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TITLE

Novel Self-associating Biodegradable Polymers for Versatile Drug/Gene Delivery Applications

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Amphiphilic block copolymers (ABC)s have been the focus of much interest as versatile excipients for various drug delivery applications. They are known to self-assemble into aggregates of various supramolecular micro/nanostructures in selective solvents. For particular ABC structures, the process of self-assembly can be triggered by changes in environmental factors such as temperature and pH. Our research group has reported the development of a new class of biodegradable and biocompatible ABCs based on poly(ethylene oxide) (PEO) and functionalized poly(ester)s. Through manipulations in the structure of side chain on the poly(ester) block, we have developed polymeric micellar carriers as well as thermo/pH responsive hydrogels for solubilisation and/or depot delivery of several therapeutic. This presentation will summarize the results of our research on the development of several drug carriers based on functionalized PEO-poly(caprolactone) ABCs. Special attention will be paid to the development of siRNA delivery systems for sensitization of resistant tumors to the effect of chemotherapy.