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Review

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Poly(2-oxazoline)-based micro- and nanoparticles: A review

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Abstract

Poly(2-oxazoline)s (POx) are a class of polymers with tremendous potential for biomedical applications. The straightforward access to side and main chain functionalities by selecting suitable monomers and initiators/terminating agents, respectively, in combination with the biocompatibility, stealth and protein repellent properties of their water-soluble homologues enables the fabrication of highly functional POx materials. Post polymerisation modifications of POx further increase this toolbox and allow to merge their properties with the ones of other polymer classes. This review describes nano- and microscale POx particulate materials available to date with particular focus on macromolecular design of the polymers used for the individual formulation techniques. Amongst others, microparticles, microspheres, hollow layer-by-layer microcapsules as well as nanoparticles, micelles, polymersomes, nanogels and POx coated inorganic nanoparticles will be discussed.

Keywords

Poly(2-oxazoline); block copolymer; particle; micelle; vesicle; nanogel

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