

### **Supplementary Information**

#### **CO<sub>2</sub>-switchable fluorescence of dendritic polymer and its application**

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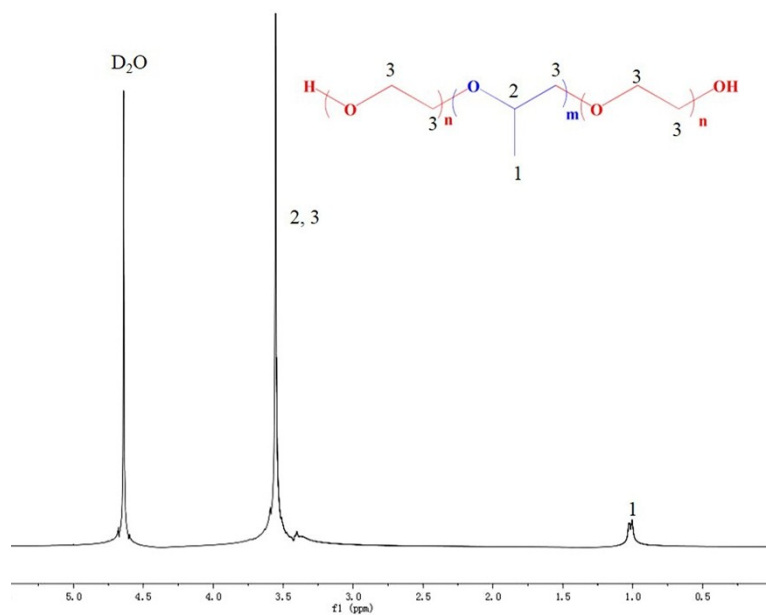


Figure S1  $^1\text{H}$  NMR spectrum of F127 ( $\text{D}_2\text{O}$ ).

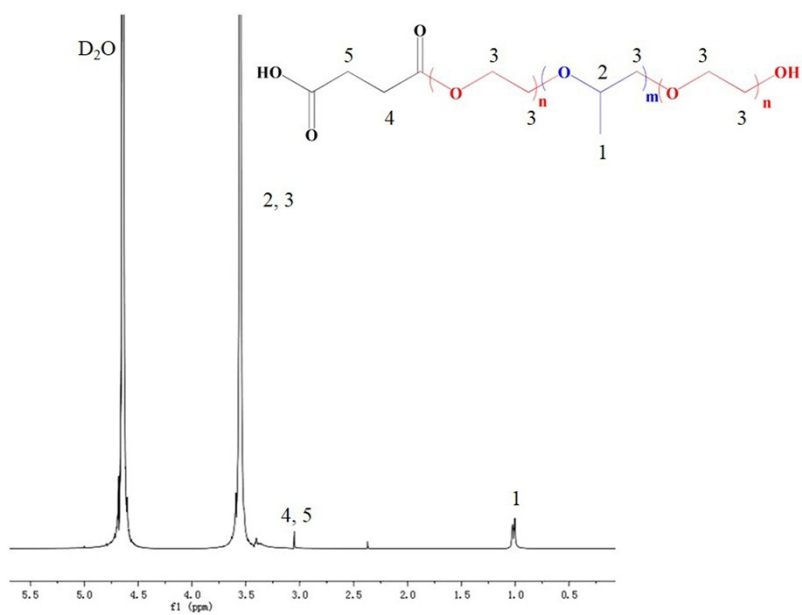


Figure S2  $^1\text{H}$  NMR spectrum of F127-COOH ( $\text{D}_2\text{O}$ ).

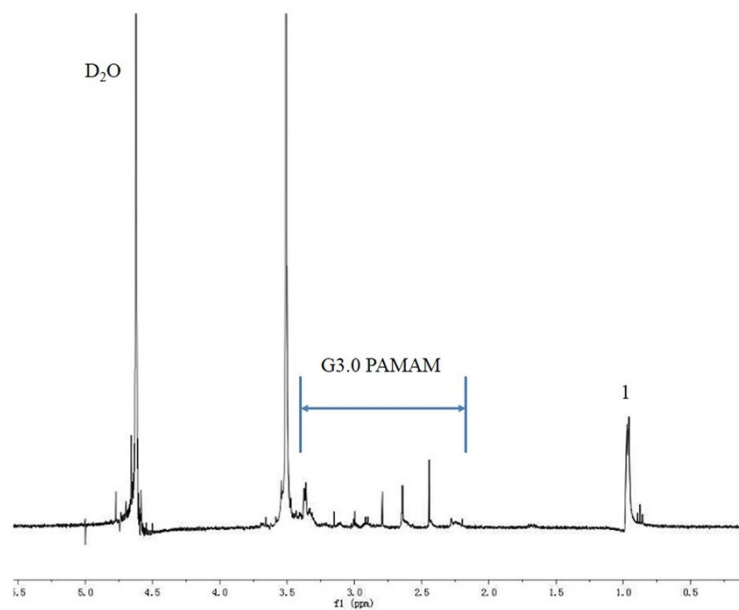


Figure S3  $^1\text{H}$  NMR spectrum of PAMAM/F127 ( $\text{D}_2\text{O}$ ).

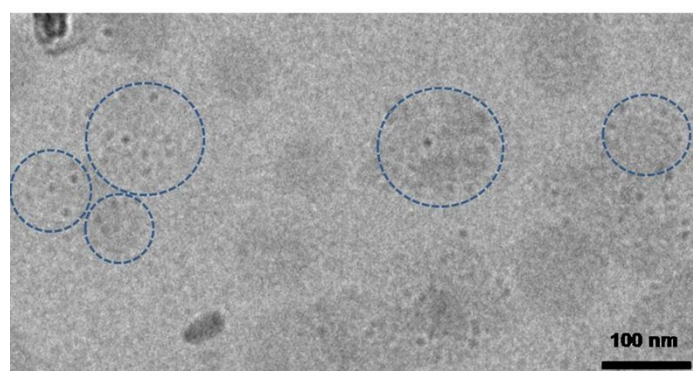


Figure S4 TEM image of PAMAM/F127 (The concentration is 10 mg/mL, the morphology was immediately investigated when the solution was prepared).

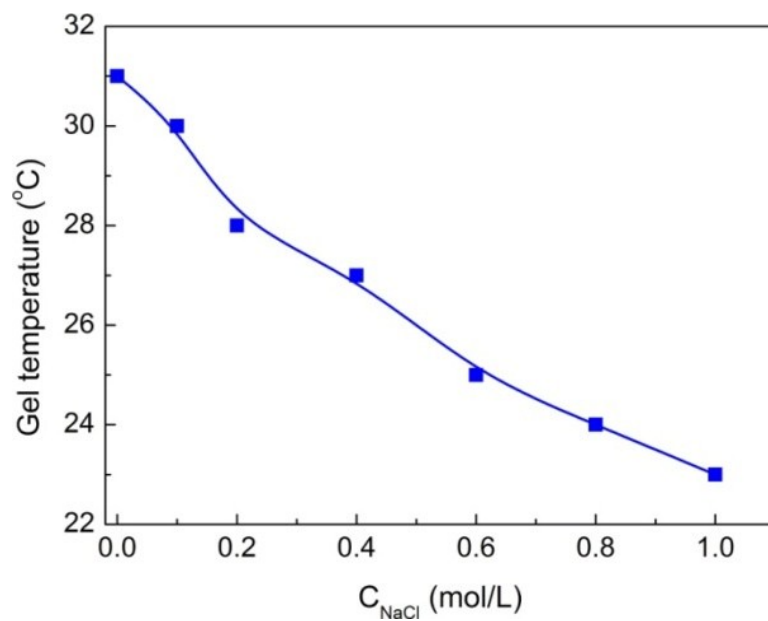


Figure S5. Effect of concentration of NaCl on gelation temperature (the concentration of PAMAM/F127 was 220 mg/mL).

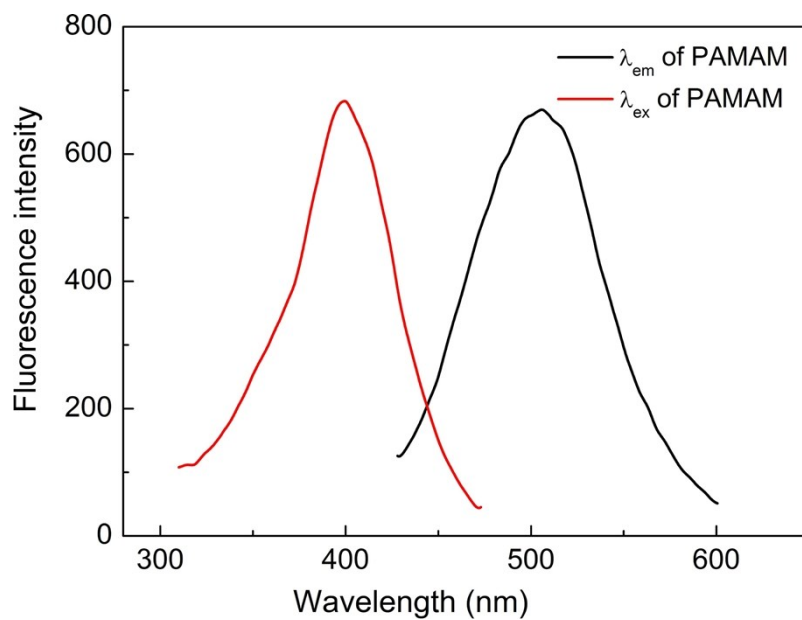


Figure S6. Emission/excitation spectra of PAMAM dendrimer (10 mg/mL).

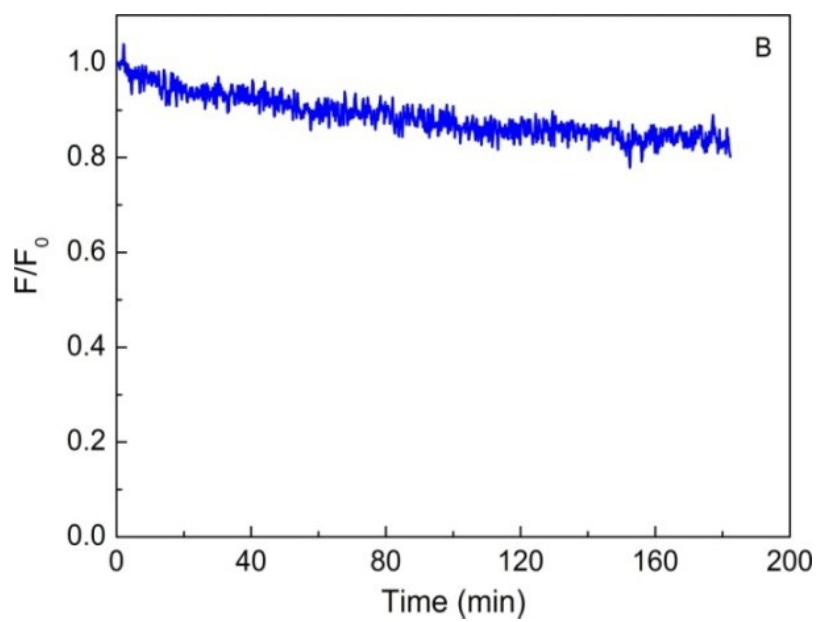
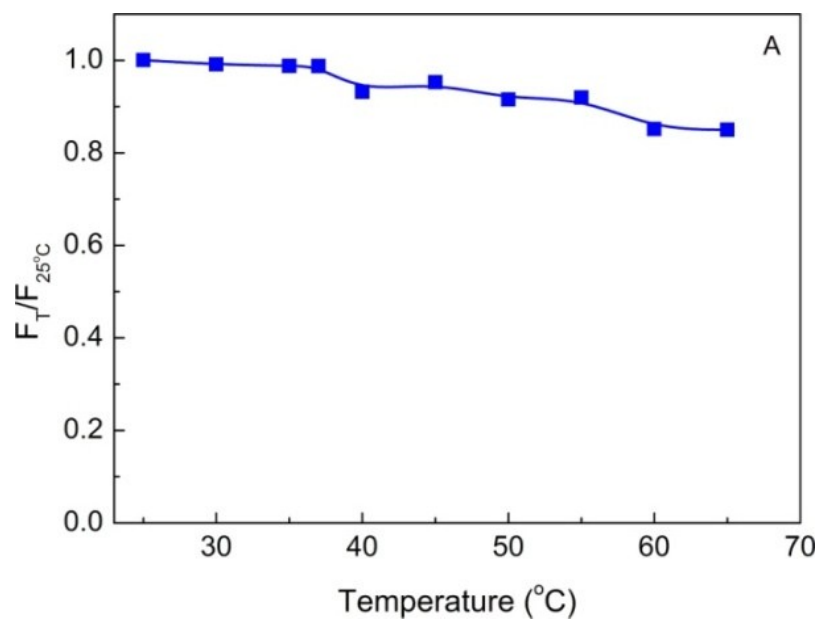


Figure S7. Effect of temperature (A) and time (B) on the fluorescence intensity of PAMAM/F127 dendritic polymer (10 mg/mL) ( $\lambda_{\text{ex}} = 325 \text{ nm}$ ,  $\lambda_{\text{em}} = 405 \text{ nm}$ ).

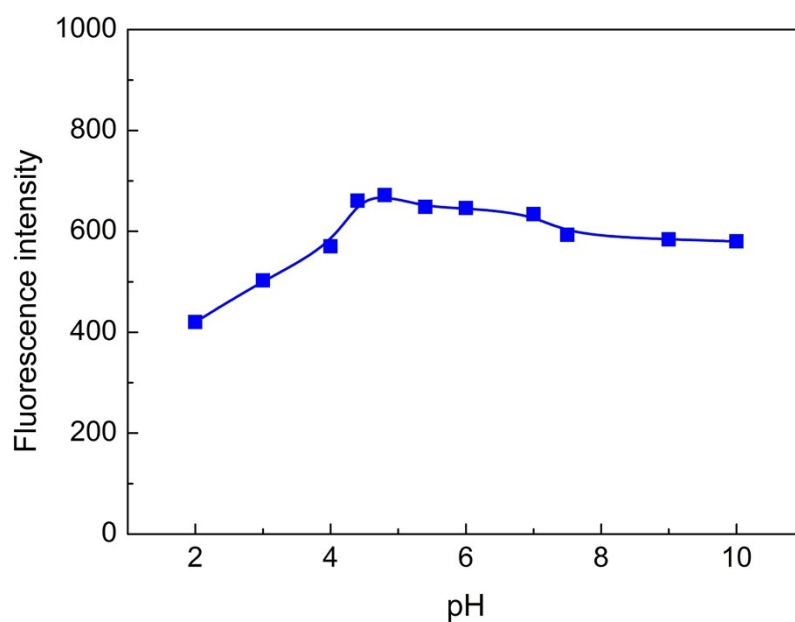


Figure S8. Effect of pH on the fluorescence intensity of PAMAM/F127 dendritic polymer (10 mg/mL) ( $\lambda_{\text{ex}} = 325 \text{ nm}$ ,  $\lambda_{\text{em}} = 405 \text{ nm}$ ).

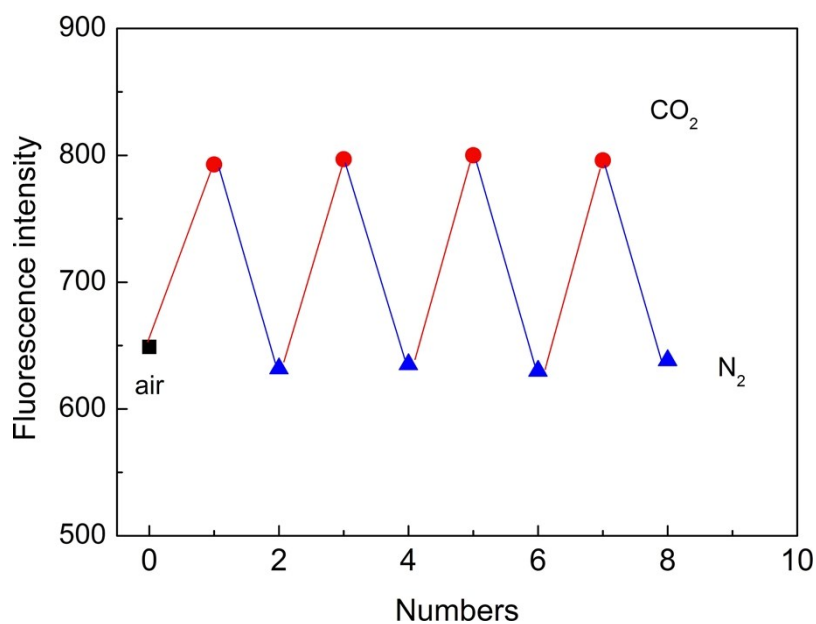


Figure S9. Changes in the fluorescence of PAMAM dendrimers (10 mg/mL) during cycles of CO<sub>2</sub> and N<sub>2</sub> treatments ( $\lambda_{\text{ex}} = 394 \text{ nm}$ ,  $\lambda_{\text{em}} = 506 \text{ nm}$ ).

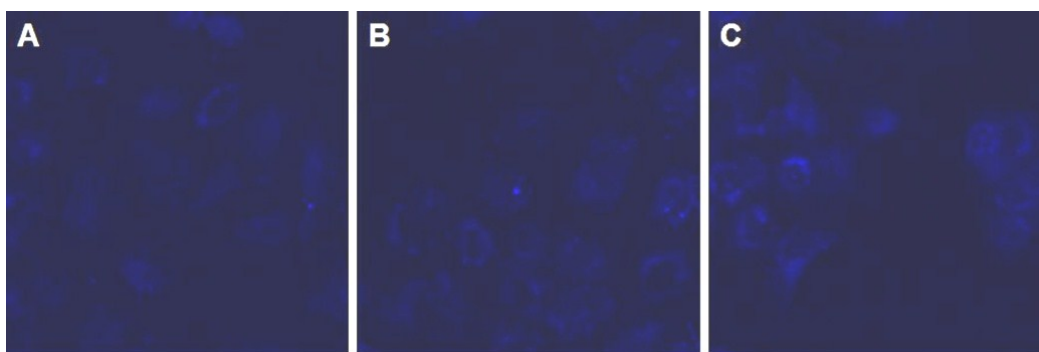


Figure S10. Confocal laser scanning microscopy images of A549 cells incubated with PAMAM/F127 dendritic polymer for 2 h under different condition (A: no CO<sub>2</sub>, B: 3% CO<sub>2</sub>, C: 5% CO<sub>2</sub>).

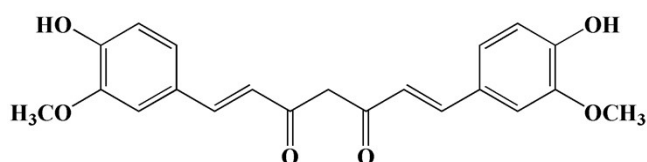


Figure S11. The chemical structure of curcumin.

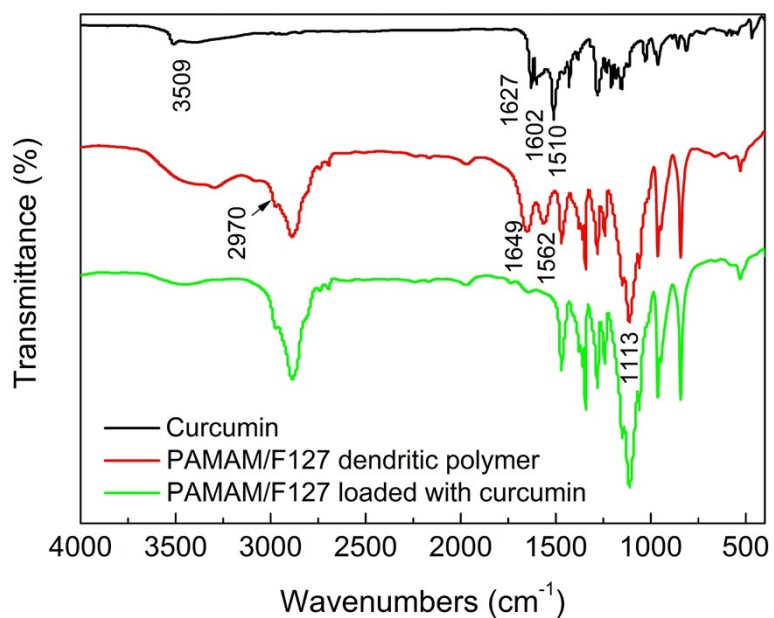


Figure S12. FT-IR spectra of curcumin, PAMAM/F127 dendritic polymer and PAMAM/F127 loaded with curcumin.

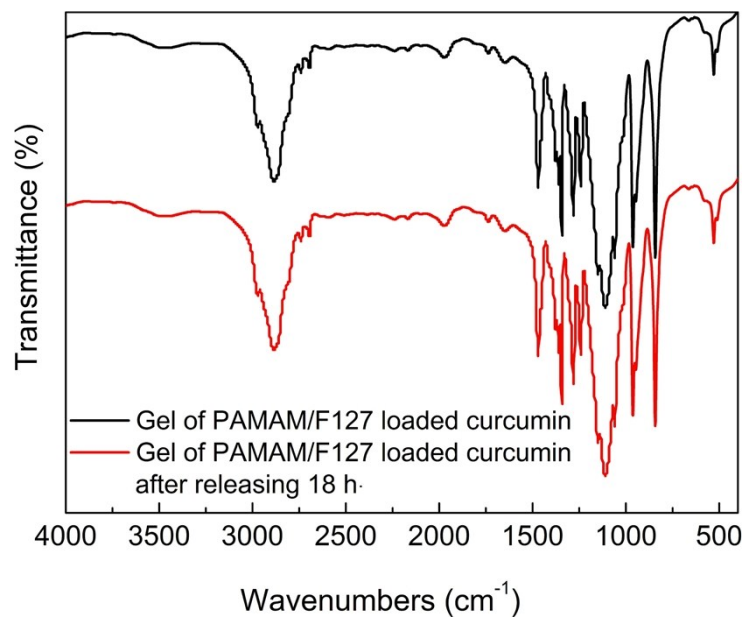


Figure S13. FT-IR spectra of the gel of PAMAM/F127 loaded with curcumin before releasing and after releasing 18 h.

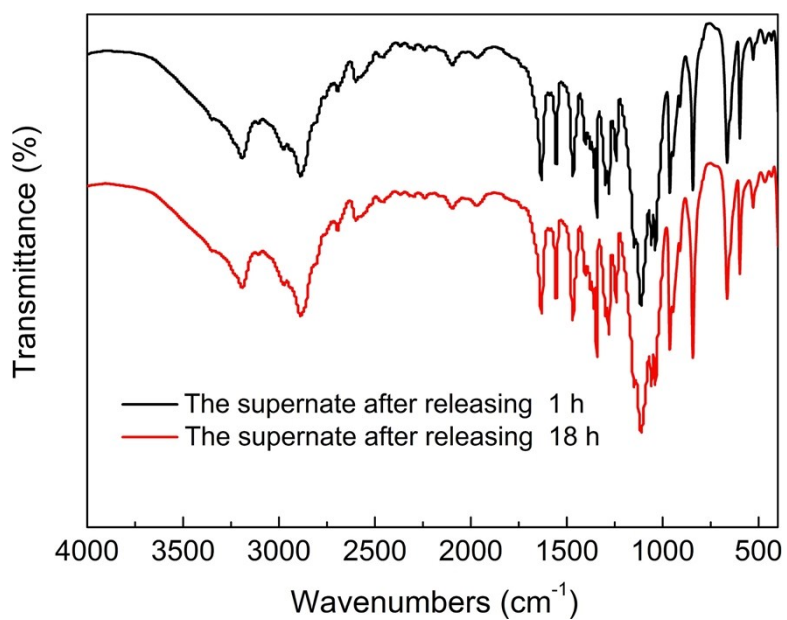


Figure S14. FT-IR spectra of the supernate after releasing 1 h and 18 h.