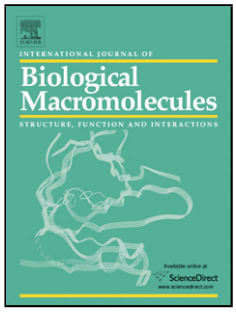

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Marine polysaccharide-based nanomaterials as a novel source of nanobiotechnological applications

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ABSTRACT

Research on marine polysaccharide-based nanomaterials is emerging in nanobiotechnological fields such as drug delivery, gene delivery, tissue engineering, cancer therapy, wound dressing, biosensors, and water treatment. Important properties of the marine polysaccharides include biocompatibility, biodegradability, nontoxicity, low cost, and abundance. Most of the marine polysaccharides are derived from natural sources such as fucoidan, alginates, carrageenan, agarose, porphyran, ulvan, mauran, chitin, chitosan, and chitooligosaccharide. Marine polysaccharides are very important biological macromolecules that widely exist in marine organisms. Marine polysaccharides exhibit a vast variety of structures and are still under-exploited and thus should be considered as a novel source of natural products for drug discovery. An enormous variety of polysaccharides can be extracted from marine organisms such as algae, crustaceans, and microorganisms. Marine polysaccharides have been shown to have a variety of