

## Colorimetric Detection using Organic/Inorganic Hybrid System

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The conjugated polydiacetylene (PDA) vesicles have been proved as convenient chemical and biological sensors due to their unique chromatic properties. Also, nanoparticles have been recognized to be a viable alternative to planar substrates for a variety of bioassays because of the increase of surface area of nanoparticles for biomolecular attachment which enhances the sensitivity of detection. In this work, we report colorimetric detection using organic (PDA)-inorganic (silica nanoparticles) hybrid systems by chemical bonding. PDA was chemically bound with silica nanoparticles modified with 3-aminopropyltriethoxysilane self assembled monolayer. PDA retained its colorimetric properties after immobilization on the nanoparticles and underwent a blue-to-red color change upon exposure to  $\alpha$ -cyclodextrin. But  $\gamma$ -cyclodextrin did not induce the color change of PCDA. These results show that our hybrid system can be readily used for nanoparticle-based assay of biomolecules such as DNA, proteins, peptides, and so on.