

Synthesis of pH-sensitive polymer composed of poly(ethylene glycol) and poly(β -amino ester)

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The main objective of this study is to synthesize pH-sensitive polymer, composed of poly(ethylene glycol) and poly(β -amino ester) (MPEG-g-PAE), for Drug Delivery System (DDS). Tertiary amine containing poly(β -amino ester) has pH-sensitive solubility, thus MPEG-g-PAE shows pH-sensitive micellization behavior. Poly(β -amino ester) was obtained by varying the mol ratio of 3-Amino-1-propanol, 4,4'-Trimethylene dipiperidine and many kinds of diacrylate. pH-Sensitive property of the synthesized poly(β -amino ester) was measured by titration method. After MPEG was grafted to poly(β -amino ester), the critical micelle concentrations were determined at various pH conditions by fluorescence technique using pyrene as a probe. And the pH-sensitivity was measured by titration method and DLS analysis.