Biomimetic compartmentalized polymersomes as cell mimics

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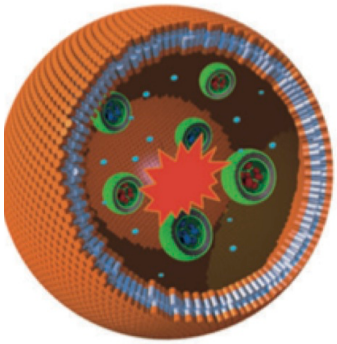
Polymersomes are among the most attractive systems for drug delivery applications. We report here an overview on the self-assembly in water of amphiphilic block copolymers into polymersomes, and their applications in loading and controlled release of both hydrophilic and hydrophobic molecules and biomolecules. We pay special attention to polysaccharide and polypeptide-based block copolymer vesicles. These copolymers that mimic the structure and function of glycoproteins represent an example of the effectiveness of a biomimetic strategy in implementing materials design. Finally our recent advances in using “biomimicry approaches” to design complex, compartmentalized materials will be proposed. Such a system constitutes a first step towards the challenge of structural cell mimicry and functionality.[1-5]



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