

HIGHLY DIASTEREOSELECTIVE ALDOL REACTIONS VIA ALLENYL ESTERS LEADING TO ALPHA-VINYL BETA-HYDROXY ESTERS. Jennifer Johns, Pradip Maity, and Salvatore D. Lepore. Department of Chemistry, Florida Atlantic University, 777 Glades Road, Boca Raton, FL 33431.

Haloaldol reactions involving the addition of allenyl esters to aliphatic aldehydes and ketones were achieved for the first time in high diastereoselectivity. Optimization studies of this reaction revealed that Ti(IV) chloride leads to the optimal diastereoselective outcome. Product derivitization (beta lactone) and subsequent NMR analysis demonstrate an *anti*-orientation of the hydroxyl and vinyl units in the aldol products. The observed relative stereochemistry and preference for the Ti(IV) chloride Lewis acid can be explained using a Zimmerman-Traxler transition state model. Our optimization and generality studies as well as experiments aimed at further clarifying this aldol mechanism will also be presented.