Supporting Information for

Precise Mono-Cu\textsuperscript{+} Ion Doping Enhanced Electrogenerated chemiluminescence from Cd-In-S Supertetrahedral Chalcogenide Nanocluster for Dopamine Detection

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**Fig. S1** The single crystal X-ray diffraction (XRD) patterns of ○@CdInS, Cu@CdInS and Mn@CdInS.

**Fig. S2** The effect of pH on ECL intensity of Mn@CdInS NCs modified GCE in 0.1 M PBS in air.
Fig. S3 The ECL-potential curves of Cu@CdInS NCs modified GCE in 0.1 M PBS (a) and it with 1 mM dopamine (b) in air. Scan rate is 100 mV/s, the photomultiplier tube (PMT) was biased at 750 V.

Fig. S4 The Zeta-potential distributions of Cu@CdInS NCs in ultrapure water.
**Fig. S5** The ECL response of Cu@CdInS NCs in different solution. $I_0$ is ECL intensity in 0.1 M PBS in air, $I$ are ECL intensities in 0.1 M PBS containing dopamine (DA), phenylethylamine (PEA), Hydroxylamine, Glucose (Glc), Glutamic acid (Glu), tyrosine (Tyr), phenylalanine and Alanine (Ala) with the same concentration of 500 μM respectively.

**Table S1** The comparison of dopamine detection with label-free base on ECL of nanomaterials.

<table>
<thead>
<tr>
<th>Probe</th>
<th>Linear range (μM)</th>
<th>Limit of detection (μM)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag$_2$Se quantum dot</td>
<td>0.5-19</td>
<td>0.1</td>
<td>1</td>
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<tr>
<td>BSA-AuNC/ITO</td>
<td>2.5-47.5</td>
<td>2.5</td>
<td>2</td>
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<td>CdSe quantum dot</td>
<td>0.5-700</td>
<td>0.5</td>
<td>3</td>
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<tr>
<td>CdSeTe/ZnS core–shell QDs</td>
<td>3.7-450</td>
<td>-</td>
<td>4</td>
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<tr>
<td>Met-AuNCs</td>
<td>0.1-4</td>
<td>0.032</td>
<td>5</td>
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<tr>
<td>Cu@CdInS NCs</td>
<td>0.5-100</td>
<td>0.335</td>
<td>This work</td>
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Reference