Electronic Supplementary Information

Nano-C_{60} as a novel, effective fluorescent sensing platform fo mercury(II) ion detection at critical sensitivity and selectivity

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Experimental Section

All chemically synthesized oligonucleotides were purchased from Shanghai Sangon Biotechnology Co. Ltd. (Shanghai, China). DNA concentration was estimated by measuring the absorbance at 260 nm. All the other chemicals were purchased from Aladin Ltd. (Shanghai, China) and used as received without further purification. The water used throughout all experiments was purified through a Millipore system.

Nano-C_{60} was prepared as follows: In a typical experiment, 2.5 mg of C_{60} was dissolved in 2 mL of toluene. Then the solution was added to 12 mL of acetonitrile dropwise under stirring. Then a large amount of khaki precipitates appeared. The resulting precipitates were washed with acetonitrile by centrifugation twice first, and then redispersed in 8 mL of water and sonicated for 30 min for characterization and

further use. The concentration of nano-C_{60} suspension is about 0.3 mg/mL. The volume of each sample for fluorescence measurement is 400 μL in 20 mM Tris-HCl buffer containing 100 mM NaCl and 5 mM KCl (pH: 7.4).

Transmission electron microscopy (TEM) measurements were made on a HITACHI H-8100 EM (Hitachi, Tokyo, Japan) with an accelerating voltage of 100 kV. Fluorescent emission spectra were recorded on a RF-5301PC spectrofluorometer (Shimadzu, Japan). Zeta potential measurements were performed on a Nano-ZS Zetasizer ZEN3600 (Malvern Instruments Ltd., U.K.).

Oligonucleotide sequences are listed as follows:

P_H (FAM dye-labeled ssDNA probe for Hg^{2+}):

5'-TTC TTT CTT CCC CTT GTT TGT T-FAM-3'