Ti(III)- and Electrochemically-induced *anti*-Selective Reformatsky Reactions

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Reduction of an α-halo ester or ketone leads to the formation of the corresponding enolate. Reduction has been accomplished in many ways. For example, Fry and Susla reported that the reduction of α-bromopropiophenone in the presence of lanthanum(III) bromide and benzaldehyde leads to a syn-selective aldol condensation.[1]

Recently our attention has turned to systems wherein the functional group positioned alpha to the carbonyl has been varied from Br to Cl, I, OAc, OBz, OBn, OTf, and OTBS. In each instance, the potential needed to achieve conversion to the corresponding enolate has been determined and correlated with the ease with which enolate formation and subsequent interception occurs.

This seminar will describe the voltammetric studies/correlations and will compare and contrast the use of titanocene dichloride/Mn vs. electrochemical reduction as a means to accomplish coupling between both ketone and ester enolates and aldehydes.

References

1. Fry, A. J.; Susla, M. Mechanism of the lanthanum bromide assisted electrochemical aldolization of α-bromo ketones. J. Am. Chem. Soc. **1989**, *111*(9), 3225-9.

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