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Preparation and properties of the water-soluble copolymer and applied in bioimaging

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Near-infrared absorption materials have shown great application prospect in the fields of biology, energy and materials industry. However, water-soluble polymer composites with near infrared absorption, high thermal stability and well film-forming properly have rarely been reported. In this work, the novel polyacrylamide composites with near infrared absorption were designed and prepared. Our system solves the problems of water solubility, toxicity and the inability to target specific tissues exist in the traditional materials used in cancer cells application (cellular imaging) in past years ago and our structure, composition, properties were characterized and evaluated by ¹HNMR spectrum, ²⁹Si NMR, Fourier transform infra-red spectroscopy (FTIR), DSC, TGA, UV-Vis-NIR, GPC and Fluorescence spectra properties. It was found that the resultant hybrids possess have no cytotoxicity, soluble in water immediately, good permeability and high photostability in living cells and has been applied successfully.

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