Nanomedicine: The Materials group at RGIPT have developed a drug encapsulated nanogel system comprising of polyacryloyl hydrazide (PAH) and Ag nanoparticle that delivers the drug Camptothecin (CPT) in a controlled manner triggered by pH of the environment. A cost effective instant synthesis of PAH-Ag NPs possessing controllable particle diameter and narrow size distribution was accomplished by adding $AgNO_3$ to the aqueous solution of PAH under ambient conditions without using any additional reagent. PAH possessing carbonyl hydrazide pendant functionality served as both reducing and capping agent to produce and stabilize the Ag NPs. Camptothecin (CPT) with adequate loading efficiency (6.3%) was encapsulated in PAH-Ag NPs. Under pH 5.4 conditions, these PAH-Ag-CPT NPs released 78% of the originally loaded drug over a period of 70 h. These nanomedicines synergistically acts against the breast cancer cells and the inhibition potential of PAH-Ag-CPT NPs (85% at 10 μg/mL) against MCF-7 breast adeno-carcinoma cells were ~350% higher compared to that of the free CPT (24%). Drug along with the PAH-Ag NPs was also encapsulated in a pH responsive hydrogel through in-situ gelation at room temperature using acrylic acid as the cross-linker. The resulting hydrogel released quantitative amount of both drug and PAH-Ag NPs over a period of 16 h. The simplicity of synthesis and ease of drug loading with efficient release render these NPs a viable candidate for various biomedical applications. (Ujjwal et al. ACS Appl. Mater Interface, 2015, 7, 11497-11507).