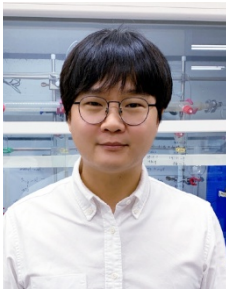
Seung Hwan Cho



Professor

Department of Chemistry, POSTECH, Pohang 37673, South Korea

E-mail: seunghwan@postech.ac.kr

Homepage: http://chogroup.postech.ac.kr

Scientific Vita

Since 2014 Assistant/Associate/Full Professor, Department of Chemistry, POSTECH

2012-2014 Postdoctoral Fellow, UC Berkeley, USA

2011 PhD, KAIST, South Korea

2006 BS, KAIST, South Korea

Research Interests

Transition-metal-free reaction

Stereoselective chemical synthesis

Organometallic chemistry

Representative Publications

1. Han, S.; Lee, Y.; Seo, J.; Lee, J.; Cho, S. H. [1,3]-Hydride Shift in α-Boryl Cations: Strategic Design of Fluorine-triggered Cyclopropanation. *J. Am. Chem. Soc.* **2025**, *147*, 25910.
2. Jo, W.; Thangsrikeattigun, C.; Ryu, C.; Han, S.; Oh, C.; Baik, M.-H.; Cho, S. H. Regiodivergent Alkylation of Pyridines: Alkyllithium Clusters Direct Chemical Reactivity. *J. Am. Chem. Soc.* **2025**, *147*, 8597.
3. Kim, M.; Kim, G.; Kim, D.; Cho, S. H. Copper-Catalyzed Regio-, Diastereo- and Enantioselective Allylic Alkylation with 1,1-Diborylalkanes. *J. Am. Chem. Soc.* **2024**, *146*, 34861.
4. Jin, Y.; Lee, J.; Jo, W.; Yu, J.; Cho, S. H. Axially Chiral α-Boryl-Homoallenyl Boronic Esters as Versatile Toolbox for Accessing Centrally and Axially Chiral Molecules. *Nat. Commun.* **2024**, *15*, 9239.
5. Jung, Y.; Yoo, S. Y.; Jin, Y.; Yu, J.; Han, S.; Yu, J.; Park, Y.; Cho, S. H. Iridium-Catalyzed Chemo-, Diastereo-, and Enantioselective Allyl–Allyl Coupling: Accessing All Four Stereoisomers of (*E*)-1-Boryl-Substituted 1,5-Dienes by Chirality Pairing. *Angew. Chem. Int. Ed.* **2023**, *143*, e202218794.

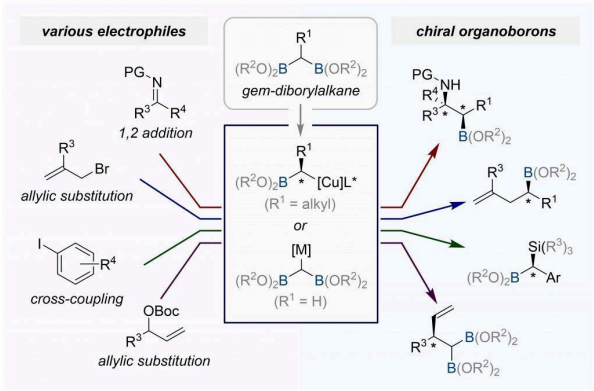
1,1-Diborylalkanes: Versatile Reagents for Selective Bond Formation

Seung Hwan Cho

Department of Chemistry, POSTECH, Pohang 37673, South Korea

E-mail: seunghwan@postech.ac.kr

Chemo- and stereoselective transformations of polyborylalkanes provide efficient access to optically active molecules of greater complexity and diversity through programmed synthetic design.[1] Among them, *gem*-diboryl compounds have emerged as particularly versatile synthetic handles. Their unique advantage lies in the ability to generate two distinct intermediates, α-borylalkyl anions and *gem*-diborylalkyl anions, which can engage in diverse transformations to rapidly deliver a wide range of organoboron compounds. These intermediates, in turn, serve as gateways to synthetically valuable molecules. In this presentation, I will highlight our recent efforts in designing and synthesizing new gem-diboryl compounds and applying them to highly chemo- and stereoselective transformations.[2-4]



Scheme 1. Selective bond forming reactions using 1,1-diborylalkanes

References

1. Lee, Y.; Han, S.; Cho, S. H. *Acc. Chem. Res.* **2021**, *54*, 3917.
2. Han, S.; Lee, Y.; Seo, J.; Lee, J.; Cho, S. H. *J. Am. Chem. Soc.* **2025**, *147*, 25910.
3. Jo, W.; Thangsrikeattigun, C.; Ryu, C.; Han, S.; Oh, C.; Baik, M.-H.; Cho, S. H. *J. Am. Chem. Soc.* **2025**, *147*, 8597.
4. Kim, M.; Kim, G.; Kim, D.; Cho, S. H. *J. Am. Chem. Soc.* **2024**, *146*, 34861.