

## Supplementary Information

### **A facile modular approach toward multifunctional supramolecular polyplexes for targeting gene delivery**

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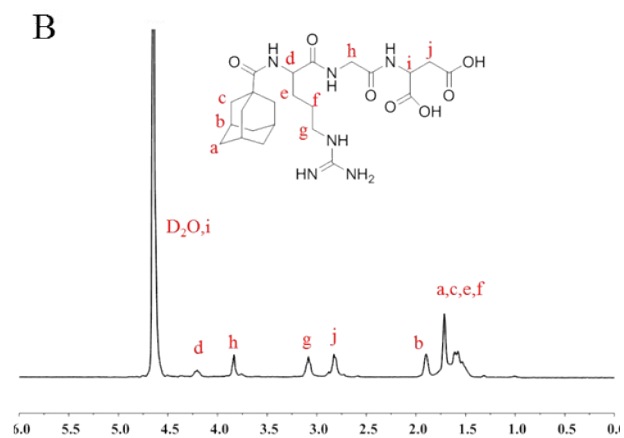
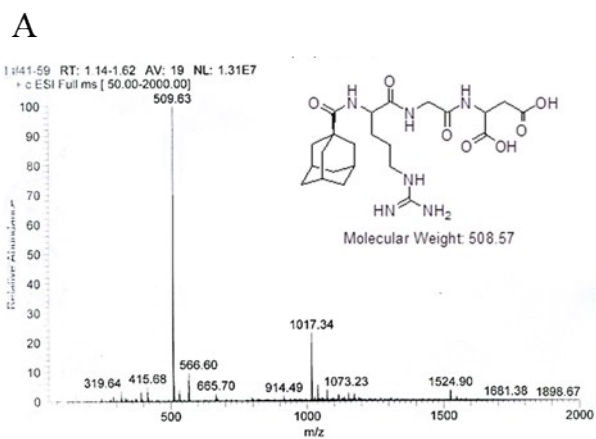
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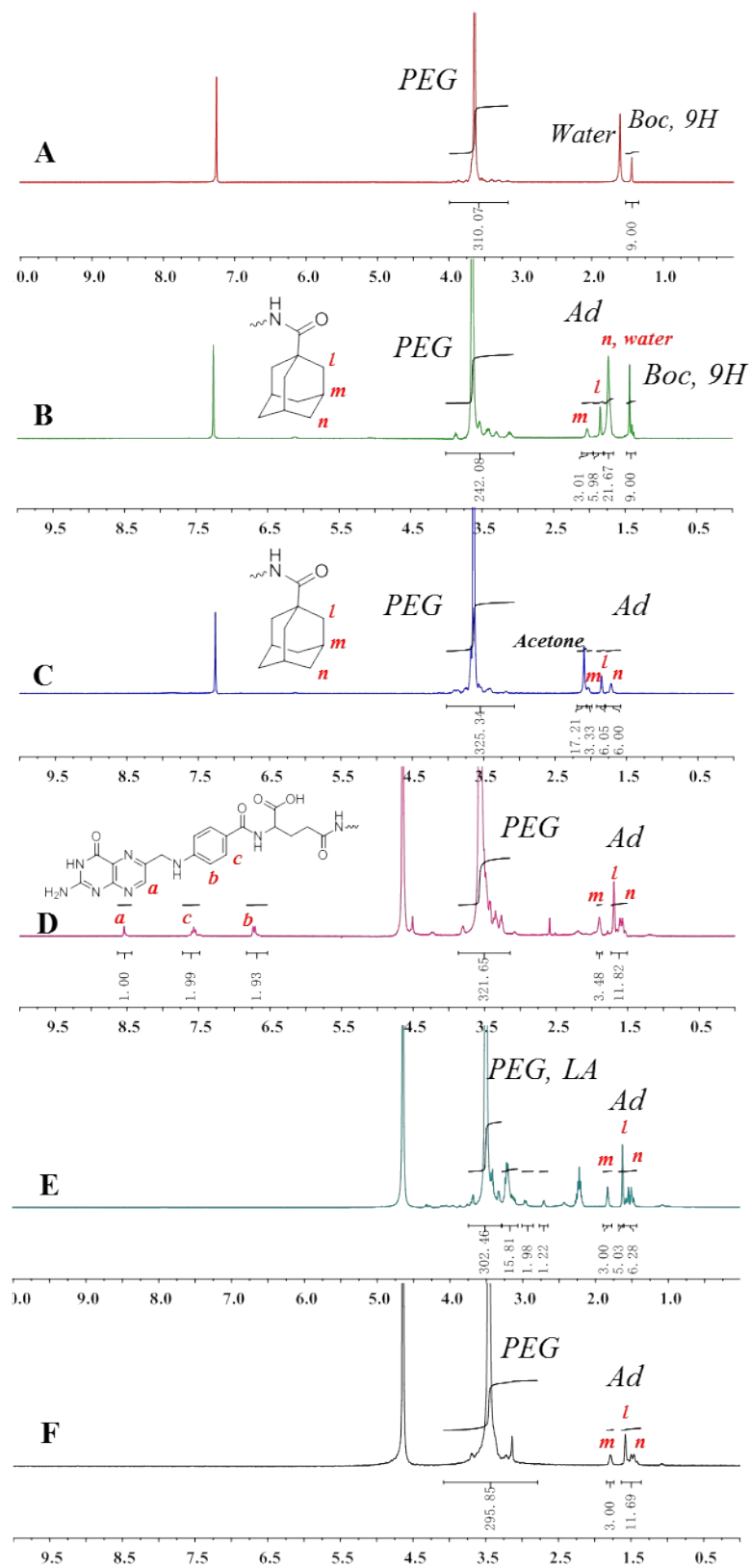
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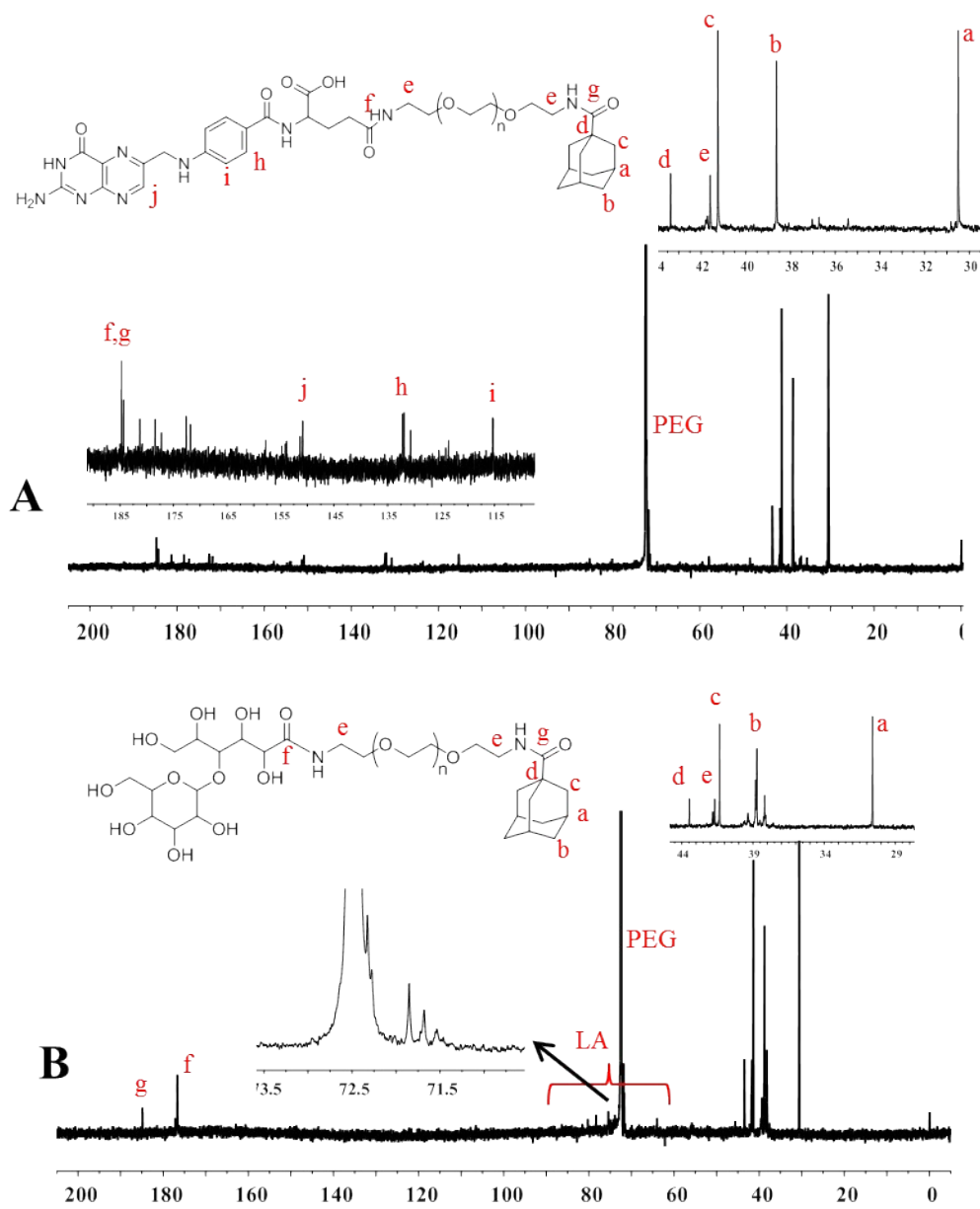
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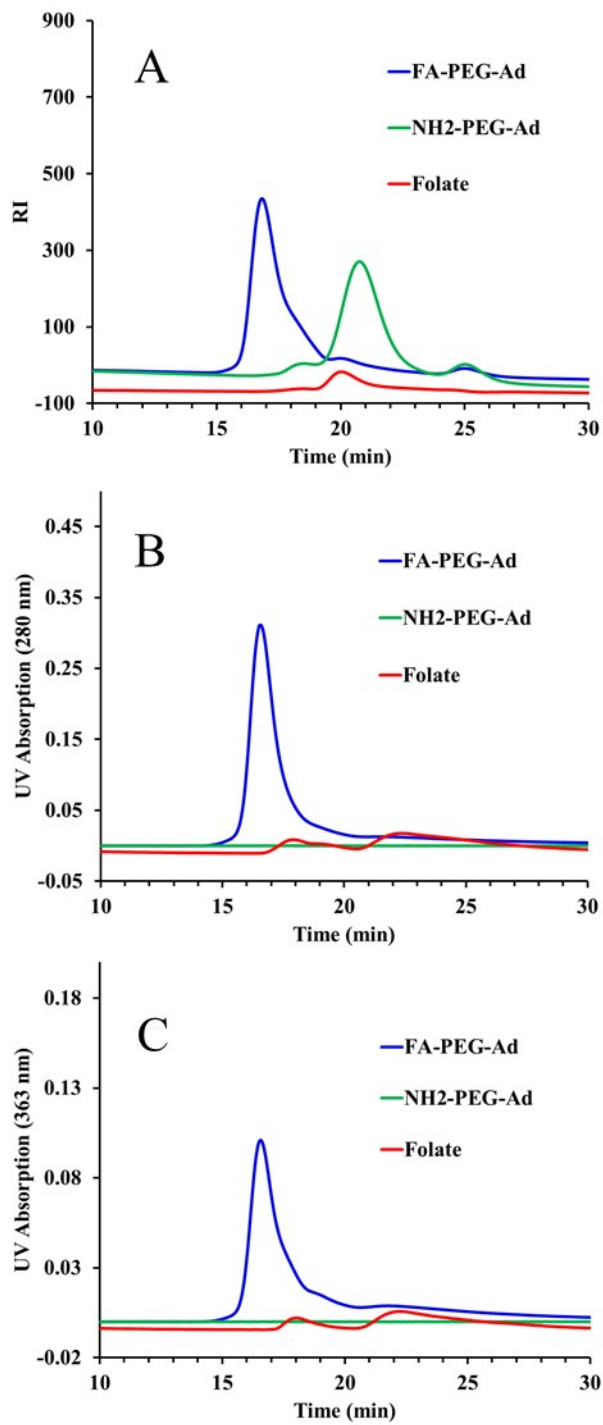
**Fig. S1** (A) ESI-MS spectrum and (B)  $^1H$  NMR spectrum (in  $D_2O$ ) of Ad-RGD.



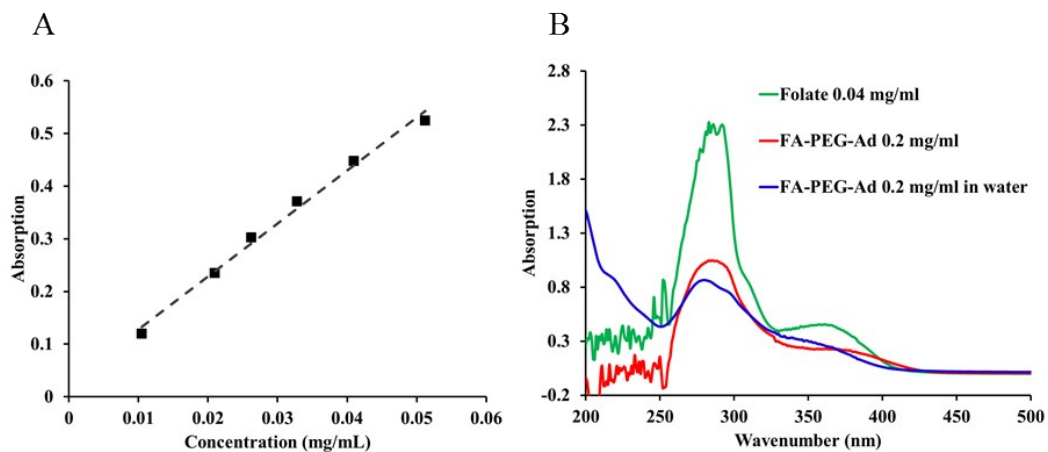
**Fig. S2**  $^1\text{H}$  NMR spectra of Boc-PEG-NH<sub>2</sub> (A), Boc-PEG-Ad (B), Ad-PEG-NH<sub>2</sub> (C) in CDCl<sub>3</sub>, FA-PEG-Ad (D) in D<sub>2</sub>O, LA-PEG-Ad in D<sub>2</sub>O (E) and Ad-PEG-NH<sub>2</sub> in D<sub>2</sub>O (F).



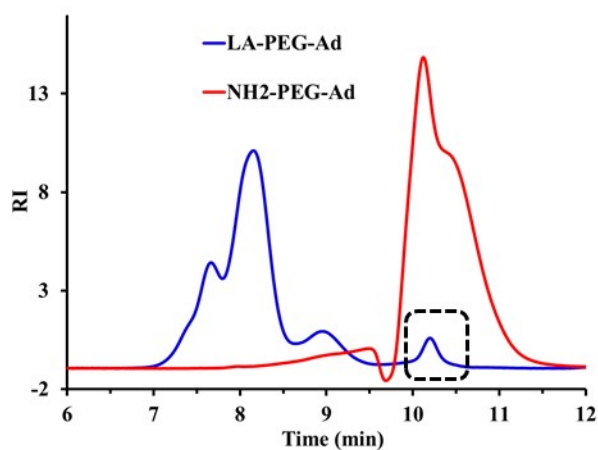
**Fig. S3**  $^{13}\text{C}$  NMR spectra of FA-PEG-Ad (A) and LA-PEG-Ad (B) in  $\text{D}_2\text{O}$ ,



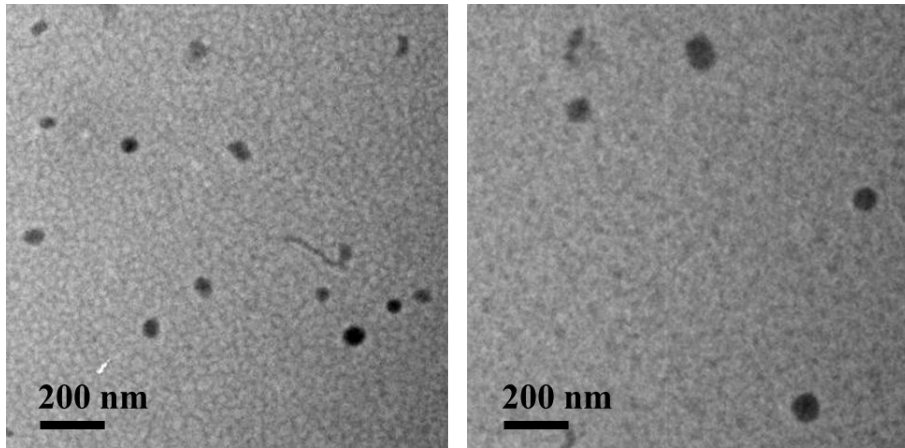
**Fig. S4** HPLC traces of FA-PEG-Ad, NH2-PEG-Ad and folate by RI (A) and UV (280 nm, B and 363 nm, C) detectors.



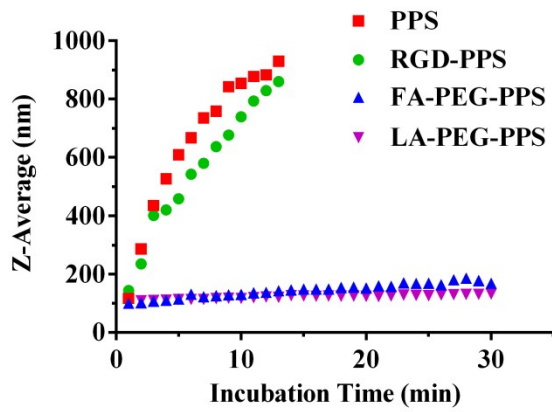
**Fig. S5** Calibration curve for folic acid (363 nm) in DMSO by UV-Vis (A) and UV-Vis spectra of .04 mg/mL folic acid in DMSO, 0.2 mg/mL FA-PEG-Ad in DMSO and water (B).



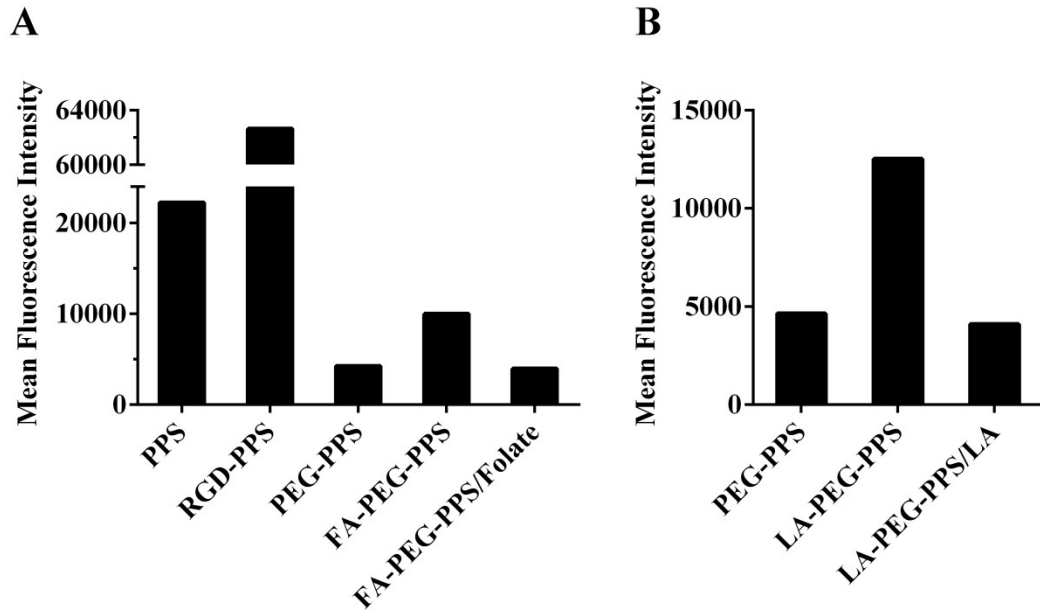
**Fig. S6** HPLC traces of LA-PEG-Ad and NH<sub>2</sub>-PEG-Ad by RI detector.



**Fig. S7** Transmission electron microscopy (TEM) images of PPS and PEG-PPS at N/P 10.



**Fig. S8** The particle sizes of PEI-Ad<sub>4</sub>/PCD based polyplexes (PPS) at N/P 10 with different functionalization (RGD-PPS, FA-PEG-PPS and LA-PEG-PPS) in 20 mM HEPES, 130 mM NaCl (pH 7.4) over time.



**Fig. S9** Quantitative analysis of green fluorescence intensity of HeLa (A) and HepG2 (B) cells after incubation 4 hours with YOYO-1 stained pCMV\_Luc polyplexes by ImageJ software.