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Supporting information

Serum-Resistant, Reactive Oxygen Species (ROS)-Potentiated Gene Delivery in Cancer Cells Mediated by Fluorinated, Diselenide-Crosslinked Polyplexes

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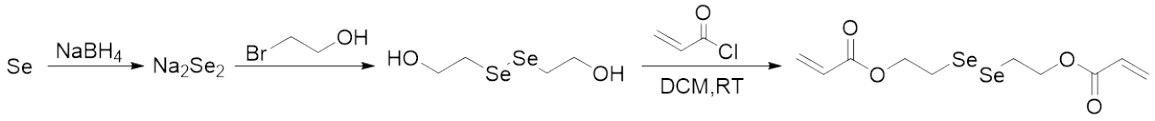

Fig. S1. The synthetic route of diselanediylbis(ethane-2,1-diyl) diacrylate.

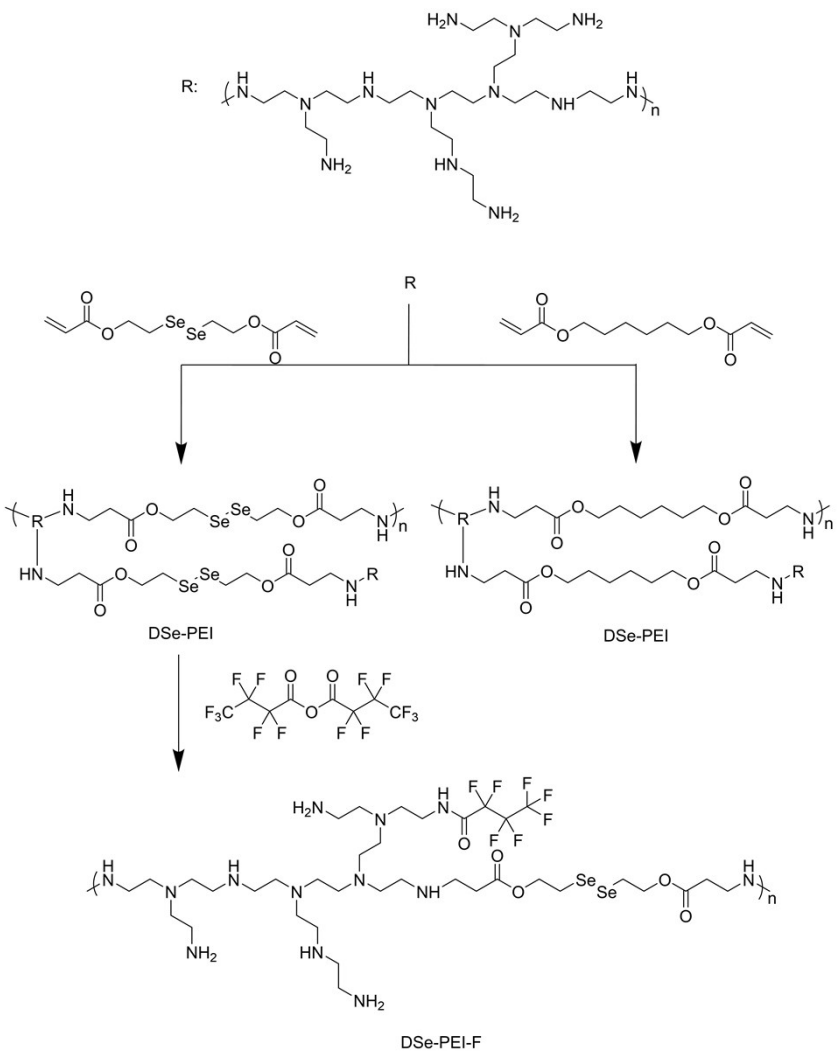

Fig. S2. Synthesis of ROS-responsive DSe-PEI, DSe-PEI-F and its nonresponsive analogue DC-PEI.

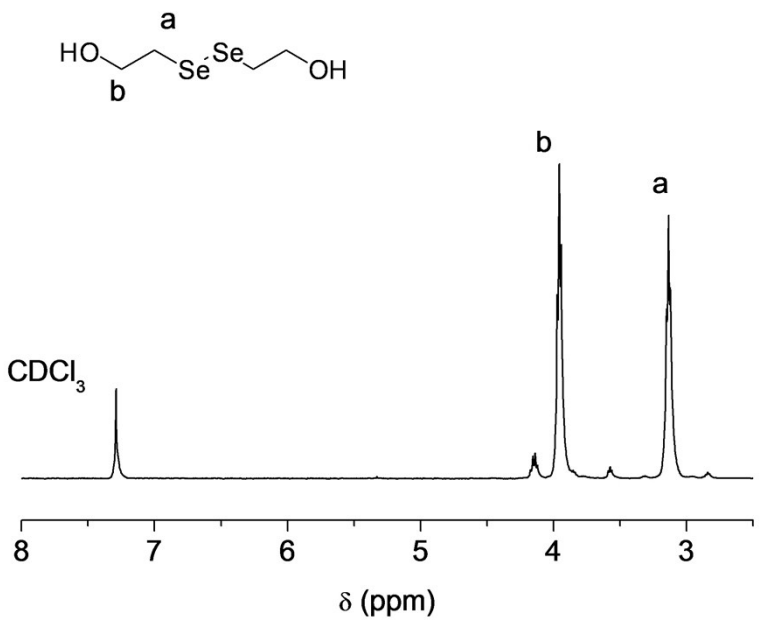

Fig. S3. ^{1}H NMR spectrum of 2,2'-diselanediylbis(ethan-1-ol) ($CDCl_3$, 400 MHz).

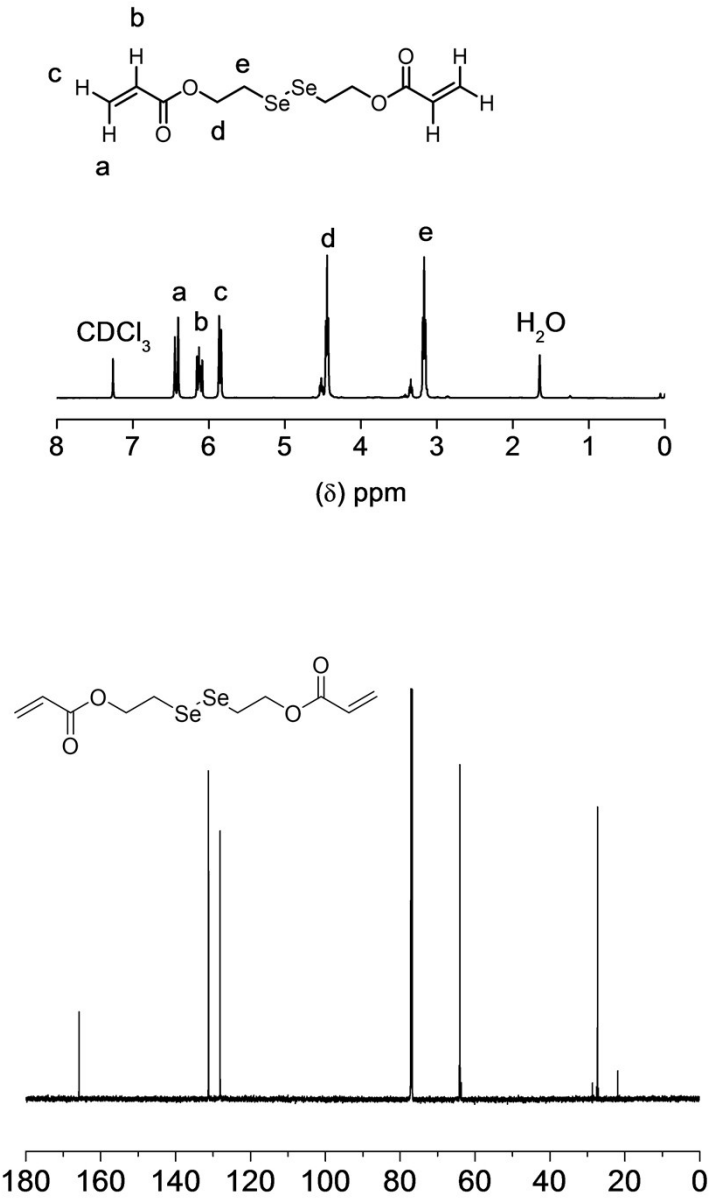

Fig. S4. ^{1}H NMR and ^{13}C NMR spectrum of diselanediylbis(ethane-2,1-diyl)diacrylate. ($CDCl_3$, 400 MHz).

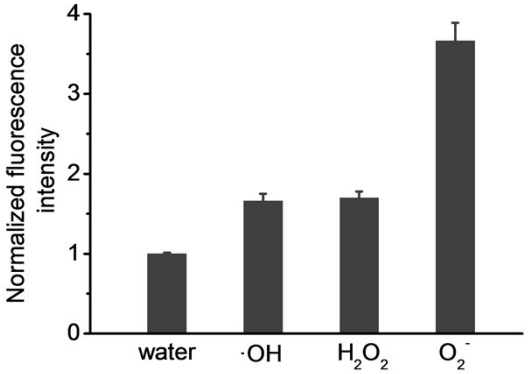

Fig. S5. Selectivity of ROS-triggered destabilization of DSe-PEI/DNA polyplexes after treatment with various ROS (10 mM), including hydroxyl radical, H_2O_2, and superoxide, as determined by the EB exclusion assay.

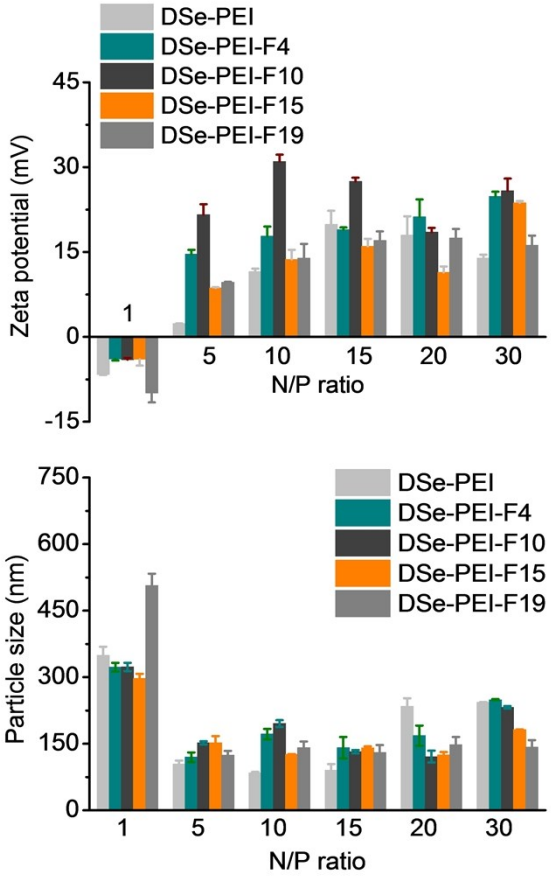

Fig. S6. Zeta potential and size analysis of DSe-PEI/DNA and fluorinated DSe-PEI/DNA polyplexes at various N/P ratios.

Table S1. Molecular characteristics of DSe-PEI polymer.

Sample	Mw (Da)	Mn (Da)	Mw/Mn[a]
Se-PEI	4831	8791	1.820
Se-PEI+1 mM H_2O_2	4488	8381	1.867
Se-PEI+5 mM H_2O_2	3900	7387	1.894
Se-PEI+10 mM H_2O_2	564	2236	3.966

[a] As estimated by GPC using acetic acid (0.1 mol/L)/sodium acetate (0.1 mol/L) (pH 2.8) as mobile phase.