

Tailoring Emission Properties Using Macrocyclic Nanocavities for Drug Delivery Applications

Falguni Chandra, Kaushik Pal and Apurba L. Koner*

Department of Chemistry, IISER Bhopal, Madhya Pradesh, INDIA

(E-mail: falguni@iiserb.ac.in)

Abstract:

Small drug molecules and other important metabolites are delivered *via* suitable carrier proteins. The process is highly coordinated and associated with complexation-assisted properties of deliverable molecules.¹ The non-covalent approach of tailoring substrate properties using water-soluble macrocyclic container is a unique method for the development of a novel fluorescent assay and drug delivery system.^{1,2}

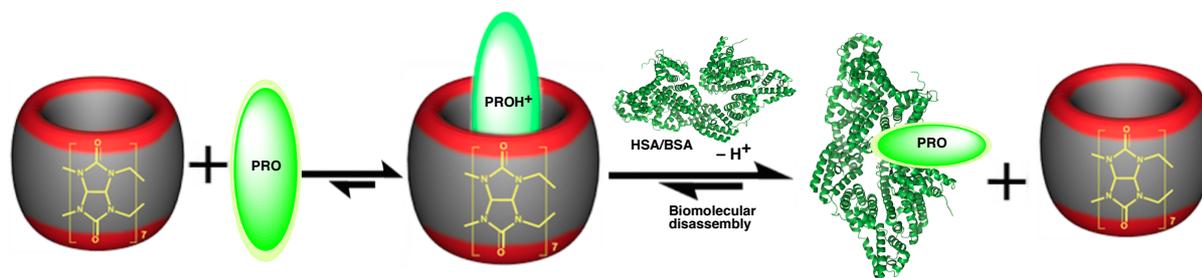


Figure 1: Fluorescence assay to monitor supramolecular assembly and bio-molecular disassembly: The first step schematically shows the switch off supramolecular complexation due to protonation of neutral PRO and the second step indicates the switch on relocation process of PRO from the CB7 cavity to the hydrophobic cavity of HSA/BSA

Herein, bovine and human serum albumin were used as model carrier proteins which can relocate drug molecule from water-soluble macrocyclic host cavity (see Figure 1).³ 6-propanoyl-2-(*N,N*-dimethylamino)naphthalene (PRO) is introduced as an ICT fluorescent reporter for understanding such drug relay process between Cucurbit[7]uril and carrier protein. The drug relocation process is investigated with the help of host-induced chemical and fluorescence properties of Prodan.⁴

References and Notes:

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