Electronic supplementary information

Rational design of dendritic thermoresponsive nanogels that undergo phase transition on endolysosomal conditions

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Synthesis and characterization of ABC monomer

ABC synthesis was planned in order to generate an easy to handle dendritic monomer able to copolymerize with other vinylic monomers, such as NiPAm, as presented in this work. Scheme 1 presents synthetic route employed.

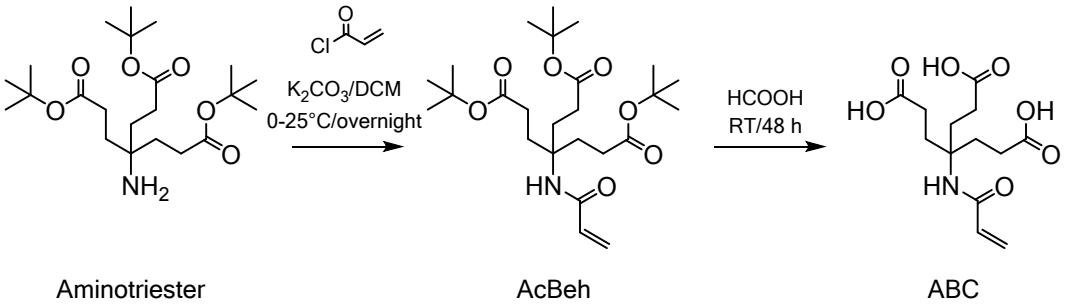

Fig S1. ABC monomer synthetic procedure.

Reaction between aminotriester and acryloyl chloride was carried out following a methodology previously reported by our group, with a simple modification. In this case, classic ternary amine, like triethylamine, was changed by anhydrous K_2CO_3 as proton scavenger, which also acted as drying agent. The success of the reaction was corroborated by spectroscopic analyses. ^{1}H-NMR spectrum revealed vinyl peaks ((δ = 6.11 ppm; 1H), (δ = 5.99 ppm; 1H) and (δ = 5.56 ppm; 1H)), as well as methylene signals (δ = 2.22 ppm; 6H) and (δ = 1.91 ppm; 6H), while *tert*-butyl signals disappeared, indicating the complete hydrolysis to ABC (Figure S2).

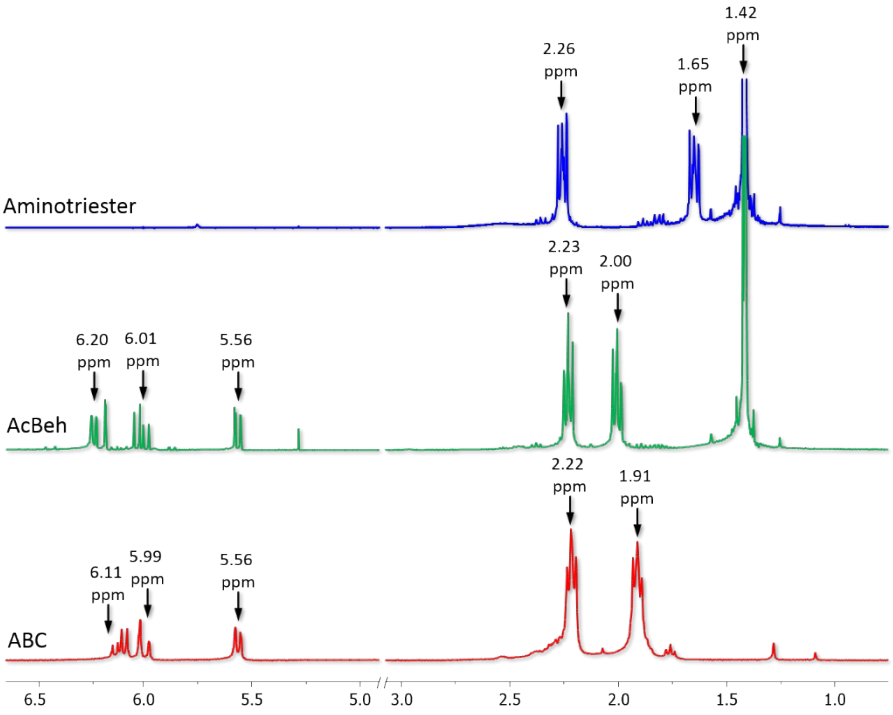

Figure S2. [1]H-NMR spectra of dendritic monomer. Disappearance of tert-butyl protons and appearance of vinylic bond confirms the obtaining of desired product. Section in between 3 to 5 ppm did not show any signals and was erased for a space maximization

Interaction with serum proteins

NGs were incubated in human serum at T = 37 °C for 24 h. A fixed surface to volume ratio was used, of 5 x10^5 m^2 NG/L serum. Following incubation, the samples were put into size filtration cartridge with MWCO = 1 MDa for removal of excess unbound proteins and washed with excess PBS. The samples were then treated with SDS and DTT at T = 95 °C for 1h, then run in SDS-PAGE (Figure S3).

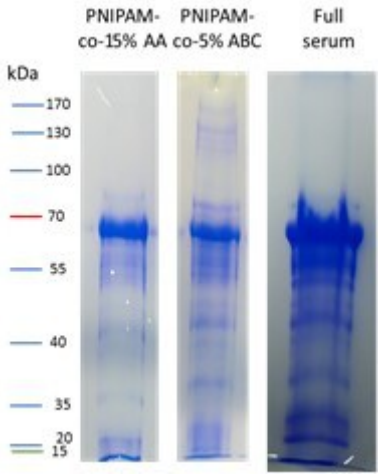

Figure S3: SDS-PAGE of NiPAm-co-5% ABC (middle lane) vs. NiPAM-15% AA (left lane). The molecular weight ladder is shown on the left lane