

Electronic Supplementary Information for

Experimental evidence of chemical exchange over the $\beta(1\rightarrow3)$ glycosidic linkage and hydrogen bonding involving hydroxy protons in hyaluronan oligosaccharides by NMR spectroscopy

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Chemical shifts (ppm) of aliphatic protons in GlcNAc, GlcA, Δ HA₂, Δ HA₄, Δ HA₆ and Δ HA₈ at -5 °C in 85% H₂O/15% acetone-*d*₆.

		GlcNAc/GlcA	Δ HA ₂	Δ HA ₄	Δ HA ₆	Δ HA ₈
N _{1α}	C(1)H	5.21	5.16	5.15	5.15	5.15
	C(2)H	3.87	4.04	4.05	4.05	4.05
	C(3)H	3.78	4.04	3.91	3.91	3.91
	C(4)H	3.50	3.56	3.57	3.57	3.57
	C(5)H	3.86	3.91	3.88	3.89	3.89
	C(6)H	3.84	3.84	3.82	3.83	3.83
	C(6)H'	3.80	3.84	3.82	3.83	3.83
	CH ₃	2.06	2.08	2.03	2.03	2.03
N _{1β}	C(1)H	4.71	4.77	4.72	4.72	4.71
	C(2)H	3.70	3.85	3.85	3.85	3.85
	C(3)H	3.53	3.85	3.72	3.71	3.70
	C(4)H	3.47	3.51	3.54	3.54	3.53
	C(5)H	3.46	3.51	3.48	3.48	3.48
	C(6)H	3.92	3.92	3.90	3.90	3.89
	C(6)H'	3.75	3.78	3.77	3.76	3.77
	CH ₃	2.06	2.08	2.03	2.03	2.03
G	C(1)H _{α}	5.25		4.53	4.53	4.52
	C(1)H _{β}	4.64		4.49	4.48	4.48
	C(2)H	3.29		3.38	3.37	3.37
	C(3)H	3.50		3.60	3.60	3.60
	C(4)H	3.52		3.74	3.74	3.73
	C(5)H	3.73		3.77	3.76	3.75
N	C(1)H				4.54	4.53
	C(2)H				3.86	3.86
	C(3)H				3.71	3.71
	C(4)H				3.55	3.54
	C(5)H				3.48	3.48
	C(6)H				3.93	3.93
	C(6)H'				3.80	3.79
	CH ₃				2.04	2.04
N _{n-1}	C(1)H			4.58	4.57	4.57
	C(2)H			3.85	3.84	3.84
	C(3)H			3.82	3.82	3.81
	C(4)H			3.52	3.51	3.51
	C(5)H			3.52	3.51	3.51
	C(6)H			3.93	3.93	3.93
	C(6)H'			3.80	3.80	3.79
	CH ₃			2.09	2.09	2.08
G _n	C(1)H		5.20	5.18	5.17	5.18
	C(2)H		3.77	3.76	3.76	3.75
	C(3)H		4.17	4.15	4.15	4.15
	C(4)H		5.86	5.86	5.86	5.86