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Smart injectable biogels based on hyaluronic acid bioconjugates finely substituted with poly (β -amino ester urethane) for cancer therapy

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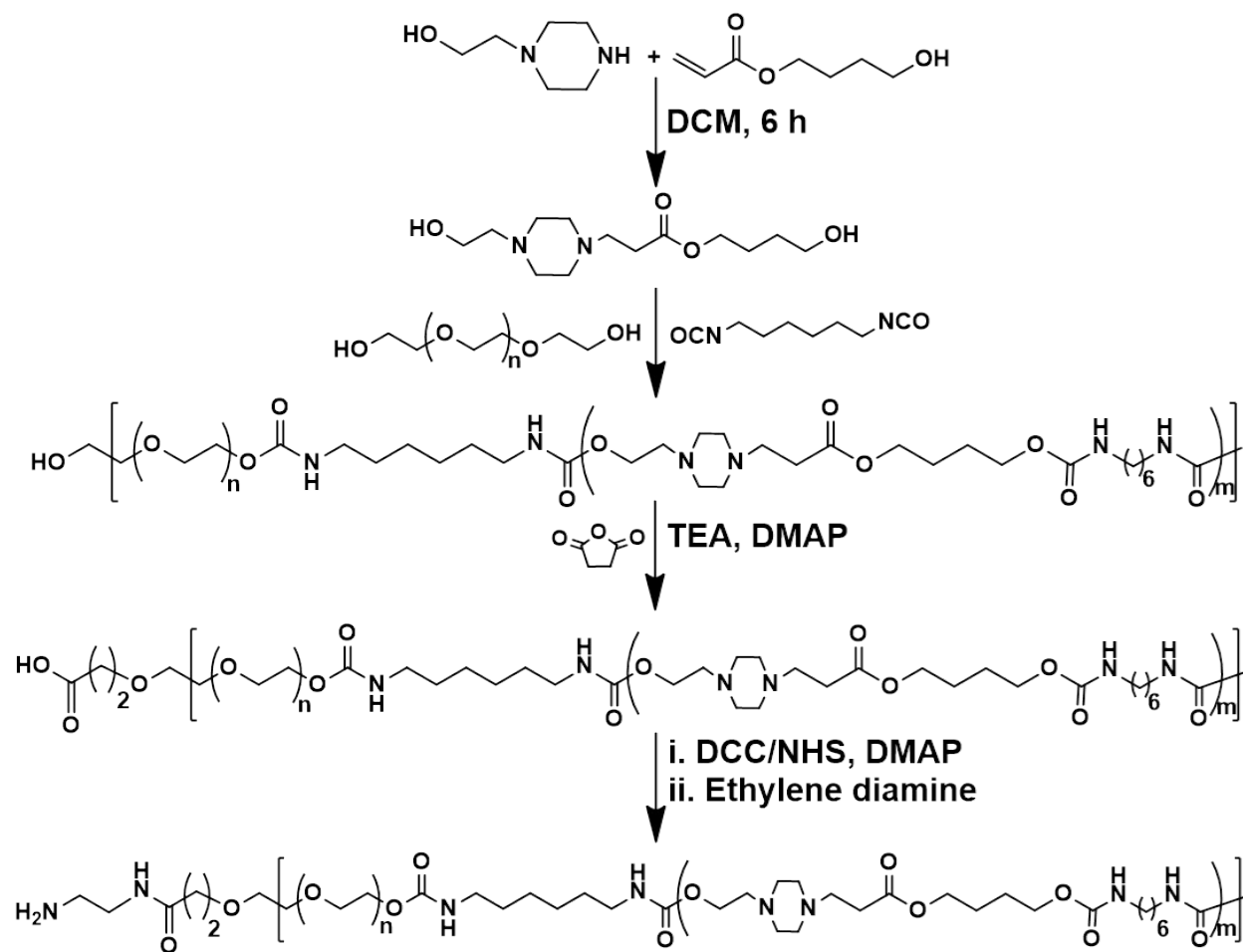


Fig. S1. Synthesis route of PAEU-NH₂.

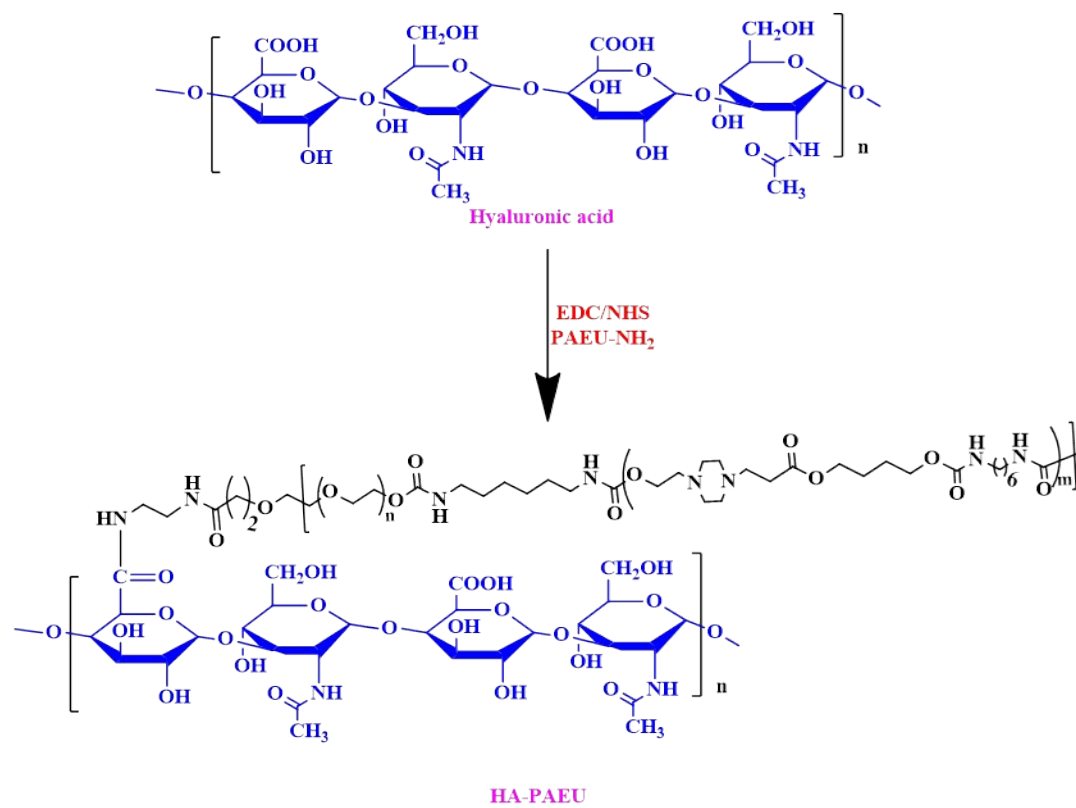


Fig. S2. Synthesis of HA-PAEU conjugates.

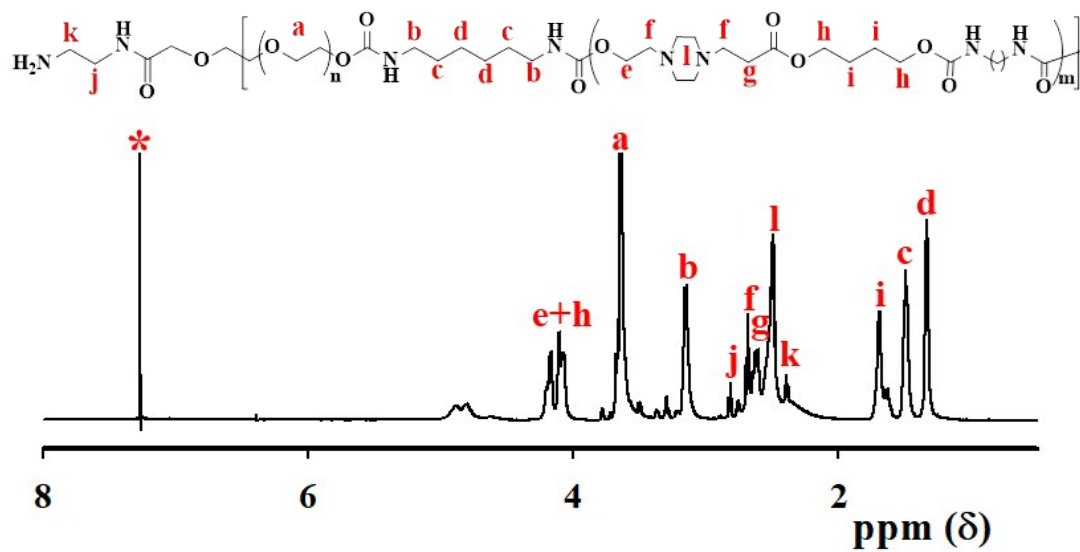
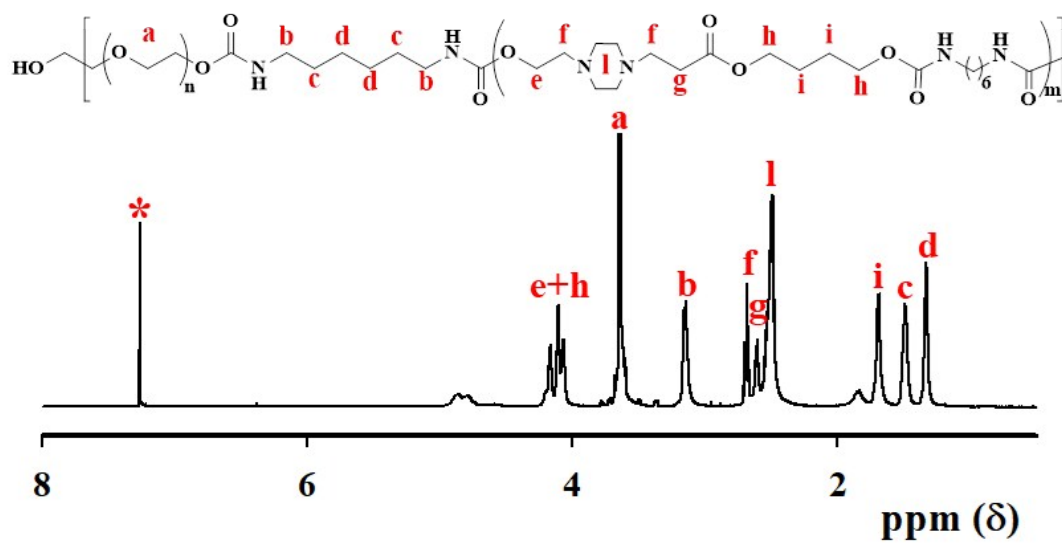


Fig. S3. (A) ¹H NMR spectrum of PAEU. (B) ¹H NMR spectrum of PAEU-NH₂.

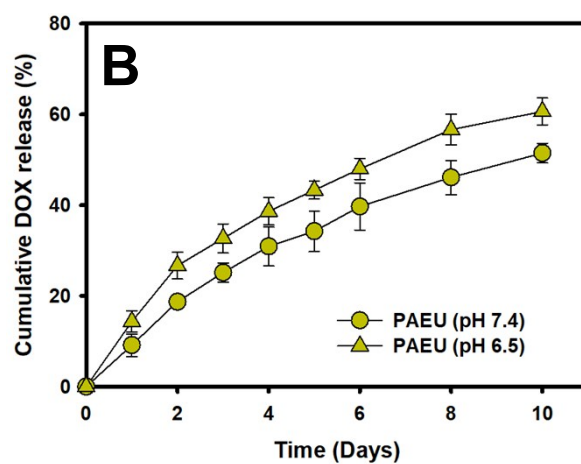
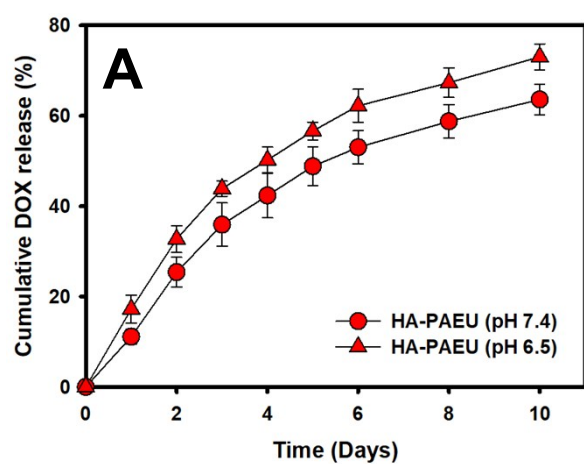


Fig. S4. *In vitro* release of DOX from hydrogels under different pH conditions (pH 7.4 and pH 6.5) (n = 3).

Table S1. Physicochemical characterization of HA-PAEU conjugates.

Sample	FR ^a (HA:PAEU)	X ^b	DS (%) ^c
HA-PAEU1	1:0.1	5.46	3.26
HA-PAEU2	1:0.2	8.87	5.36
HA-PAEU3	1:0.3	9.48	5.68
HA-PAEU4	1:0.4	10.66	6.39
HA-PAEU5	1:0.5	12.76	7.64

^aFeed ratio of PAEU-NH₂ to HA

^bNumber of PAEU conjugated in HA

^cDegree of substitution (DS, defined as number of PAEU copolymers per 100 HA repeating units)

The conjugation degree of PAEU to HA in the HA-PAEU conjugates was calculated by comparing the integral values of PEG characteristics peaks at 3.66 ppm correspond to the PAEU and *N*-acetyl peaks of glucosamine at 1.96 ppm correspond to the HA.¹⁻³

1. T. Thambi, D. G. You, H. S. Han, V. G. Deepagan, S. M. Jeon, Y. D. Suh, K. Y. Choi, K. Kim, I. C. Kwon, G. R. Yi, J. Y. Lee, D. S. Lee and J. H. Park, *Advanced Healthcare Materials*, 2014, **3**, 1829-1838.
2. T. Thambi, V. G. Deepagan, C. K. Yoo and J. H. Park, *Polymer*, 2011, **52**, 4753-4759.
3. T. Thambi, V. G. Deepagan, H. Y. Yoon, H. S. Han, S. H. Kim, S. Son, D. G. Jo, C. H. Ahn, Y. D. Suh, K. Kim, I. Chan Kwon, D. S. Lee and J. H. Park, *Biomaterials*, 2014, **35**, 1735-1743.