anti-Selective Aldol Reactions of Amino Acid Esters Enolates. Application to the Synthesis of α-Alkylated β-Hydroxyamino Acids

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Deprotonation of *N*-protected esters of the amino acids alanine, ethylglycin, valine and phenylalanine with LDA and subsequent addition of various metal salts result in the formation of a probably chelated metal enolate. Aldol reactions of these enolates with aldehydes afford the *anti* isomers of α-alkylated α-amino-β-hydroxy acids in a highly diastereoselective fashion. Best results are obtained with titanium enolates, bulky aliphatic aldehydes and sterically demanding amino acids.