

演 題 : Zr-Catalyzed Asymmetric Carboalumination of Alkenes (ZACA Reaction). A Prototypical Catalytic Asymmetric C - C Bond Formation of Substrate of One-Point Binding

講 師 : 根岸 英一 教授

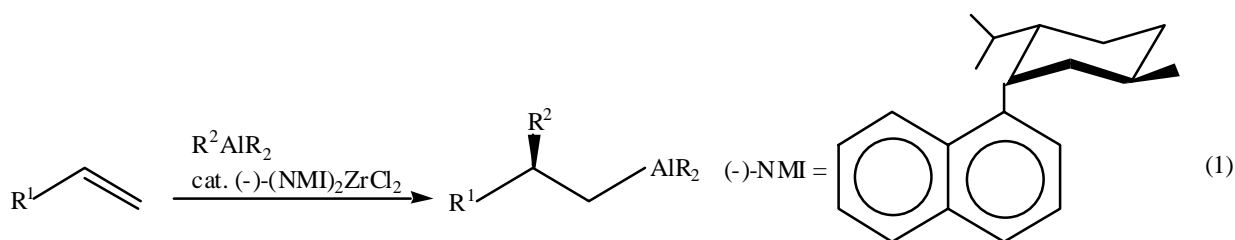
アメリカ パーデュー大学 Herbert C. Brown 特待教授

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場 所 : 工学部材料・化学系棟 MC030

共 催 : 触媒化学研究センター

要 旨 :



- (1) The ZACA reaction (eq. 1) discovered in 1995 is related but discrete from the Ziegler-Natta-Kaminsky polymerization and the Dghemilev ethylmagnestation (**Avoid polymerization and cyclic carbozirconation: Breakthrough No. 1**).
- (2) The lower enantioselectivity in methylalumination can be circumvented (**Breakthrough No. 2**).
- (3) A series of 2 asymmetric processes of **an average of 80% ee** leads to an overall **enantioselectivity of  $\geq 98\%$  ee** (**Well-known Principle No. 1**).
- (4) Diastereomeric mixtures of can be **readily separated by chromatography**. (**Breakthrough No. 3**).
- (5) **One-pot homologation** of deoxypolypropionate chains can be achieved in ca. 70% yields (*JACS* **2005**, 127, 2838) (**Break through No. 4**).
- (6) Combined use of ZACA reaction and the **lipase-catalyzed acetylation** is synergistic and practical (*ASC* **2007**, 349, 539). Through exploitation of the findings and known principles, a wide range of charal natural products can be asymmetrically synthesized.