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Module outlines

Topic: Lanthanide Shift Reagents

I. Introduction
- ✓ General explanation of what is NMR
- ✓ Why is necessary the use of shift reagents for NMR analysis
  - Figure of NMR spectrums with and without the use of shift reagents
- ✓ Why lanthanides and not other elements

II. Using shift reagents
- ✓ Mechanism of induced chemical shift
- ✓ How to calculate the lanthanide induced shift (LIS) and what is the relationship between LIS and the compound under study.
- ✓ Explanation of what is the pseudocontact chemical shift (PCS)

III. Chiral lanthanide shift reagent
- ✓ How to use chiral lanthanide shift reagent to estimated the composition of enantiomeric mixture.
- ✓ How to determinate the enantiomeric purity
  - Figures of enantiomers and their respective NMR spectrums.
- ✓ Example of the use of chiral lanthanide shift reagents for assignment of absolute configuration of alcohols
  - Figure showing some alcohols with their absolute configuration and how was calculate it.

IV. Lanthanide chelates and solvents
- ✓ What lanthanide chelate to use in specific cases

- Figure of some lanthanide chelates used has shift reagents.

✓ Examples of organic-soluble lanthanide shift reagent

V. Conclusion

Summarize the advantages and disadvantages of the use of lanthanide shift reagents

VI. References