

Development of New Chirality-switchable Functional Materials Based on the Solvent-dependent Inversion of the Main-Chain Helical Chirality

Yuuya Nagata

Department of Synthetic Chemistry and Biological Chemistry,
Graduate School of Engineering, Kyoto University, Japan
e-mail: nagata@sbchem.kyoto-u.ac.jp

Increasing attention has focused on the screw-sense control of the polymer backbone for the development of new chiral functional materials, including asymmetric catalysts and chiroptical materials. Recently, we found that poly(quinoxaline-2,3-diyl)s bearing chiral side chain adopts purely single-handed helical conformations, whose helical chirality can be perfectly controlled by the solvents (the solvent-dependent helix inversion, Figure 1a).¹⁻³ In this presentation, we present the development of new chirality-switchable functional materials based on the solvent-dependent helix inversion of poly(quinoxaline-2,3-diyl)s (Figures 1b and 1c)⁴⁻⁷ along with the elucidation of the mechanism of the helix inversion.⁸

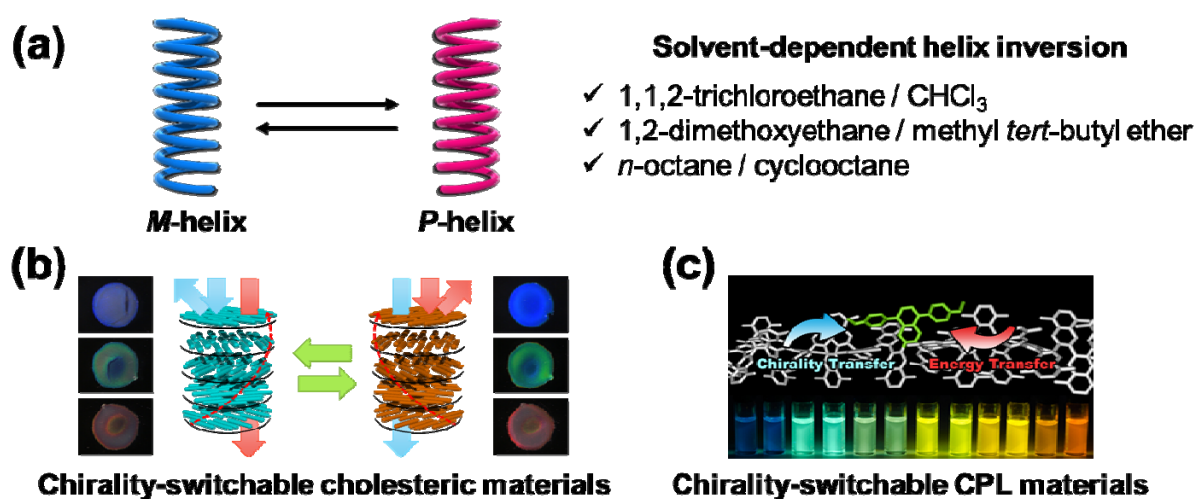


Figure 1. (a) The solvent-dependent helix inversion of poly(quinoxaline-2,3-diyl)s and chirality-switchable (b) cholesteric and (c) circular polarized luminescent (CPL) materials.

Reference

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