



Polymeric Innovations in Bone Regeneration

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Message from the Guest Editor

Dear Colleagues,

Despite great advances in the field of bone regeneration in recent decades, a challenge still remains: the use of bone tissue engineering to satisfy clinical needs for ideal functional and structural bone implants. Bone regeneration is a promising field for polymeric innovations. PLA, PGA and their copolymer PLGA are the most widely used polymers for bone tissue engineering. Also, commonly applied synthetic polymers include PHAs, polyetheretherketone, PCL, polyurethane, PE, polysulfone, PHB and various other copolymers. Recently developed novel biomaterials, such as polymeric composite scaffolds with osteogenic cells, growth factors, or bone morphogenetic proteins, either alone or in combination, will undoubtedly become ideal bone substitutes in this field. 3D-printed polymer-based scaffolds are the most promising for clinical applications because those modeled from a CT image of actual bone defects can perfectly fit the defect. Polymeric composite scaffolds with piezoelectric properties can positively influence the proliferation and differentiation of mesenchymal stem cells to regenerate bone tissue.





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