

SUPPLEMENTARY MATERIALS

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

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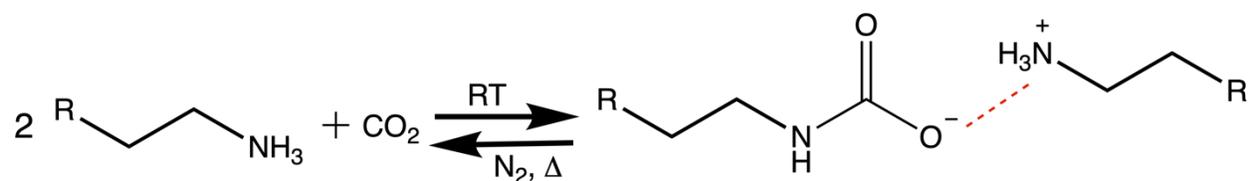
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Scheme S1. Reaction of carbon dioxide with amines.

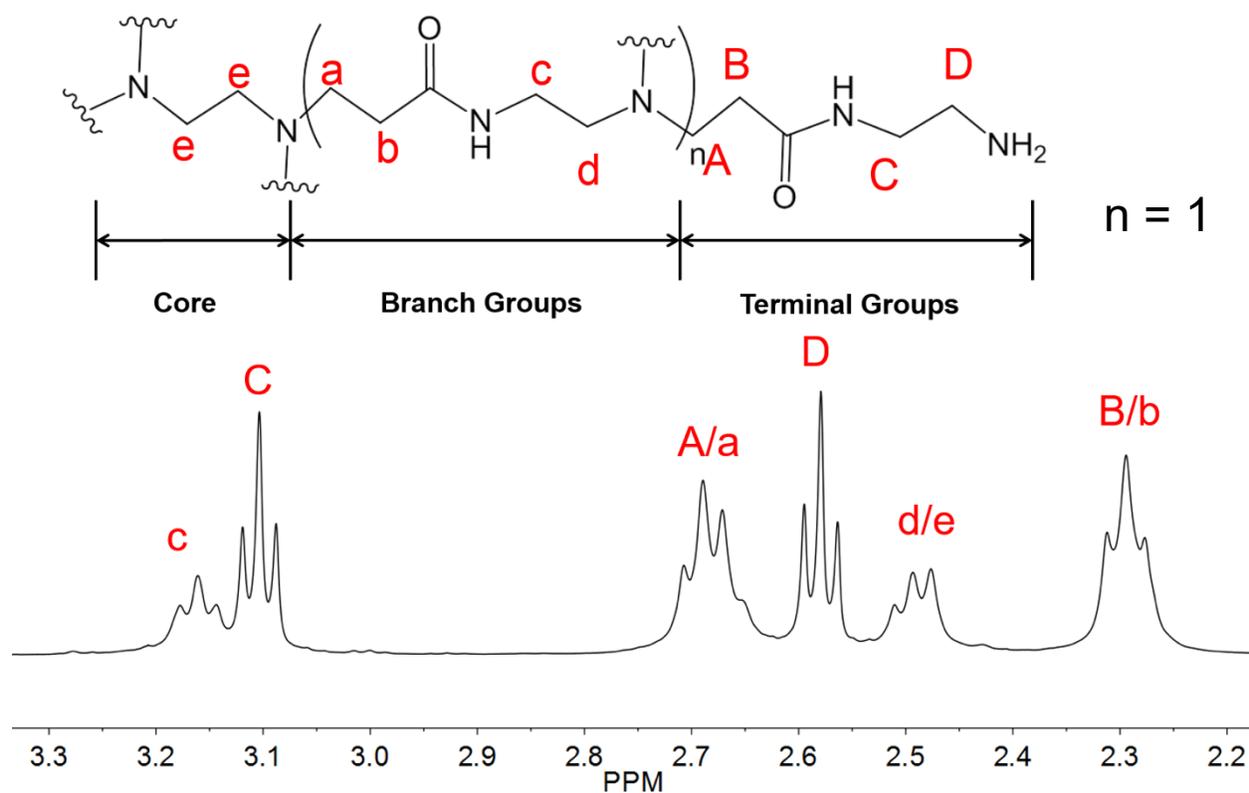


Figure S1. ^1H NMR (400 MHz, D_2O) of first generation PAMAM dendrimer (G1).

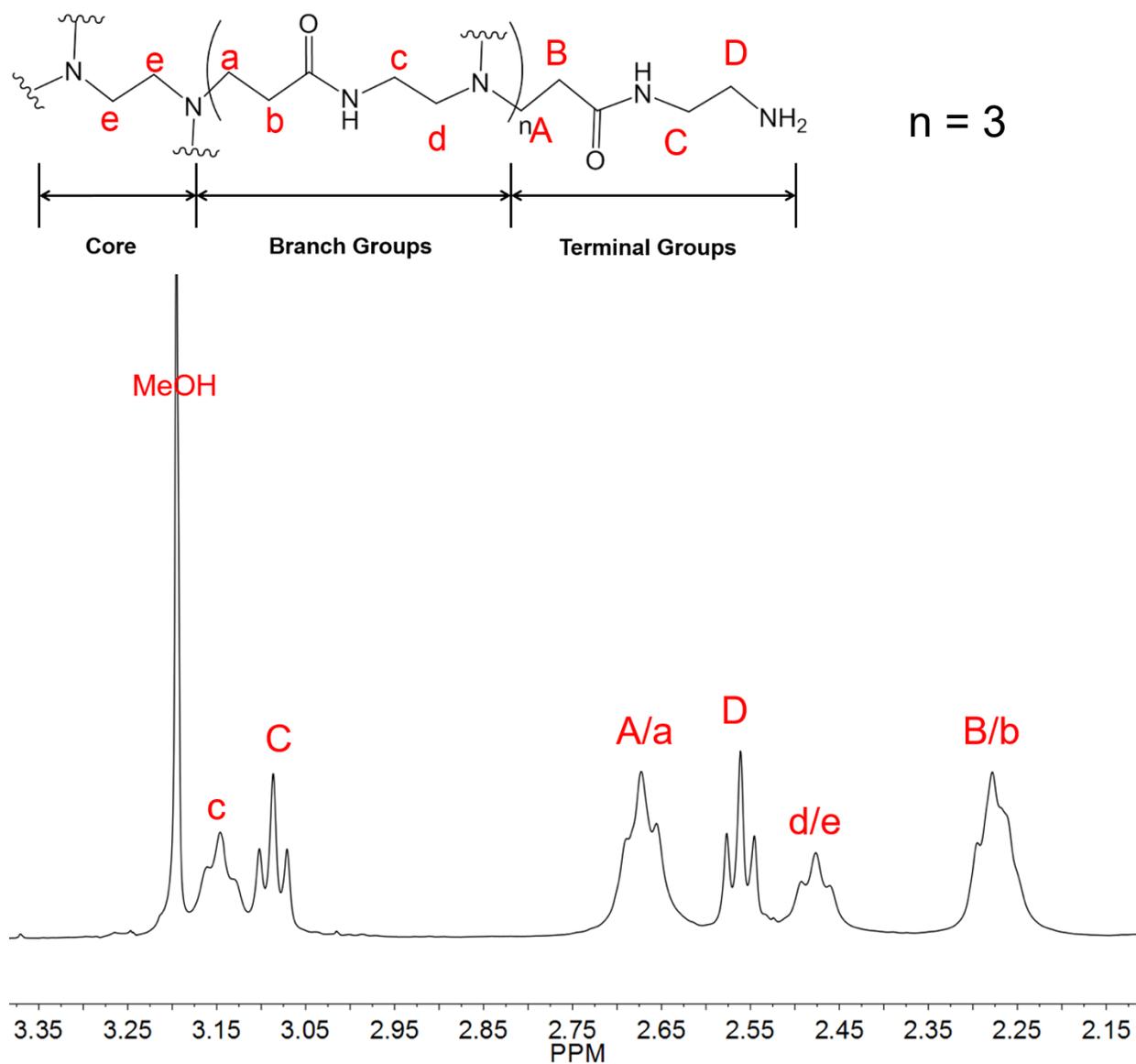


Figure S2. ^1H NMR (400 MHz, D_2O) of third generation PAMAM dendrimer (G3).

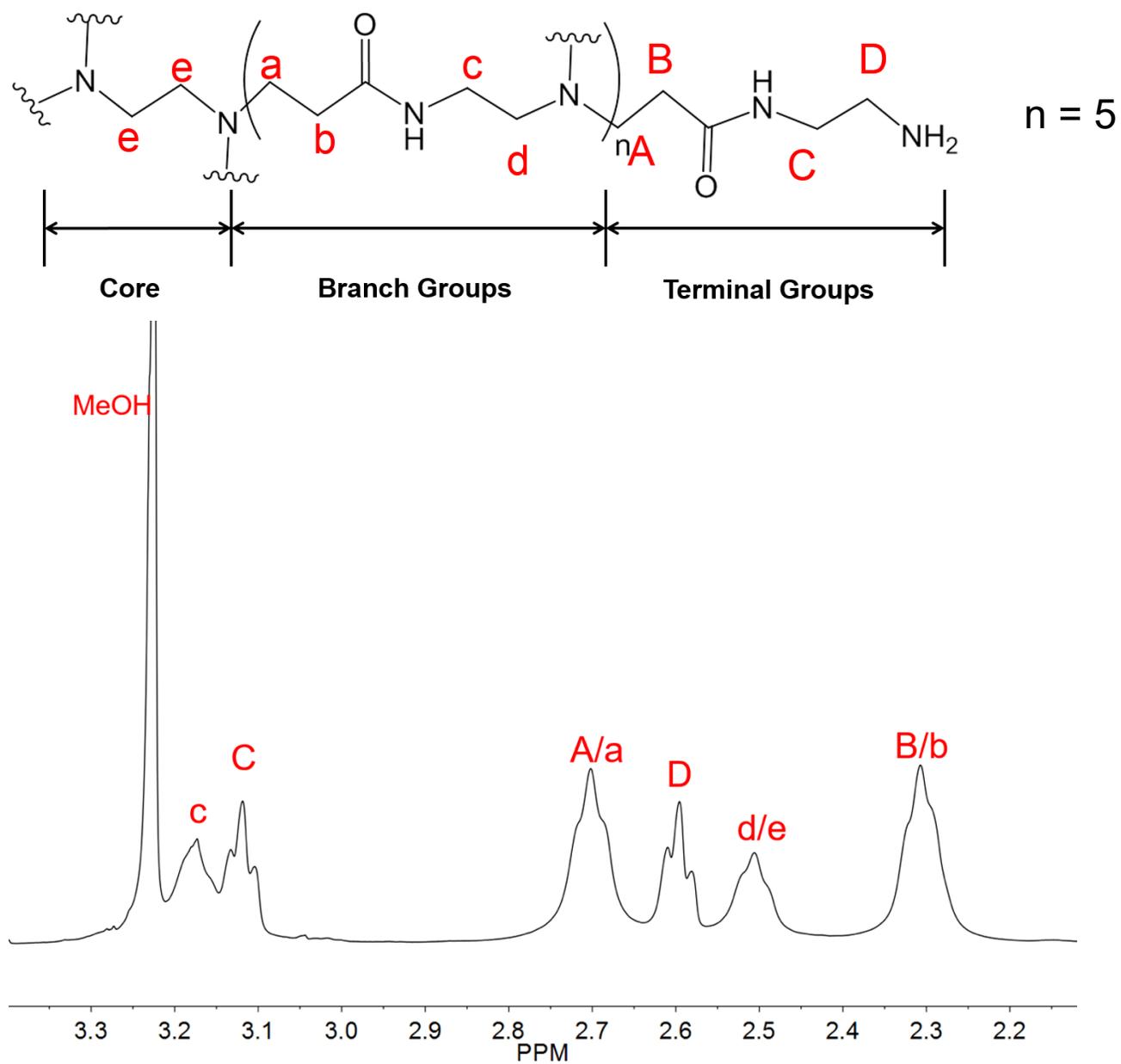


Figure S3. ¹H NMR (400 MHz, D₂O) of fifth generation PAMAM dendrimer (G5).

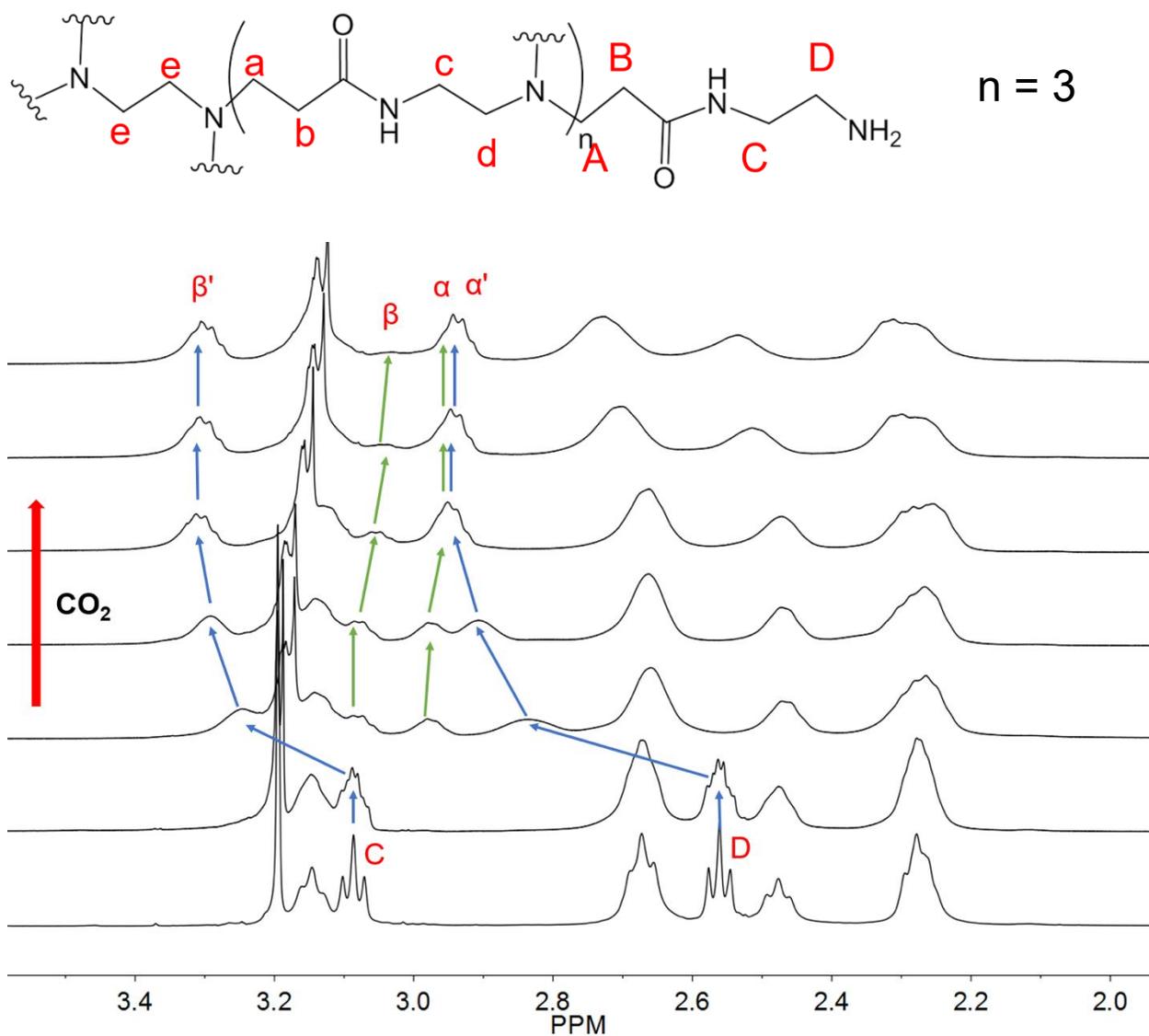


Figure S4. ^1H NMR spectra (400 MHz, D_2O) of G3 dendrimer (0.026 M) upon addition of $\text{CO}_2(\text{g})$ to the solution. The terminal methylene protons of the ammonium branches are labeled β' and α' and those of the carbamate branches are labeled β and α .

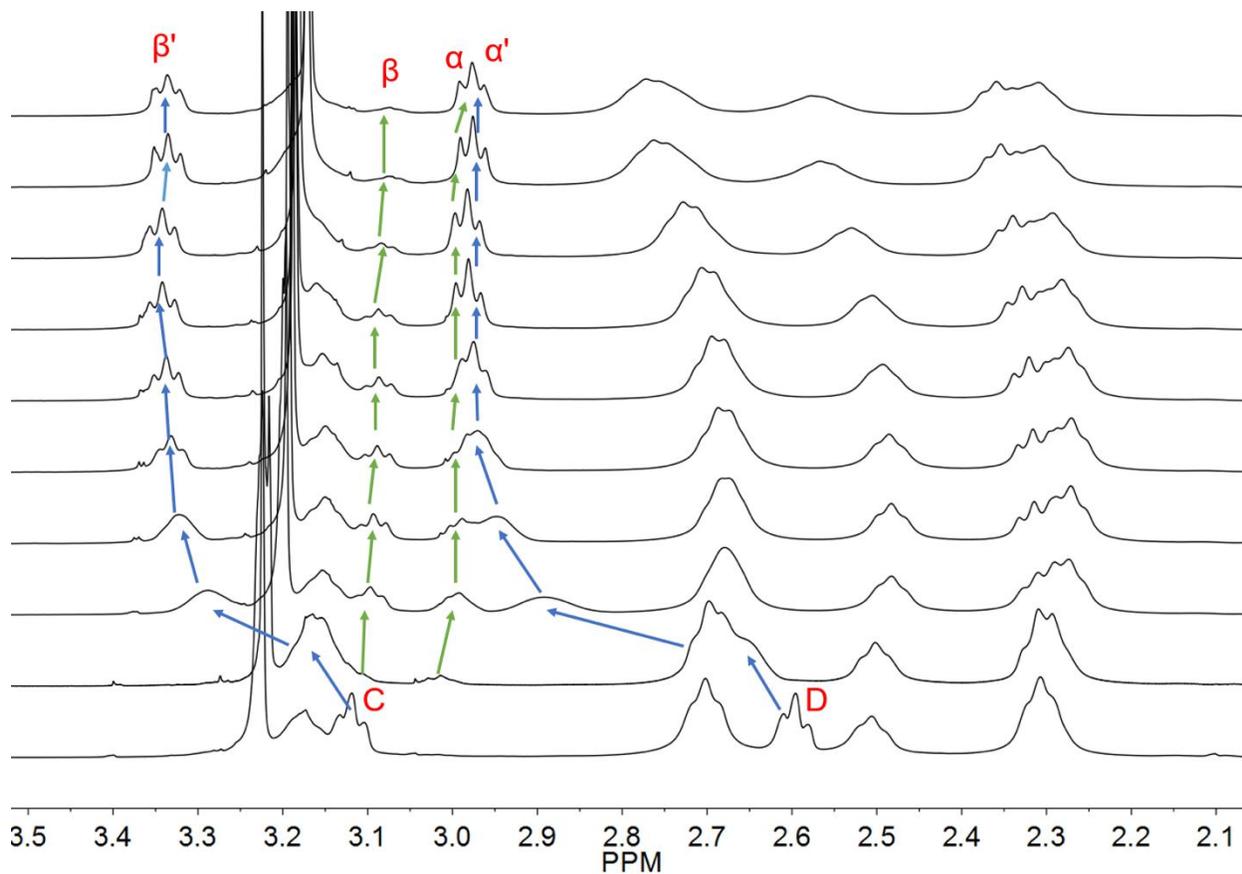
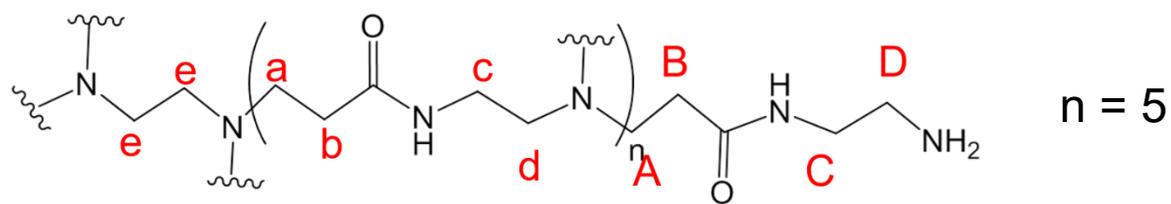


Figure S5. ^1H NMR spectra (400 MHz, D_2O) of G5 dendrimer (0.009 M) upon addition of $\text{CO}_2(\text{g})$ to the solution. The terminal methylene protons of the ammonium branches are labeled β' and α' and those of the carbamate branches are labeled β and α .

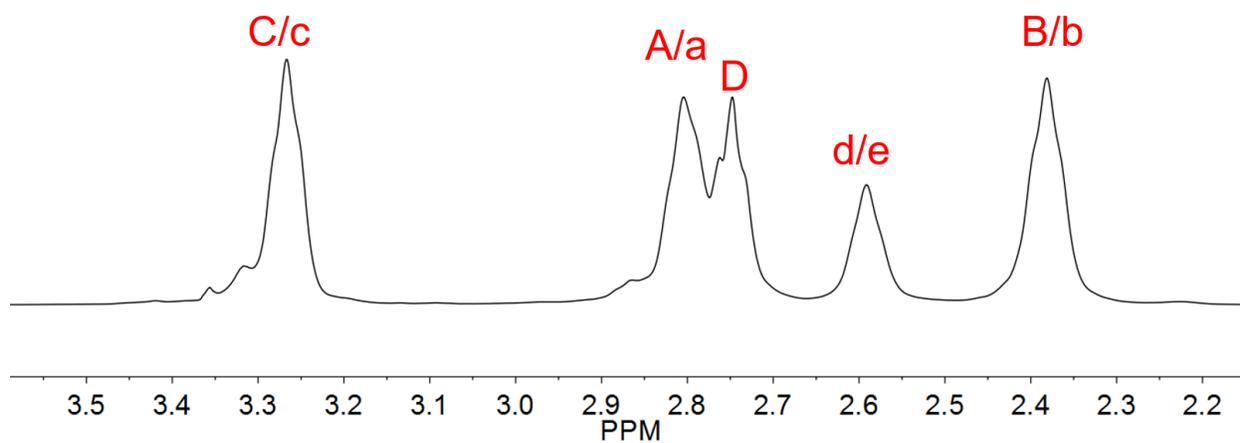
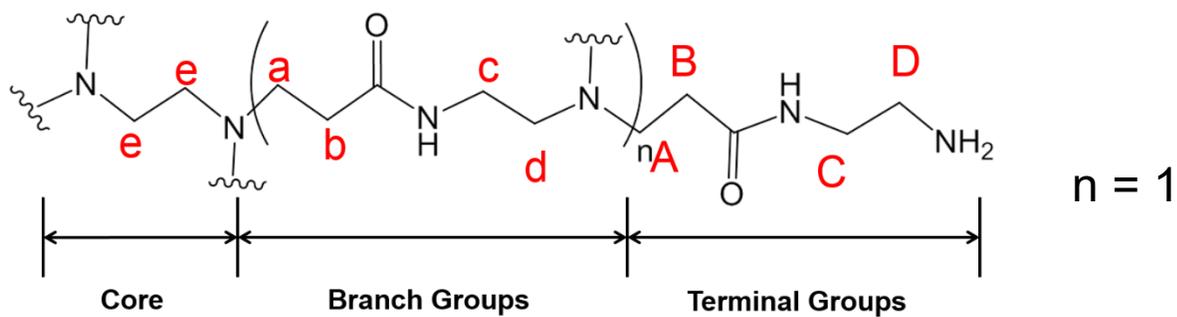


Figure S6. ^1H NMR spectrum (400 MHz, CD_3OD) of first generation dendrimer (G1)

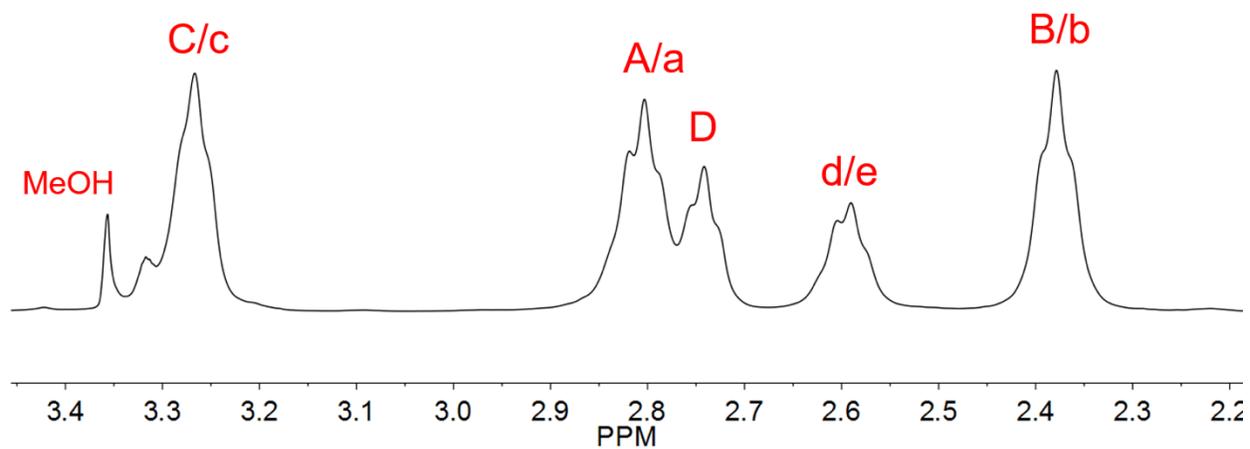
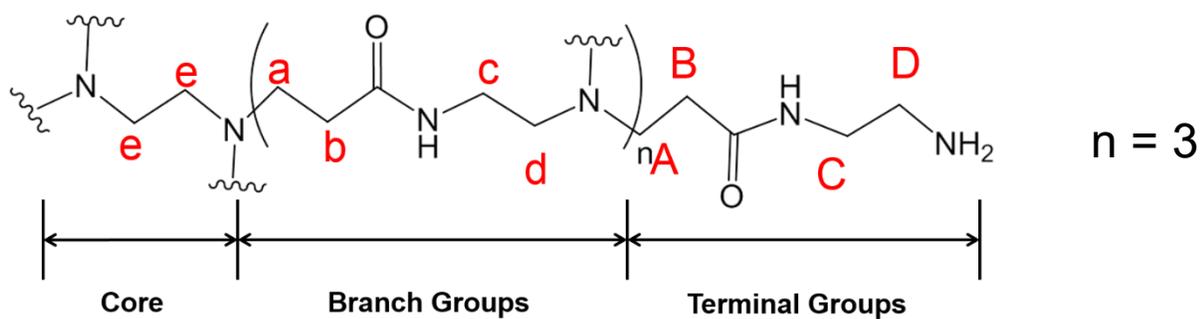


Figure S7. ^1H NMR spectrum (400 MHz, CD_3OD) of third generation dendrimer (G3)

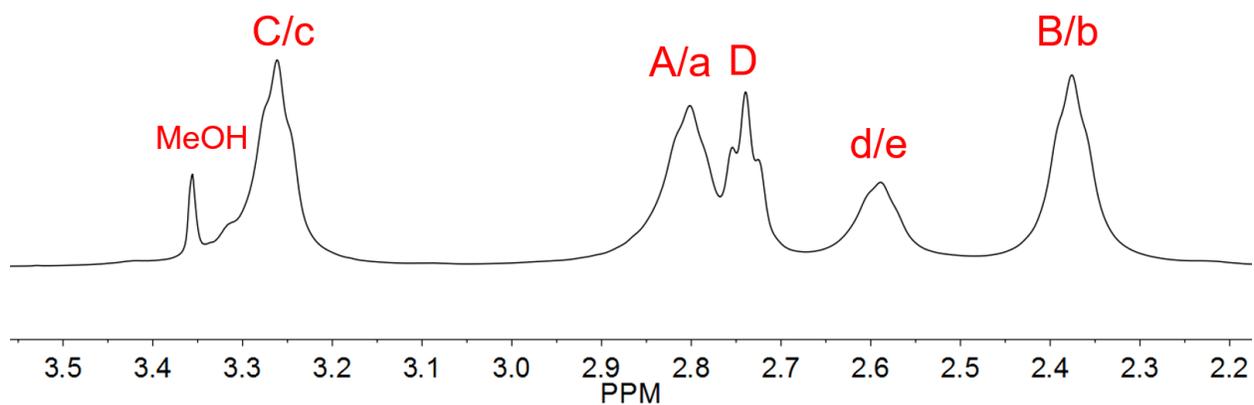
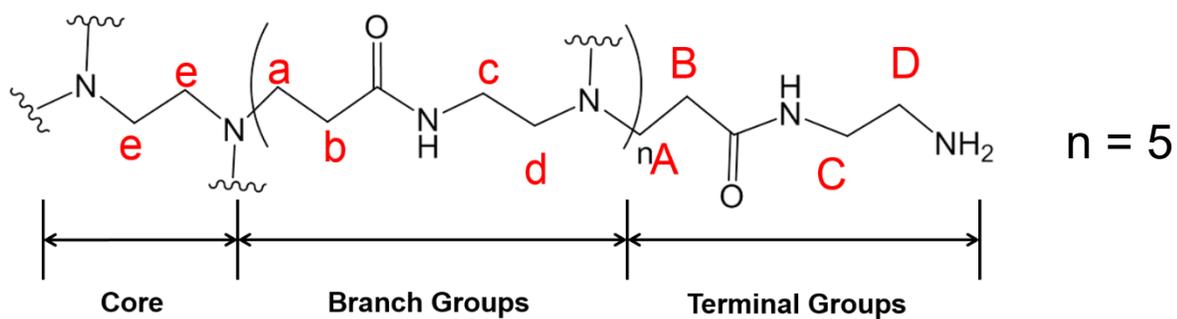


Figure S8. ¹H NMR spectrum (400 MHz, CD₃OD) of fifth generation dendrimer (G5)

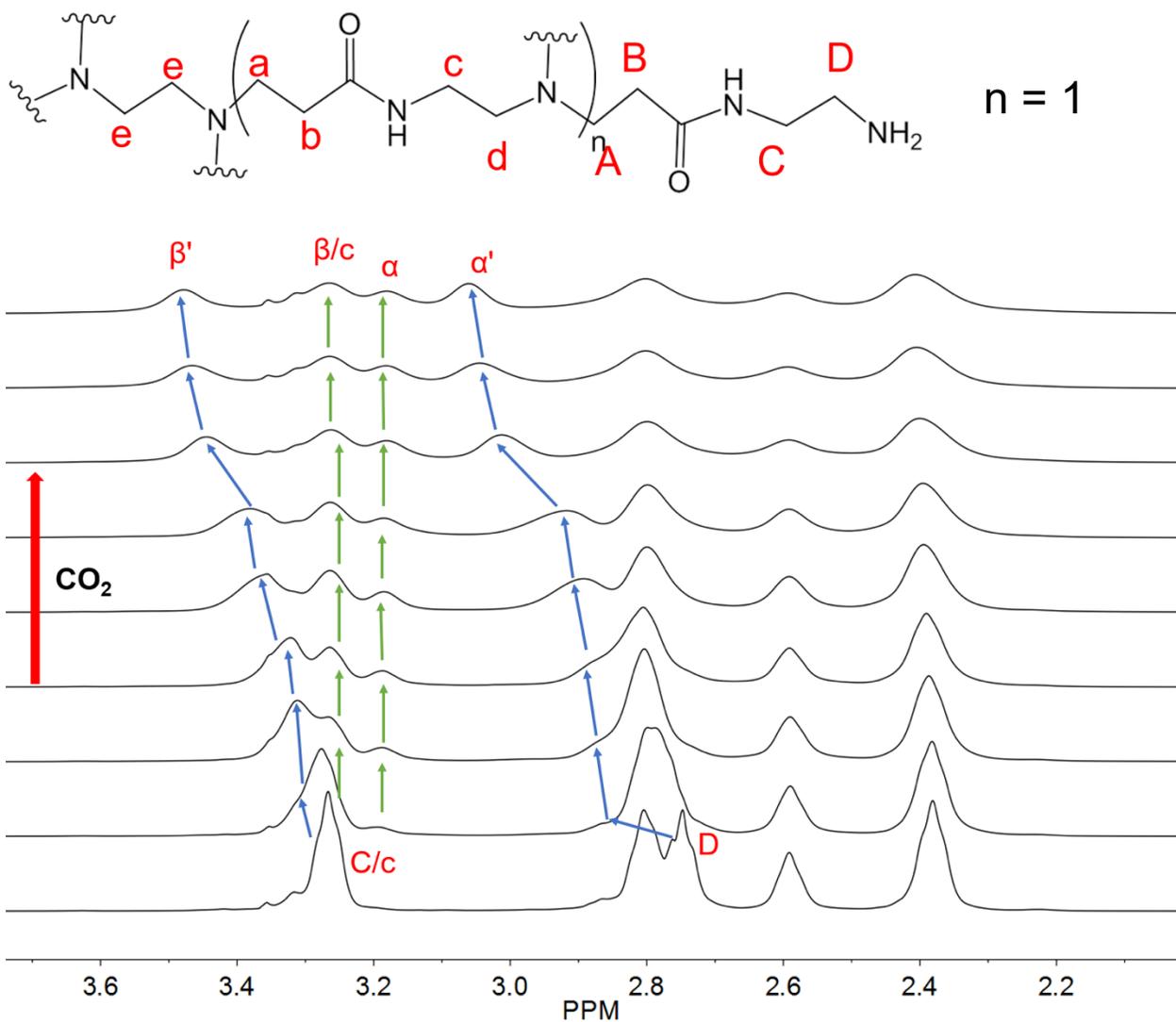


Figure S9. ^1H NMR spectra (400 MHz, CD_3OD) of G1 dendrimer (0.32 M) upon addition of $\text{CO}_2(\text{g})$ to the solution. The terminal methylene protons of the ammonium branches are labeled β' and α' and those of the carbamate branches are labeled β and α .

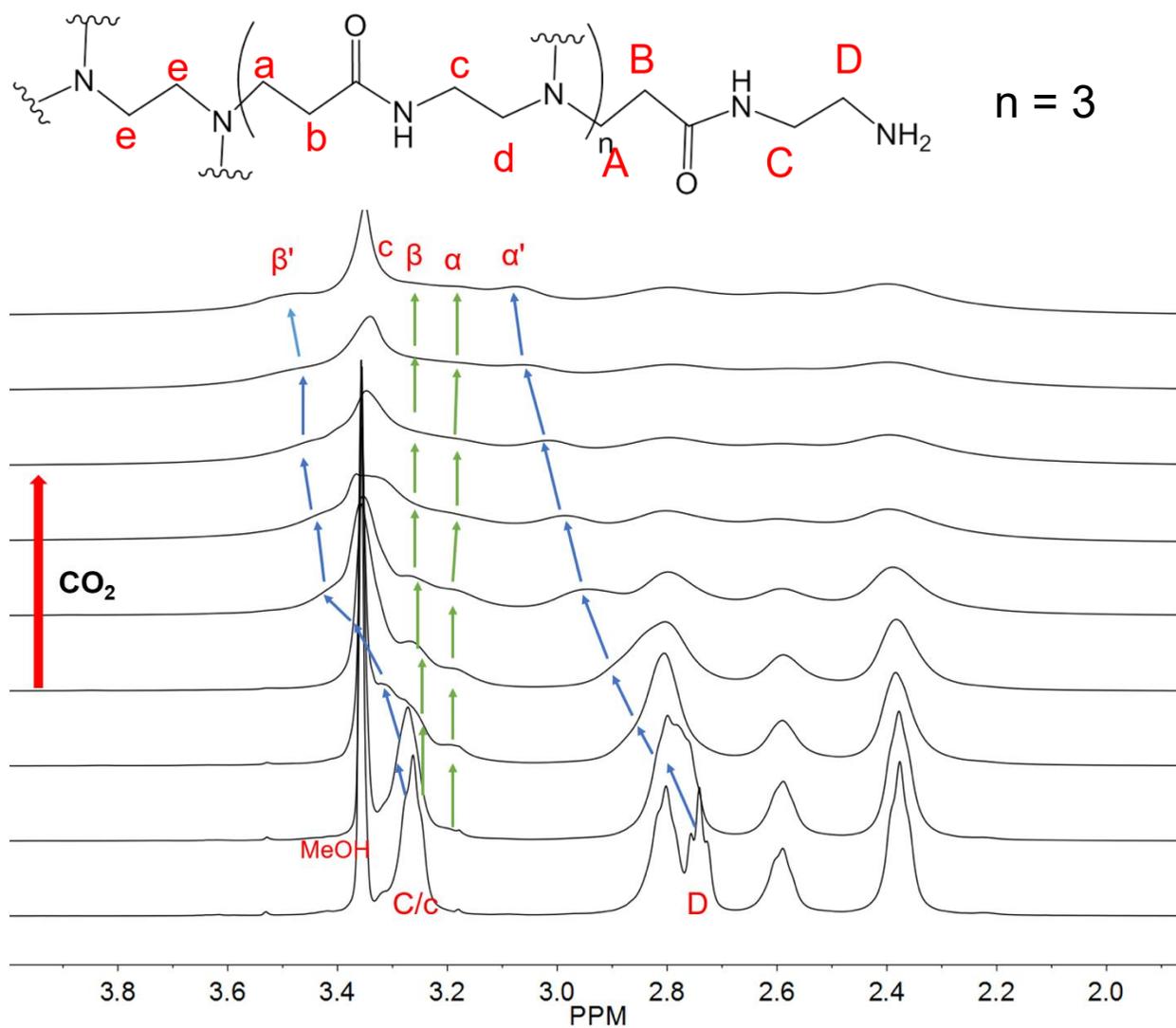


Figure S10. ^1H NMR spectra (400 MHz, CD_3OD) of G3 dendrimer (0.080 M) upon addition of $\text{CO}_2(\text{g})$ to the solution. The terminal methylene protons of the ammonium branches are labeled β' and α' and those of the carbamate branches are labeled β



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 CO₂(g). (Double click on the file to play the video).

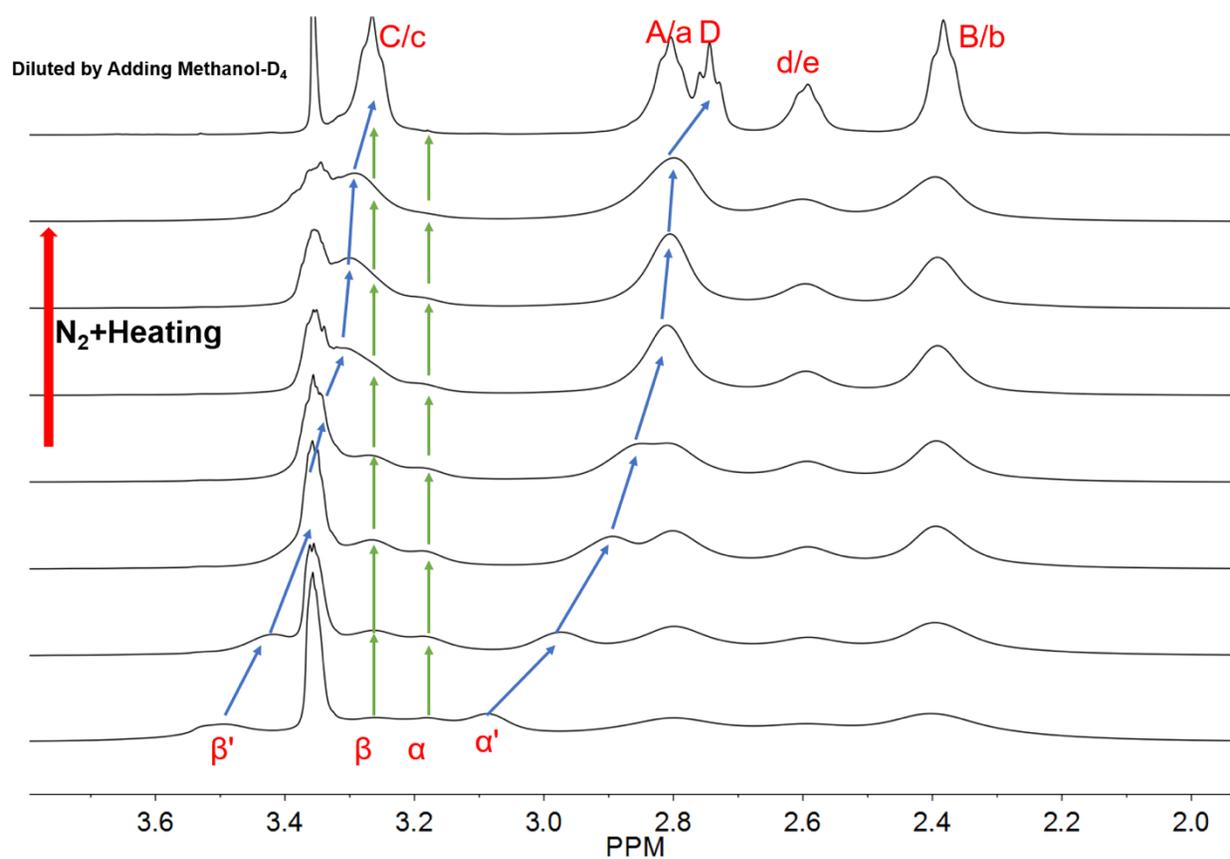
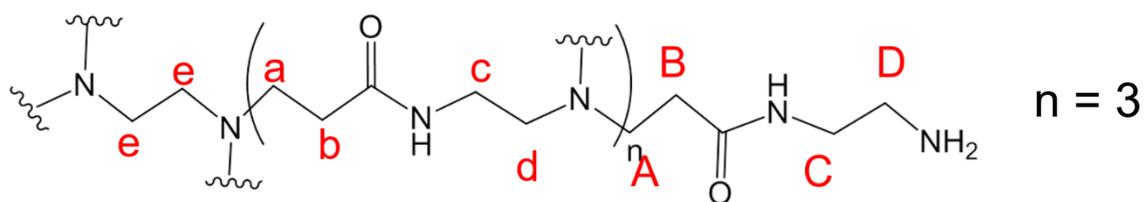


Figure S11. ^1H NMR spectra (400 MHz, CD_3OD) showing the recovery by heating and purging with $\text{N}_2(\text{g})$ of the initial spectrum for G3 after its reaction with $\text{CO}_2(\text{g})$.