

## pH-sensitive histidine-conjugated poly(amino acid) nanoparticles

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pH-responsive self-assembled nanoparticles of cationic graft copolymers based on histidine-conjugated poly(amino acid) derivatives in an aqueous solution was studied. Cationic graft copolymers conjugated with histidine moieties were successfully synthesized with poly(succinimide) (PSI), which can be readily modified by grafting with various molecules having nucleophile. The synthesis was verified by NMR analysis and the degree of substitution (DS) of PEG and histidine moieties were determined from <sup>1</sup>H NMR, respectively.

Synthesized cationic copolymers formed self-assembled nanoparticles in an aqueous solution. pH-responsive behavior and physicochemical properties of nanoparticles in aqueous solution were extensively studied by light scattering, zeta potential, UV, pH-meter and TEM measurements.

Because histidine moieties contain imidazole and  $\alpha$ -amino group, whose pKa values are 6.04 and 9.33, it is expected that these self-assembled nanoparticles have an effective endosomolytic property and could escape endosome to deliver drug to the nucleus.