Electronic Supplementary Information (ESI)

For

Controllable Acidophilic Dual-Emission Fluorescent Carbonized Polymer Dots for Selectively Bacteria-Imaging

Xiaohuan Zhao,‡ a Qiuling Tang,‡ b Shoujun Zhu, a Wenhuan Bu, c Mingxi Yang, a Xinchao Liu, d Yang Meng, b Weixian Yu,*b,c Hongchen Sun f and Bai Yang* a

‡ These authors contributed equally to this work.

*Corresponding author: Tel: +86-431-85168478; Fax: +86-431-85193423; E-mail: byangchem@jlu.edu.cn
Figure S1. The size distribution of B-CPDs, R-CPDs, and R/B-CPDs in TEM images.

Figure S2. The Raman spectra of (a) B-CPDs, (b) R-CPDs, (c) R/B-CPDs.
Figure S3. (a) XPS survey spectrum, (b) the high resolution C1s XPS and (c) N1s XPS spectra of R-CPDs; (d) XPS survey spectrum, (e) the high resolution C1s XPS and (f) N1s XPS spectra of R/B-CPDs; (g) XPS survey spectrum, (h) the high resolution C1s XPS and (i) N1s XPS spectra of B-CPDs.

Table S1. Amounts of various carbon bonds of R-CPDs, R/B-CPDs, and B-CPDs.

<table>
<thead>
<tr>
<th>Sample</th>
<th>C=C / C-C</th>
<th>C-N / C-O</th>
<th>O-C=O</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-CPDs</td>
<td>77.61%</td>
<td>17.60%</td>
<td>4.79%</td>
</tr>
<tr>
<td>R/B-CPDs</td>
<td>73.81%</td>
<td>18.26%</td>
<td>7.93%</td>
</tr>
<tr>
<td>B-CPDs</td>
<td>78.39%</td>
<td>16.96%</td>
<td>4.65%</td>
</tr>
</tbody>
</table>
Figure S4. Fluorescence spectra of a) R-CPDs and b) B-CPDs in different pH aqueous solution.

Figure S5. Fluorescence spectra of R/B-CPDs in different solution.

Figure S6. a) Fluorescence spectra of R/B-CPDs under continuous UV exposure and b) Fluorescence intensity of blue region at different exposure time.
Figure S7. The photograph of original B-CPDs (left) and “aged” B-CPDs a) under daylight, b) and under UV light. c) Fluorescence spectra of “aged” B-CPDs in neutral aqueous solution.

Figure S8. Cell imaging of R/B-CPDs with (a-d) RAW 264.7, (e-h) MC3T3-E1, and (i-l) L929 cells excitation at (a, e, i) 488 nm, (b, f, j) 534 nm, (c, g, k) the merged images, and (d, h, l) bright field, respectively. Scale bar: 20 μm.
**Figure S9.** The toxicity test of the R/B-CPDs in a) *E. coli*, b) *P. gingivalis*, c) *S. aureus* d) *S. mutan.*