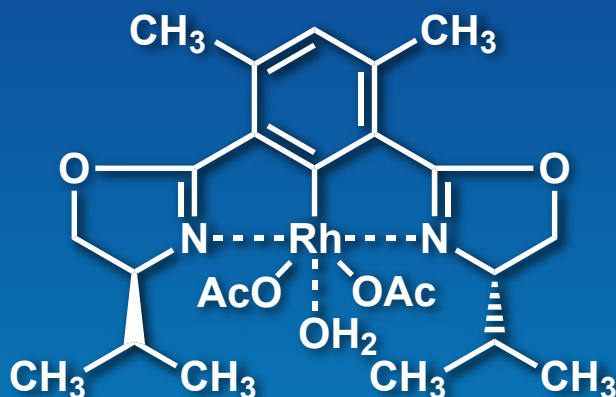


Pincer-type Chiral Rhodium Complex Catalyst



Bis(acetato)aqua[(*S,S*)-4,6-bis(4-isopropyl-2-oxazolin-2-yl)-*m*-xylene]rhodium

10 mg

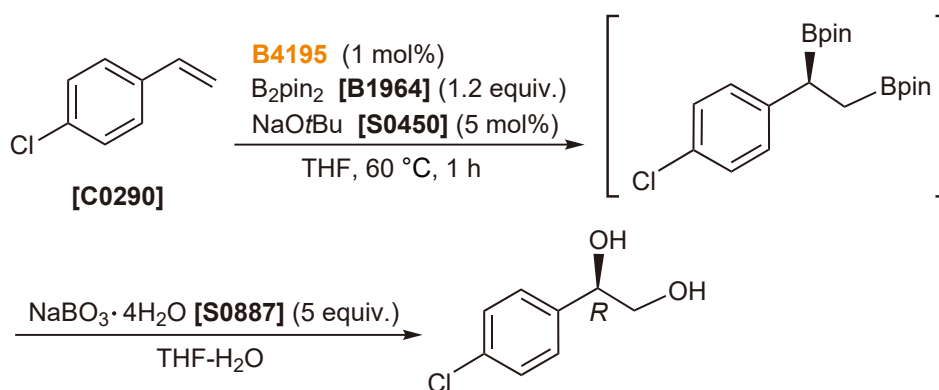
[B4195]

- Advantages**
- Convert Terminal Alkenes into Optically Active 1,2-Diols
 - Catalyze Cross-coupling of Alkynes in the Formation of Stereoselective Ene-yne

Reference J. Ito, H. Nishiyama, Yuki Gosei Kagaku Kaishi (*J. Synth. Org. Chem., Jpn.*) **2013**, 71, 791.

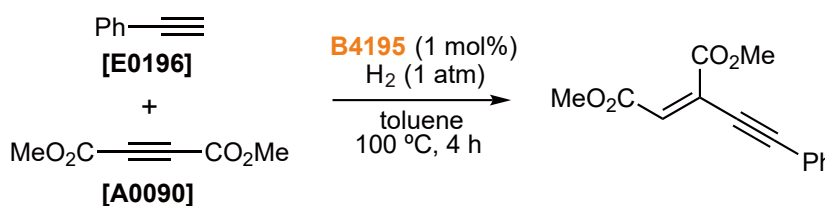
Applications

Asymmetric Diboration of Terminal Alkenes and Their Conversion to the Optically Active 1,2-Diols



Reference K. Toribatake, H. Nishiyama, *Angew. Chem. Int. Ed.* **2013**, 52, 11011.

Stereoselective Cross-coupling of Alkynes



Reference J. Ito, M. Kitase, H. Nishiyama, *Organometallics* **2007**, 26, 6412.

Pincer-type Chiral Rhodium Complex Catalyst

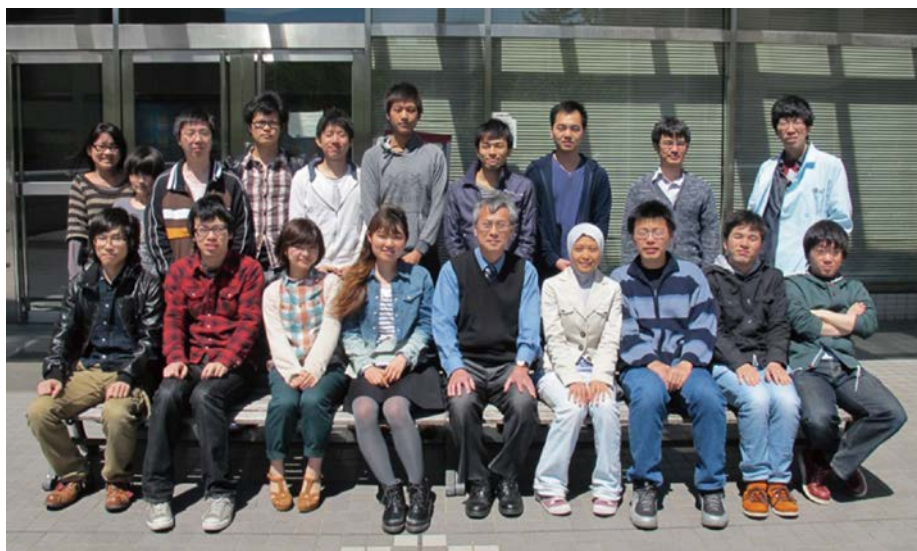
Introduction of the researcher



Professor Hisao Nishiyama

Nishiyama Lab

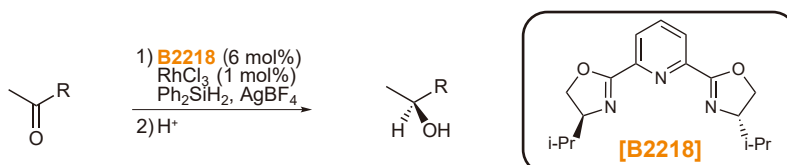
Department of Applied Chemistry
Graduate School of Engineering, Nagoya University



contents of the research

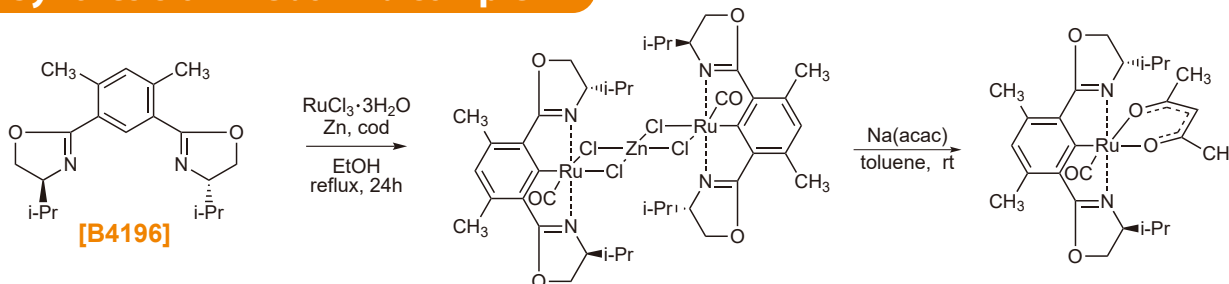
Nishiyama and his coworkers have studied the design and synthesis of pincer type ligands and their use for preparation of organometallic catalysts. They also have researched the effective asymmetric reactions using them as pincer type organometallic catalysts. Pybox ligands, which having two oxazoline rings bound to a pyridine ring at the 2- and 6-positions, were first synthesized by his group. They have studied the chemistry of Pybox ligands and a number of attractive reactions have been developed. In addition, they also focus on Phebox ligands, the effective ligands which replace the pyridyl group of Pybox ligands with a phenyl group, and apply them to the asymmetric syntheses.

Pybox-Rh catalyzed highly enantioselective reduction of ketones



Reference H. Nishiyama, H. Sakaguchi, T. Nakamura, M. Horihata, M. Kondo, K. Itoh, *Organometallics* **1989**, *8*, 846.
H. Nishiyama, M. Kondo, T. Nakamura, K. Itoh, *Organometallics* **1991**, *10*, 500.

Synthesis of Phebox-Ru complex



Reference J. Ito, S. Ujiie, H. Nishiyama, *Organometallics* **2009**, *28*, 630.

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