Electronic Supplementary Information (ESI)

For

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

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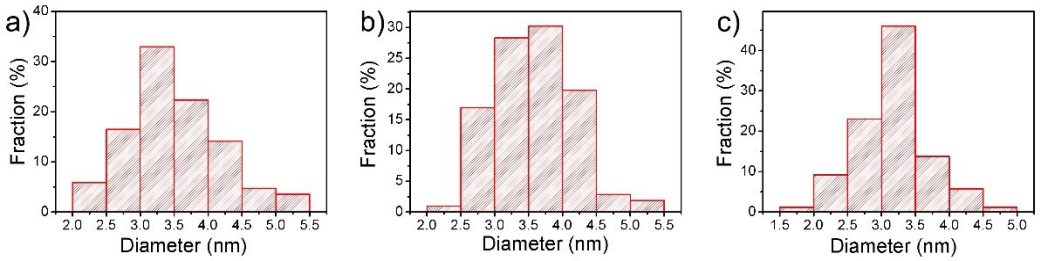

Figure S1. The size distribution of B-CPDs, R-CPDs, and R/B-CPDs in TEM images.

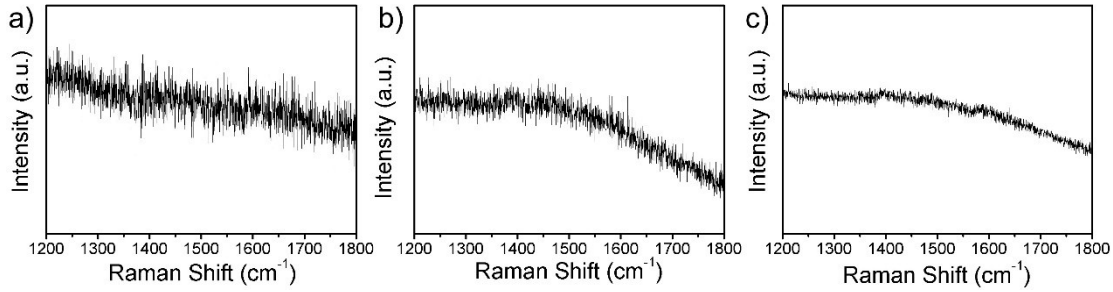

Figure S2. The Raman spectra of (a) B-CPDs, (b) R-CPDs, (c) R/B-CPDs.

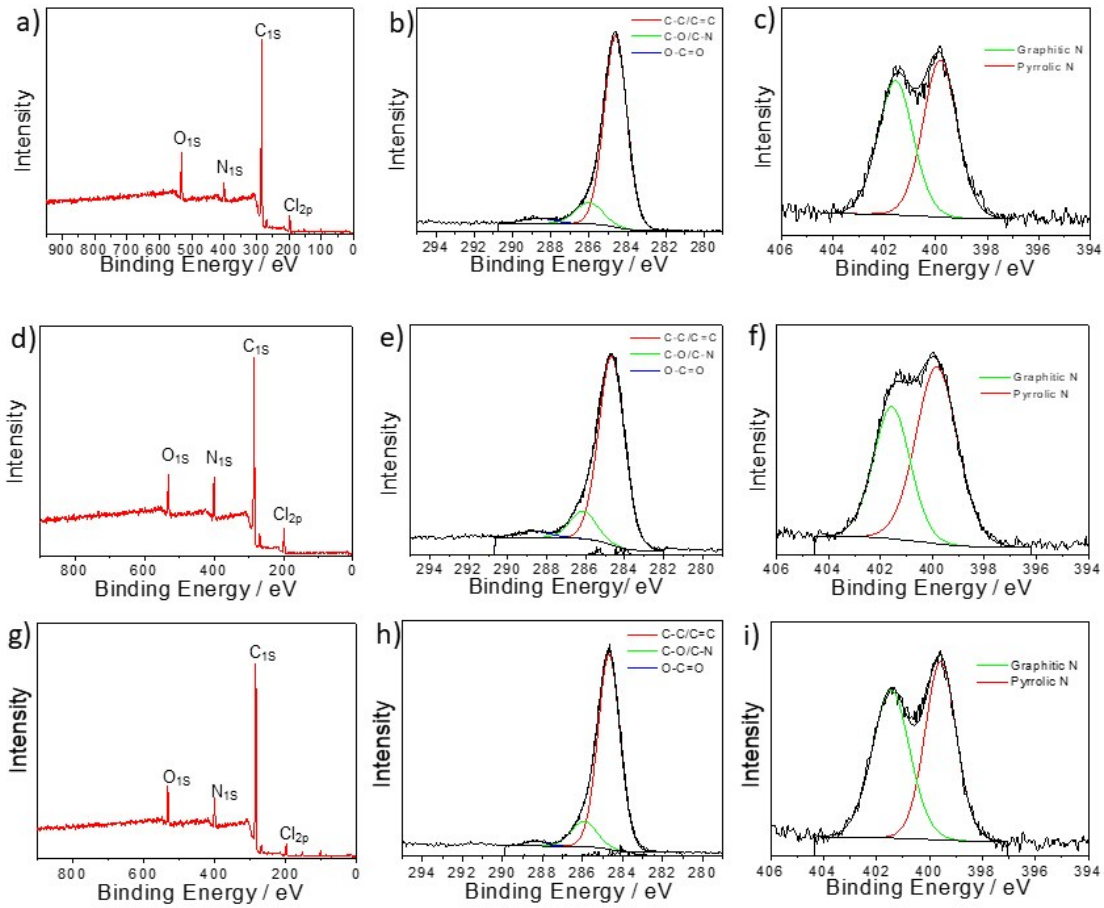

Figure S3. (a) XPS survey spectrum, (b) the high resolution C1s XPS and (c) N1s XPS spectra of R-CPDs; (d) XPS survey spectrum, (e) the high resolution C1s XPS and (f) N1s XPS spectra of R/B-CPDs; (g) XPS survey spectrum, (h) the high resolution C1s XPS and (i) N1s XPS spectra of B-CPDs

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

Sample	C=C / C-C	C-N / C-O	O-C=O
R-CPDs	77.61%	17.60%	4.79%
R/B-CPDs	73.81%	18.26%	7.93%
B-CPDs	78.39%	16.96%	4.65%

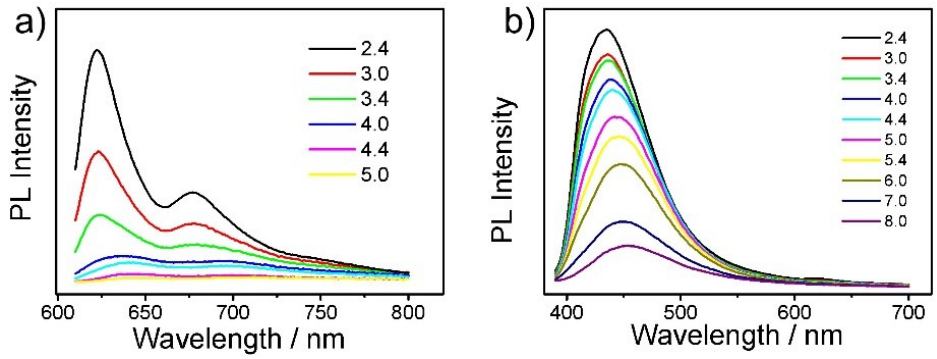

Figure S4. Fluorescence spectra of a) R-CPDs and b) B-CPDs in different pH aqueous solution.

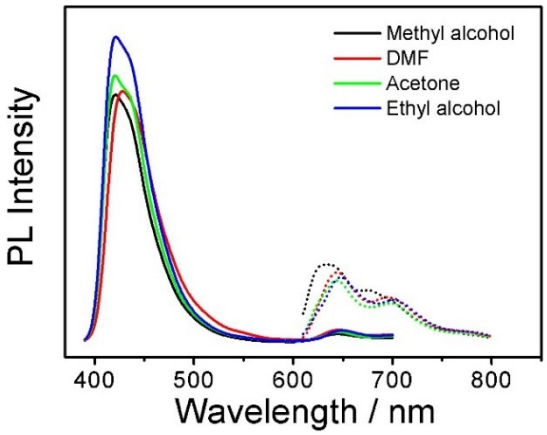

Figure S5. Fluorescence spectra of R/B-CPDs in different solution.

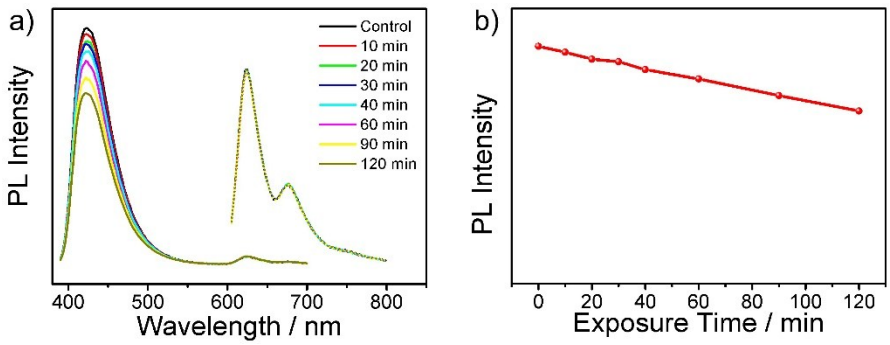

Figure S6. a) Fluorescence spectra of R/B-CPDs under continuous UV exposure and b) Fluorescence intensity of blue region at different exposure time.

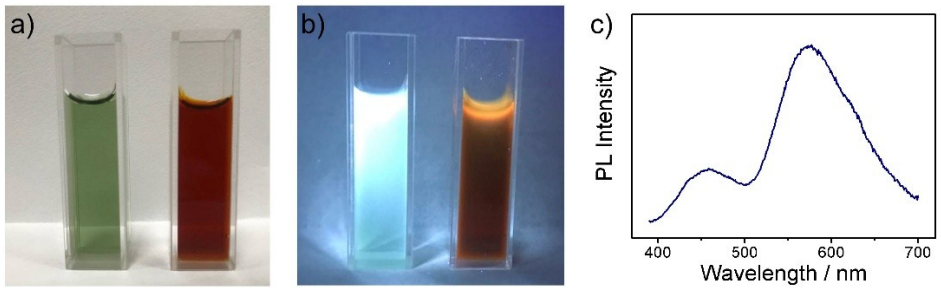

Figure S7. The photograph of original B-CPDs (left) and "aged" B-CPDs a) under daylight, b) and under UV light. c) Fluorescence spectra of "aged" B-CPDs in neutral aqueous solution.

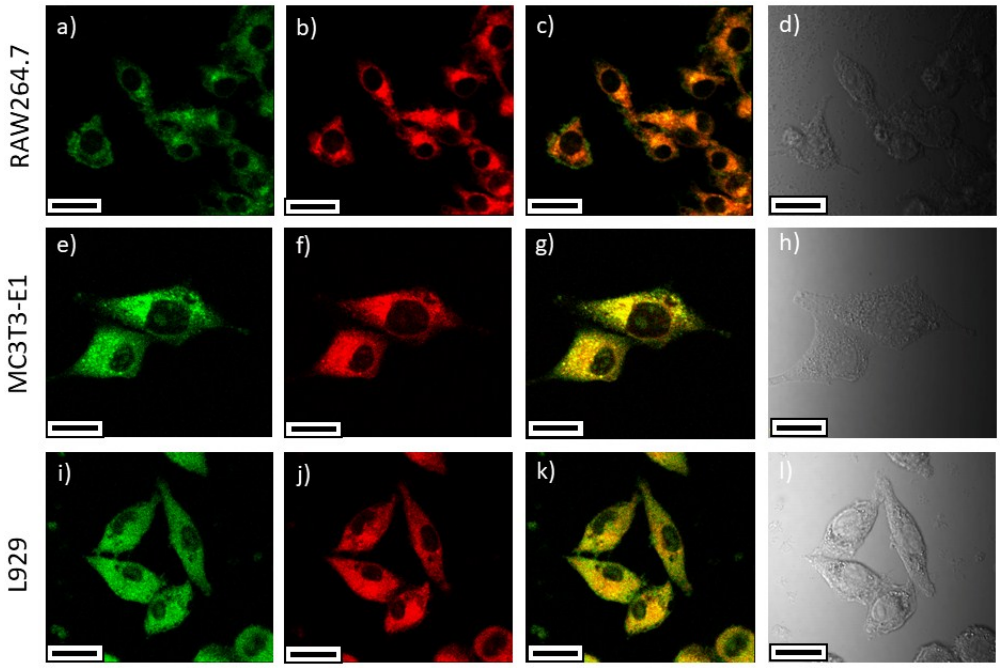

Figure S8. Cell imaging of R/B-CPDs with (a-d) RAW 264.7, (e-h) MC3T3-E1, and (i-l) L929 cells excitated at (a, e, i) 488 nm, (b, f, j) 534 nm, (c, g, k) the merged images, and (d, h, l) bright field, respectively. Scale bar: 20 μm.

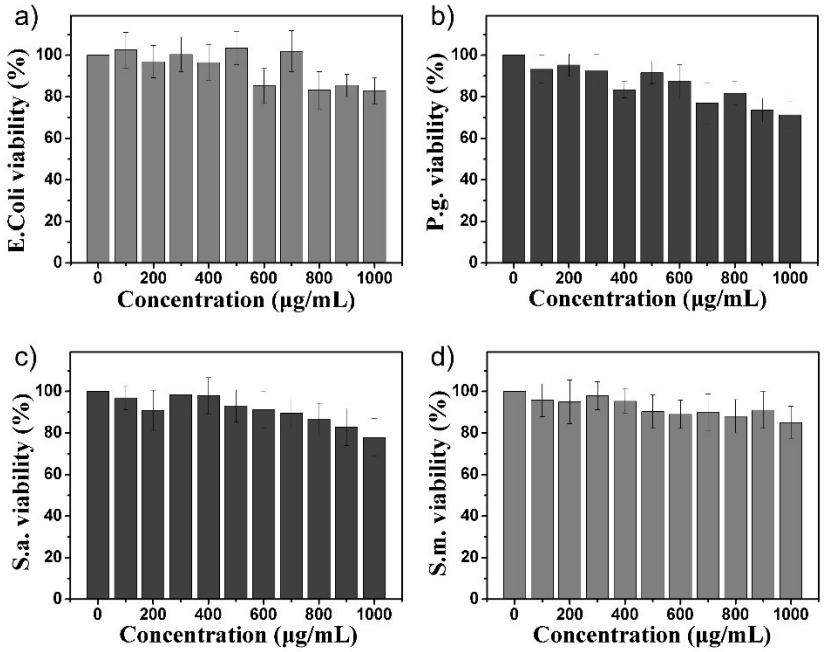

Figure S9. The toxicity test of the R/B-CPDs in a) *E. coli,* b) *P.gingivalis,* c) *S. aureus* d) *S.mutan*.