A Highly Antibacterial Polymeric Hybrid Micelle with Efficiently Targeted Anticancer siRNA Delivery and Anti-infection *in vitro*/*in vivo*

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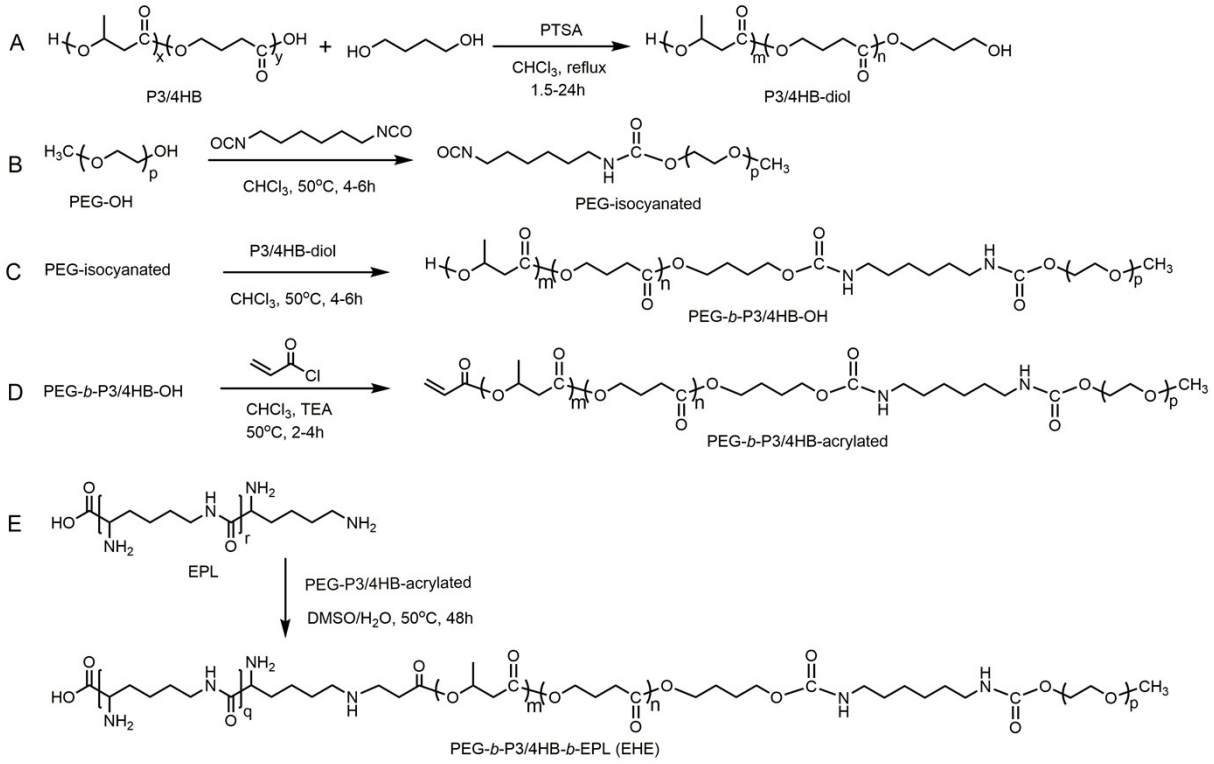
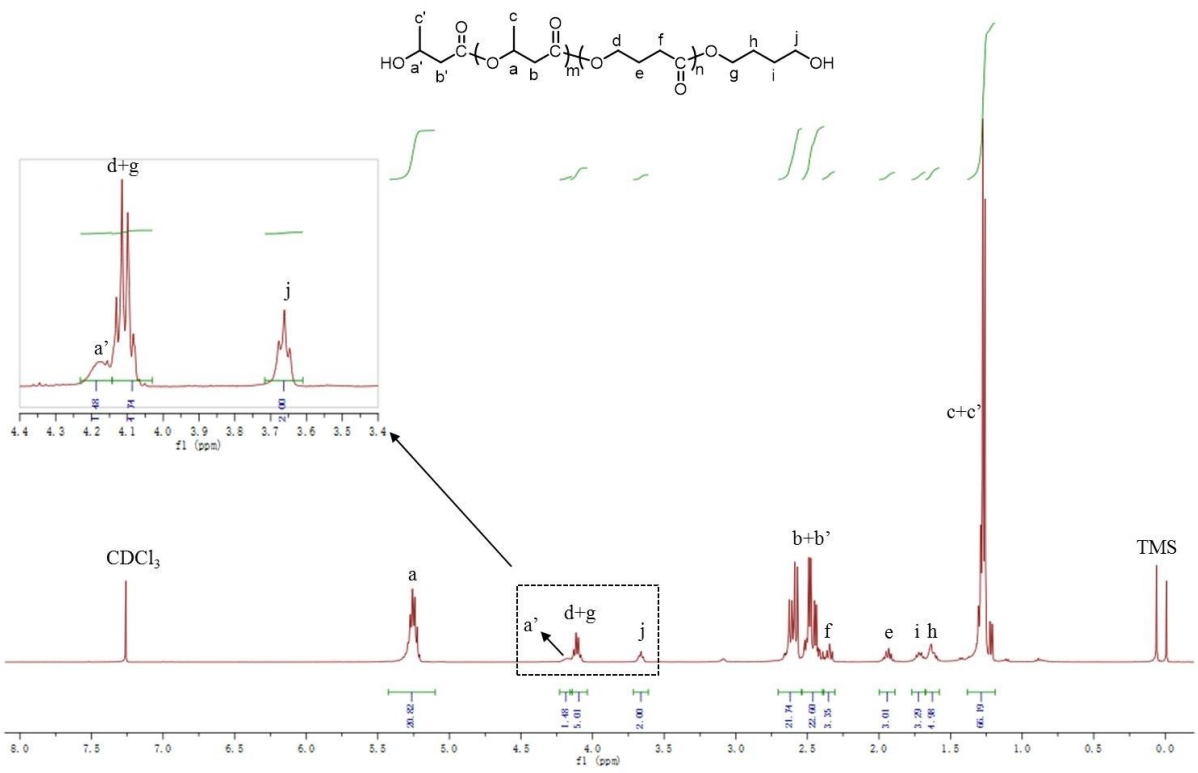
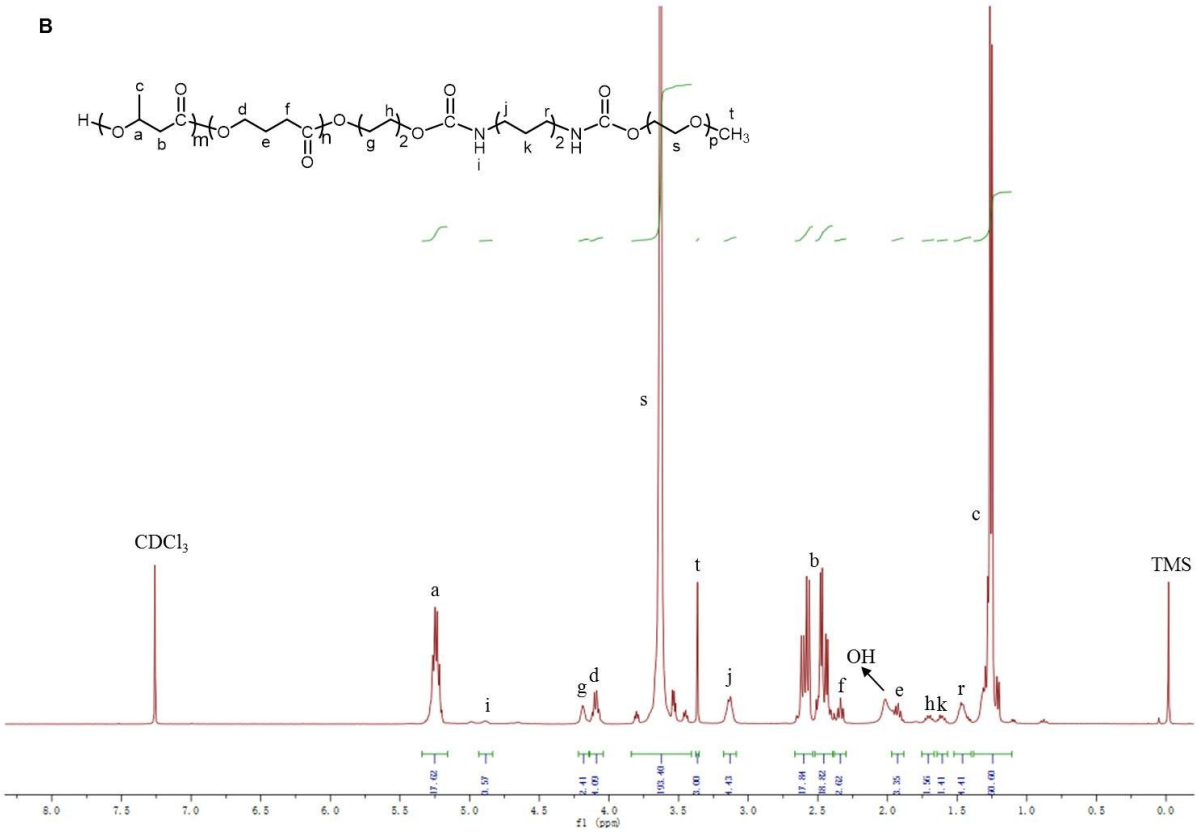


Fig. S1. Synthesis routine of prepolymers and EHE copolymers. The reaction of P3/4HB with 1,4-butylene glycol under catalytic PTSA to produce hydroxyl-terminated prepolymers (P3/4HB-diol) (A); PEG-OH coupling with HDI to form PEG-isocyanated (B); PEG-isocyanated coupling with P3/4HB-diol to form PEG-*b*-P3/4HB-OH (C); Prepolymer PEG-*b*-P3/4HB-OH coupling with acryloyl chloride to form PEG-*b*-P3/4HB-acrylated (D); PEG-*b*-P3/4HB-*b*-EPL (EHE) copolymer was synthesized by a Michael addition (E).

A

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TMS
OH
s
c
t
b
a
i
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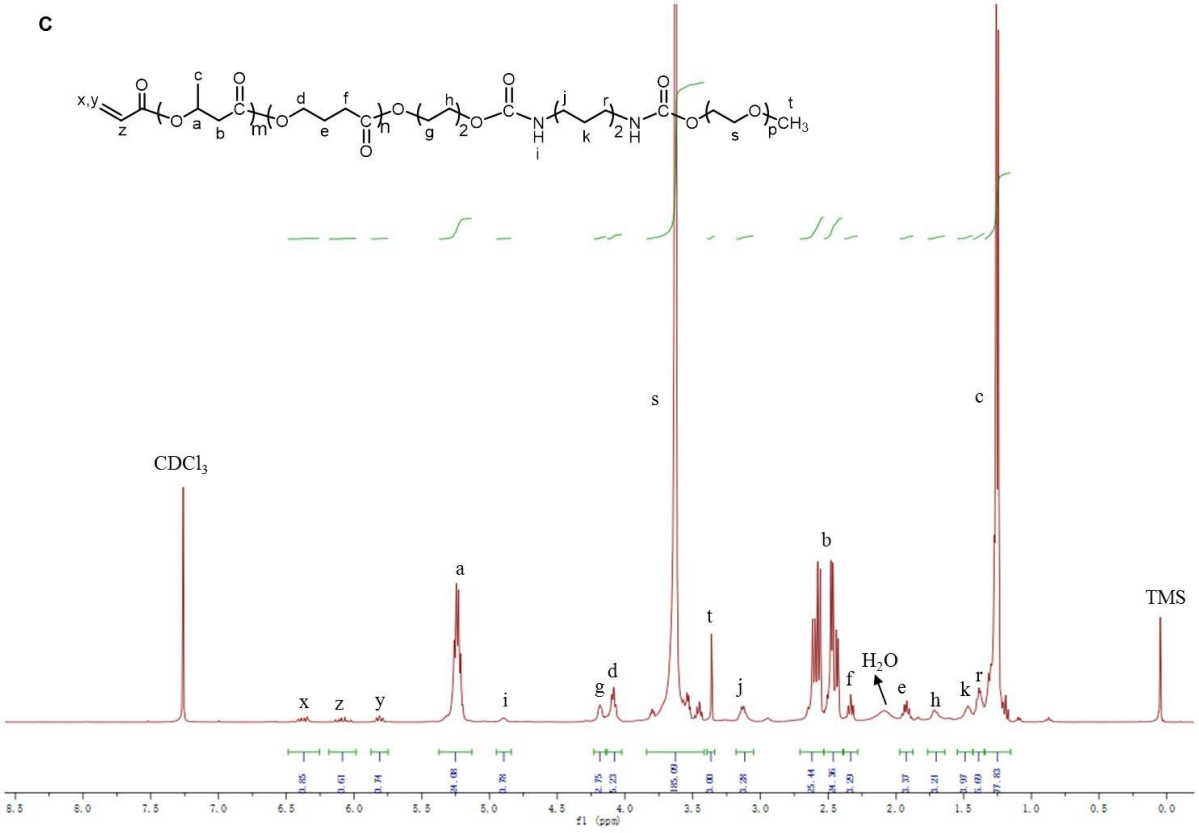
f1 (ppm)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TMS
H2O
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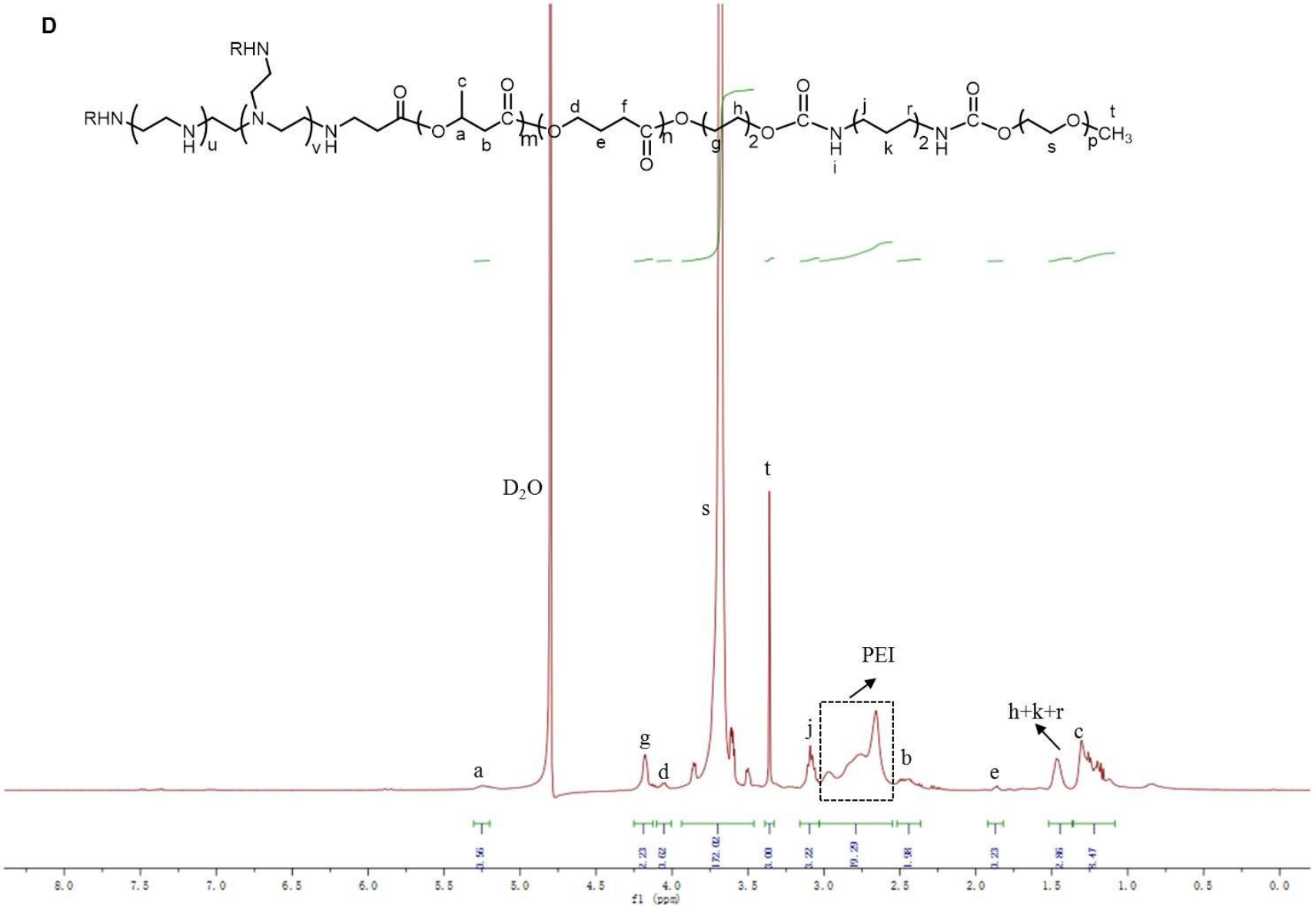
h
k
r
f1 (ppm)

D


RHN
RHN
D2O
s
t
PEI
h+k+r
a
g
d
j
b
e
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6.5
6.0
5.5
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2.0
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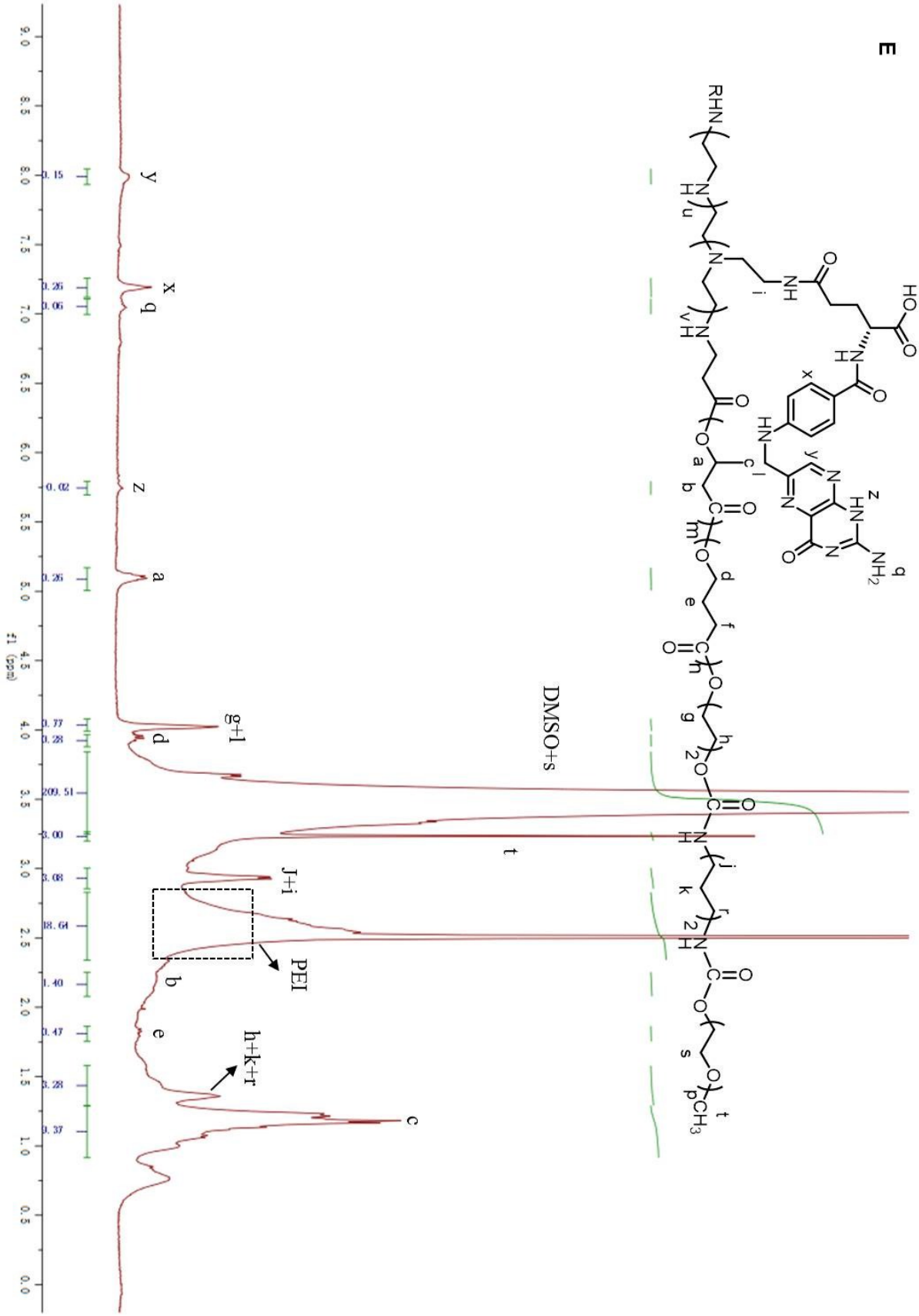

Fig. S2. NMR of P3/4HB-diol (A), PEG-P3/4HB-OH (B), PEG-P3/4HB-acrylated (C) in $CDCl_3$ EHP in H_2O (D) and EHP-FA in DMSO (E).

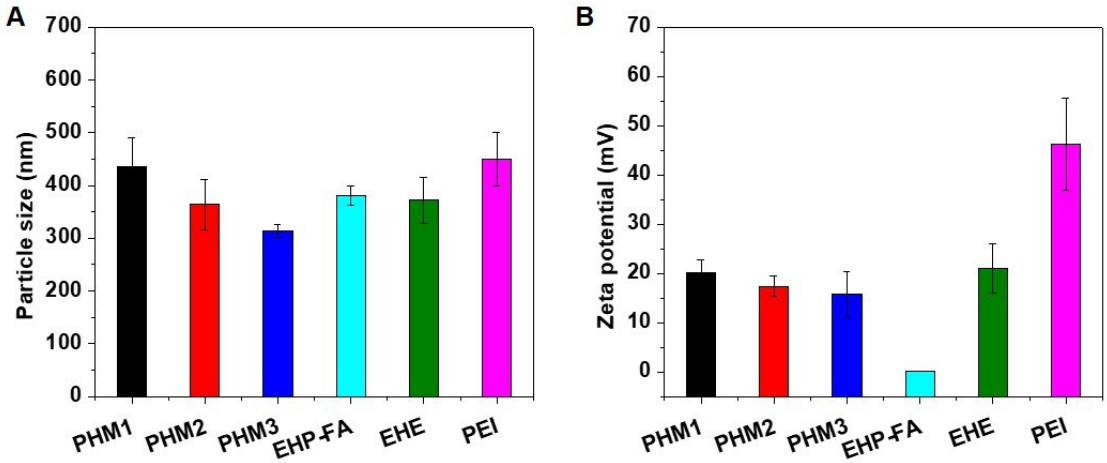

Fig. S3. Particle size and zeta potential of polymers without siRNA.

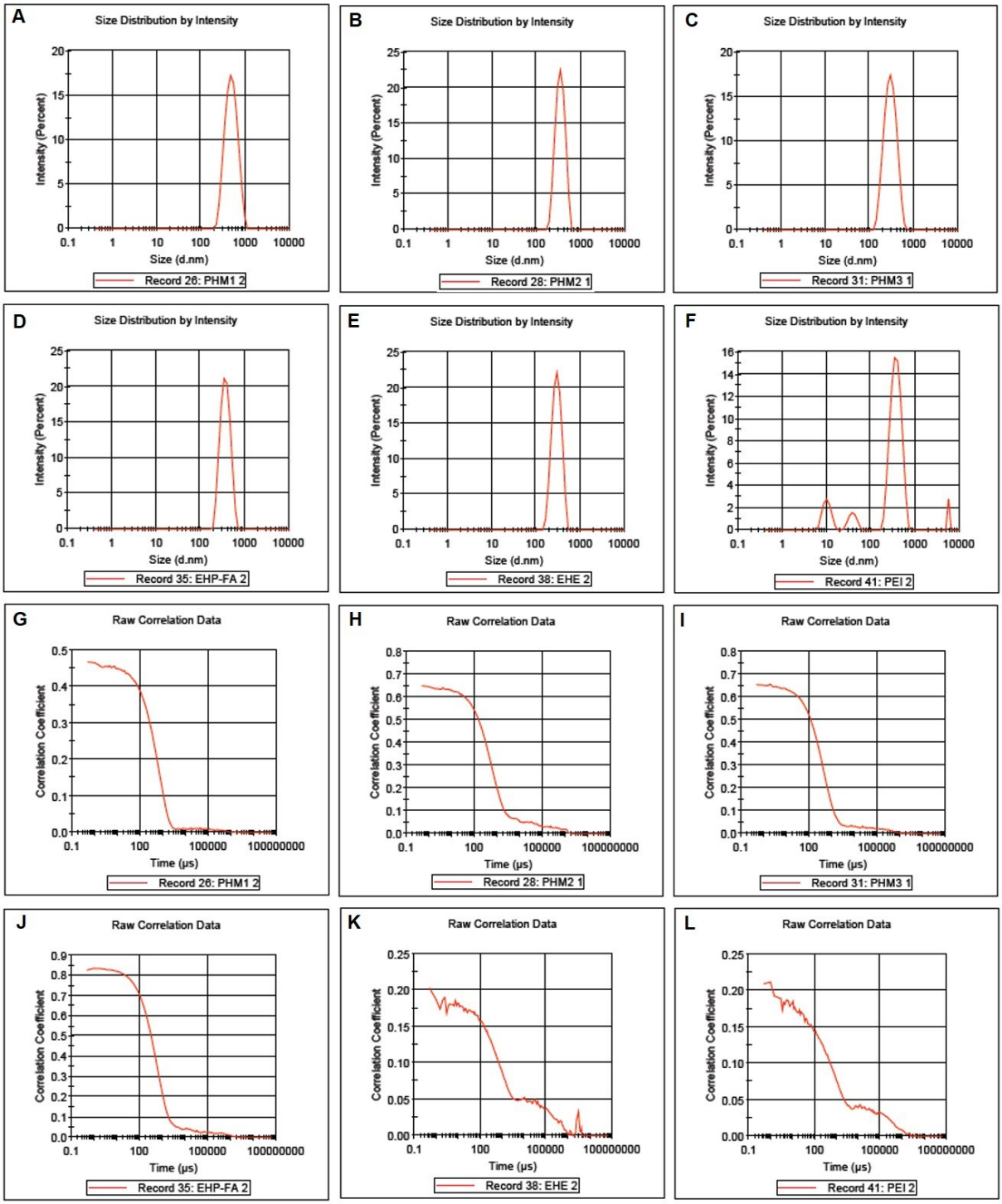

Fig. S4. Size distribution by intensity and raw correlation data of polymers without siRNA.

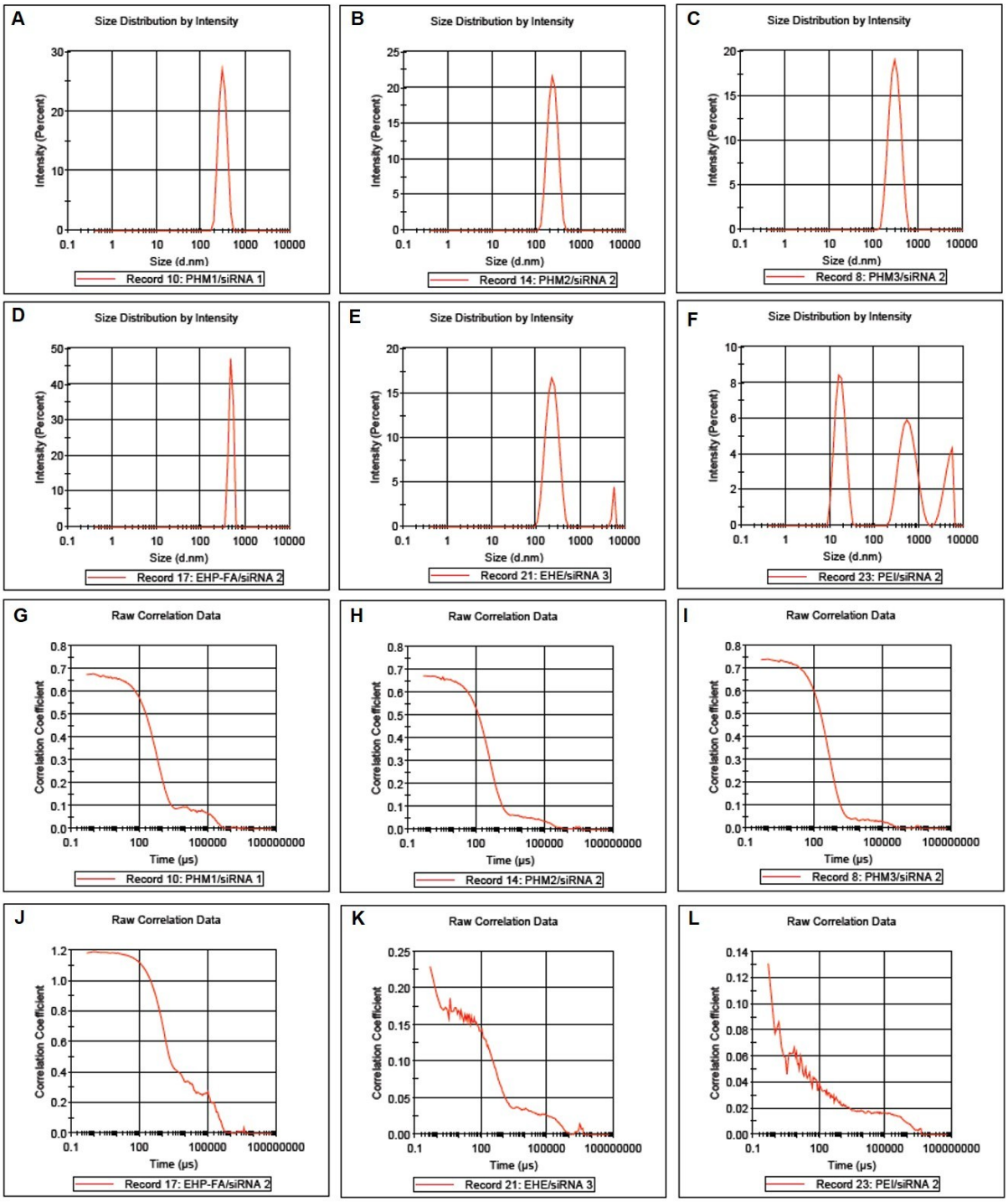

Fig. S5. Size distribution by intensity and raw correlation data of polymer/siRNA complexes.

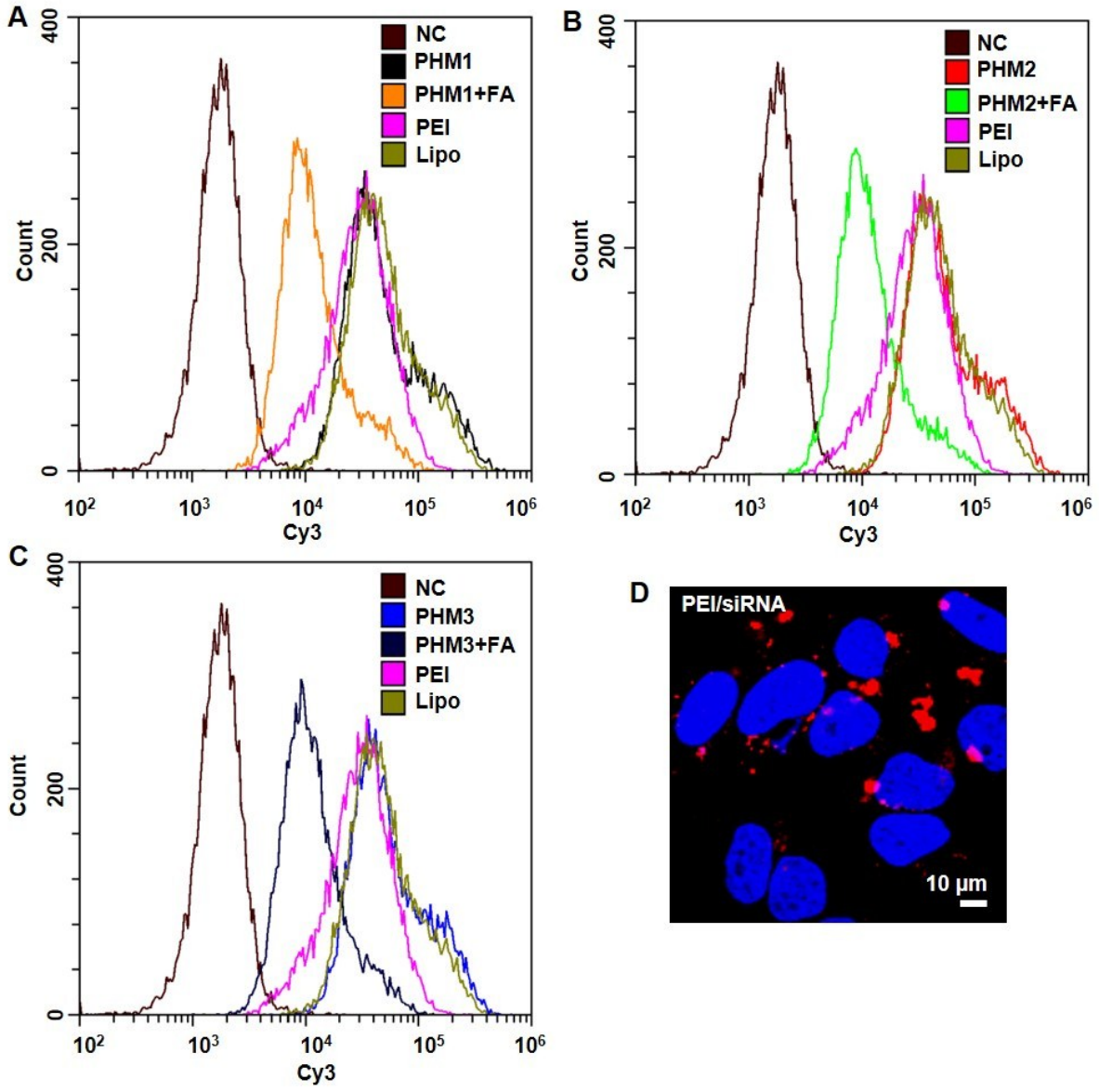

Fig. S6. (A-C) Flow cytometric histogram profiles of Cy3 fluorescence intensity for cells with or without pre-treated by FA transfected by different polymer/Cy3-siRNA complexes. (D). Confocal microscopy image of cells treated with PEI/Cy3-siRNA complex.