

pH sensitive poly(amino acid) graft copolymer

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Amino acid-based polymers including polypeptides have been developed due to their wide potential applications for pharmaceutical and biomedical applications. The protein like amide linkages in poly (amino acid) offer biodegradable properties to polymer. In case of biological and pharmaceutical systems which need small fluctuation in pH around 7 such as intracellular endosomal drug release and tumor targeting delivery, pH sensitive polymers are very important. In this study amphiphilic poly (amino acid) copolymers composed of imidazole rings and octadecyl chain were prepared for intracellular drug delivery. 1-(3-aminopropyl)imidazole and octadecylamine were grafted to poly (succinimide) backbone by aminolysis and the degree of substitution and structure were confirmed by ^1H NMR and FT-IR spectroscopy. The polymers had pH response abilities according to small pH change (pH 7 \rightarrow 5) and aggregated in aqueous solution by hydrophobic interaction. Turbidity test, dynamic light scattering and zeta potential measurements were performed for determining the size distribution of nanoparticle and investigating the stability of self-aggregates.