pH-responsive behaviors of 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.
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 α-amino group, whose pKa values are 6.04 and 9.33, it is expected that these self-assembled nanoparticles of cationic graft copolymers based on histidine-conjugated poly(amino acid) derivatives have a effective endosomolytic property and could escape endosome to deliver drug to the nucleus.