

BIODEGRADABLE ORGANIC RADICAL-FUNCTIONALIZED POLYCARBONATES FOR MEDICAL APPLICATIONS

Abstract

Paramagnetic, amphiphilic, biocompatible polymers were prepared comprising a carbonate repeat unit bearing a paramagnetic organic radical, more specifically a nitroxyl radical. The radical polymers can be produced in one step from a precursor polymer bearing an active ester side chain by treating the precursor polymer with a radical-bearing nucleophile. The precursor polymer can be prepared by organocatalyzed ring opening polymerization (ROP) of a cyclic carbonate monomer bearing an active ester side chain. The radical polymers can be non-toxic and partially biodegradable. The radical polymers have utility as contrast enhancing agents in a medical imaging application and/or as therapeutic agents for treating a medical condition. The radical polymers can also serve as carriers for therapeutic agents (e.g., drugs) and/or medical image enhancing agents (e.g., NIRF dyes).

[No Suitable Fig.]