NEW FLUORESCENT CHEMOSENSORS FOR DETECTING LIPIDS

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## Abstract

Lipids represent an important class of biomolecules which have received little attention in the area of fluorescent sensing. Chemosensors for certain bioactive lipids would have a number of potential biochemical and biomedical applications. We have been using macrocyclic sensors to selectively detect lipids based on shape-selective hydrophobic interactions. The next generation sensors are based on open-tube shape structures, used mainly for ease of synthesis and ready functionalization with head group binding units. A series of receptors for the recognition of various lipids has been synthesized. The open-tube **102** and **103** were easily synthesized and purified compared to molecular tubes which are the previous hosts for the recognition of lipids. The open-tube sensors **102** and **103** were used in fluorescence titrations with a variety of lipids. Changes in the fluorescence emission were observed for most guests. The longer straight chain lipids were bound with higher affinity than shorter lipids. The greater hydrophobic surface of longer chain lipids renders them less soluble in water. The straight chain alcohols have been shown much higher association constant because they have less repulsion with carboxylates of sensors. The binding of open-tubes and lipids are less selective than those of the molecular tubes.