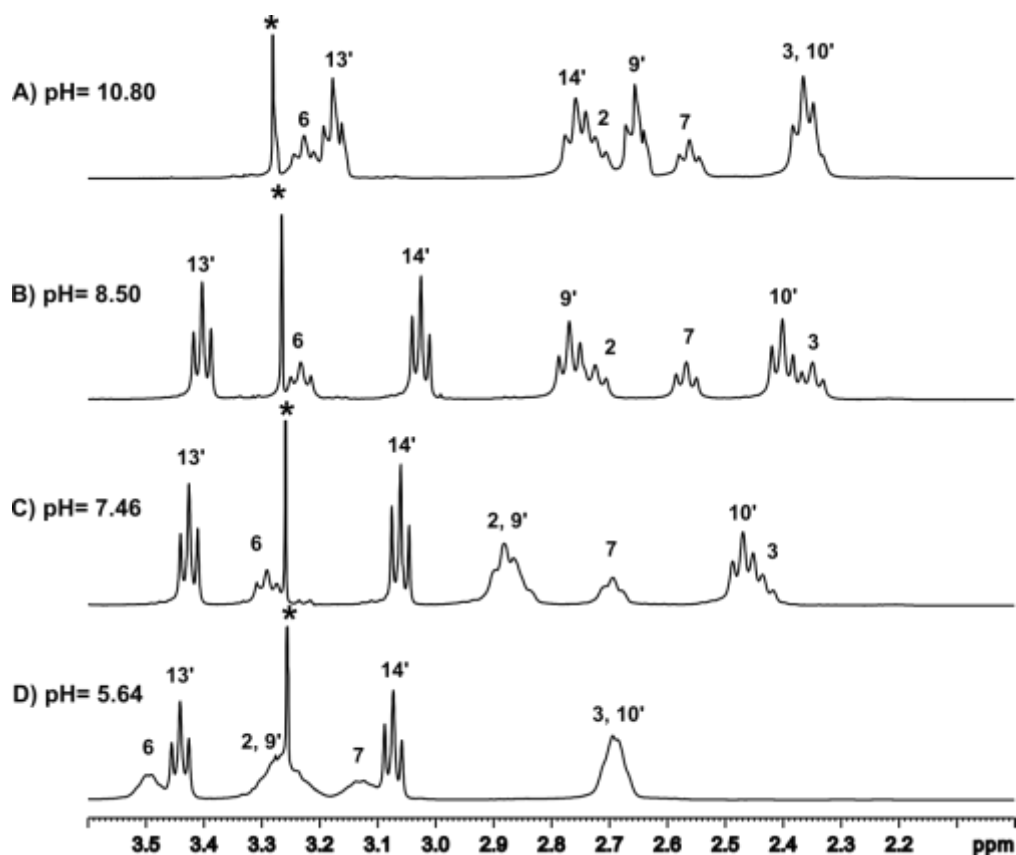# Supporting Information

Figure S1. ^1H NMR spectra of unmodified PAMAM G1(N) at A) pH=10.80 B) pH=8.50 C) pH=7.46 and D) pH=5.64. *residual EDA (ethylenediamine) from the second step procedure of PAMAM synthesis used as repeating unit.
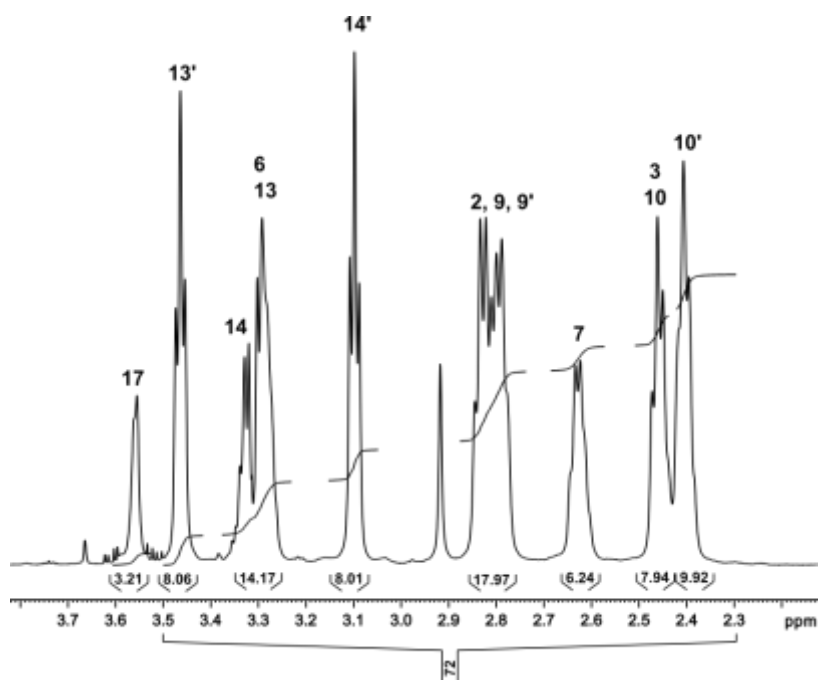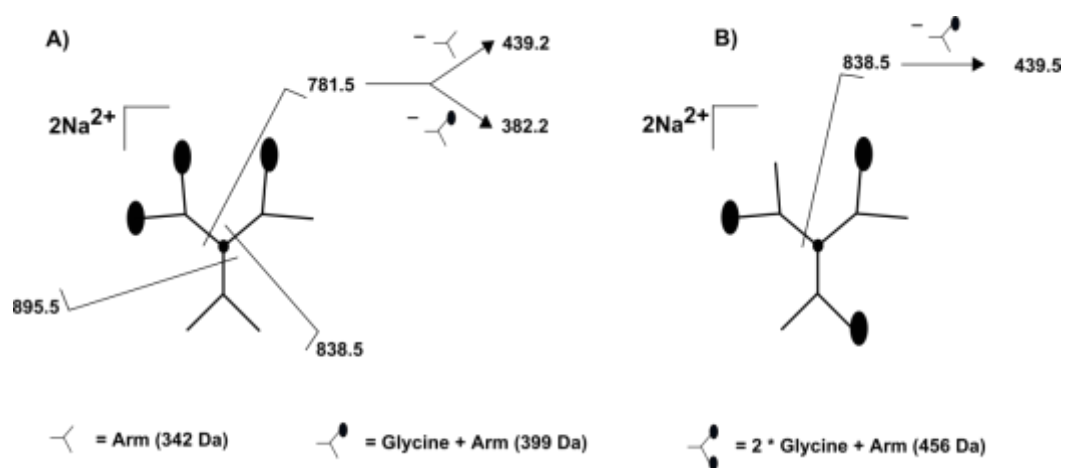

Figure S2. ^1H NMR spectrum of $Gly_nG1(N)$ with the integration ratio of methylene protons.

Scheme S1. Formation of the two isomeric structures of $Gly_3G1(N)$ ($[M+2Na]^{2+}$ at m/z 630.1). The fragmentation pattern determined by ESI-MS^n experiments is also reported.
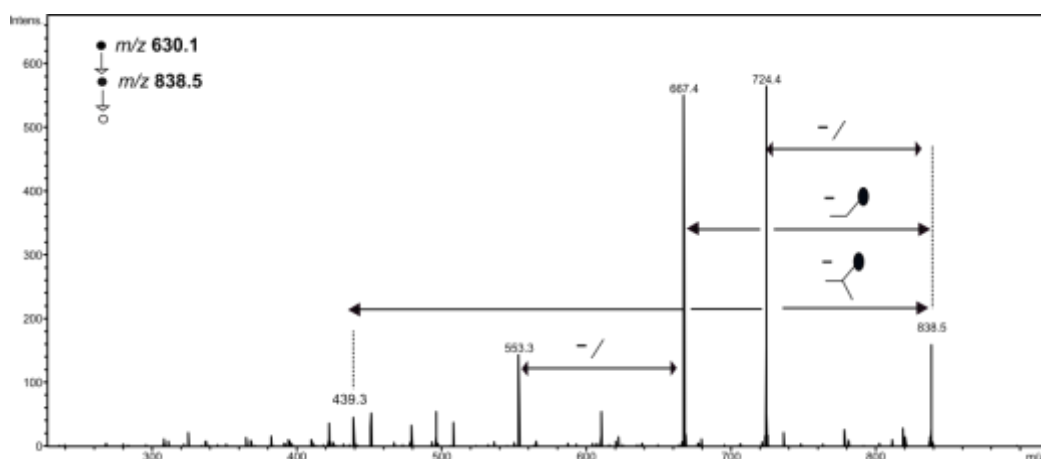
Figure S3. ESI-MS^3 mass spectrum of sodiated precursor ion of Gly$_3$G1(N) isomer on scheme S1B.

Table S1. Percentage of grafted glycine estimated from IM-MS experiment: the integration of ion mobility peak are reported then corrected with the response factor estimated from the IM-MS analysis of equimolar $G1(N)$ /$Gly_6G1(N)$ mixture.

Number of grafted Glycine (n)	Peak area for $[M+4H]^{4+}$		Peak area for $[M+3H]^{3+}$		Peak area for $[M+2H]^{2+}$		Sum of the corrected areas $(A_i=A_1+A_2+A_3)$	% of areas = $A_i/\Sigma A_i$	% of grafted Glycine = $(A_i/\Sigma A_i)*(n/6)$
	Measured	Corrected (A_1)	Measured	Corrected (A_2)	Measured	Corrected (A_3)			
0	29929	375550	94660	409206	36924	189359	974116	27,9	0,0
1	67358	554451	101212	342805	46668	182251	1079508	30,9	5,2
2	40357	217923	60550	160682	44051	131001	509606	14,6	4,9
3	21443	75956	101432	210896	38779	87819	374672	10,7	5,4
4	47857	111206	72085	117429	31088	53610	282246	8,1	5,4
5	71247	108607	45022	57464	15601	20488	186559	5,3	4,5
6	45462	45462	34390	34389	6698	6698	86549	2,5	2,5
Sum of the A_i areas = ΣA_i							3493256	100,0	
Sum of percentage of grafted Glycine = $\Sigma [(A_i/\Sigma A_i)*(n/6)]$									**27,7**