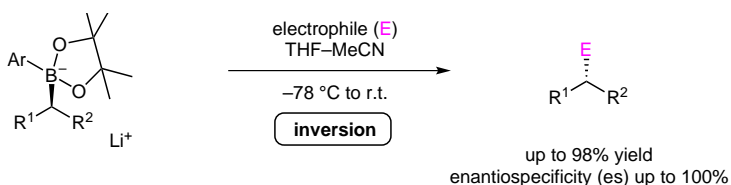


R. LAROUCHE-GAUTHIER, T. G. ELFDOR, V. K. AGGARWAL\* (UNIVERSITY OF BRISTOL, UK)

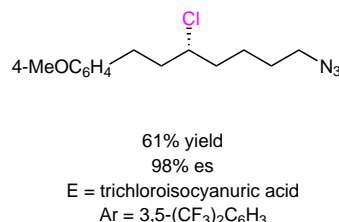
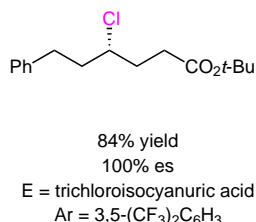
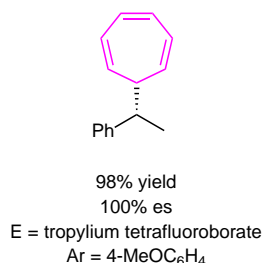
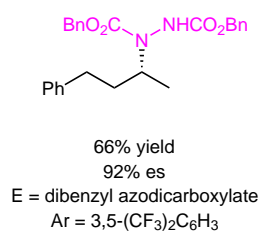
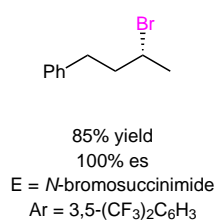
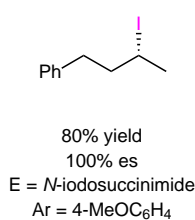
Ate Complexes of Secondary Boronic Esters as Chiral Organometallic-Type Nucleophiles for Asymmetric Synthesis  
*J. Am. Chem. Soc.* **2011**, *133*, 16794–16797.

## Boron–Ate Complexes as Chiral Nucleophiles for Asymmetric Synthesis



Ar = 4-MeOC<sub>6</sub>H<sub>4</sub>, 3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>  
R<sup>1</sup> = Ar, Ar-substituted Alk  
R<sup>2</sup> = Me, Et, *i*-Bu, allyl, substituted Alk  
E = various electrophiles

### Selected examples:



**Significance:** The authors report that secondary chiral boronic esters can be converted into reactive nucleophiles by addition of an aryllithium reagent. These enantiomerically enriched nucleophiles react with a broad range of electrophiles with inversion of stereochemistry.

**Comment:** By changing the substituents on the aryl group on boron, a switch in mechanism from a classical 2e<sup>-</sup> pathway (nucleophilic substitution) to a radical pathway was observed. Therefore, electron-poor boronic esters favor the desired nucleophilic substitution, whereas electron-rich esters give racemized products.

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Category

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Key words

ate complexes

boronic esters

asymmetric  
synthesis

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*of the month*