

Structure-morphology relationship of polyphosphate containing polymer micelles

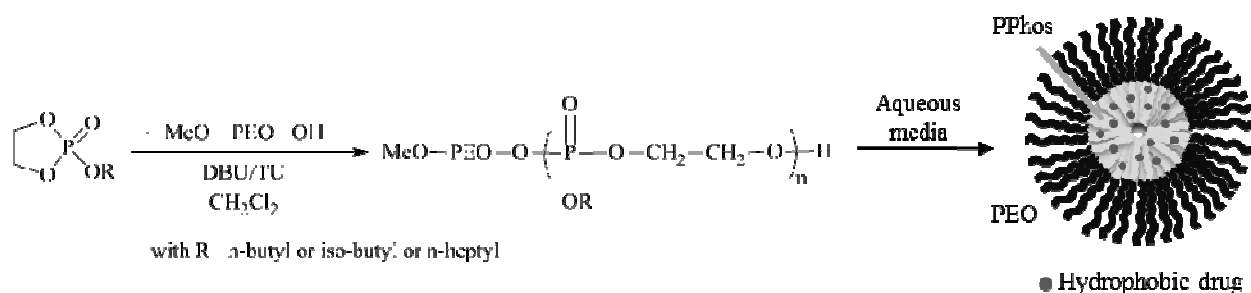
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Thanks to their biocompatibility, biodegradability and their structure similar to natural biomacromolecules, such as nucleic acids [1], polyphosphates are appealing polymers for biomedical applications. In contrast to polyesters, polyphosphate properties and functionality are easily tuned via the chemical nature of the lateral chains (R on the scheme). For example, varying the length of the alkyl chain allows adjusting the hydrophobicity of polyphosphates.



In this work, a series of amphiphilic PEO-*block*-polyphosphate copolymers were synthesized by organo-catalyzed ring-opening polymerization of cyclic phosphates [2]. Our work aims at changing the length and architecture of the lateral chain of polyphosphates. Our goal is to study the investigation of the influence of this structural modification (i) on the micellization of these amphiphilic copolymers in water, (ii) on the encapsulation in the core of these micelles of an hydrophobic drug and, finally, (iii) on the release of this drug.

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