Seung Hwan Cho

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EDUCATION

Ph. D. in Organic Chemistry, KAIST — 2006 – 2011

B. S. in Chemistry, KAIST — 2001– 2005

PROFESSIONAL EXPERIENCE

Department of Chemistry, POSTECH — 2018.09 – present
Associate Professor

Department of Chemistry, POSTECH — 2014.07 – 2018.08
Assistant Professor

Department of Chemistry, University of California, Berkeley — 2012 – 2014
Postdoctoral Fellow (*with Professor* John F. Hartwig)

Department of Chemistry, KAIST — 2011 – 2012
Postdoctoral Fellow (*with Professor* Sukbok Chang)

Department of Chemistry, KAIST — 2005 – 2006
Researcher (*with Professor* Sukbok Chang)

AWARDS AND HONORS

"Asian Core Program Lectureship Award" — 2017-2019
Singapore, Japan, Mainland China, Hong Kong, Taiwan

"The Best Teaching Award (우수강의상)*"* — 2018, Spring
Department of Chemistry, POSTECH

"Young Korean Academy of Science and Technology (Y-KAST)" — 2018
Korean Academy of Science and Technology (한림원)

"Thieme Journal Award" — 2017
Synlett/Synthesis/Synfact Award for Young Investigator

"TJ Park Cheongam Science Fellowship for Young Investigator" — 2017
Cheongam (POSCO) Foundation

"Selected One of Outstanding Young Scientists in Korea"	2016
POSTECH, Dong-A Ilbo	
"Best Thesis Award"	2012
Korea University President Association (한국 과학재단), Korean Academy of Science and Technology (한림원) and S-oil	
"TJ Park Cheongam Science Fellowship for PostDoc	2012
Cheongam (POSCO) Foundation	
"*Best PhD Thesis Award*"	2011
Korean Chemical Society (KCS)	
"*Best PhD Thesis Award*"	2011
KAIST	
"*Thieme SYNStar Award*"	2010
Synlett/Synthesis/Synfact Student Award	
"*National Graduate Student Science and Technology Scholarship*"	2009
National Research Foundation of Korea (NRF)	
"*Award for Excellence in Graduate Research*"	2009
KAIST	

EDITORIAL ADVISORY BOARD MEMBER OF JOURNALS

Young Advisory Board member of ACS Catalysis	2019-present

PUBLICATIONS

39. Kim, J.; Shin, M.; **Cho, S. H.*** "Copper-Catalyzed Diastereo- and Enantioselective Addition of 1,1-Diborylalkanes to Cyclic Ketimines and α-Imino Esters" *ACS Catal.* **2019**, *9,* 8503.

38. Kim, J.; **Cho, S. H.*** "Chemoselective Palladium-Catalyzed Suzuki-Miyaura Cross-Coupling of (Diborylmethyl)silanes with Alkenyl Bromides" *Asian J. Org. Chem.* **2019**, *8, 1664.* (*Invited issue on "Researchers in Korea"*)

37. Kim, J.; Hwang, C.; Kim, Y.; **Cho, S. H.*** "Improved Synthesis of β-Aminoboronate Esters via Copper-Catalyzed Diastereo- and Enantioselective Addition of 1,1-Diborylalkanes to Acyclic Aryldimines" *Org. Process. Res. Dev.* **2019**, *23,* 1663. (*Invited issue on "Honoring 25 years of Buchwald-Hartwig Amination"*)

36. Lee, H.; Lee. Y.; **Cho, S. H.*** "Palladium-Catalyzed Chemoselective Negishi Cross-Coupling of Bis[(pinacolato)boryl]methtyl Zinc Halides with Aryl (Pseudo)Halides" *Org. Lett.* **2019**, *21*, 5912.

35. Kim, J.; **Cho, S. H.*** "Access to Enantioenriched Benzylic 1,1-Silylboronate Esters by Palladium-Catalyzed Enantiotopic Group Selective Suzuki-Miyaura Coupling of (Diborylmethyl)silanes with Aryl Iodides" *ACS Catal.* **2019**, *9*, 230.

34. Lee, Y.; Park, J.; **Cho, S. H.*** "Generation and Application of (Diborylmethyl)zinc Halide: Synthesis of Enantioenriched *gem*-Diborylalkanes by an Asymmetric Allylic Substitution Reaction" *Angew. Chem., Int. Ed.* **2018**, *57*, 12930.

33. Singh, A.; Kim, M.-G.; Lee, H.-J.; Singh, R.; Cho, S. H.; Kim. D.-P. "Direct aryl-aryl coupling without pre-functionalization enabled by excessive oxidation of two-electron Ag(I)/Ag(III) catalyst" *Adv. Synth. Catal.* **2018**, *360*, 2032.

32. Park, J.; Choi, S.; Lee, Y.; **Cho, S. H.*** "Chemo- and Stereoselective Crotylation of Aldehydes and Cyclic Aldimines with Allylic *gem*-Diboroante Ester" *Org. Lett.* **2017**, *19*, 4054.

31. Kim, J; Ko, K.; **Cho, S. H.*** "Diastereo- and Enantioselective Synthesis of β-Aminoboronate Esters by Copper(I)-Catalyzed 1,2-Addition of 1,1-Bis[(pinacolato)boryl]alkanes to Imines" *Angew. Chem., Int. Ed.* **2017**, *56*, 11584.

30. Hwang, C.; Jo, W.; **Cho, S. H.*** "Base-Promoted, Deborylative Secondary Alkylation of *N*-Heteroaromatic *N*-Oxides with Internal *gem*-Bis[(pinacolato)boryl]alkanes: A Facile Derivatization of 2,2′-Bipyridyl Analogues" *Chem. Commun.* **2017**, *53*, 7573.

29. Lee, Y.; Park, J.; Baek, S.-Y.; Kim, S. T.; Tussupbayev, S.; Kim, J.; Baik, M.-H.*; **Cho, S. H.*** "Chemoselective Coupling of 1,1-Bis[(pinacolato)boryl]alkanes for the Transition-Metal-Free Borylation of Aryl and Vinyl Halides: A Combined Experimental and Theoretical Investigation" *J. Am. Chem. Soc.* **2017**, *139*, 976.

28. Kim, J.; Kumar, A.; Lee, S. J.; Kim, J.; Lee, D.-G.; Kwon, T.; **Cho, S. H.**; Lee, I.* "Concave Silica Nanosphere with a Functionalized Open-Mouthed Cavity as Highly Active and Durable Catalytic Nanoreactor" *Chem. Mater.*, **2017**,*29*, 7785.

27. Kim, D.; Choi, J. K.; Kim, S. M.; Hwang, I.; Kii, J.; Choi, S.; **Cho, S. H.**; Kim, K.*; Lee, I. S.* "Confined Nucleation and Growth of PdO Nanocrystals in a Seed-Free Solution inside Hollow Nanoreactor"*ACS Appl. Mater. Interfaces*,**2017**, *9*, 29992.

26. Cho, Y. S.; Kim, S. M.; Ju, Y.; Kim, J.; Jeon, K.-W.; **Cho, S. H.**; Kim, J.; Lee, I. S.* "Spontaneous Pt Deposition on Defective Surfaces of In_2O_3 Nanocrystals Confined within Cavities of Hollow Silica Nanoshells: Pt Catalyst-Modified ITO Electrode with Enhanced ECL Performance" *ACS Appl. Mater. Interfaces*, **2017**, *9*, 20728.

25. Kim, J.; **Cho, S. H.*** "Recent Developments in the Direct Methylation of Electron Deficient *N*-Heteroarenes", *Synlett*, **2016**, *27*, 2525. (*Invited Synpact article*)

24. Jo, W.; Kim, J.; Choi, S.; **Cho, S. H.*** "Transition-Metal Free Regioselective Alkylation of Heterocyclic *N*-Oxides Using 1,1-Diborylalkanes as Alkylation Reagents", *Angew. Chem., Int. Ed.* **2016**, *55*, 9690.

23. Park, J.; Lee, Y.; Kim, J.; **Cho, S. H.*** "Copper-catalyzed Diastereoselective Addition of Diborylmethane to *N-tert*-Butansulfinyl Aldimines: Synthesis of β-Aminoboronates" *Org. Lett.*, **2016**, *18*, 1210.

22. Kim, J.; Park, S.; Park, J.; **Cho, S. H.*** "Synthesis of Alkylboronates by Copper-catalyzed Allylic Substitution of Allylic Chlorides with 1,1-Diborylalkanes" *Angew. Chem., Int. Ed.* **2016**, *55*, 1498.

21. Larsen, M.; **Cho, S. H.**; Hartwig, J. F. "Iridium-Catalyzed, Hydrosilyl-Directed Borylation of Unactivated Alkyl C-H Bonds" *J. Am. Chem. Soc.* **2016**, *138*, 762.

BEFORE POSTECH

20. **Cho, S. H.**; Hartwig, J. F.* "Iridium-catalyzed Bisborylation Reaction for the Synthesis of 1,1-Benzyldiboronate Esters" *Chem. Sci.* **2014**, *5*, 694.

19. **Cho, S. H.**; Hartwig, J. F.* "Iridium-catalyzed Borylation of Secondary Benzylic C-H Bonds Directed by Hydrosilane" *J. Am. Chem. Soc.* **2013**, *135*, 8157.

18. Kim, J. Y.; Park, S.; Ryu, J.; **Cho, S. H.**; Kim, S. H.; Chang, S.* "Rhodium-Catalyzed Intermolecular Amidation of Arenes with Sulfonyl Azides via Chelation-Assisted C-H bond" *J. Am. Chem. Soc.* **2012**, *134*, 9110.

17. Ryu, J.; **Cho, S. H.***; Chang, S.* "A Versatile Rh(I) Catalyst System Enabling the Addition of Heteroarenes to both Alkenes and Alkynes via C-H Bond Activation Pathway", *Angew. Chem., Int. Ed.* **2012**, *51*, 3677. (***Co-corresponding authors**)

16. Kim, H. J.; **Cho, S. H.**; Chang, S.* "A Intramolecular Oxidative Diamination and Aminohydroxylation of Olefins under Metal-Free Conditions" *Org. Lett.* **2012**, *14*, 1424.

15. Kim, H. J.; Kim, J.; **Cho, S. H.***; Chang, S.*, "Intermolecular Oxidative C−N Bond Formation under Metal-Free Conditions: Control of Chemoselectivity between Aryl sp^2 and Benzylic sp^3 C−H Bond Imidation" *J. Am. Chem. Soc.* **2011**, *133*, 16382. (***Co-corresponding authors**)

14. **Cho, S. H.**; J. Y. Kim, J. Kwak, Chang, S.* "Recent Advances in the Transition Metal-Catalyzed Twofold Oxidative C–H Bond Activation Strategy for C–C and C–N Bond Formation" *Chem. Soc. Rev.* **2011**, *40*, 5068.

13. **Cho, S. H.**; Yoon, J.; Chang, S.* "Intramolecular Oxidative C-N Bond Forming Reaction for the Synthesis of Carbazoles: Comparison of Reactivity between the Cu-Catalyzed and Metal-Free Conditions" *J. Am. Chem. Soc.* **2011**, *133*, 5996.

12. Kim, J. Y.; **Cho, S. H.**; Joseph, J.; Chang, S.* "Cobalt- and Manganese-Catalyzed Direct Amination of Azoles under Highly Mild Conditions" *Angew. Chem., Int. Ed.* **2010**, *49*, 9899.

11. **Cho, S. H.**; Kim, J. Y.; Lee, S. Y.; Chang. S.* "Silver-Mediated Direct Amination of Benzoxazoles: Tuning the Amino Group Source from Formamides to Parents Amines" *Angew. Chem., Int. Ed.* **2009**, *48*, 9127.

10. Hwang, S. J.**;** **Cho, S. H.**; Chang, S.* "Synthesis of Condensed Pyrroloindoles via Pd-Catalyzed Intramolecular C–H Bond Functionalization of Pyrroles" *J. Am. Chem. Soc.* **2008**, *130*, 16158.

9. **Cho, S. H.**; Hwang, S. J.; Chang, S.* "Palladium-Catalyzed C–H Functionalization of Pyridine *N*-Oxides: Highly Selective Alkenylation and Direct Arylation with Unactivated Arenes" *J. Am. Chem. Soc.* **2008**, *130*, 9254.

8. Lee, J. M.; Park, E. J; **Cho, S. H.**; Chang, S.* "Cu-Facilitated C–O Bond Formation Using N-Hydroxyphthalimide: Efficient and Selective Functionalization of Benzyl- and Allylic C−H Bonds", *J. Am. Chem. Soc.* **2008**, *130*, 7824.

7. Hwang, S. J.; **Cho, S. H.**; Chang, S.* "Evaluation of Catalytic Activity of Copper Salts and their Removal Processes in the Three-Component Coupling Reactions" *Pure Appl. Chem*. **2008**, *80 (5)*, 873.

6. **Cho, S. H.**; Chang, S.* "Room Temperature Copper-Catalyzed 2-Functionalization of Pyrrole Rings by a Three-Component Coupling Reaction" *Angew. Chem., Int. Ed*. **2008**, *47*, 2836.

5. **Cho, S. H.**; Hwang, S. J.; Chang, S.* "Copper-Catalyzed Three-Component Reaction of 1-Alkynes, Sulfonyl Azides, and Water: N-(4-Acetamidophenylsulfonyl)-2-phenylacetamide" *Organic Syntheses* **2008**, *85*, 131.

4. **Cho, S. H.**; Chang, S.* "Rate-Accelerated Nonconventional Amide Synthesis in Water: A Practical Catalytic Aldol-Surrogate Reaction" *Angew. Chem., Int. Ed.* **2007**, *46*, 1897.

3. Chang, S.*; Lee, M. J.; Jung, D. Y.; Yoo, E. J.; **Cho, S. H.**; Han, S. K. "Catalytic One-Pot Synthesis of Cyclic Amidines by Virtue of Tandem Reactions Involving Intramolecular Hydroamination Under Mild Conditions" *J. Am. Chem. Soc*. **2006**, *128*, 12366.

2. Yoo, E. J.; Bae I.; **Cho, S. H.**; Han, H.; Chang, S.* "A Facile Access to *N*-Sulfonylimidates and their Synthetic Utility for the Transformations to Amidines and Amides" *Org. Lett.* **2006**, *8*, 1347.

1. **Cho, S. H.**; Yoo, E. J.; Bae I.; Chang, S.* "Copper-Catalyzed Hydrative Amide Synthesis with Terminal Alkyne, Sulfonyl Azide, and Water" *J. Am. Chem. Soc*. **2005**, *127*, 16046.

PATENTS

6. **Cho,S. H.**; Lee, Y. "Preparation of 1,1-diborylalkyl metallic species and their applications" (*Korea Patent* 10-2050066)

5. **Cho,S. H.**; Kim, J.; Jo, W. "Regioselective alkylation method of heterocyclic-*N*-oxides using 1,1-diborylalkane compounds" (*Korea Patent* 10-1819824)

4. Chang, S.; **Cho,S. H.**; Kim, H. J.; Kim, J. Y. "Manufacturing method for imide compound using iodobenzene diacetate" (*Korea Patent* 10-2013-032561)

3. Chang, S.; **Cho,S. H.**; Yoo E. J.; Bae, I. "Preparation process of N-sulfonylamide using copper catalyst" (*Korea Patent* 10-2006-003248)

2. Chang, S.; **Cho,S. H.** "Preparation process of N-sulfonyl iminium heterocycle and bezocycle derivatives using copper catalyst" (*Korea Patent* 10-2008-0008002)

1. Chang, S.; **Cho,S. H.**; Kim, J. Y. "Process for the preparation of 2-amino benzazoles using oxidant and acid" (*Korea Patent* 10-2009-0086513)