RECENT ADVANCES IN POLYPEPTIDIC THERMORESPONSIVE ALIGNMENT MEDIA FOR ORGANIC COMPOUNDS

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Anisotropic NMR parameter become increasingly important in organic structure elucidation for the determination of conformation and relative configuration of natural products, synthesized compounds and catalysts.[1]

To obtain such anisotropic NMR parameter, suitable alignment media are necessary. The use of lyotropic liquid crystals based on helically chiral polymers is especially intriguing as they additionally allow for enantiodiscrimination.[2]

We have recently synthesized several homopolypeptides,[3] which form lyotropic liquid crystals that are suitable for the measurement of anisotropic NMR observables and show excellent enantiodiscrimination. Furthermore, the thermoresponsive properties of these homopolypeptides can be utilized to induce different orientations at different temperatures, which alleviates the need to use more than one alignment medium in cases of ambiguity.

The intriguing properties of these new thermoresponsive alignment media will be described in this presentation. Furthermore, we will shed light on the processes responsible for the thermoresponsivity.[4]

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