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Enantiodifferentiation by ^1H and ^{13}C NMR Spectroscopy (Dirhodium Method) – Selectivity of Oxygen Functionalities

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Abstract - Chiral carbonyl compounds can easily be enantiodifferentiated by the dirhodium method. The rhodium atoms reveal a remarkable selectivity in binding to oxygen atoms, which is of great advantage for discriminating chiral polyoxygenated natural products. Amides are the strongest ligands followed by ketones and esters; ethers and alcohols/phenols are even less effective. This sequence is rationalized by electronic charges at the oxygen atoms, as obtained from density functional calculations.