Supplementary information

for

A Fluorometric/Colorimetric Dual-channel Hg$^{2+}$ Sensor

Derived from 4-Amino-7-nitro-benzo[d]iazole (ANBD) Fluorophore

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Figure S1. $^1$H NMR spectrum of NBD-TAEE in CD$_3$CN.
Figure S2. $^{13}$C NMR spectrum of **NBD-TAEE** in CDCl$_3$.

Figure S3. ESI-MS spectrum of **NBD-TAEE**.
Figure S4. $^1$H NMR spectrum of NBD-TAE in CDCl$_3$.

Figure S5. $^{13}$C NMR spectrum of NBD-TAE in CDCl$_3$.

Figure S6. MS spectrum (EI) of NBD-TAE.
Figure S7. UV-vis titration profiles of **NBD-TAEE** (25 μM) in acetonitrile containing 5% (v/v) HEPES buffer (20 mM; 50 mM KNO₃; pH 7.2) according to the absorbance at 513 and 466 nm.

Figure S8. Plot of $1/\Delta A_{466}$ against $1/[M]$ based on the UV-vis Hg$^{2+}$ titration of **NBD-TAEE**. Data are based on the absorbance at 466 nm. The line represents the fitting result via Benesi-Hilderbrand fitting. ($R = 0.995$).

Figure S9. Emission spectra of **NBD-TAEE** (a) and **NBD-TAE** (b) in aqueous acetonitrile (acetonitrile/water: 95/5, v/v) at different pH.
Figure S10. Emission spectra of NBD-TAE (25 μM) in acetonitrile containing 5% (v/v) HEPES buffer (20 mM; 50 mM KNO₃; pH 7.2) in the presence of different [Hg²⁺]_{total}. λₑₓ, 466 nm. The [Hg²⁺]_{total} varies from 0 to 125 μM.

Figure S11. Emission spectra of NBD-TAEE (25 μM) in DMSO in the presence of different [Hg²⁺]_{total}. [Hg²⁺]_{total} increase from 0 to 32.5 μM along the arrow.
Figure S12. The fluorescent response of NBD-TAEE (10 μM) in acetonitrile containing 5% (v/v) HEPES buffer (20 mM; 50 mM KNO₃; pH 7.2) upon the addition of Hg²⁺.