

pH-sensitive block copolymer micelle

심우선, 이두성*
성균관대학교
(dslee@skku.edu*)

MPEG-PDLLA & MPEG-PCLA block copolymers were synthesized by a ring-opening copolymerization of D,L- lactide and ϵ -caprolactone with MPEG (monomethoxy poly (ethylene glycol)) as an initiator, respectively. The sulfamethazine was modified with succinic anhydride to conjugate the block copolymer with pH-sensitive moiety (sulfamethazine). Also, the oligo-sulfamethazine(OSM) was obtained by the radical polymerization with transfer agent. The conjugation of the block copolymer and modified sulfamethazine (or oligo-sulfamethazine) was done by the DCC coupling reaction.

The micelles of the synthesized pH-sensitive biodegradable block copolymers were characterized by the fluorescence method in the various buffer solutions. Also, the micelle size was certificated by DLS. The critical micelle concentration of pH-sensitive block copolymers decreases with increasing the hydrophobic block length, and increases with increasing the pH of buffer solutions. Also, the pH-sensitive block copolymers show the micelle integration-disintegration due to the pH change at the constant concentration. This pH-sensitive block copolymer makes the drug targeting available, so it is expected to be applied as a superior drug carrier.