# Polymeric Nano-materials for the Site-specific Theranostics: Challenges and Opportunities

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Theranostic-based nanomedicine plays a crucial role in the field of cancer therapy. This is due to having the capability to combine both treatment and diagnosis in a single system. A new class of metal-ligand-based nanocarrier in a polymer backbone has been designed as a theranostic system. An NMR experiment is performed at room temperature to prove the MRI capabilities of copolymer nano-aggregates. Cell viability studies suggest the biocompatibility nature of the copolymer. Flow cytometry and epi-fluroscence microscope experiments clearly demonstrate the dual-imaging ability of the newly designed copolymer. The much higher relaxivity ratio ($r_2/r_1$) of the present method establishes the superiority of our system as one of the best contrast agents known to magnetic resonance imaging practitioners.

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