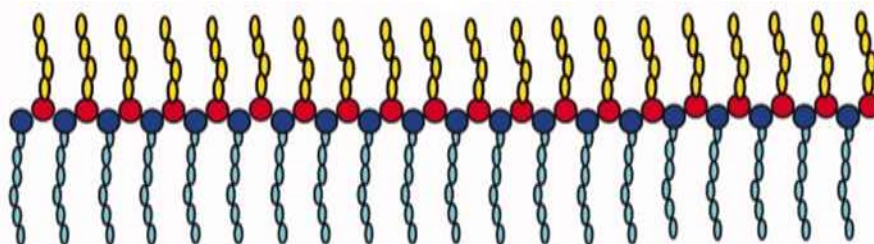


DENSELY GRAFTED ALTERNATING BRUSH COPOLYMERS, FIBER FORMATION, MODIFICATION AND MEDICINAL APPLICATIONS

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ABSTRACT



Graft copolymers are a special type of branched copolymers in which the side chains are structurally distinct from the main chain. These individual side chains of a graft copolymer can be homopolymers, copolymers, aliphatic or polar tail groups, peptides or any other functional group.

It is known that these copolymers with densely grafted side chains in specific condition (solvent, temperature etc.) can adopt a wormlike cylindrical conformation, in which the side chains are stretched in the direction normal to the backbone. We are interested in studying the fiber structure formation of such polymers with peptide side chains for biomedical purposes. The modification of these fibre structures and their surface chemistry will allow us to explore their potential use in regenerative medicine. Similar self-assembling systems have been shown to have potential uses in cartilage regeneration.^{1,2} Many other possibilities are being devised such as fiber structure of these polymers in combination with nanoparticles for the development of multifunctional nanomedicines for the treatment of cancer, where the polymers act as biocompatible part of the nanomedicine.

The preparation of polymer brushes, their modification, structural properties, fiber formation and potential medicinal applications will be discussed.

References:

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