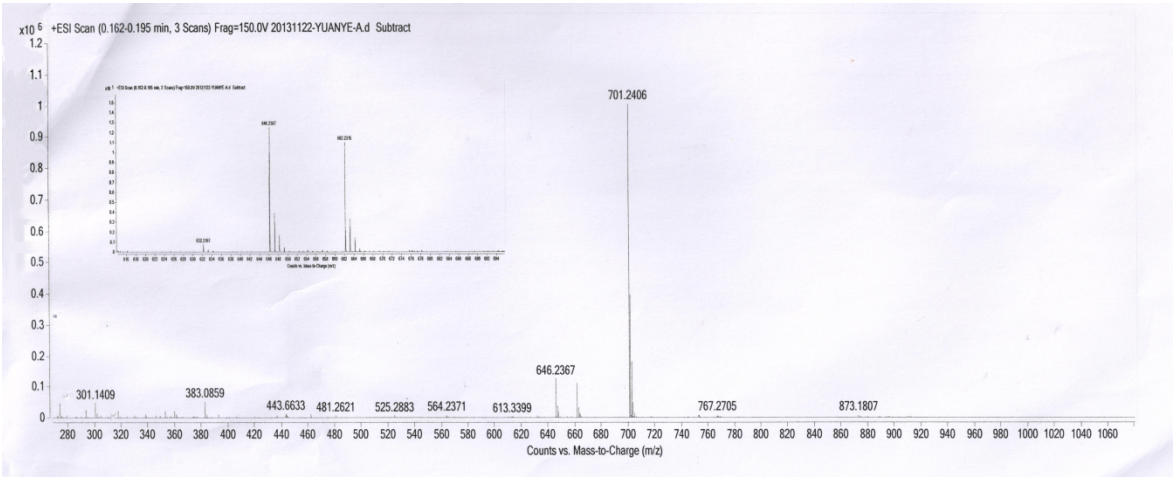

Figure S6. HRMS of **SQ-Biotin**.