



**Enantiomerically Pure Allyl- and Oxiranylboronic Esters:  
Synthesis and Applications**

Enrique Fernández Iglesias

**ISBN:** 978-3-940671-62-2

**Preis:** 12,80 €

**Ausgabe:** Softcover, 330 Seiten

**Größe:** 21 x 14,6 cm

**Auflage:** 1. Auflage 2010

The reaction of allylmetal reagents with carbonyl compounds to form homoallylic alcohols is one of the most powerful transformations in organic synthesis. In particular, allylboron reagents stand out because of their stability, nontoxicity, and predictable reactivity, allowing high yields and selectivity using mild reaction conditions. A closed chairlike transition state has been postulated to explain the stereoselectivity of these reactions, with an electron delocalization from the oxygen of the attacking aldehyde to the boron of the allylboron reagent controlling the course of the reaction. Enantiomerically pure allylboronates should differentiate the two enantiotopic faces of aldehydes and allow an enantioselective formation of homoallylic alcohols. In addition,  $\alpha$ -substituted allylboronic esters have been shown to be of special interest because of the possibility of controlling the selectivity by introducing a defined stereogenic center to the core of the transition state, which allows nearly complete transfer of chirality. During this work, two new methods have been developed for the stereocontrolled synthesis of  $\alpha$ -substituted allylboronic esters. Starting from readily available alkenylboronic esters, palladium-catalyzed carbonyl allylations and epoxidation reactions were successfully performed as key steps. The obtained  $\alpha$ -substituted allylboronic esters were further investigated in allyl additions to aldehydes.

Die Reihe *Bioorganische Chemie an der Heinrich-Heine-Universität Düsseldorf* wird herausgegeben von Prof. Dr. Jörg Pietruszka  
Band 1