Supporting Information

“A Selective Fluorescent Chemosensor for Phosphoserine”

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I. Binding Titrations

Titrations with Zn$^{2+}$

Sensor 1

Figure S1. (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) and zinc acetate (10 μM) in 3:97 DMSO/buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM phosphoserine. $\lambda_{em} = 521$ nm. Inset is the fit to a binding isotherm.

Figure S2. (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) and zinc acetate (10 μM) in 3:97 DMSO/buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM phosphoethanolamine. $\lambda_{em} = 521$ nm. Inset is the fit to a binding isotherm.
Figure S3. (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) and zinc acetate (10 μM) in 3:97 DMSO-buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM glutamate. λ_{em} = 521 nm. Inset is the fit to a binding isotherm.

Figure S4. (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) and zinc acetate (10 μM) in 3:97 DMSO-buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM glycine. λ_{em} = 521 nm. Inset is the fit to a binding isotherm.
Sensor 2

Figure S5. (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) and zinc acetate (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 100 mM phosphoethanolamine. \( \lambda_{em} = 513 \) nm. Inset is the fit to a binding isotherm.

Figure S6. (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) and zinc acetate (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 1 M glutamate. \( \lambda_{em} = 513 \) nm. Inset is the fit to a binding isotherm.
**Figure S7.** (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) and zinc acetate (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 1 M glycine. $\lambda_{em} = 513$ nm. Inset is the fit to a binding isotherm.

**Titrations without Zn$^{2+}$**

**Sensor 1**

**Figure S8.** (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) in 3:97 DMSO/buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM phosphoserine. $\lambda_{em} = 521$ nm. Inset is the fit to a binding isotherm.
Figure S9. (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) in 3:97 DMSO-buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM phosphoethanolamine. λ<sub>em</sub> = 521 nm. Inset is the fit to a binding isotherm.

Figure S10. (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) in 3:97 DMSO-buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM glutamate. λ<sub>em</sub> = 521 nm. Inset is the fit to a binding isotherm.
**Figure S11.** (a) UV/Vis and (b) fluorescence titration of sensor 1 (10 μM) in 3:97 DMSO/buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 500 mM glycine. \( \lambda_{em} = 521 \) nm. Inset is the fit to a binding isotherm.

**Figure S12.** (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 1 M phosphoserine. \( \lambda_{em} = 513 \) nm. Inset is the fit to a binding isotherm.
Figure S13. (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 1 M phosphoethanolamine. \( \lambda_{em} = 513 \) nm. Inset is the fit to a binding isotherm.

Figure S14. (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 1 M glutamate. \( \lambda_{em} = 513 \) nm. Inset is the fit to a binding isotherm.
Figure S15. (a) UV/Vis and (b) fluorescence titration of sensor 2 (10 μM) in buffer (50 mM HEPES, 100 mM NaCl, pH 7.4) adding aliquots of 1 M glycine. $\lambda_{em} = 513$ nm. Inset is the fit to a binding isotherm.

II. Molecular Modeling

Models were constructed using Spartan ‘10.
III. NMR Spectra