



Supplementary materials

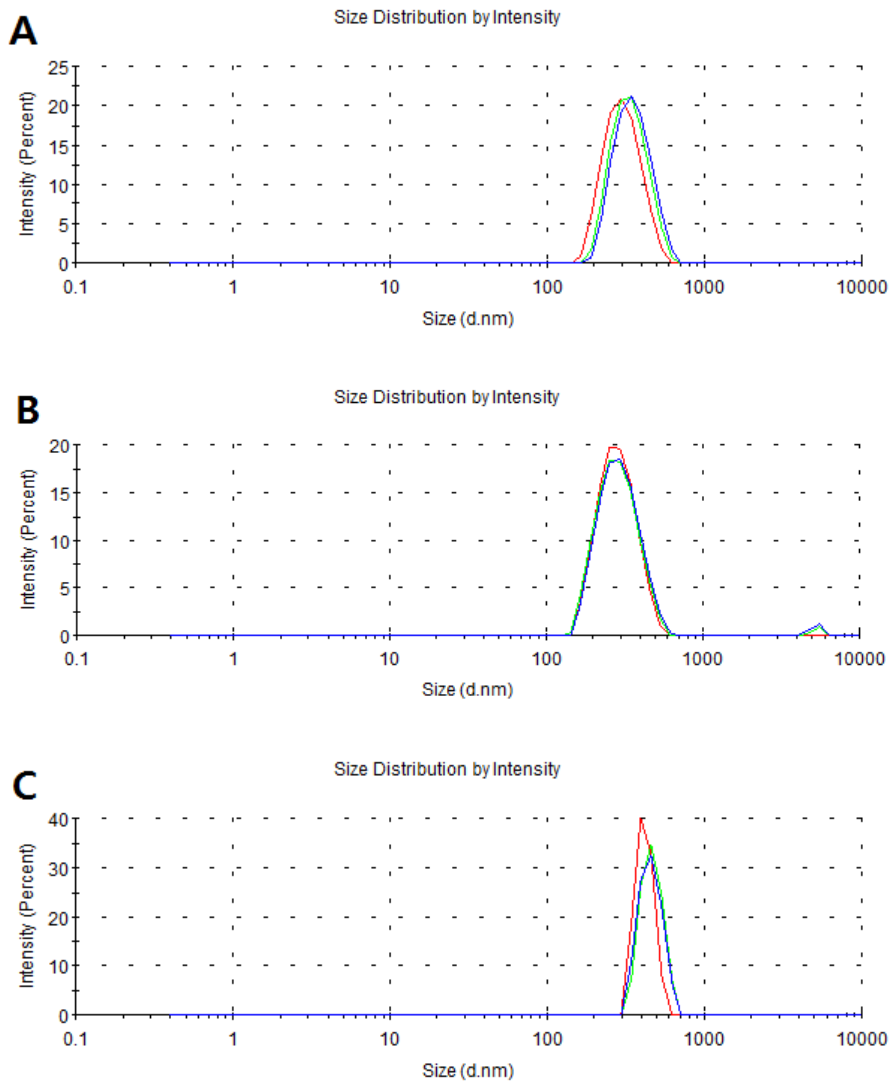
# Effect of pH-Responsive Charge-Conversional Polymer Coating to Cationic Reduced Graphene Oxide Nanostructures for Tumor Microenvironment-Targeted Drug Delivery Systems

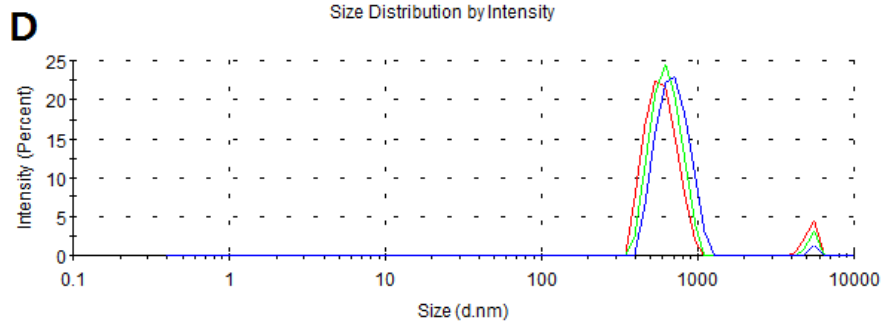
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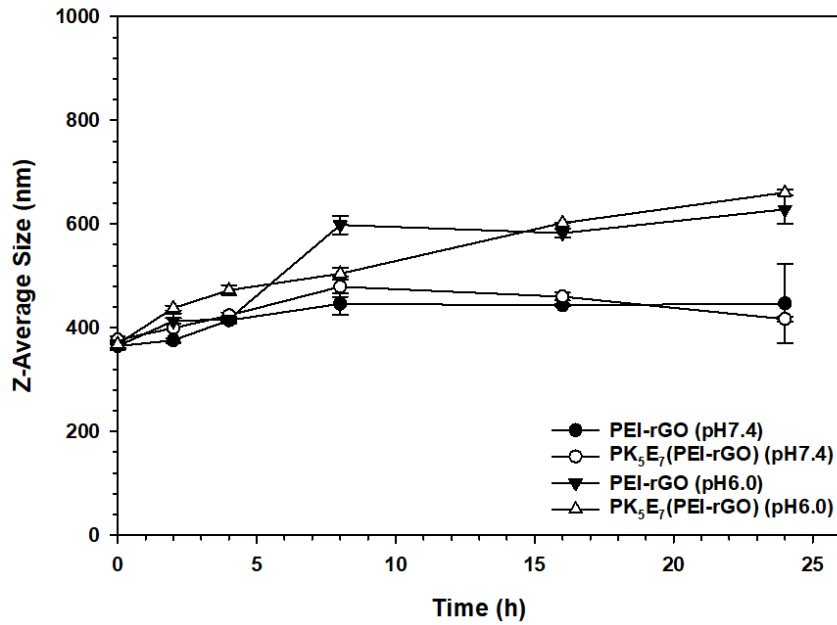
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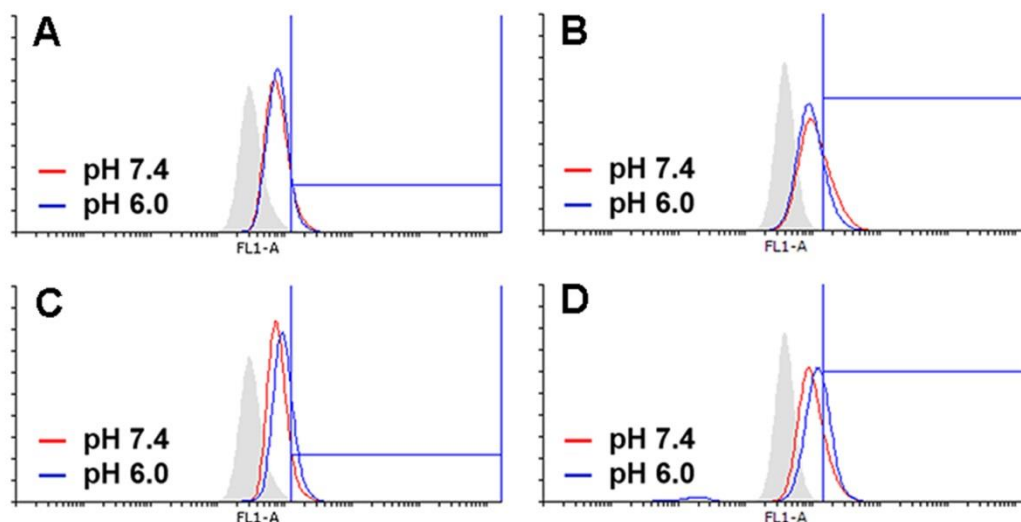




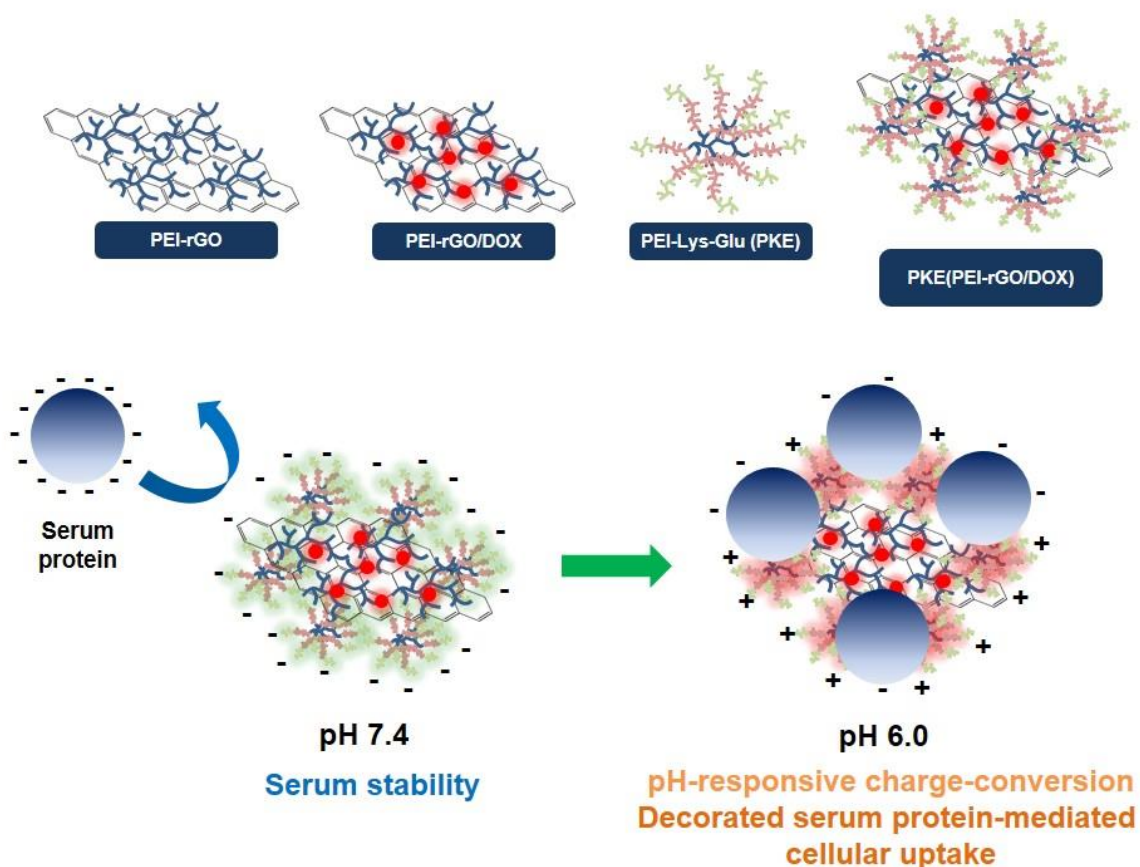
**Figure S1.** Size distribution histograms of PK<sub>5</sub>E<sub>7</sub>(PEI-rGO) nanostructures. (A) Weight ratio (PK<sub>5</sub>E<sub>7</sub>/PEI-rGO) = 10, PDI = 0.190 ± 0.053, (B) weight ratio = 20, PDI = 0.180 ± 0.021, (C) weight ratio = 30, PDI = 0.409 ± 0.088, and (D) weight ratio = 50, PDI = 0.349 ± 0.055. Size measurements were performed in triplicate.



**Figure S2.** Z-average sizes of PEI-rGO and PK<sub>5</sub>E<sub>7</sub>(PEI-rGO) at pH 7.4 and pH 6.0 in PBS buffer. Data were shown as mean ± S.D (n=3).



**Figure S3.** Cellular uptake analysis of PK5E7(PEI-rGO/DOX) by flow cytometry in HeLa (A, C) and A549 cells (B, D). The experiments were conducted in serum-free (A, B) and serum (10% FBS) condition (C, D). Gray peaks present cell only results.



**Figure S4.** The scheme for the formation of PKE(PEI-rGO/DOX) nanostructures and their serum stability and decorated serum protein-mediated cellular uptake by PKE coating. It suggests that the pH-responsive charge-conversional PKE polymer coating strategy of cationic rGO nanostructures possesses a potential for acidic tumor microenvironment-targeted drug delivery systems.