

**pH-sensitive hemolytic property and low cytotoxicity of amphiphilic polyaspartamide derivatives grafted with 1-(3-aminopropyl)imidazole**

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A series of amphiphilic graft copolymers were synthesized by a successive graft reaction of octacyclamine, O-(2-aminoethyl)-O'-methylpolyethylene glycol, and 1-(3-aminopropyl)imidazole on polysuccinimide. The prepared polymers self-assembled like micelle, whose size is from 100nm to 200nm. The polymer aggregates showed sharp UV transmittance change at around pH 7, and had high buffering capacity between pH 5 and 7. In polymers with low DS of C18, an aggregation was observed at pH above 7, while the aggregates was dissociated at pH below 7 by ionization and deionization of imidazole groups, whose pKa value is 6.5. In polymer with high DS of C18, stable polymer aggregates were formed in pH range from 4 to 9. A series of 1-(3-aminopropyl)imidazole-grafted polyaspartamide derivatives were little hemolytic at pH above 7.0, but they displayed high hemolysis % at pH below 5.5 by hemolytic ability of grafted 1-(3-aminopropyl)imidazole, and showed very low cell toxicity. It is expected that 1-(3-aminopropyl)imidazole-grafted polyaspartamide derivatives have many potentialities as a carrier for intracellular drug delivery.