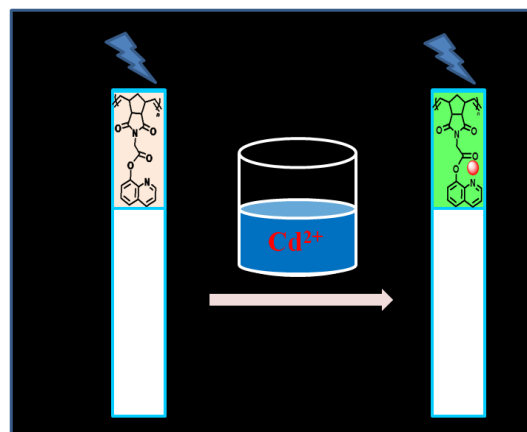
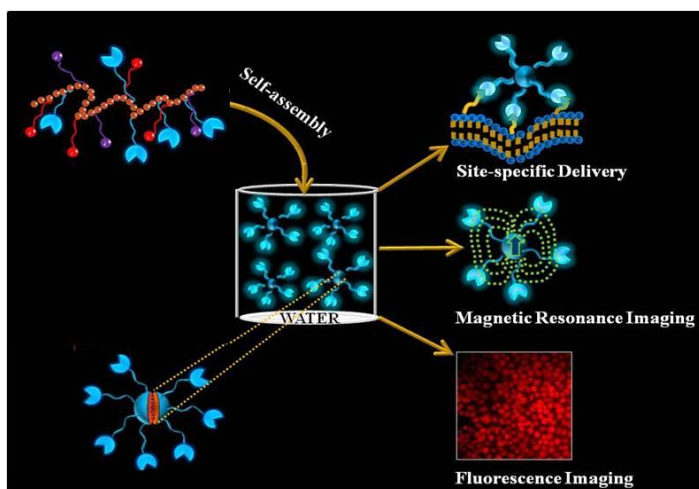


## Functional Polymers for Theranostics and Sensor Application

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**Abstract:** Synthesis of a new molecular architecture, an amphiphilic, norbornene derived polymers by ring opening metathesis polymerization (ROMP) is discussed. The newly designed amphiphilic polymer shows a self-assembled vesicle formation in aqueous solution where as rod-like structures in Tetrahydrofuran (THF) solvent. Formation of the rods is governed by hydrogen bonding motifs and amphiphilicity found in the molecular architecture. Further, the solvent polarity controls their organization into cube-like and sphere-like structures at the next length scale. The results demonstrate that these self-assembled vesicles have great scope in the field of medicine as they symbolize themselves as promising carriers for the stimuli-triggered intracellular delivery of hydrophobic drugs. The main threats to human health from heavy metals are associated with exposure to lead, cadmium, mercury and arsenic. We develop norbornene based materials that have potential application in sensing area of heavy metals and nerve gas.



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