Supporting Information for

Bispyrene/AgNPs-based ratiometric nanoprobe for supersensitive fluorescent and colorimetric sensing of etimicin †

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Fig. S1 UV-vis spectra of AgNPs in the presence of various concentrations of probe 1, [AgNPs] = 1.2×10^{-4} M, pH = 8.0. The inserts are the corresponding photographs of AgNPs in the presence of various concentrations of probe 1 (from left to right: 0 M, 5.0×10^{-7} M, 1.0×10^{-6} M, 2.5×10^{-6} M, 5.0×10^{-6} M).
**Fig. S2** Kinetic decay curve of **probe 1** in the absence and presence of AgNPs. $[\text{probe 1}] = 2.0 \times 10^{-5}$ M, $[\text{AgNPs}] = 1.2 \times 10^{-4}$ M.

**Table S1**

<table>
<thead>
<tr>
<th></th>
<th>Lifetime (ns)</th>
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<tbody>
<tr>
<td></td>
<td>$\tau_1$</td>
<td>$\tau_2$</td>
<td>$\tau_{av}$</td>
</tr>
<tr>
<td><strong>Probe 1</strong></td>
<td>0.4003 (59.38%)</td>
<td>3.5215 (40.62%)</td>
<td>1.6681</td>
</tr>
<tr>
<td><strong>Probe 1/AgNPs</strong></td>
<td>0.3576 (70.87%)</td>
<td>3.8769 (29.13%)</td>
<td>1.3828</td>
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</table>
**Fig. S3** Plot of the emission ratio variation of probe 1/AgNPs with time. [AgNPs] = 7.2×10^{-5} M, [probe 1] = 5.0×10^{-7} M, [etimicin] = 5.0×10^{-7} M, the excitation wavelength was 345 nm.
Fig. S4 Effect of AgNPs concentration on the detection of etimicin in H$_3$Cit-Na$_2$HPO$_4$ buffer solution (pH = 8.0). [probe 1] = 5.0×10$^{-7}$ M, [etimicin] = 5.0×10$^{-7}$ M, the excitation wavelength was 345 nm.
Fig. S5 Plot of the emission ratio variation of probe 1/AgNPs with time. $[\text{AgNPs}] = 1.2 \times 10^{-4}$ M, $[\text{probe 1}] = 5.0 \times 10^{-7}$ M, [etimicin] = $5.0 \times 10^{-7}$ M, pH = 8.0, the excitation wavelength was 345 nm.
Fig. S6  Ratiometric fluorescence response of the probe 1/AgNPs system toward etimicin in the presence of various interference analytes at pH 8.0 (1. glucose 2. lactose 3. Thr 4. Trp 5. Ser 6. Lys 7. Cys 8. Al$^{3+}$ 9. K$^+$ 10. NH$_4^+$ 11. SO$_4^{2-}$ 12. PO$_4^{3-}$ 13. melamine 14. urea 15. etimicin). [probe 1] = 5.0×10$^{-7}$ M, [AgNPs] = 1.2×10$^{-4}$ M. The concentration of etimicin is 5.0×10$^{-7}$ M, the others are all 5.0×10$^{-6}$ M. $\lambda_{ex}$=345 nm.
Fig. S7 The absorbance ratio of the probe 1/AgNPs system toward etimicin in the presence of various interference analytes at pH 8.0 (1. glucose 2. lactose 3. Thr 4. Trp 5. Ser 6. Lys 7. Cys 8. Al^{3+} 9. K^+ 10. NH_4^+ 11. SO_4^{2-} 12. PO_4^{3-} 13. melamine 14. urea 15. etimicin). [probe 1] = 5.0 \times 10^{-7} \text{ M}, [AgNPs] = 1.2 \times 10^{-4} \text{ M}. The concentration of etimicin is 1.0 \times 10^{-7} \text{ M}, the others are all 1.0 \times 10^{-6} \text{ M}. 