Preparation of magnetic PEI(polyethylenimine)-PHDCA(polyhexadecyl cyanoacrylate) nanoparticle for magnetic drug targeting

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Magnetic polyethylenimine-poly(hexadecyl cyanoacrylate) (PEI-PHDCA) nanoparticles were prepared in a spherical nanoparticle by the emulsion-solvent evaporation method and electric charge interaction with cationic polymer, PEI. The copolymers were characterized by FT-IR spectra, 1H-NMR and gel permeation chromatography (GPC). The morphology and size of magnetic nanoparticles were evaluated by electron microscopes (SEM and TEM). The release profiles of anti-cancer drug in the magnetic nanoparticles were observed for 14 days. In vitro cellular uptake efficiencies were evaluated by epi-fluorescence microscope, fluorescence activated cell sorting (FACS) and magnetic resonance imaging (MRI). The prepared magnetic PEI-PHDCA nanoparticles represented sufficient magnetic
properties and cellular uptake for targeted delivery. Acknowledgments : This work was supported by KOSEF through National Core Research Center for Nanomedical Technology (R15-2004-024-00000-0)