

## SUPPLEMENTARY MATERIALS

### **Reaction of amino-terminated PAMAM dendrimers with carbon dioxide in aqueous and methanol solutions**

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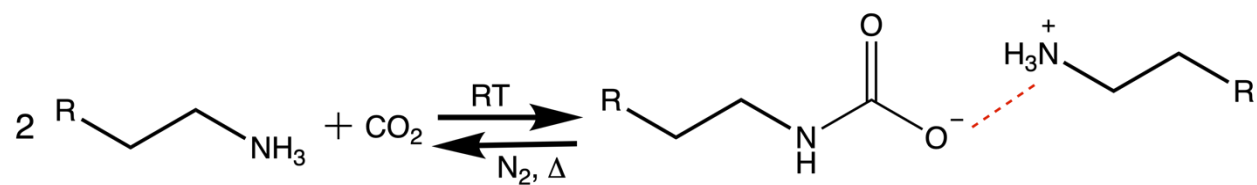
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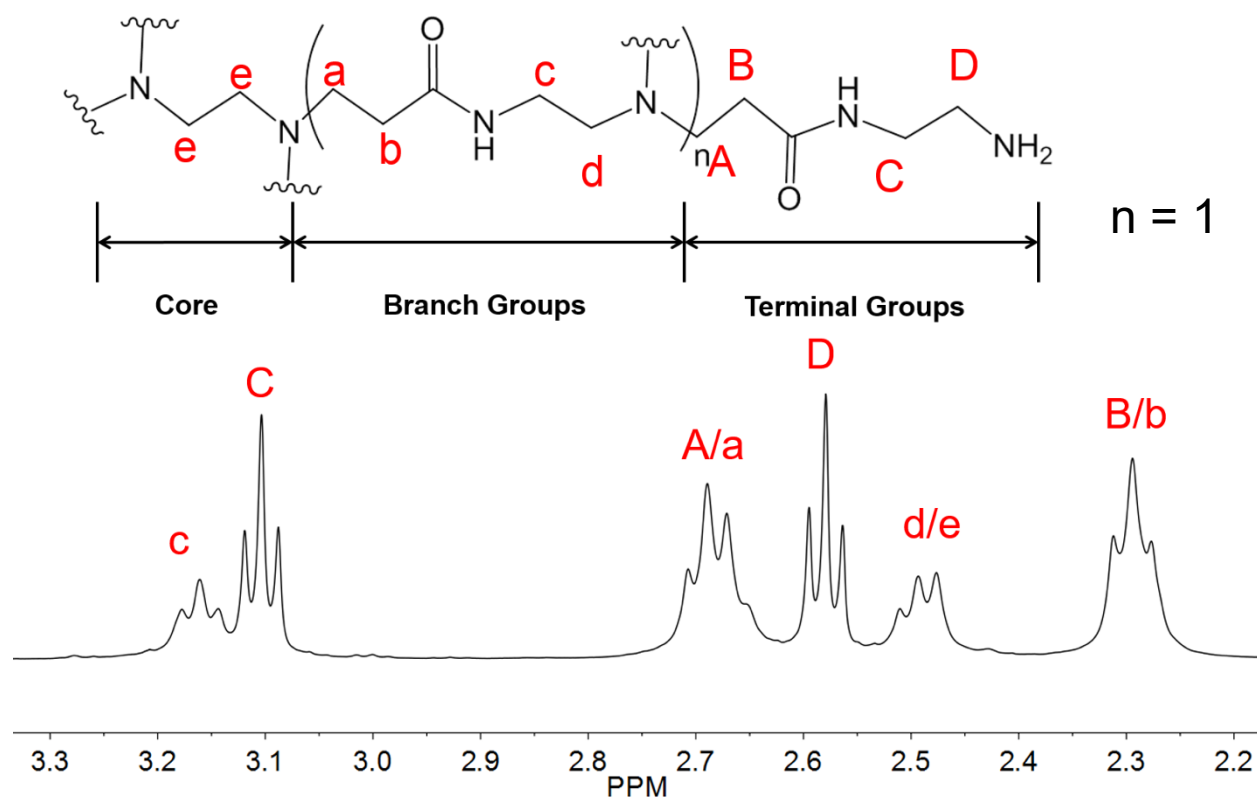
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**Scheme S1.** Reaction of carbon dioxide with amines.



**Figure S1.** <sup>1</sup>H NMR (400 MHz, D<sub>2</sub>O) of first generation PAMAM dendrimer (G1).

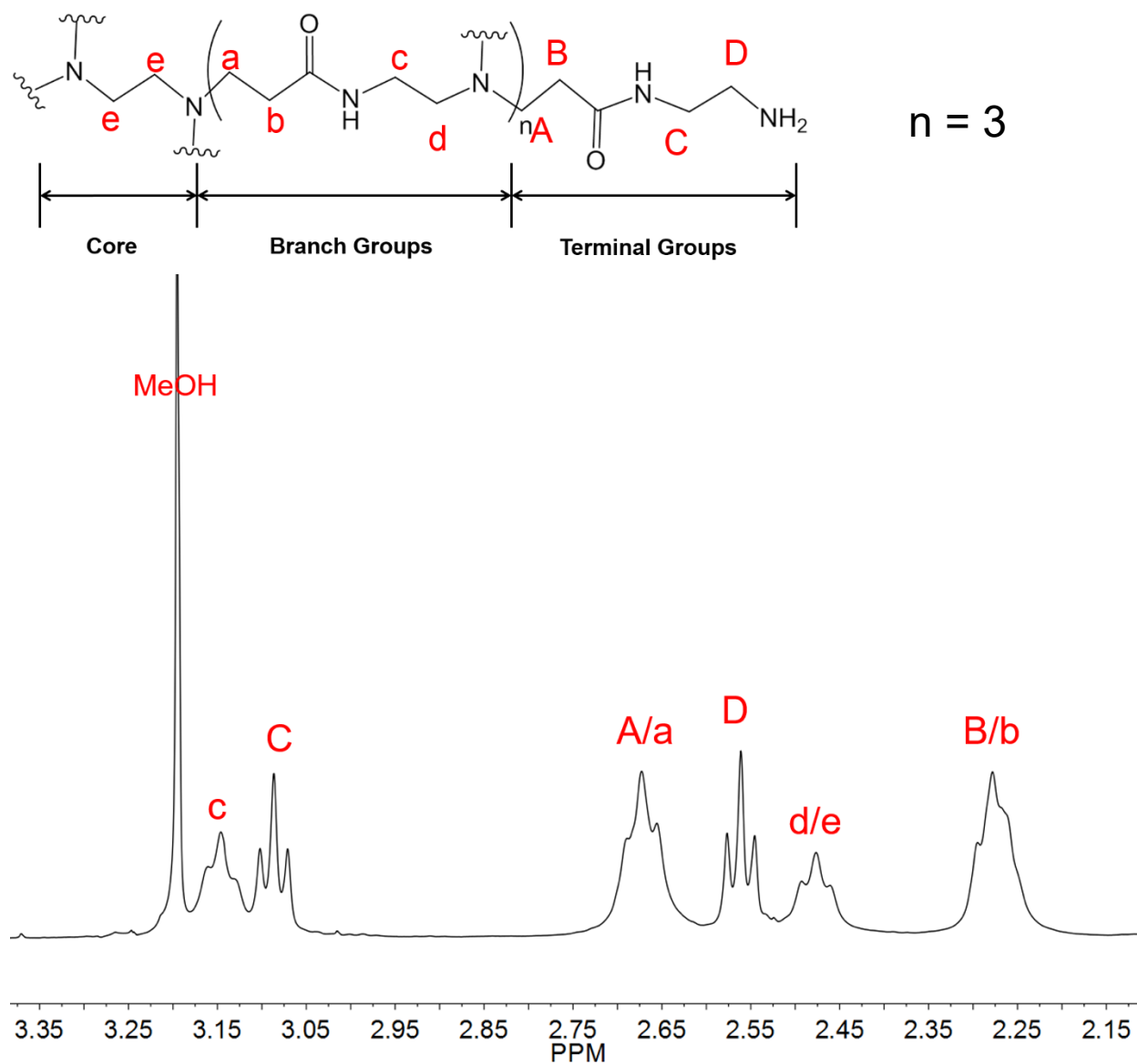
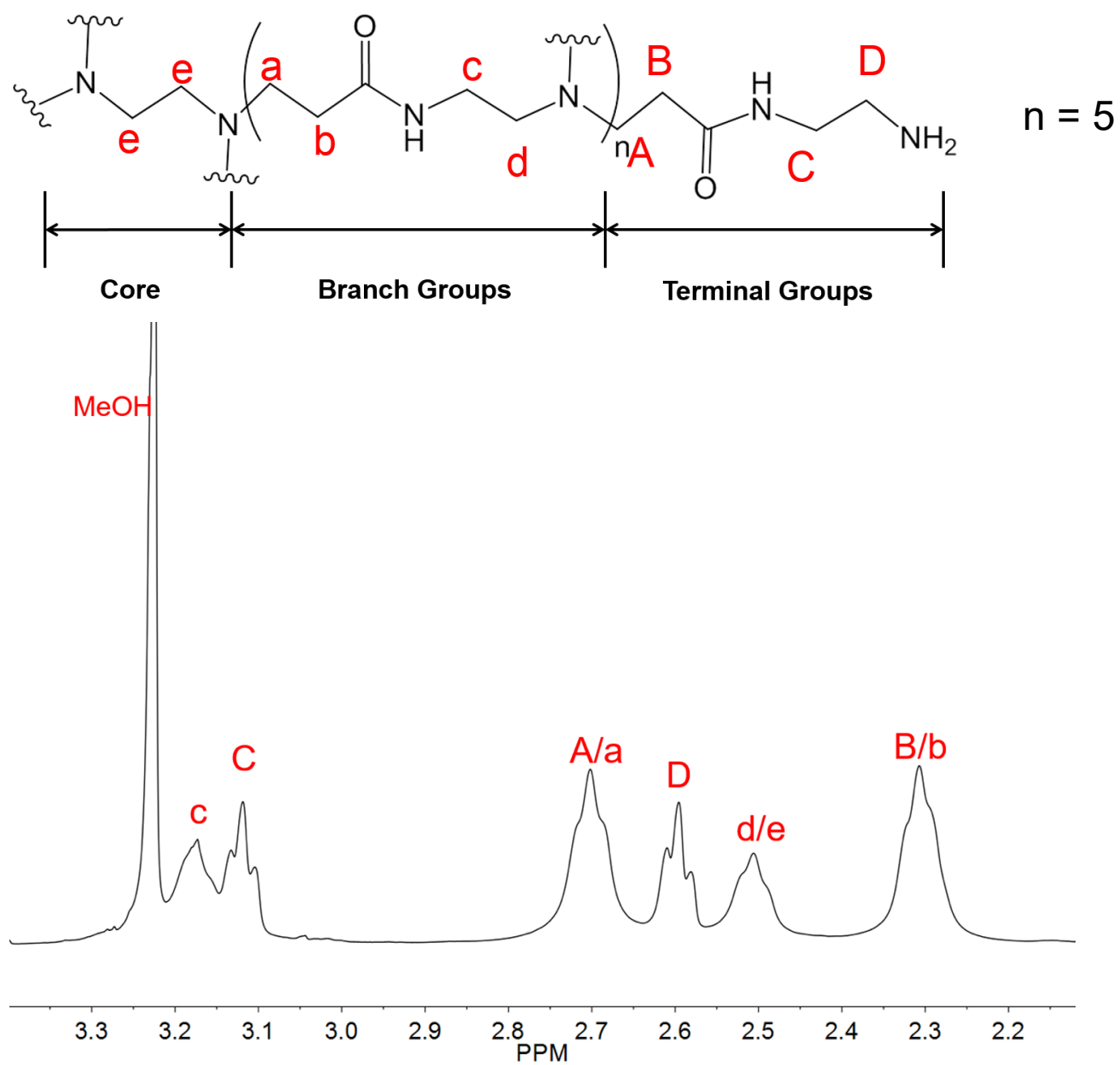
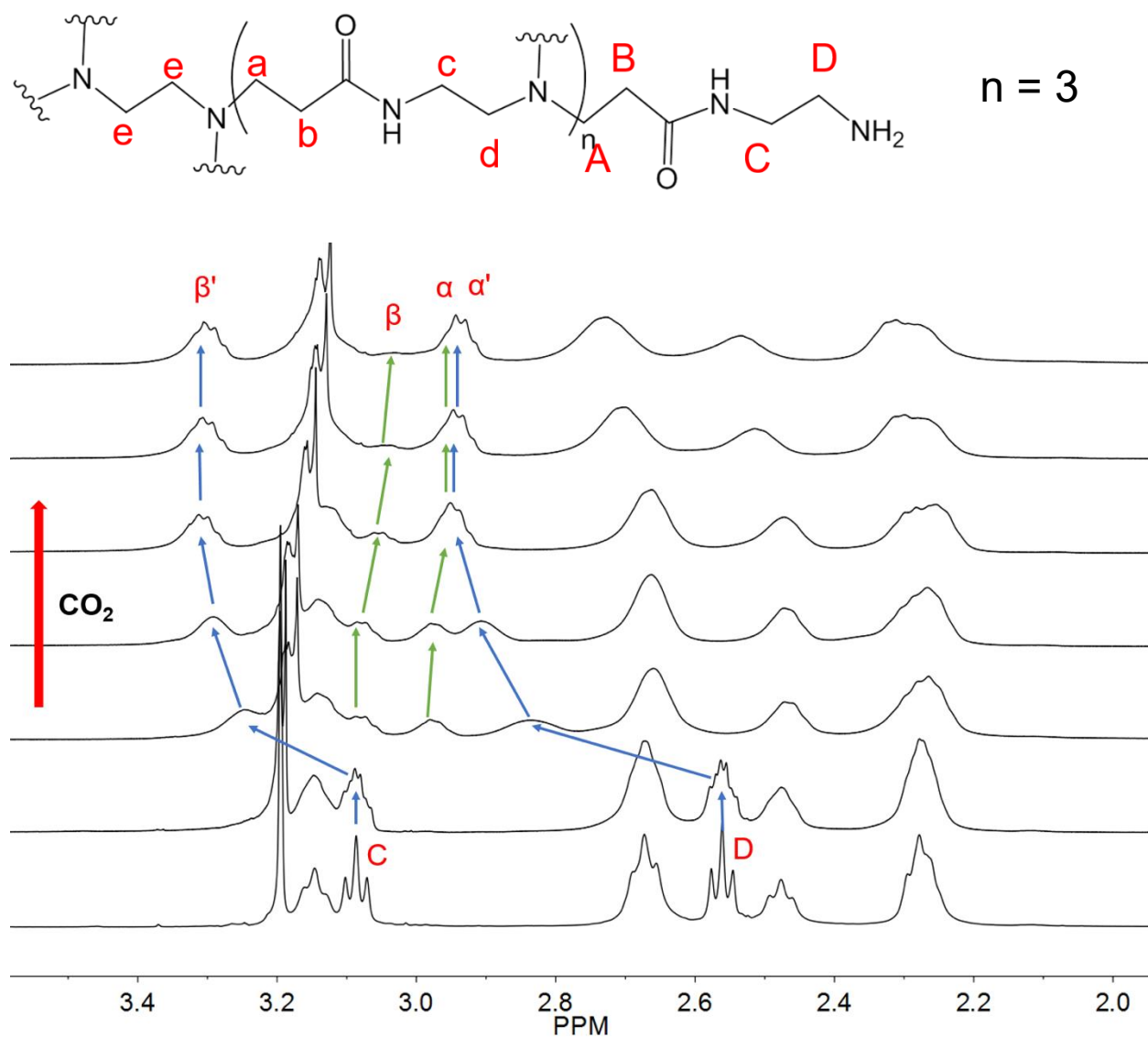


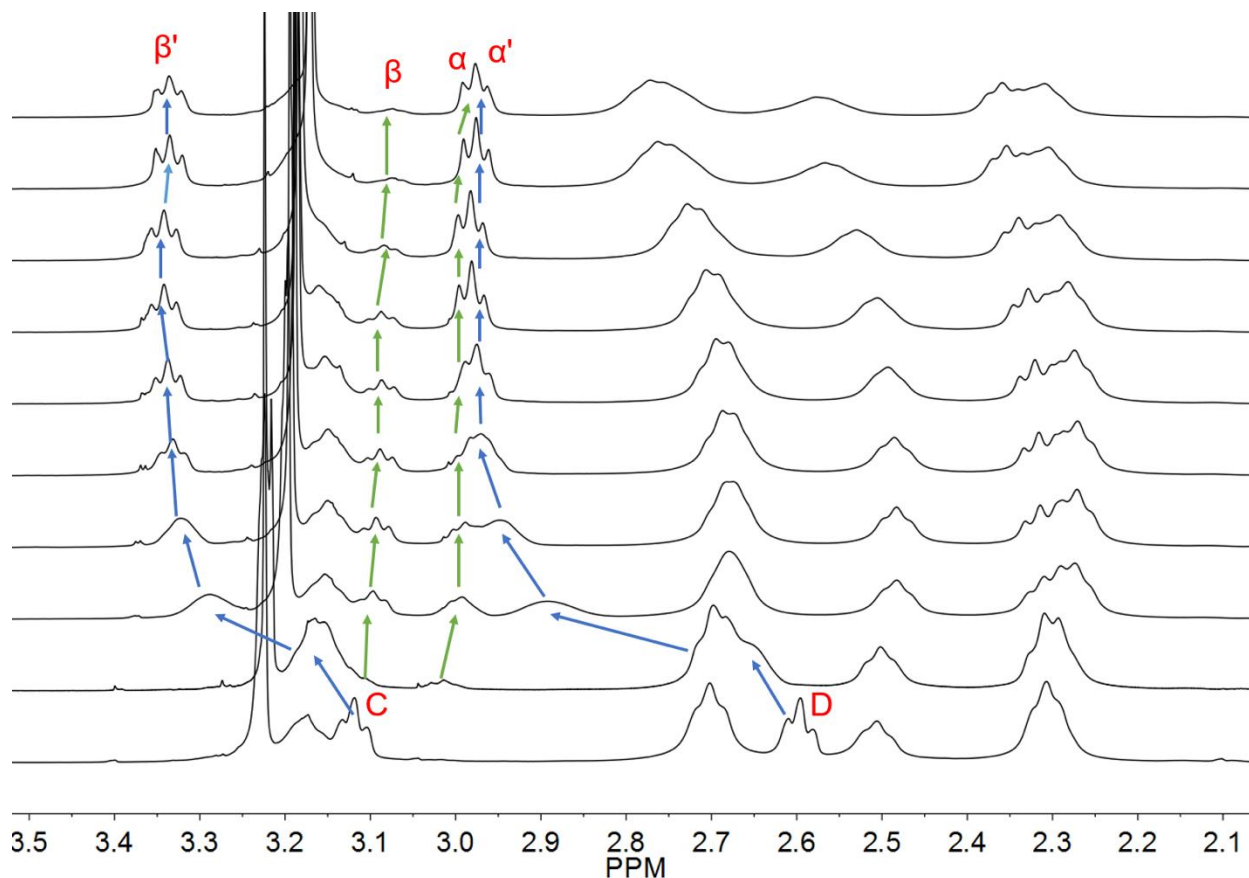
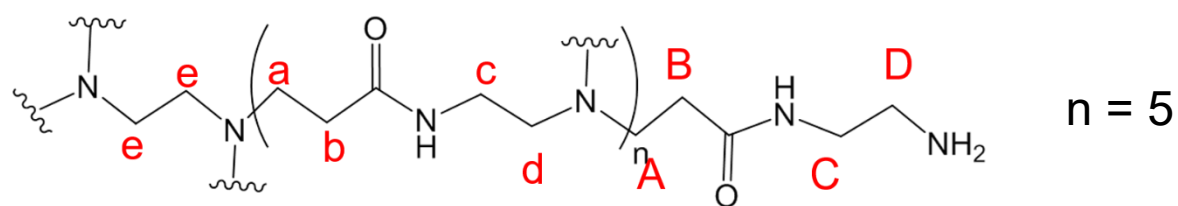
Figure S2.  $^1\text{H}$  NMR (400 MHz,  $\text{D}_2\text{O}$ ) of third generation PAMAM dendrimer (G3).



**Figure S3.**  $^1\text{H}$  NMR (400 MHz,  $\text{D}_2\text{O}$ ) of fifth generation PAMAM dendrimer (G5).



**Figure S4.**  $^1\text{H}$  NMR spectra (400 MHz,  $\text{D}_2\text{O}$ ) of G3 dendrimer (0.026 M) upon addition of  $\text{CO}_2(\text{g})$  to the solution. The terminal methylene protons of the ammonium branches are labeled  $\beta'$  and  $\alpha'$  and those of the carbamate branches are labeled  $\beta$  and  $\alpha$ .



**Figure S5.**  $^1\text{H}$  NMR spectra (400 MHz,  $\text{D}_2\text{O}$ ) of G5 dendrimer (0.009 M) upon addition of  $\text{CO}_2(\text{g})$  to the solution. The terminal methylene protons of the ammonium branches are labeled  $\beta'$  and  $\alpha'$  and those of the carbamate branches are labeled  $\beta$  and  $\alpha$ .

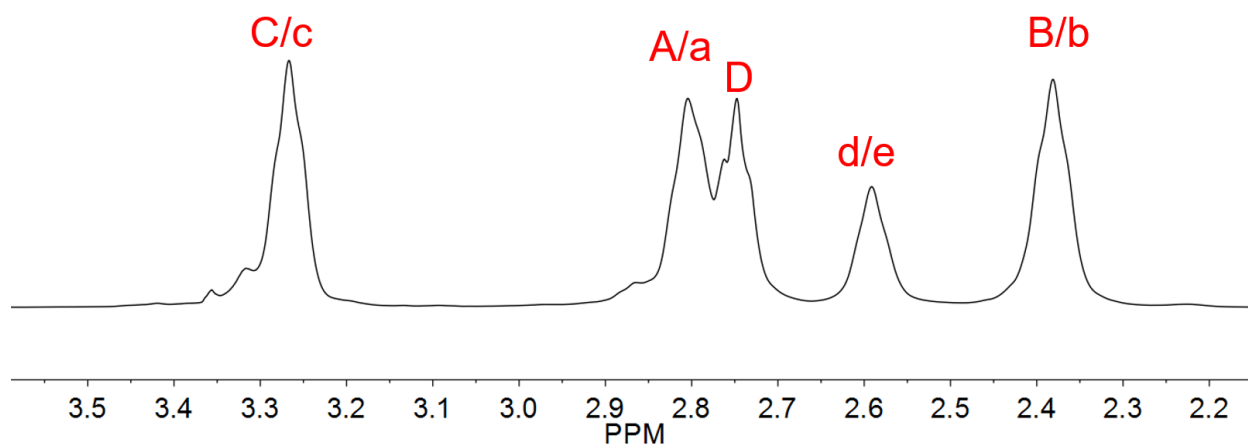
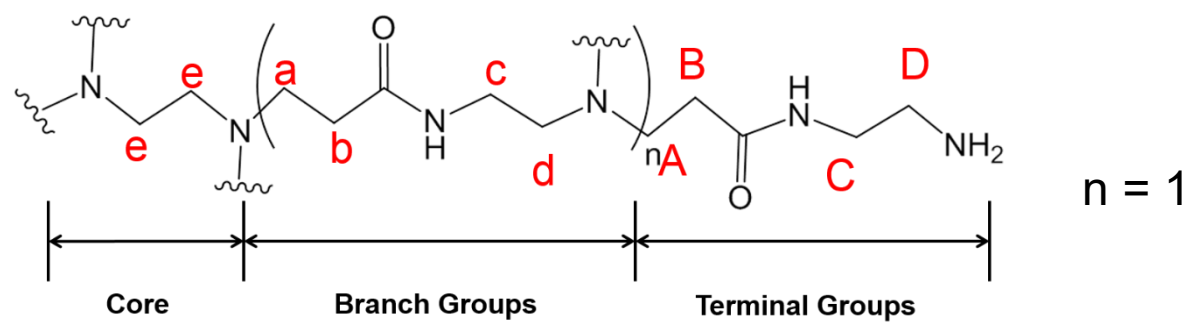
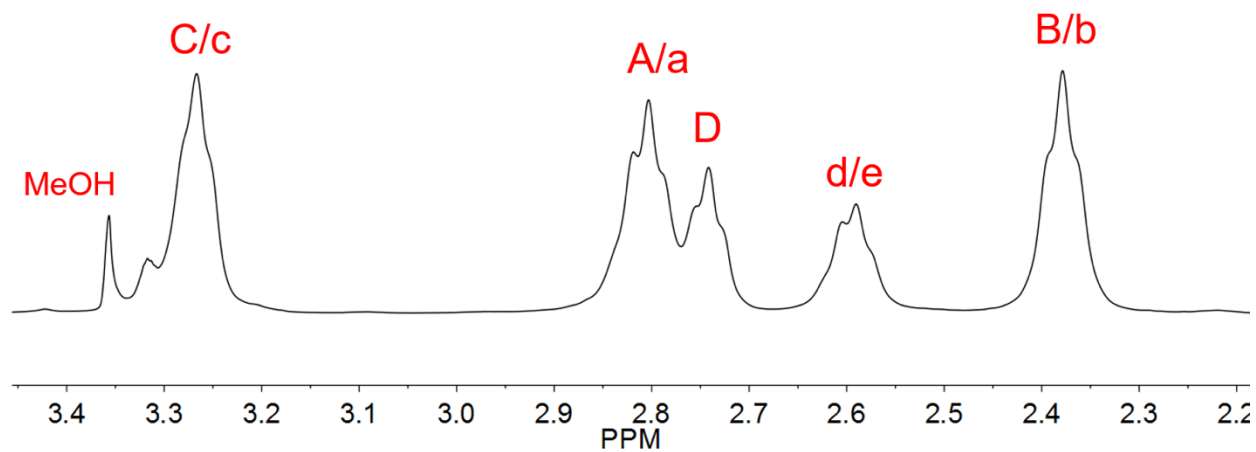
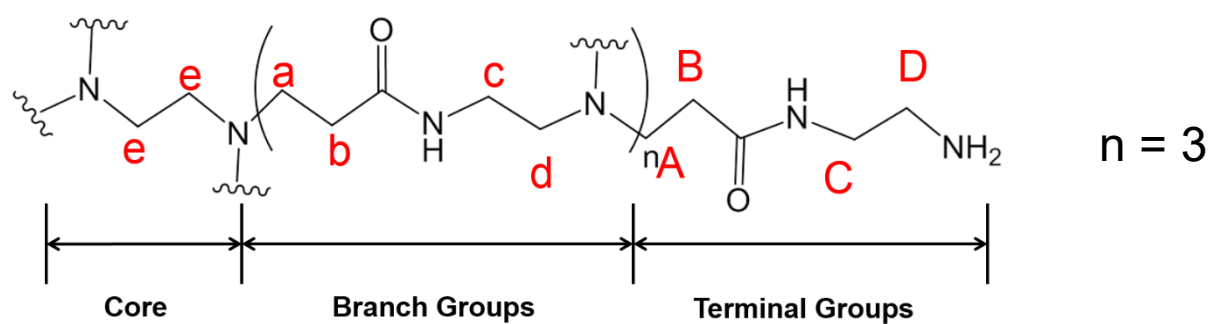
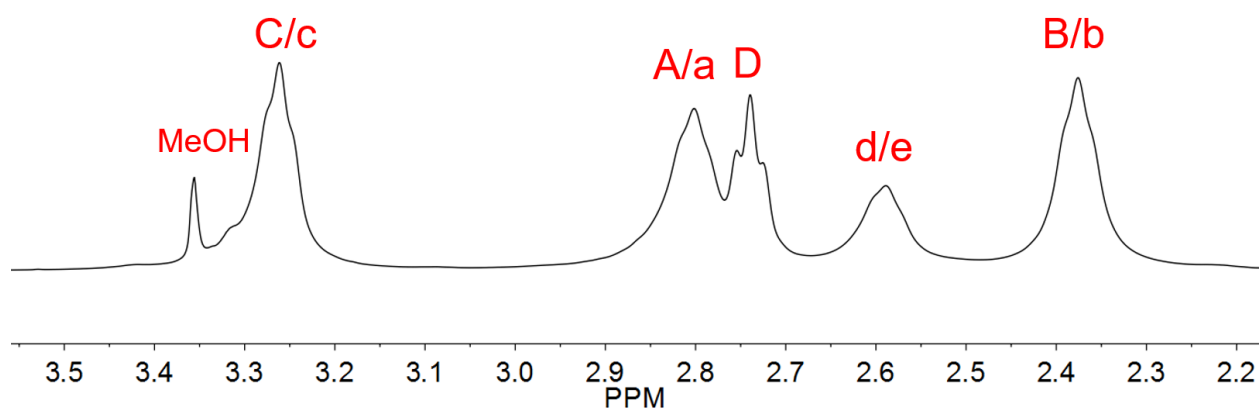
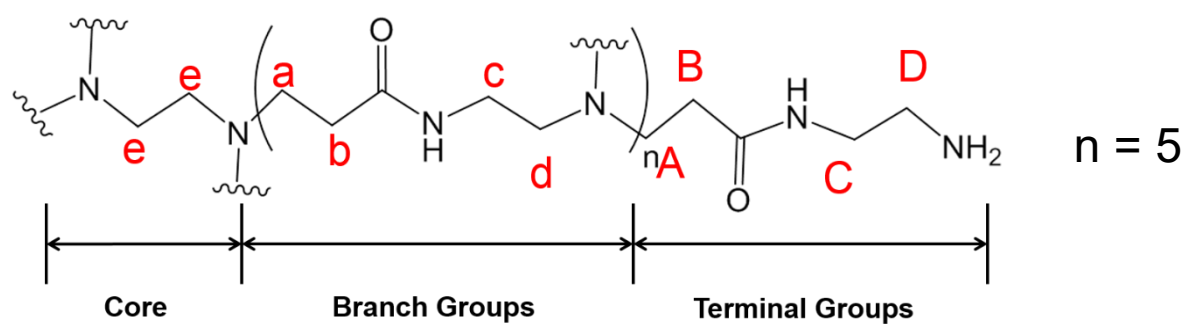


Figure S6.  $^1\text{H}$  NMR spectrum (400 MHz,  $\text{CD}_3\text{OD}$ ) of first generation dendrimer (G1)

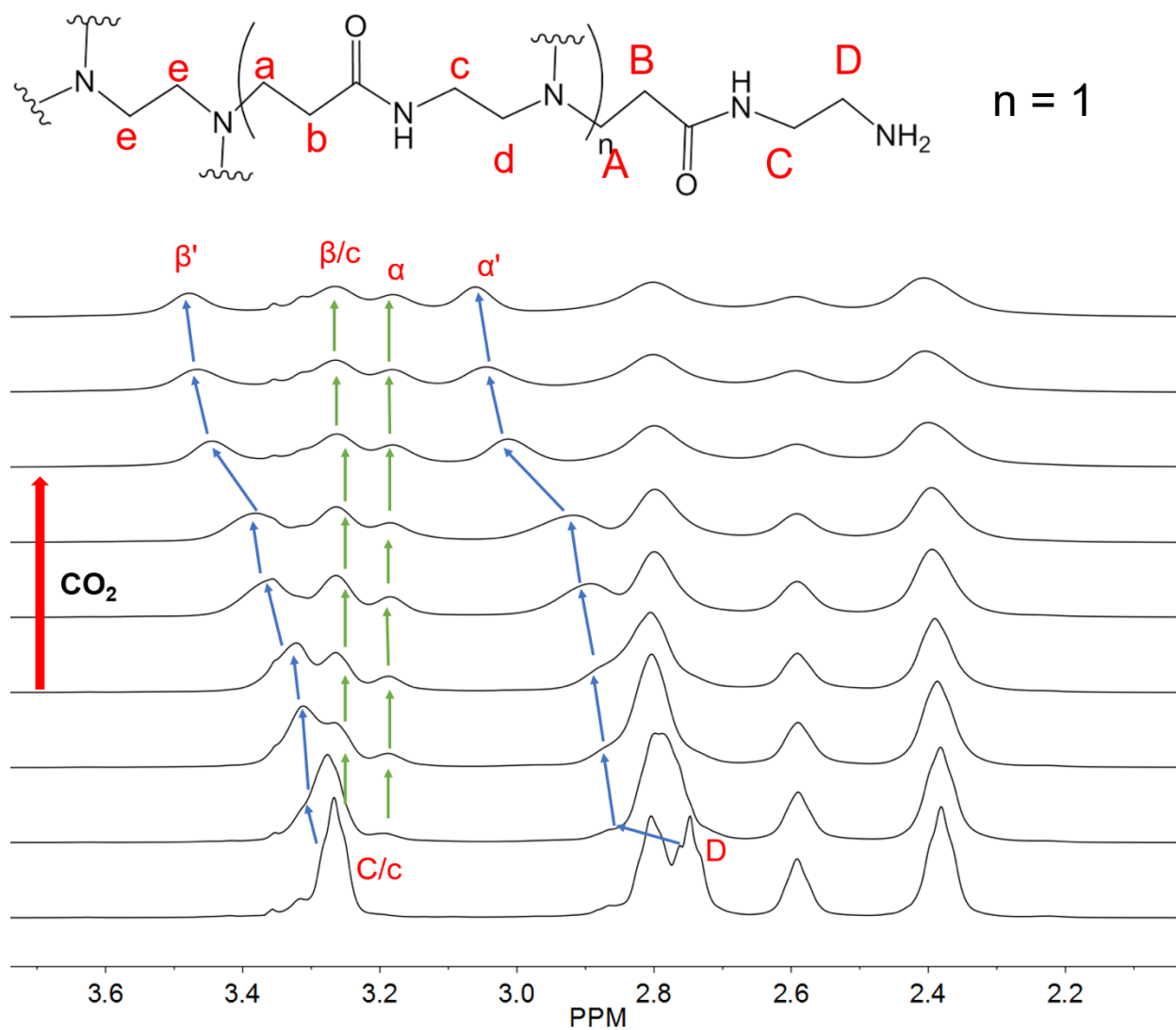


**Figure S7.**  $^1\text{H}$  NMR spectrum (400 MHz,  $\text{CD}_3\text{OD}$ ) of third generation dendrimer (G3)

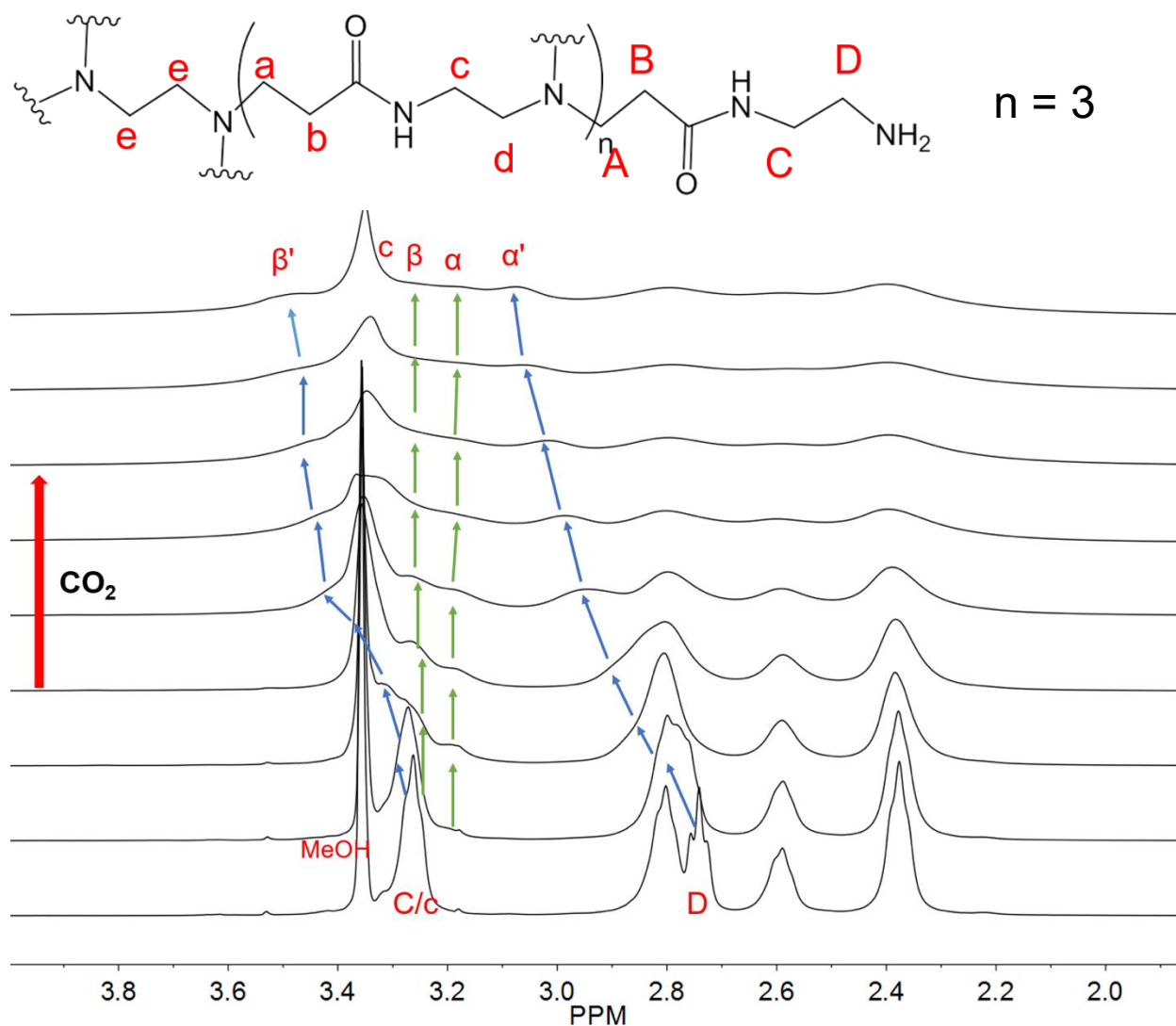




**Figure S8.**  $^1\text{H}$  NMR spectrum (400 MHz,  $\text{CD}_3\text{OD}$ ) of fifth generation dendrimer (G5)



**Figure S9.**  $^1\text{H}$  NMR spectra (400 MHz,  $\text{CD}_3\text{OD}$ ) of G1 dendrimer (0.32 M) upon addition of  $\text{CO}_2(\text{g})$  to the solution. The terminal methylene protons of the ammonium branches are labeled  $\beta'$  and  $\alpha'$  and those of the carbamate branches are labeled  $\beta$  and  $\alpha$ .



**Figure S10.**  $^1\text{H}$  NMR spectra (400 MHz,  $\text{CD}_3\text{OD}$ ) of G3 dendrimer (0.080 M) upon addition of  $\text{CO}_2(\text{g})$  to the solution. The terminal methylene protons of the ammonium branches are labeled  $\beta'$  and  $\alpha'$  and those of the carbamate branches are labeled  $\beta$

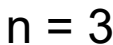


**Video S1.** Behavior of a 0.32 M methanolic solution of the G1 dendrimer after reaction with  $\text{CO}_2(\text{g})$ . (Double click on the file to play the video).



**Video S2.** Behavior of a 0.080 M methanolic solution of the G3 dendrimer after reaction with  $\text{CO}_2(\text{g})$ . (Double click on the file to play the video).

**Video S3.** Behavior of a 0.020 M methanolic solution of the G5 dendrimer after reaction with CO<sub>2</sub>(g). (Double click on the file to play the video).



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