Supplementary Information

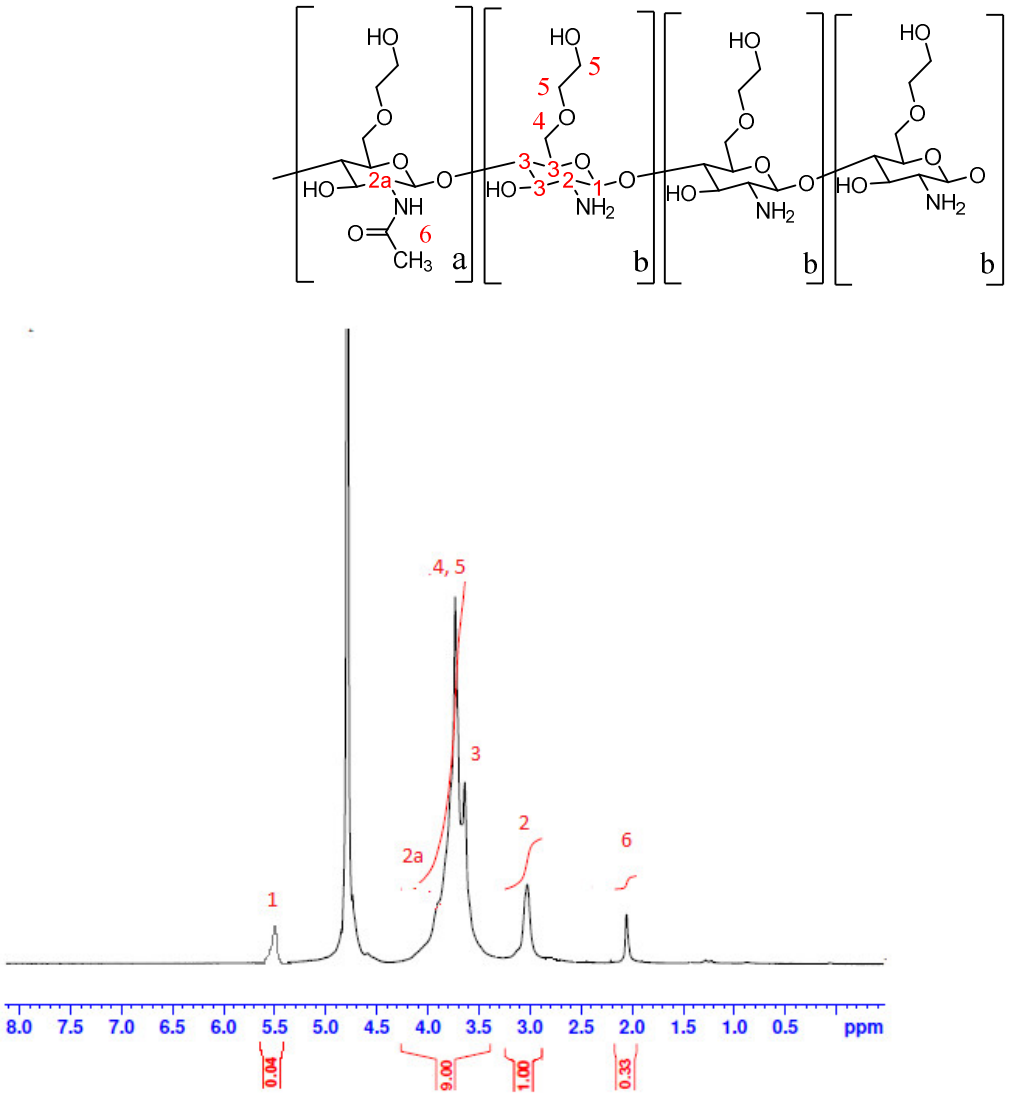
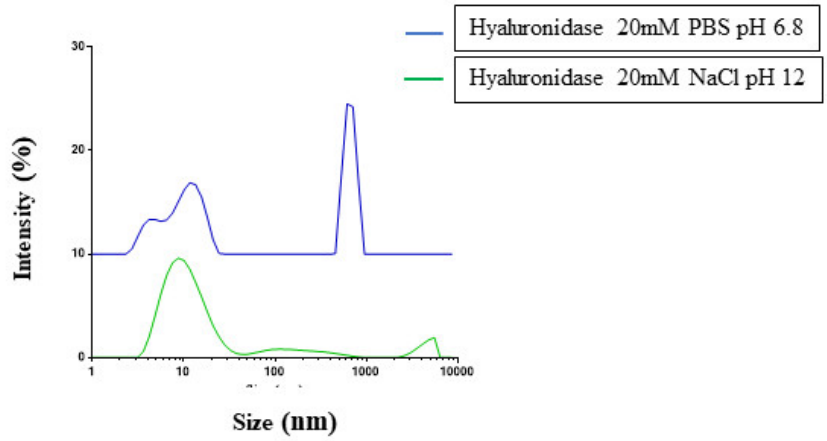
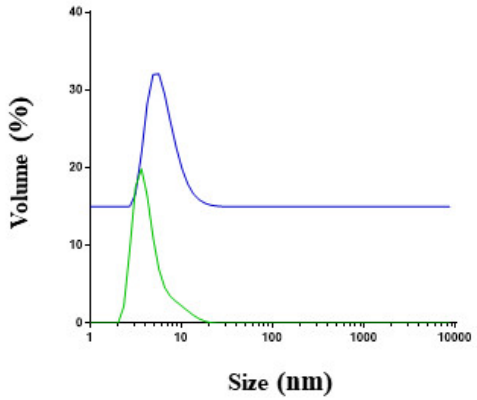


Figure S1: Degraded GC37 ^{1}H-NMR (D_2O)**:** $\delta_{2.1}$=[CH_3-CO-NH-), $\delta_{2.9\text{-}3.2}$=[-CH-(OH)-CH-(NH_2)], $\delta_{3.4\text{-}4.2}$=[-CH(OH), -CH_2(OH) and -CH-(OH)-CH-NH-CO-)], $\delta_{4.79}$=[D_2O], $\delta_{5.5}$=[-O-CH-O-].

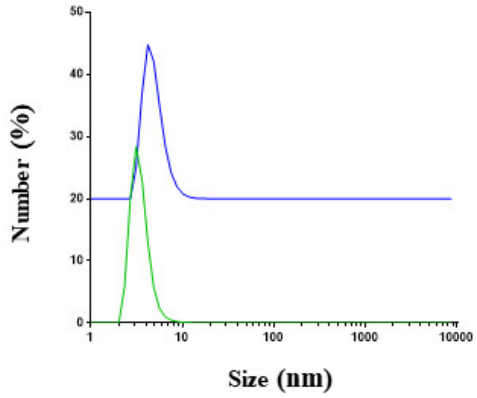
A



B



C



D

Hyaluronidase	Size (nm)	PDI	Zeta potential (mV)
20mM PBS, pH= 6.8	4.6 (14%) 11 (42%), 700 (44%)	0.280 ± 0.076	-4.5 ± 1.2
20mM NaCl, pH=12	11 (82%), 206 (11%)	0.541 ± 0.096	-26 ± 3.1

Figure S2: Size distribution plots of hyaluronidase by intensity (**A**), volume (**B**) and number (**C**) in 20 mM PBS, pH=6.8 (blue plots) and 20 mM NaCl pH=12 (green plots). (**D**) Size, PDI and zeta potential of hyaluronidase in 20mM PBS, pH=6.8 and 10mM NaCl, pH=12. The data is representative of three independent experiments (Mean ± SD, n=3)

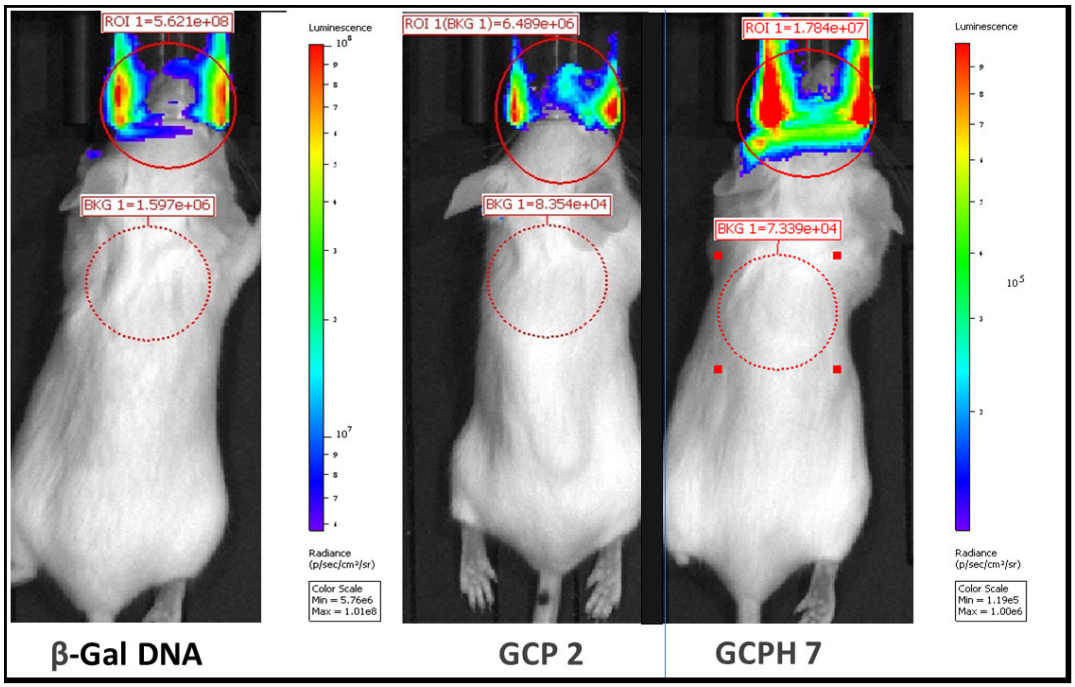


Figure S3. Representative IVIS images 24 h post intranasal administration of polyplexes and 15 mins post intranasal administration of the substrate at β-Gal DNA concentration of 84 µg mL $^{-1}$ or 0.067 mg kg $^{-1}$. The signal intensity is very strong and so it appears to bleed out from the animals for the exposure time of 240s.