

1C3b

Supramolecular Polymer Triggered by Iterative Host-Guest Interaction of Bisporphyrin and Trinitrofluorenone

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We have reported that a molecular cleft possessing two porphyrins connected by an aromatic linker assembles to form an unique dimer in organic media, while the complexation of an electron deficient flat aromatic guest into the cleft leads to the simultaneous dissociation of the dimer. We envisioned to utilize this unique host-guest interaction for the construction of supramolecular polymers. Heteroditopic monomer **1** can form supramolecular polymers through the iterative host-guest interactions between the bisporphyrin and trinitrofluorenone moieties (Figure 1).

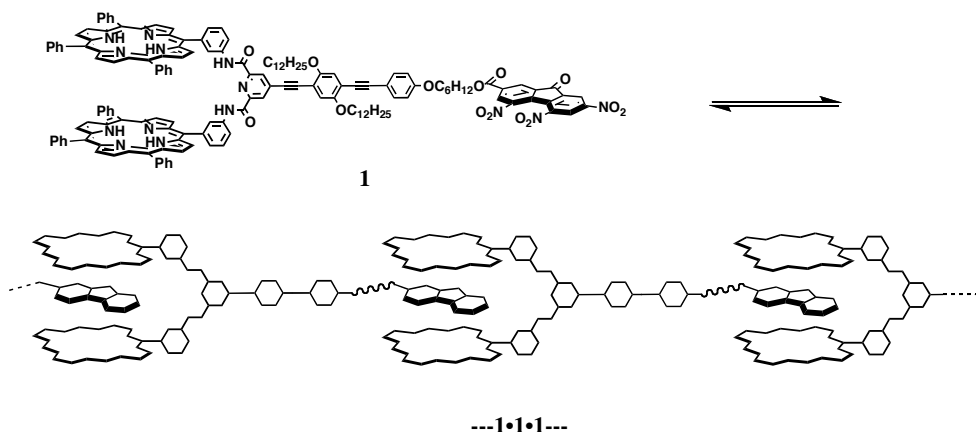


Figure 1. Self-assembly of heteroditopic monomer **1**

The self-assembly of **1** was studied by diffusion ordered NMR spectroscopy and atomic force microscopy. The diffusion coefficients of **1** decreased as the concentrations of **1** were increased. This suggests the formation of the supramolecular polymers in solution. Long fibrous fragments of the polymeric assemblies were characterized by AFM imaging of a cast film on a mica surface.

References

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