

Improved Large Scale Synthesis and Characterization of Small and Medium Generation PAMAM-dendrimers

Supporting Information

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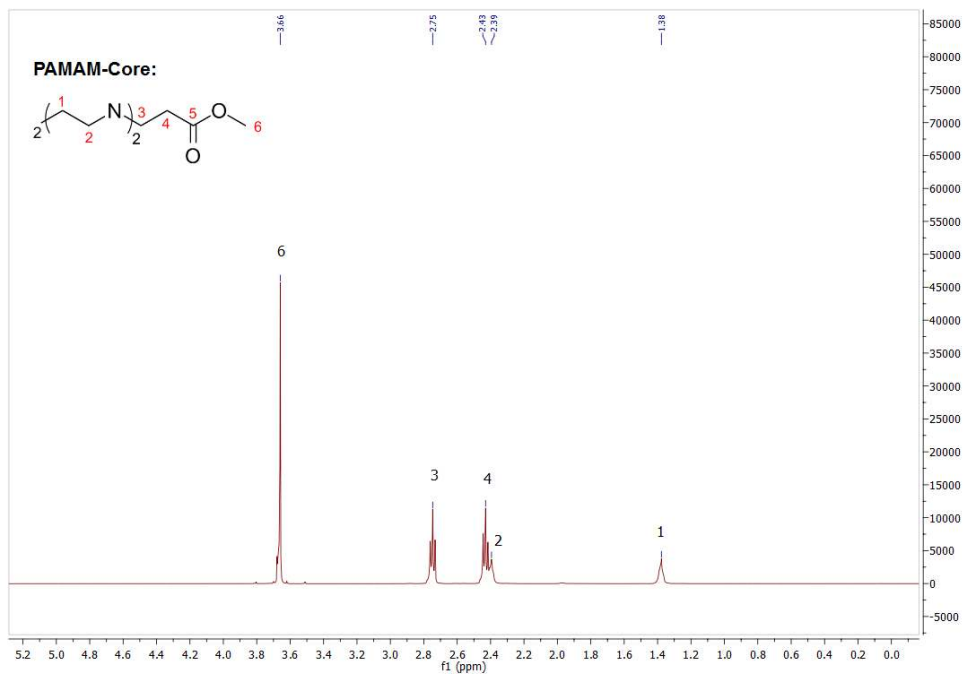
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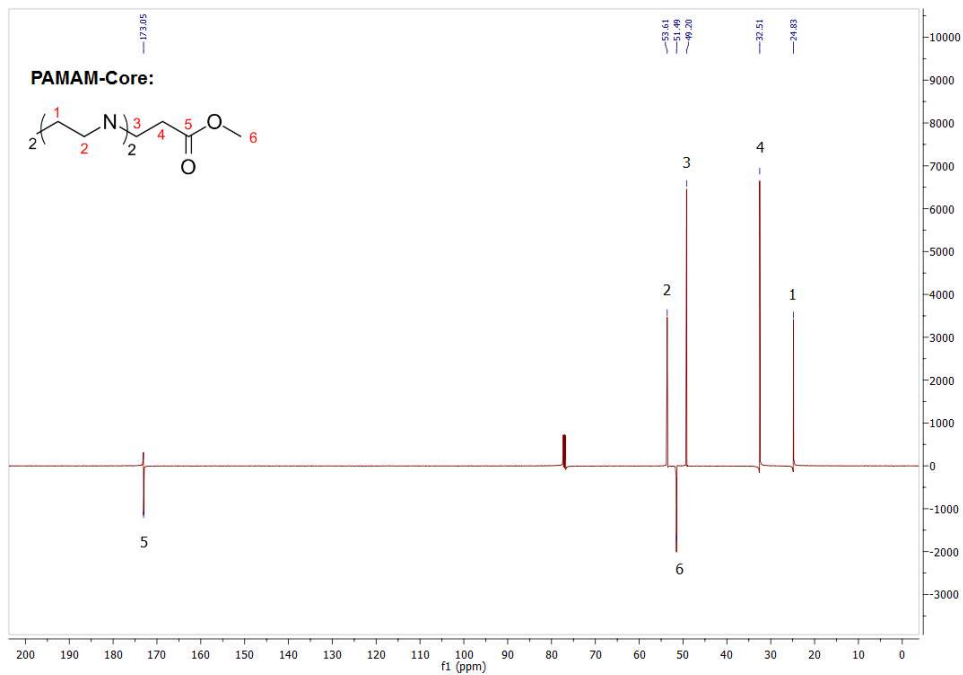
NMR-Spectroscopy:

Core: DAB-PAMAM-(CO₂Me)₄ [1]

¹H-NMR (500 MHz, MeOD-d₄):

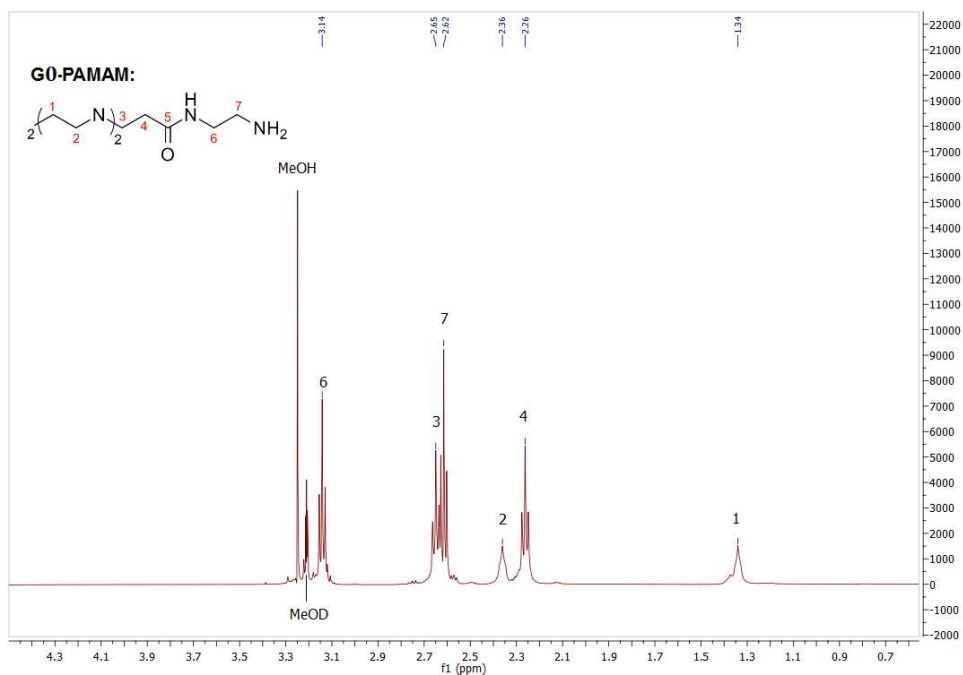


¹³C-NMR (125 MHz, MeOD-d₄):

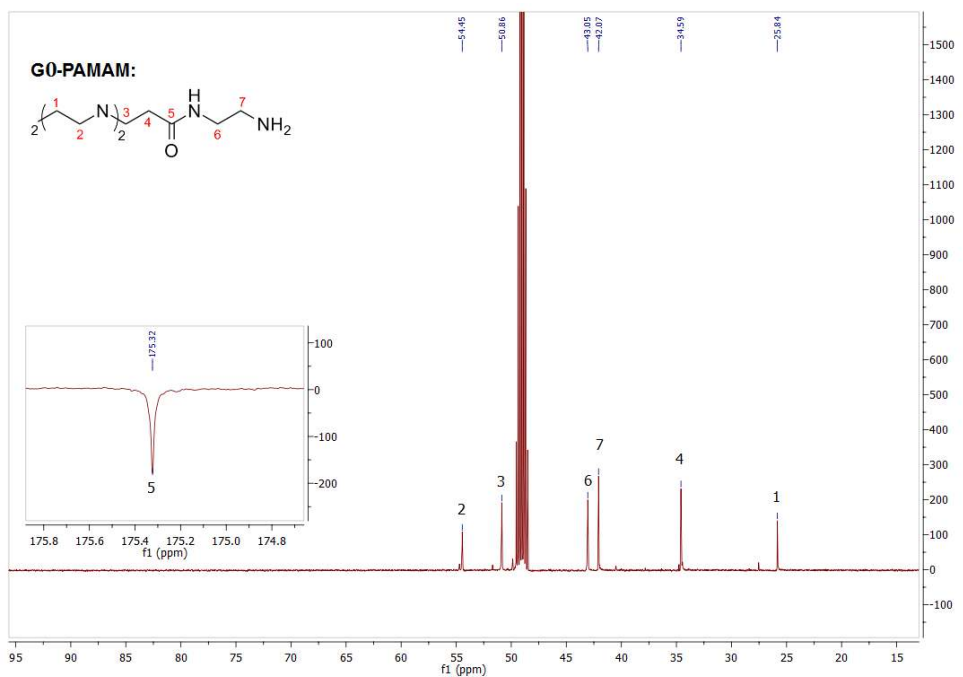


G0: DAB-PAMAM-(NH₂)₄ [2]

¹H-NMR (500 MHz, MeOD-d₄):

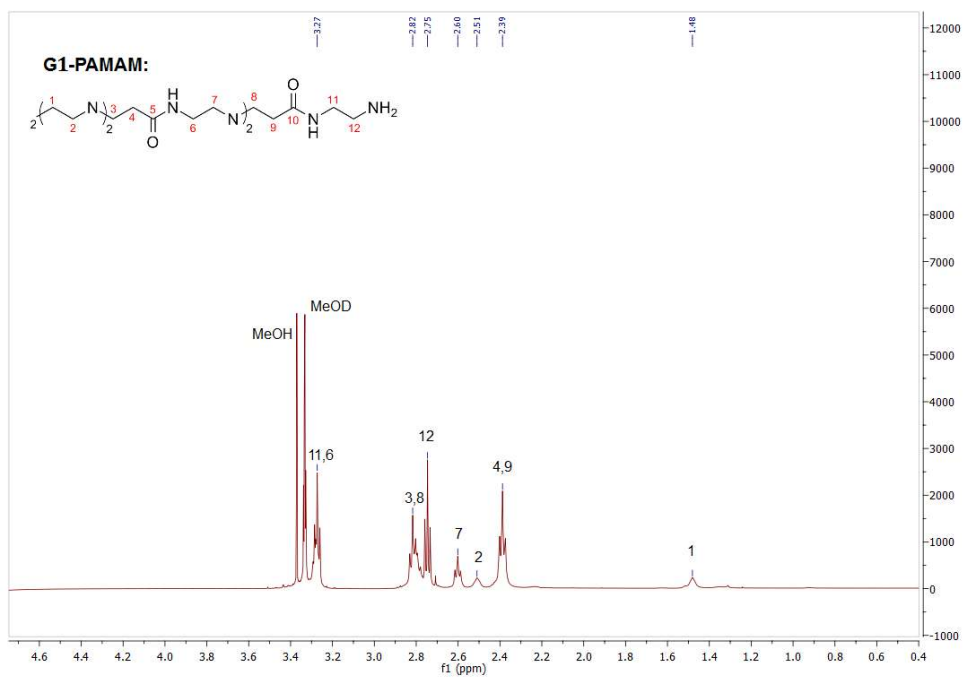


¹³C-NMR (125 MHz, MeOD-d₄):

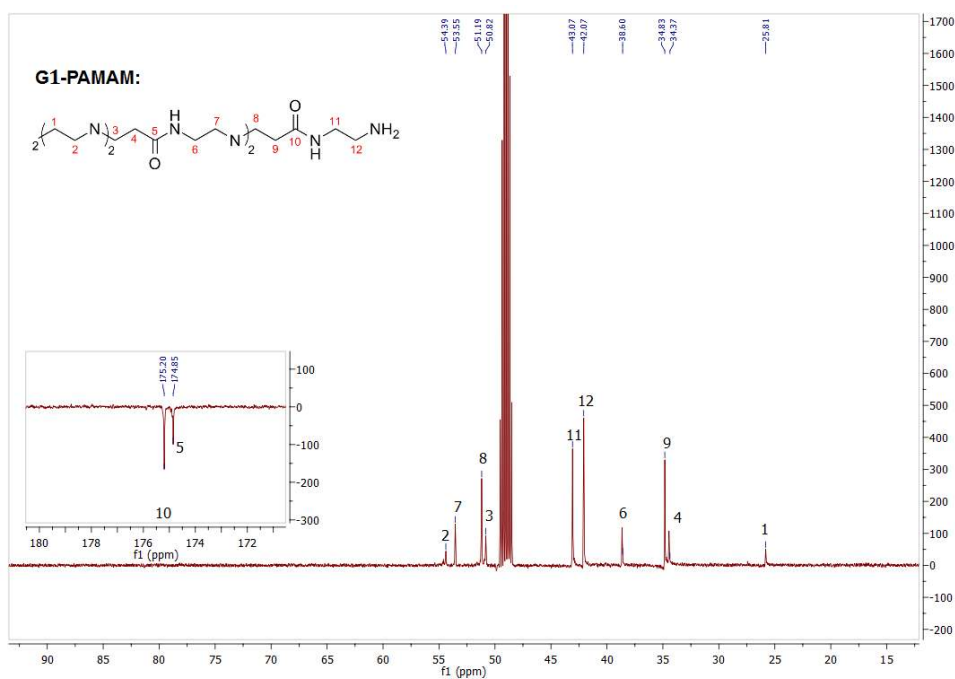


G1: PAMAM(NH₂)₈ [4]

¹H-NMR (500 MHz, MeOD-d₄):

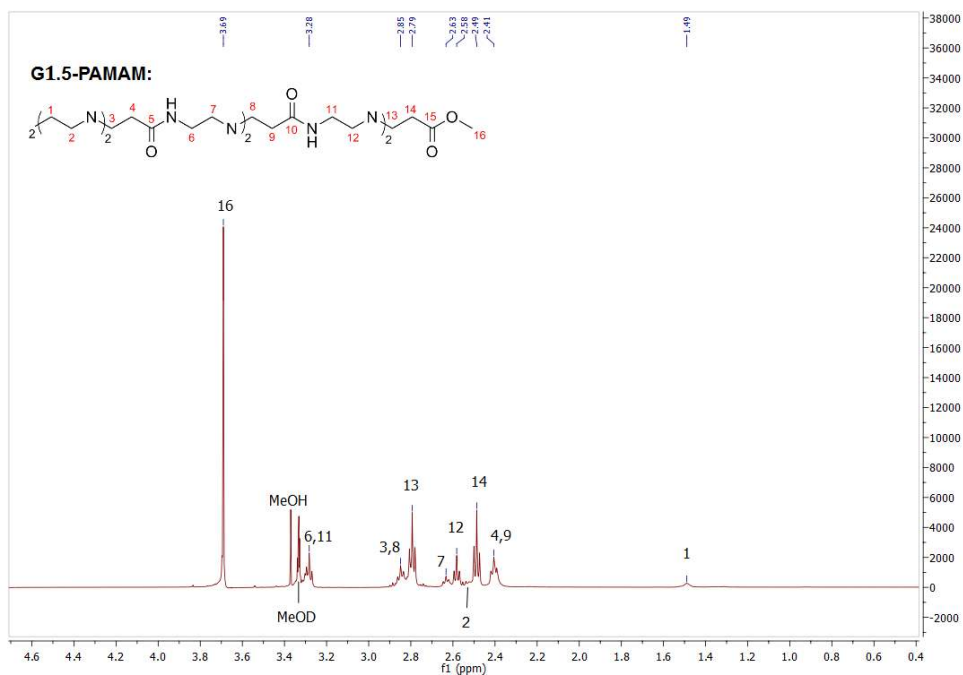


¹³C-NMR (125 MHz, MeOD-d₄):

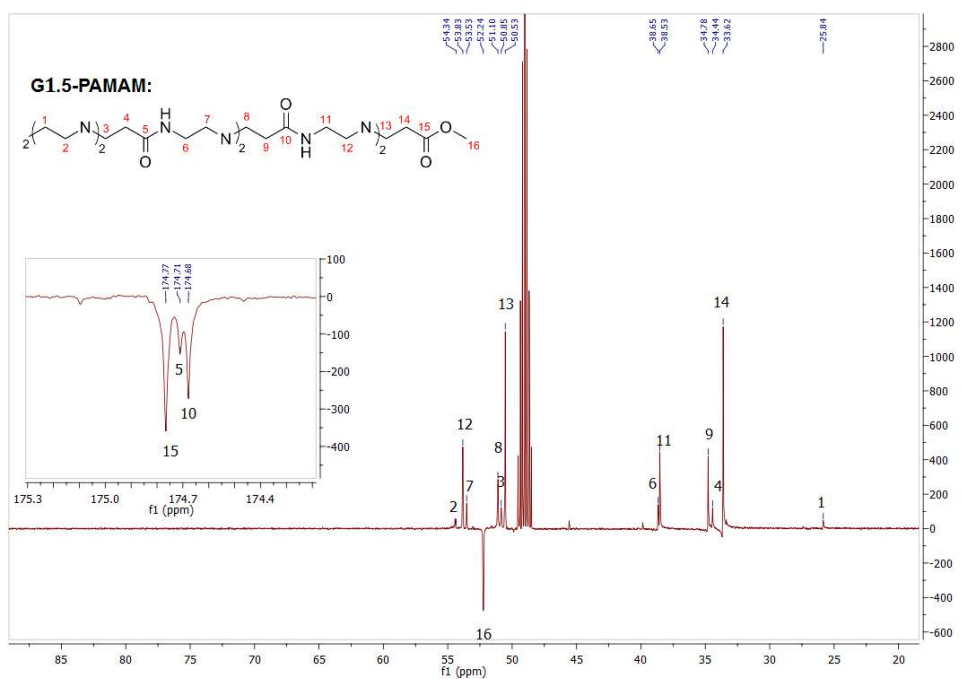


G1.5: PAMAM(CO₂Me)₁₆ [5]

¹H-NMR (500 MHz, MeOD-d₄):

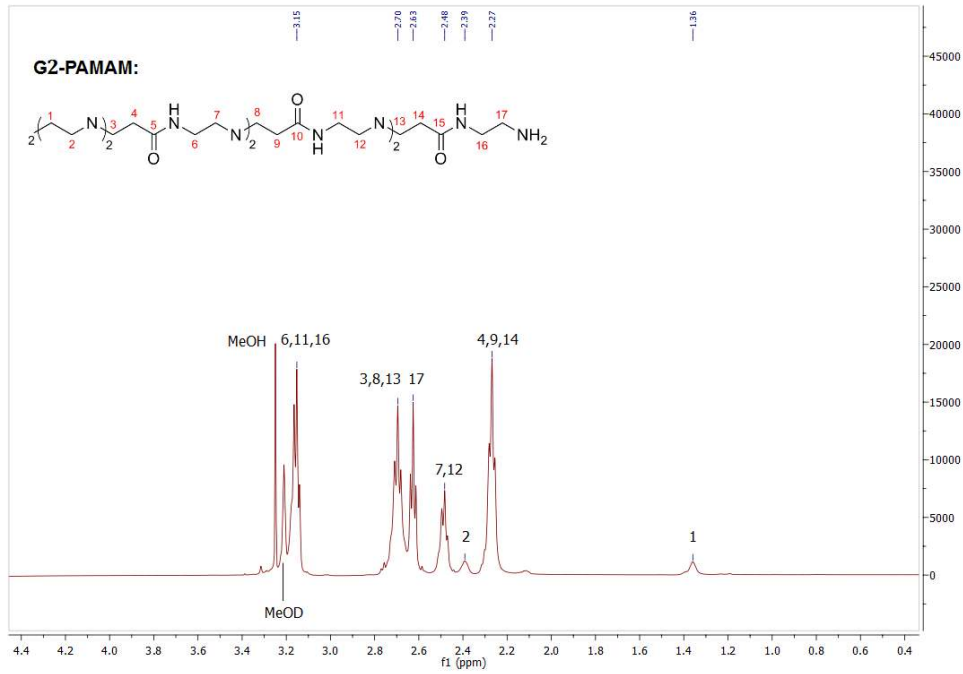


¹³C-NMR (125 MHz, MeOD-d₄):

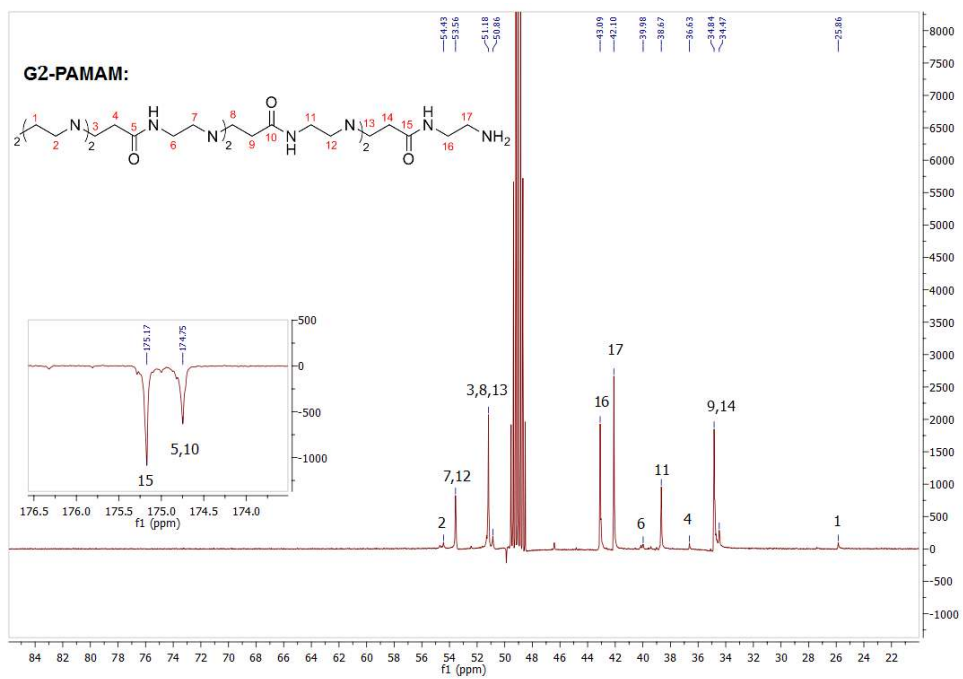


G2: PAMAM(NH₂)₁₆ [6]

¹H-NMR (500 MHz, MeOD-d₄):

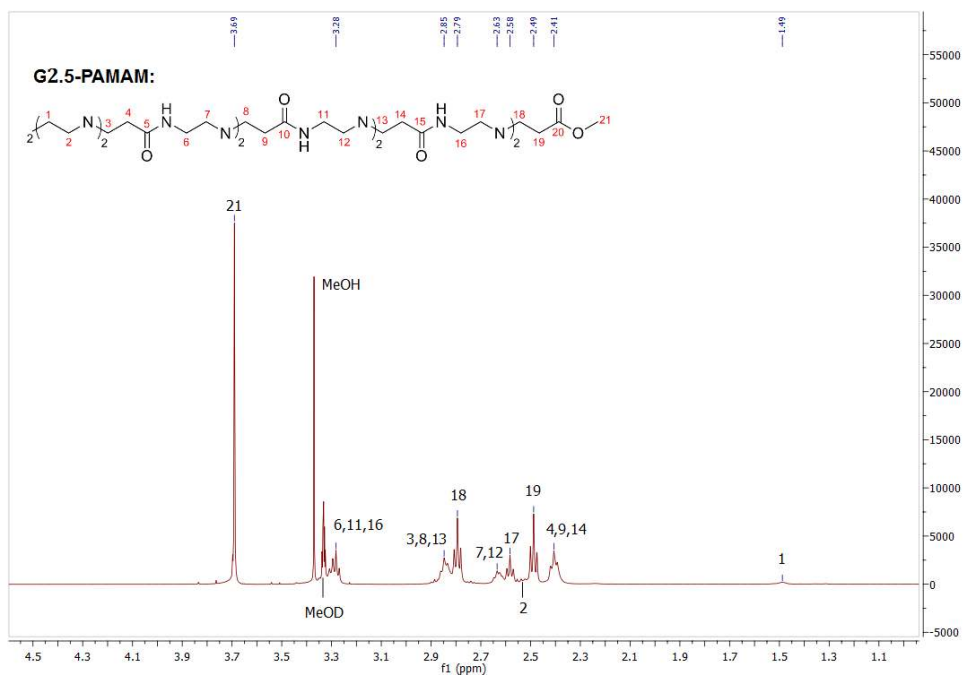


¹³C-NMR (125 MHz, MeOD-d₄):

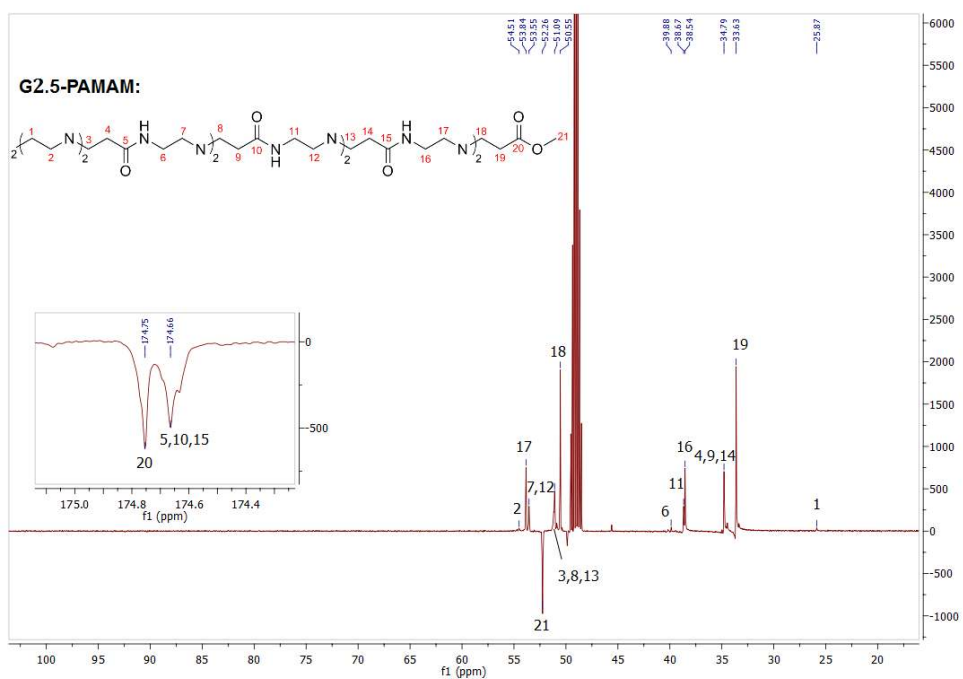


G2.5: PAMAM(CO₂Me)₃₂ [7]

¹H-NMR (500 MHz, MeOD-d₄):

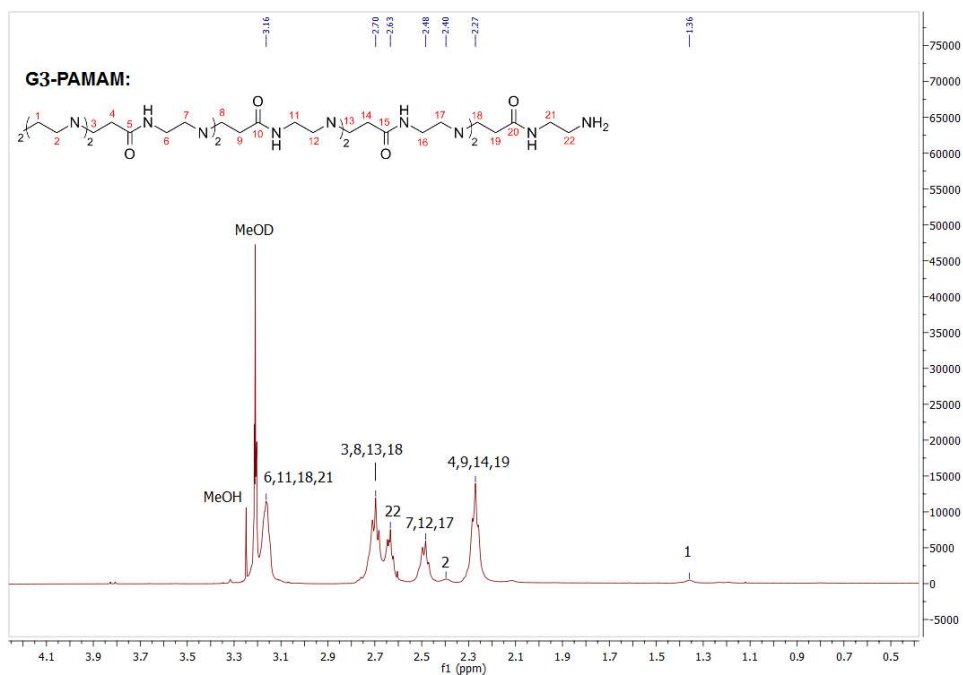


¹³C-NMR (125 MHz, MeOD-d₄):

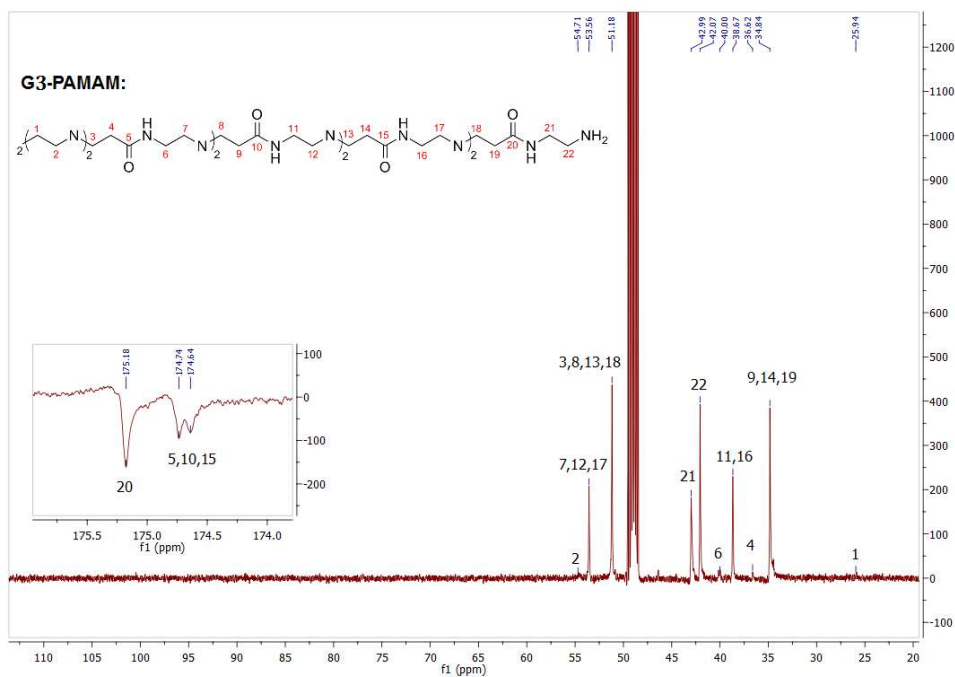


G3: PAMAM(NH₂)₃₂ [8]

¹H-NMR (500 MHz, MeOD-d₄):

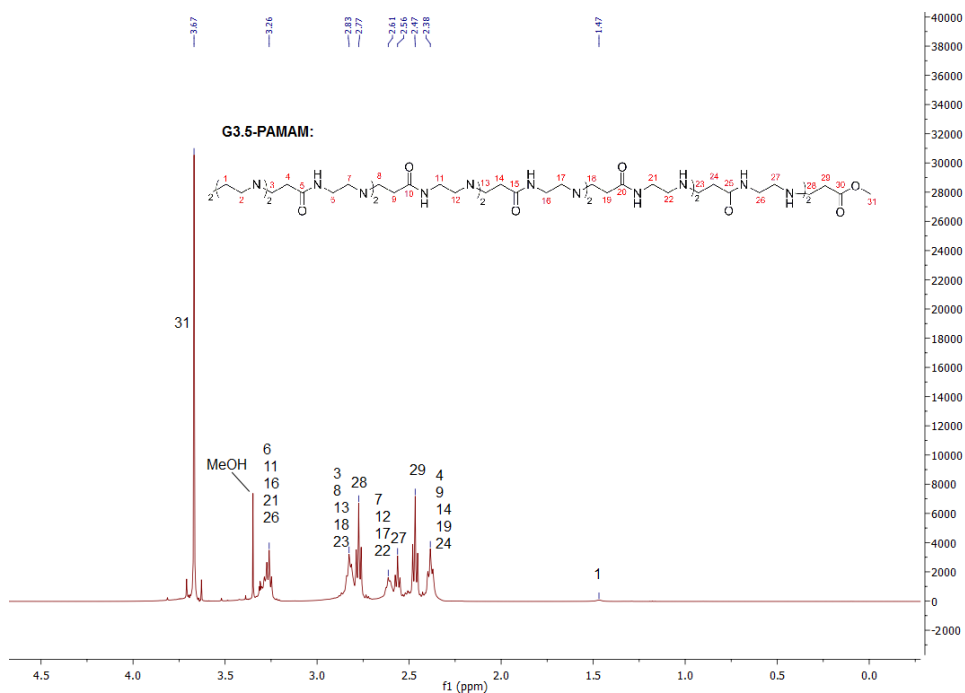


¹³C-NMR (125 MHz, MeOD-d₄):

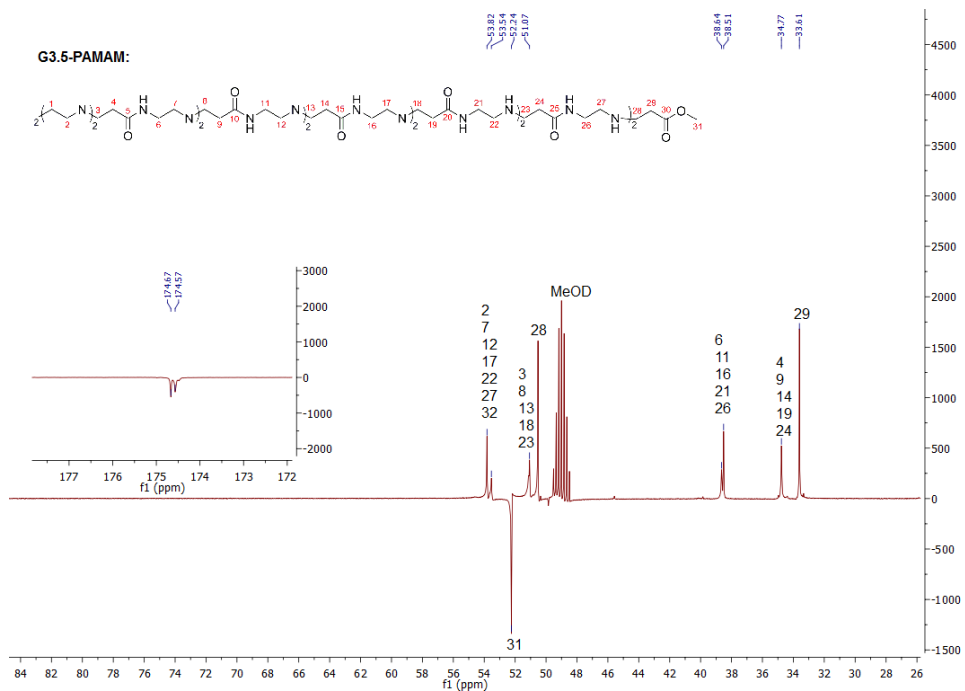


G3.5: PAMAM(CO₂Me)₆₄ [9]

¹H-NMR (500 MHz, MeOD-d₄):

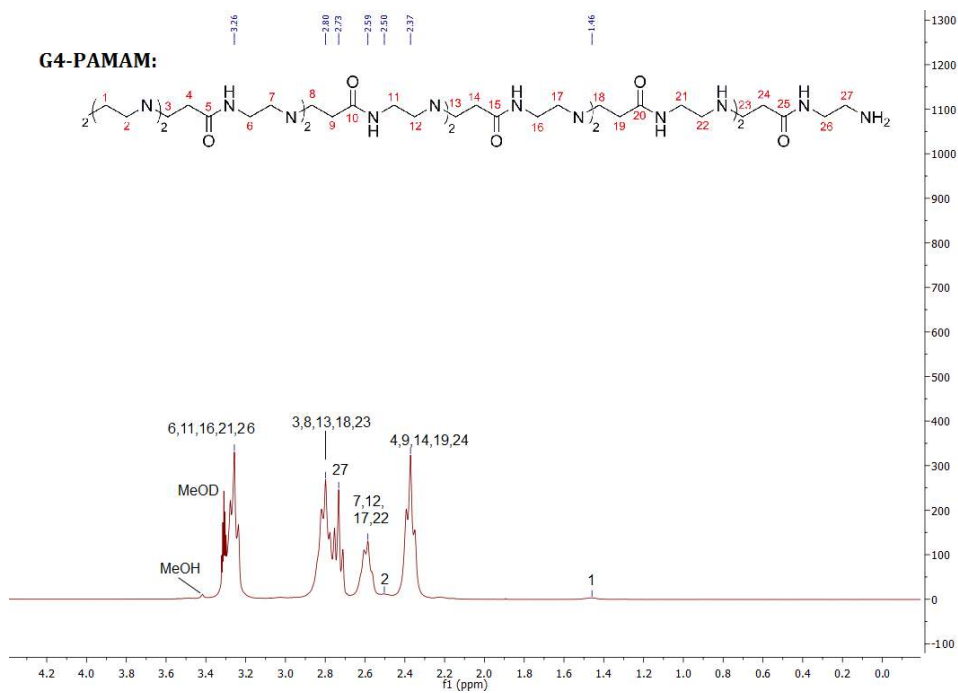


¹³C-NMR (125 MHz, MeOD-d₄):

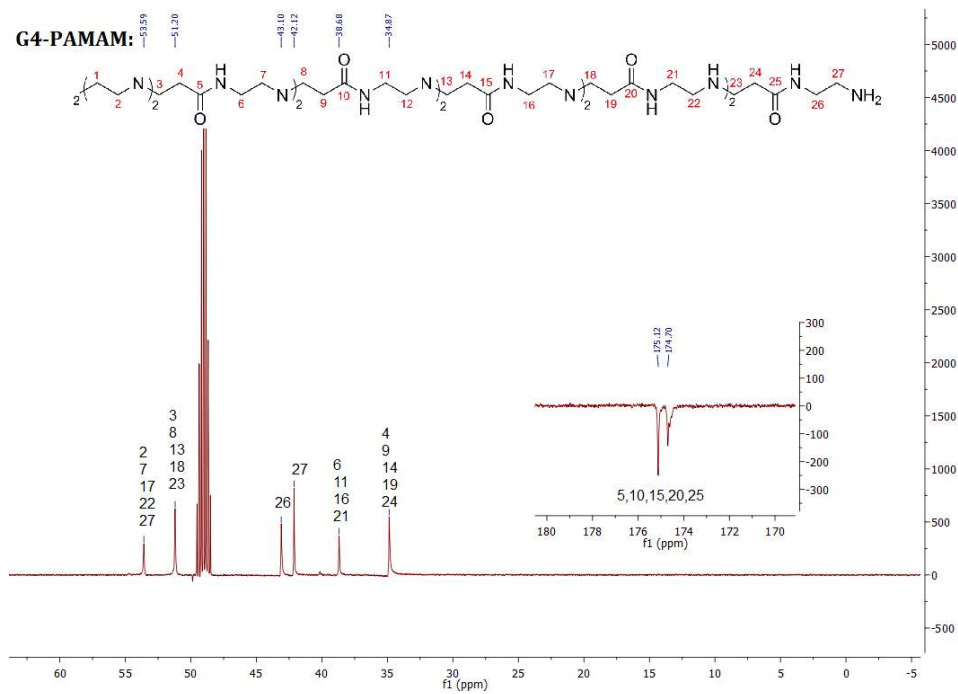


G4: PAMAM(NH₂)₆₄ [10]

¹H-NMR (500 MHz, MeOD-d₄):

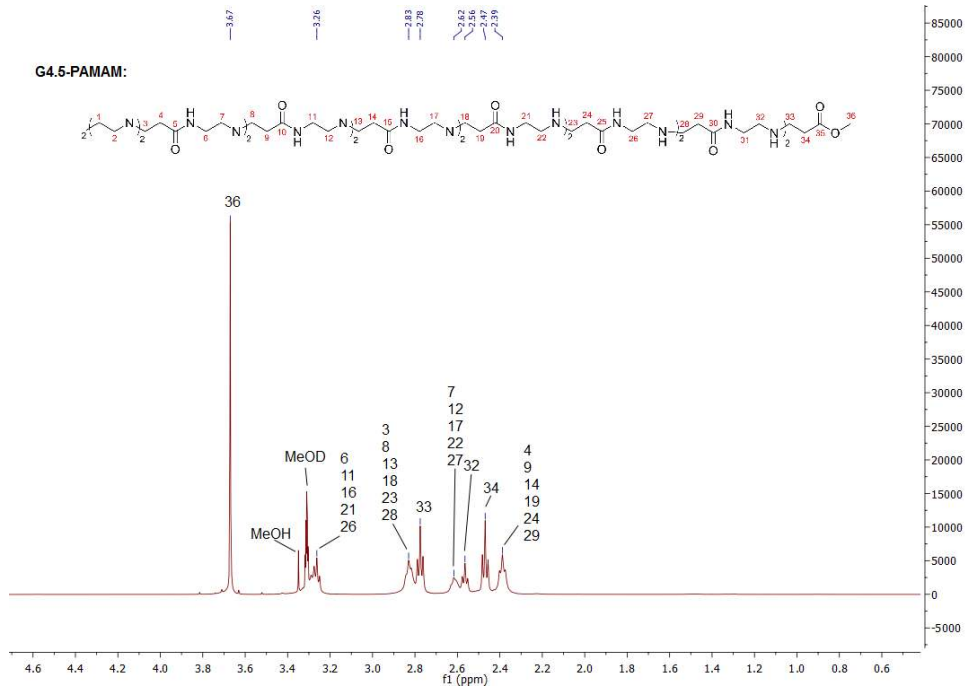


¹³C-NMR (125 MHz, MeOD-d₄):

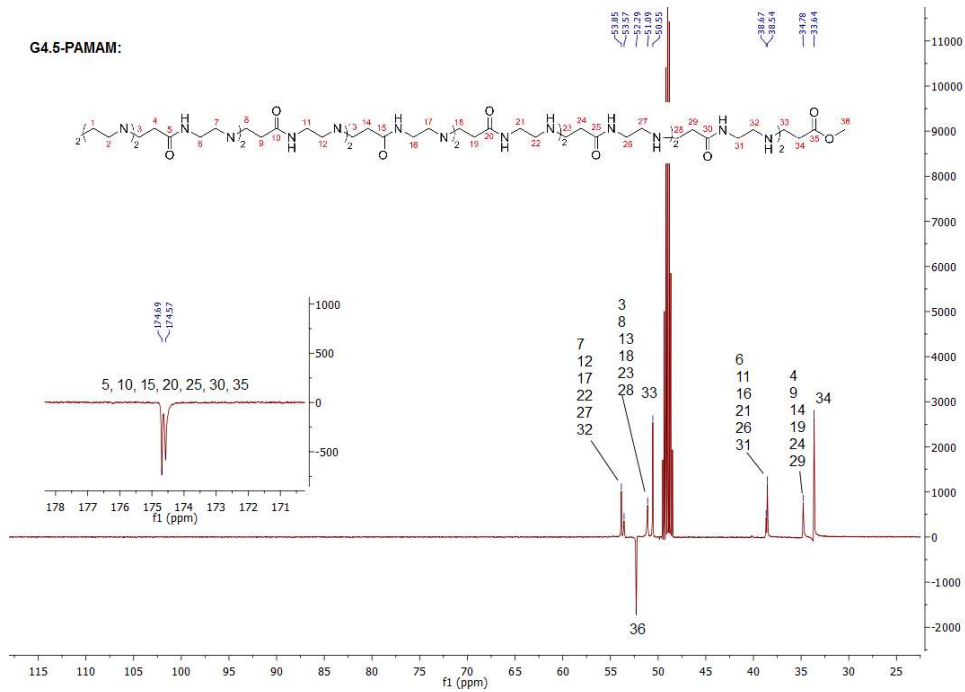


G4.5: PAMAM(CO₂Me)₁₂₈ [11]

¹H-NMR (500 MHz, MeOD-d₄):

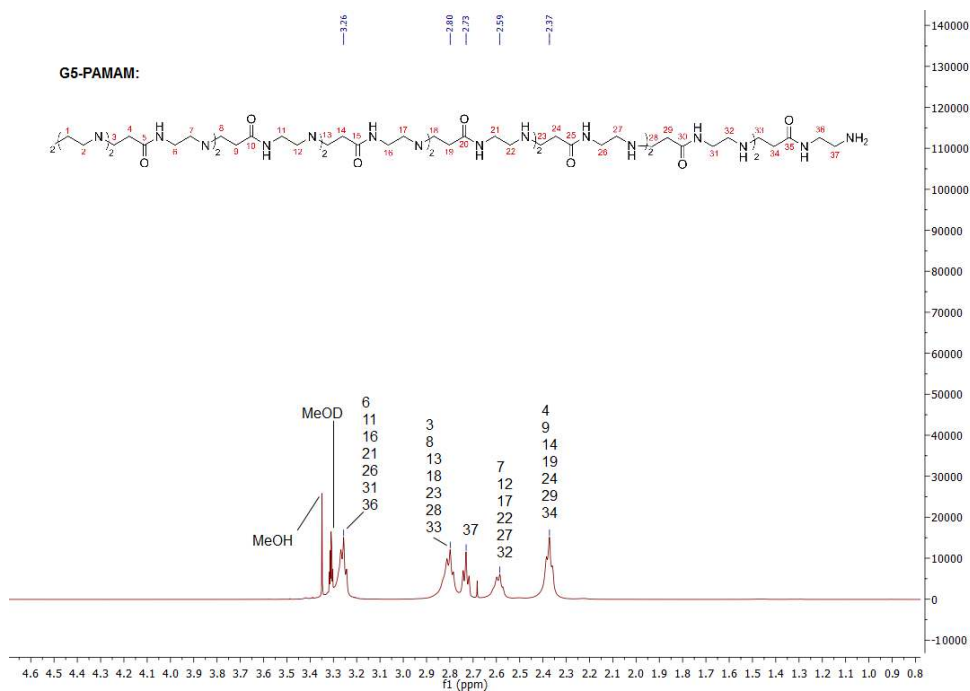


¹³C-NMR (125 MHz, MeOD-d₄):

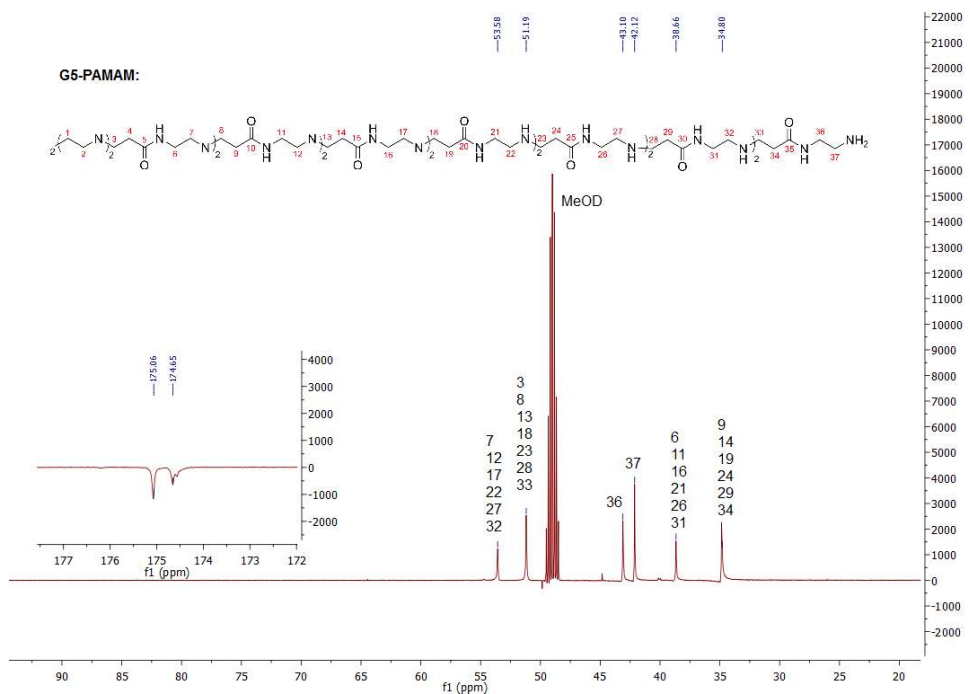


G5: PAMAM(NH₂)₁₂₈ [12]

¹H-NMR (500 MHz, MeOD-d₄):



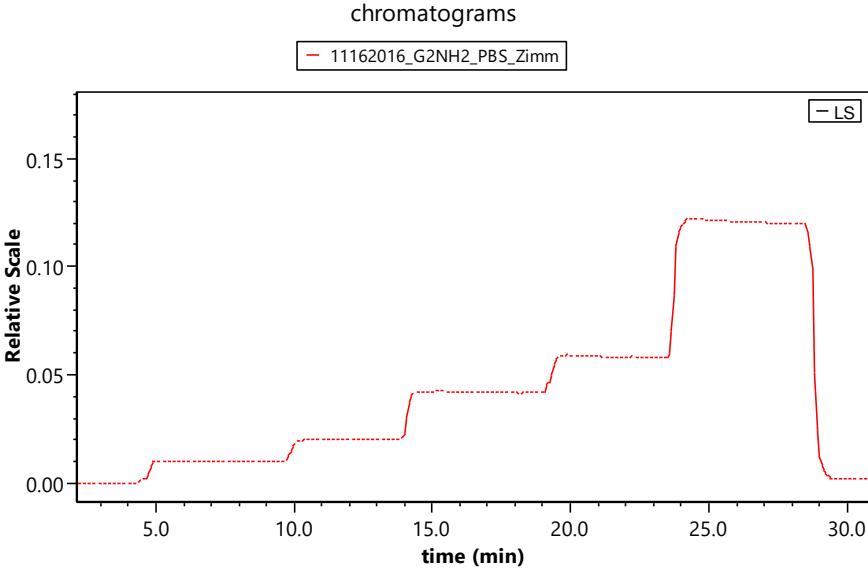
¹³C-NMR (125 MHz, MeOD-d₄):



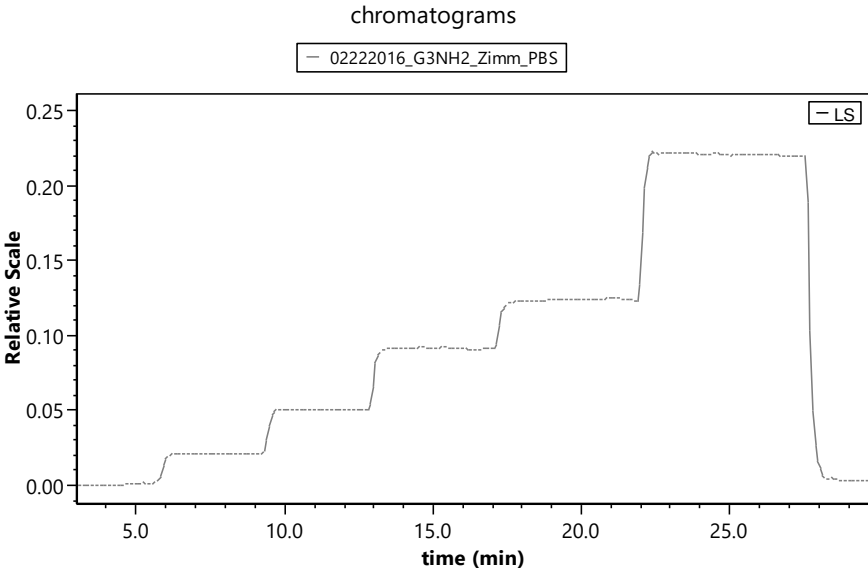
Mass Spectrometry

Multi Angular Light Scattering

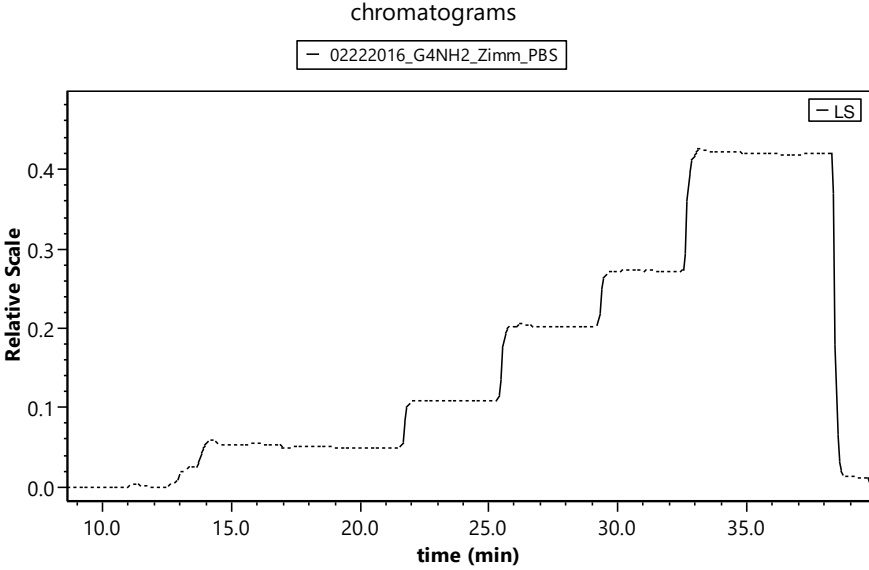
MALS batch measurement G2: PAMAM(NH₂)₁₆:



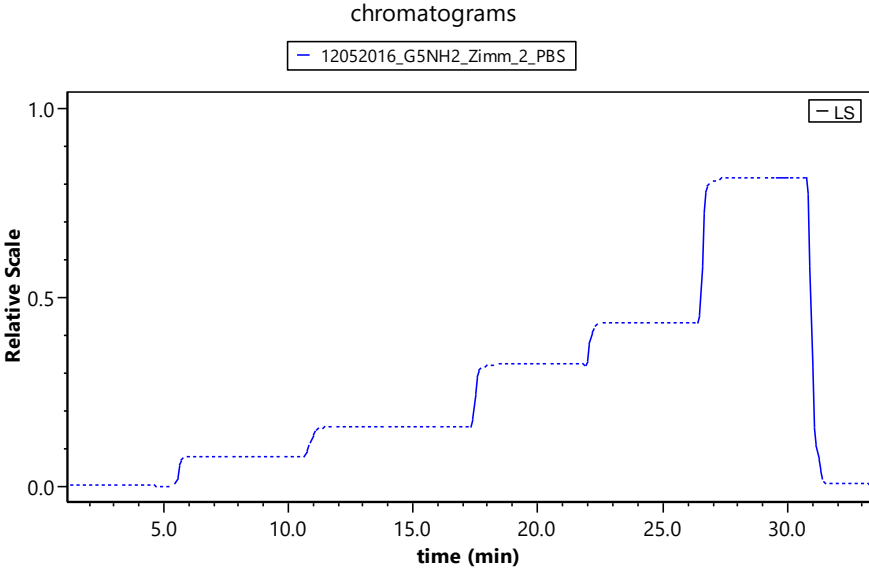
MALS batch measurement G3: PAMAM(NH₂)₃₂:



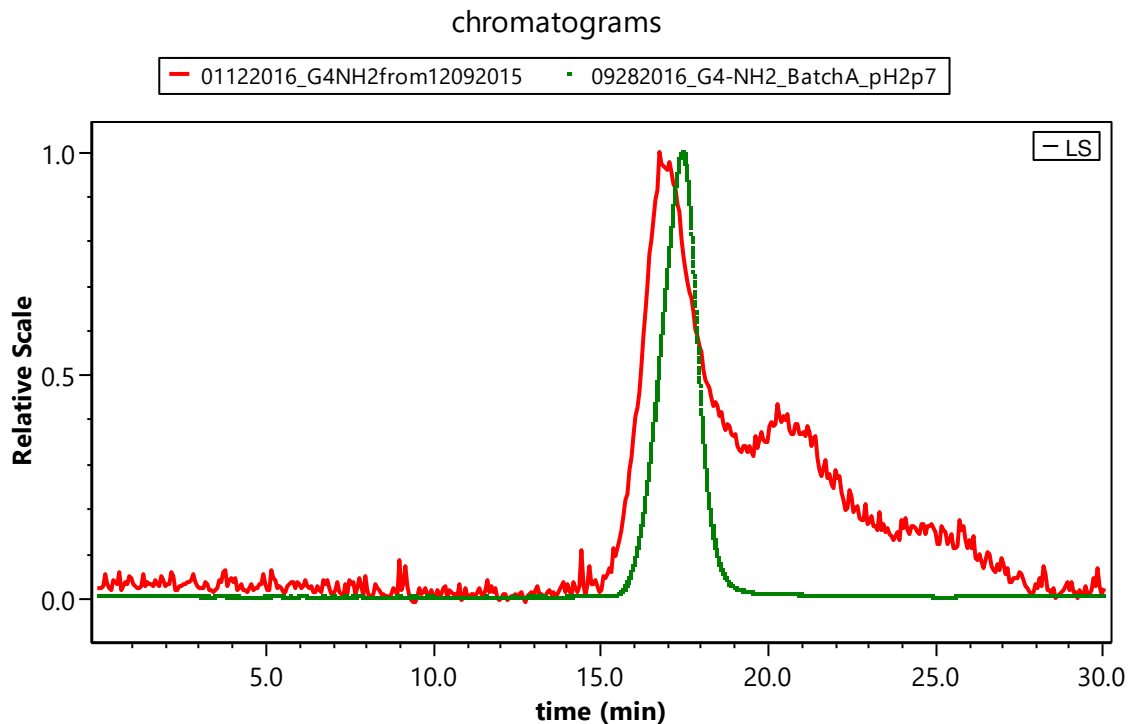
MALS batch measurement G4: PAMAM(NH₂)₆₄:



MALS batch measurement G5: PAMAM(NH₂)₁₂₈:



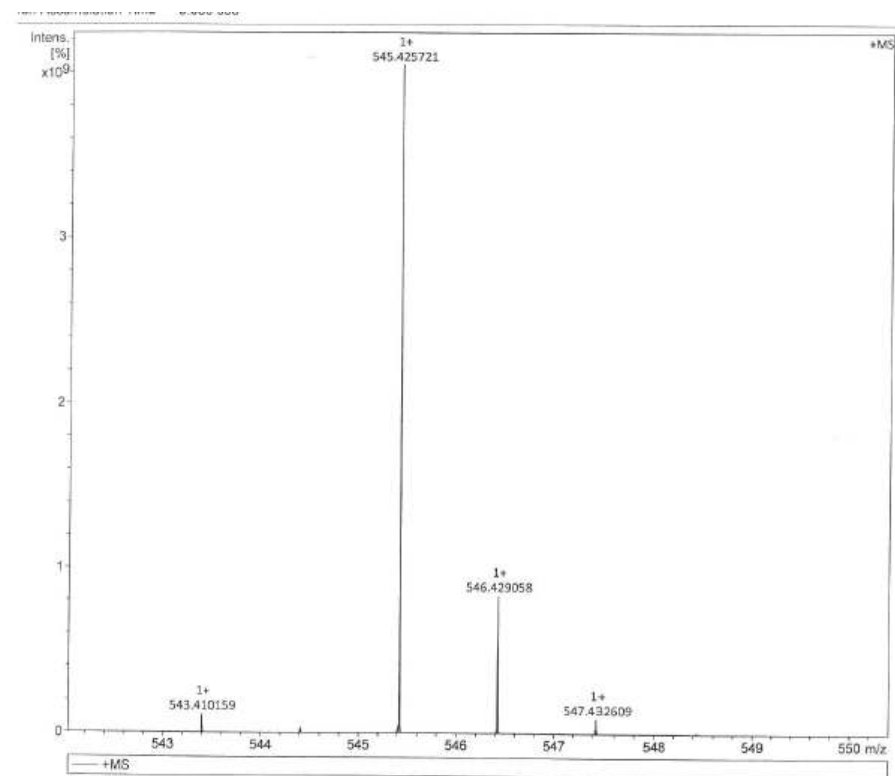
Chromatogram G4: PAMAM(NH₂)₆₄ in PBS and citric acid buffer:



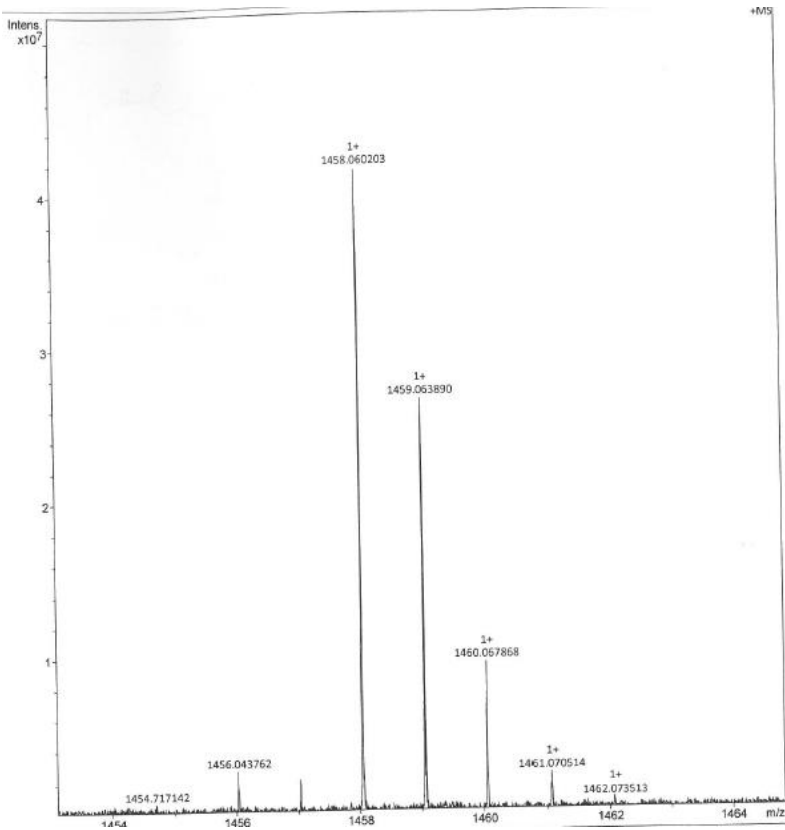
SEC-MALS chromatogram of a G4 PAMAM dendrimer using PBS buffer (red) and citric acid buffer (green), highlights that PBS is not a suitable buffer solution for amine terminated PAMAM dendrimers due to interactions with the column that led to absorption and tailing of the dendrimer.

MALDI:

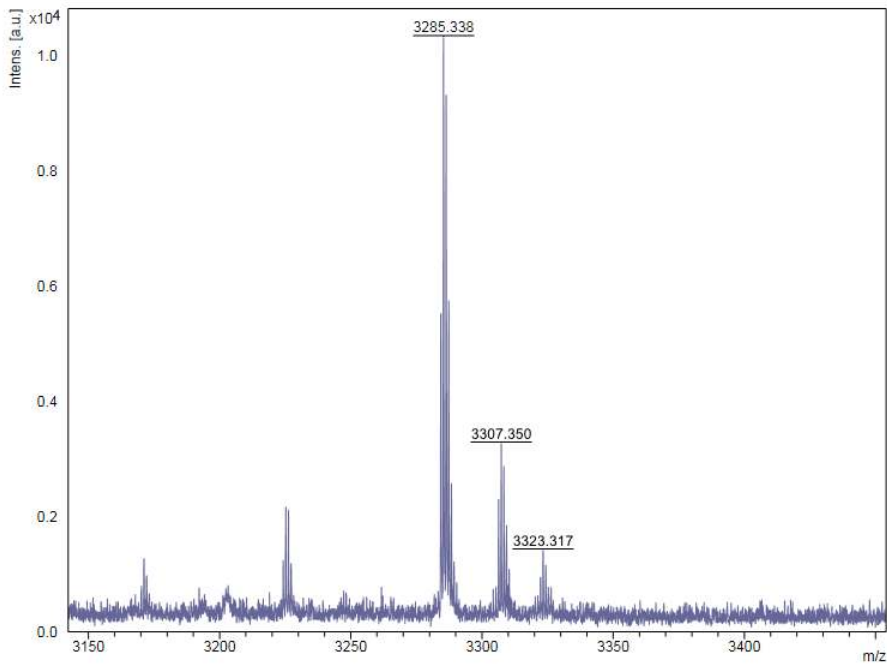
G0: PAMAM(NH₂)₄:



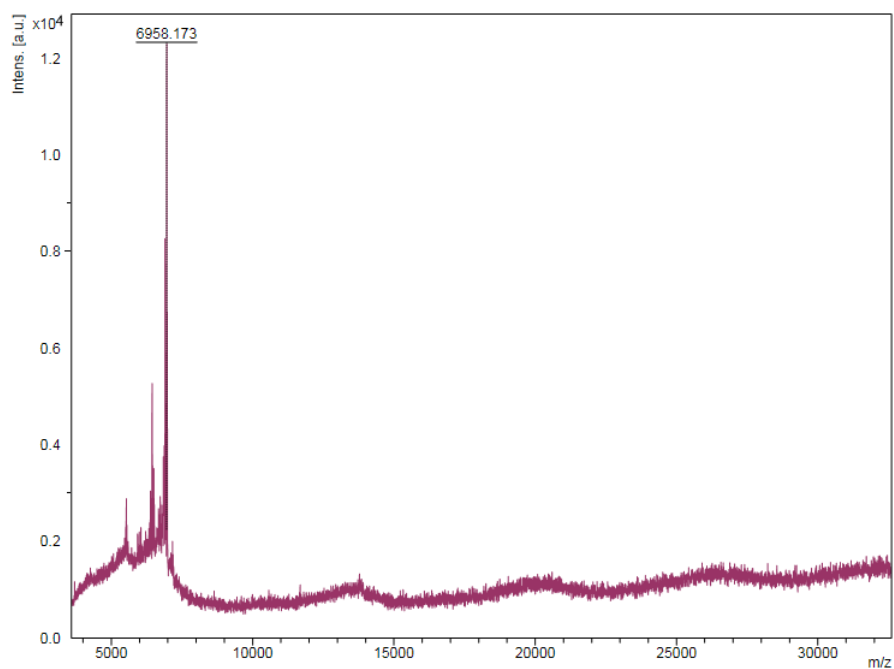
G1: PAMAM(NH₂)₈:



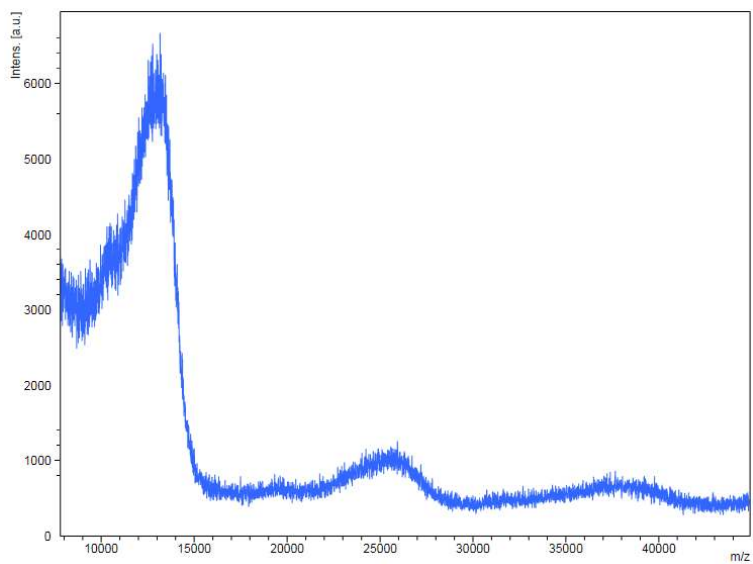
G2: PAMAM(NH₂)₁₆:



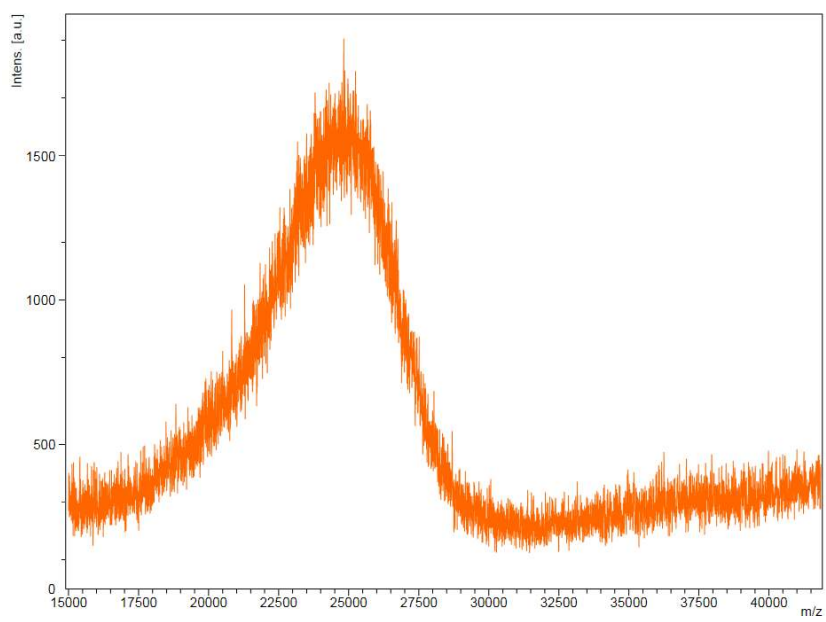
G3: PAMAM(NH₂)₃₂:



G4: PAMAM(NH₂)₆₄:

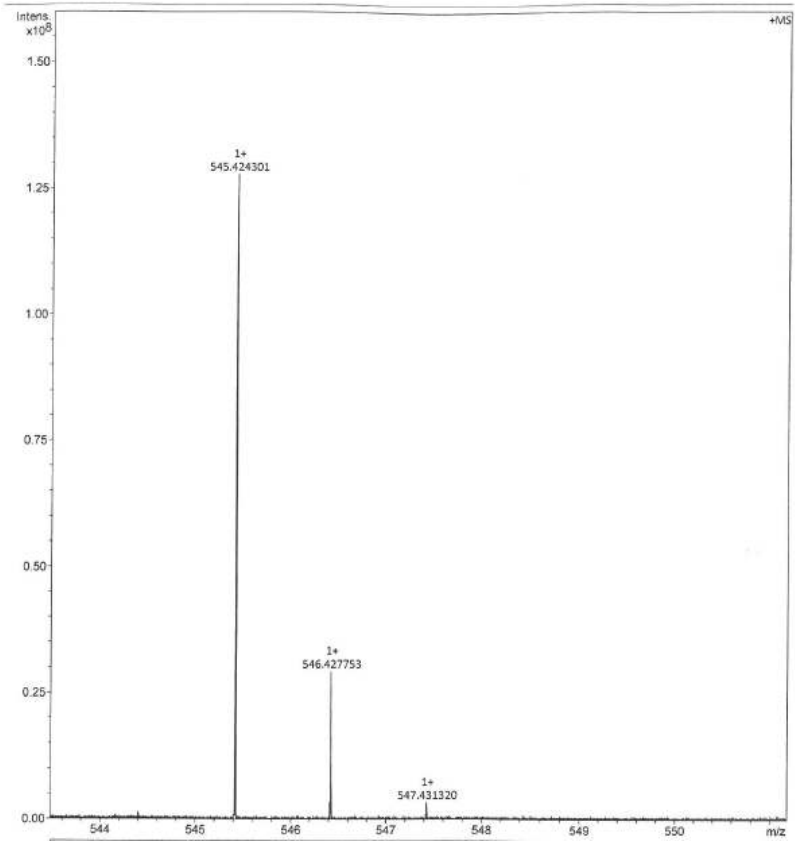


G5: PAMAM(NH₂)₁₂₈:

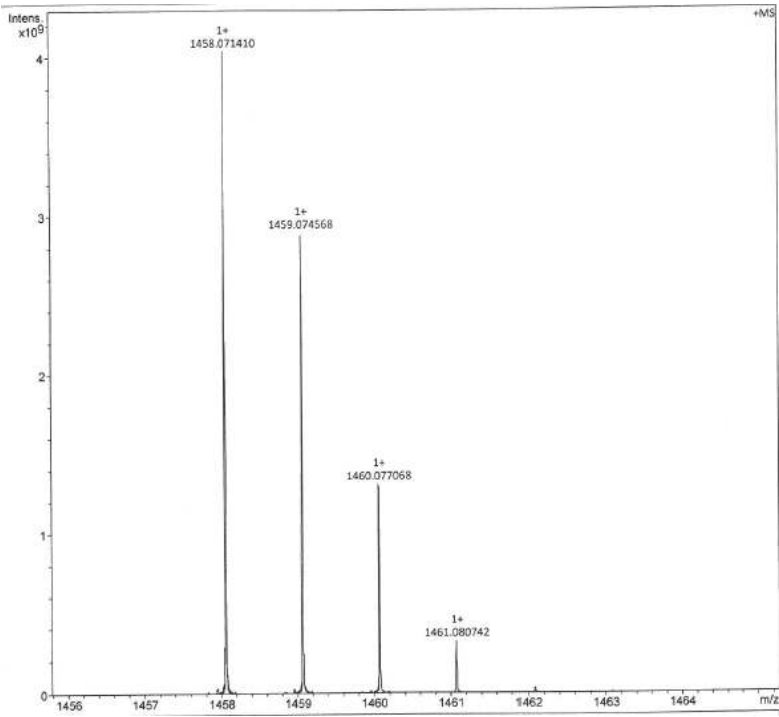


ESI

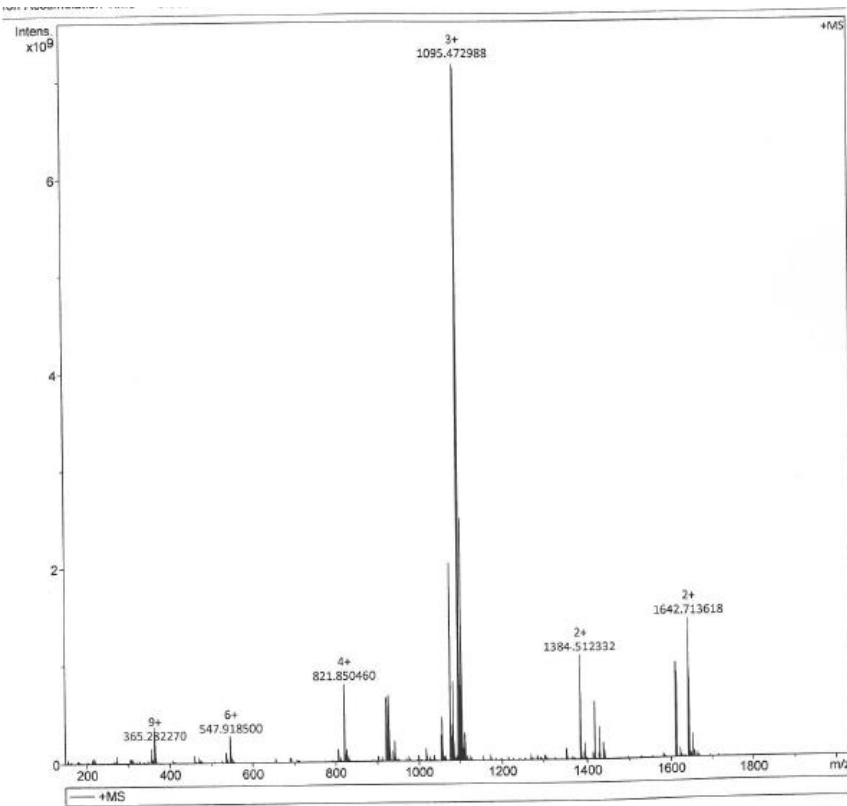
G0: PAMAM(NH₂)₄:



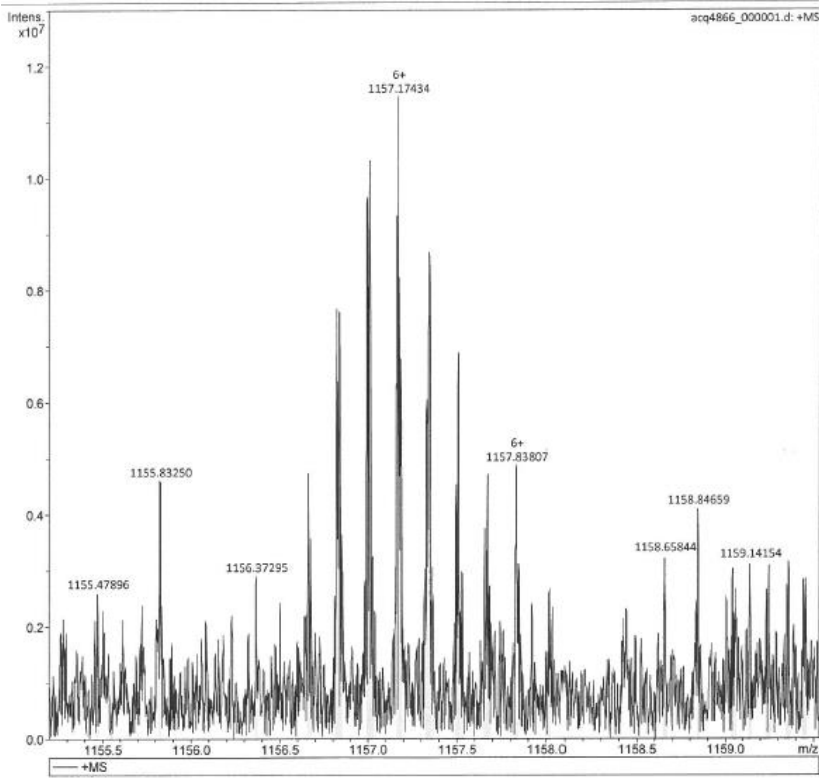
G1: PAMAM(NH₂)₈:



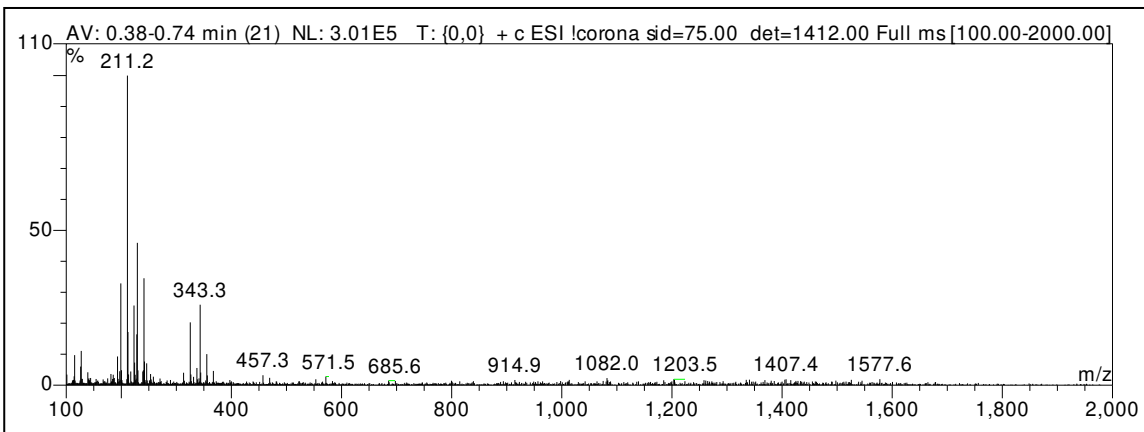
G2: PAMAM(NH₂)₁₆:



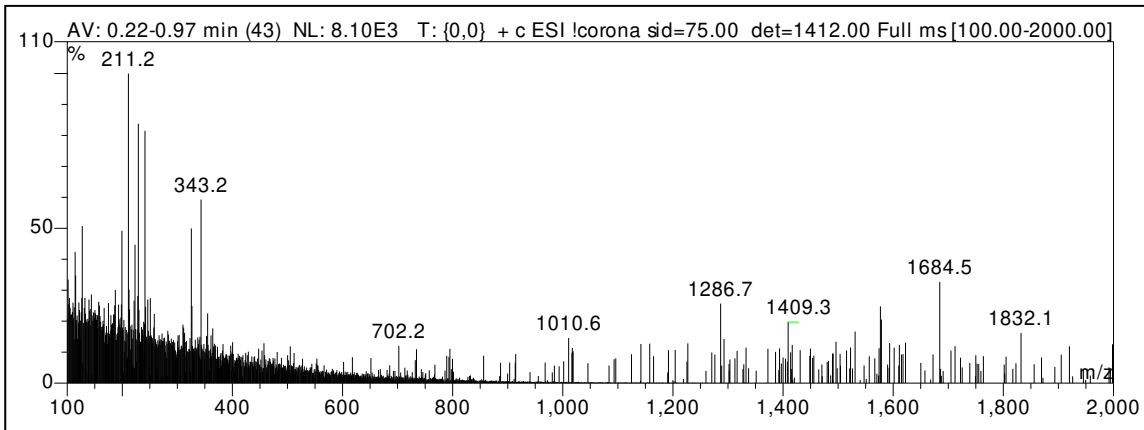
G3: PAMAM(NH₂)₃₂:



G4: PAMAM(NH₂)₆₄:



G5: PAMAM(NH₂)₁₂₈:



IR-Spectroscopy

FT-IR-Spectra (Absorbance) of G0-G5 amine terminated PAMAM dendrimers:

