Assigning ECD spectra of foldamers: amide planes of restricted motion

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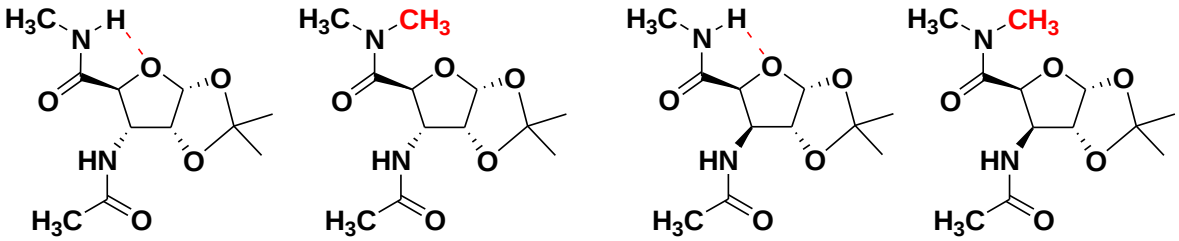
We have constructed suitable β-amino acid derivatives to investigate the influence of amide plane conformation on both VCD- and ECD-spectra. Our research focuses on how molecular configuration and constitution determines in the case of cyclic β-amino acid diamides the relative amide plane orientation, namely what influences their VCD and ECD properties. In line with one of the central concept of foldamer research we aim to get stable secondary structure types, in a predictable manner, form stereochemistry controlled structural building blocks.[1] We found that ECD spectroscopy can identify amide plane orientations and thus, secondary structure types can be assigned. However, complexity makes such an assignment difficult, but doable.



Scheme: *Four β-sugar amino acid diamide models studied here enabling the unambiguous assignment of the associated ECD curves.*

(1) Martinek, T.A.; Mándity, I.M.; Fülöp, L.; Tóth, G.K.; Vass, E.; Hollósi, M.; Forró, E.; Fülöp, F. *J. Am. Chem. Soc.* **2006**, *128*, 13539.