

금속 이온에 대한 염료 로택산의 선택적 반응성

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Selective Response of Dye Rotaxane to Metal Ions

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The design and preparation of novel dye rotaxanes have gained much interest recently, since such structure usually exhibits peculiar spectral and optical changes. In spite of the promising results to date, increasing pressure remains to develop novel supramolecular structures based on stimuli-responsive systems. This presentation covers the study of inclusion complexes of cyclodextrins and various chromophores, with an emphasis on our most recent outcome of anisotropic hydrogel. In this system, physical gelation prepared from simple mixture of CD and a azo dye is completed through specific host-guest interaction. The obtained hydrogel exhibits respective morphological transitions based on supramolecular assembly and dissociation, leading to either precipitation or a sol-to-gel transition. It can identify different classes of metal ions, and, among them, naked-eye differentiation of lead ion is possible due to the coordination-induced unthreading of dye molecules. Accompanying structural changes were verified by numerous characterization techniques, including 2D-ROESY, HR-MAS, UV-Visible absorption, small-angle X-ray scattering, and induced circular dichroism measurements. Such properties discussed here will find useful in analytical applications, such as metal ion sensing and removal applications.

참고문헌

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