

Poly(E-caprolactone) Nanocomposite Scaffolds for Tissue Engineering: A Brief Overview

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Abstract

Polycaprolactone is a bioresorbable polymer that has been extensively used in the biomaterials field and a number of drug-delivery systems. The superior rheological and viscoelastic properties of this polymer render it easy to manufacture and manipulate into a large range of medical devices and implants. The advantage of polycaprolactone over its aliphatic counterparts is that it has a long-term degradation period, which provides a good platform for the design and fabrication of implants that require long-term degradation kinetics for example in bone tissue engineering. The incorporation of nanofillers or blending of polycaprolactone with other polymers has yielded a class of hybrid materials with significantly improved physical and chemical properties such as strength, porosity, microstructure, controllable degradation rates, and bioactivity that are important for tissue engineering. This overview highlights the interesting advancements in polycaprolactone polymeric systems that relate to biological and tissue engineering applications, including aspects of technology in fabricating the scaffolds.