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【略歴】

2009年3月	崇城大学 薬学部 薬学科	卒業
2011年3月	京都大学大学院 薬学研究科 創薬科学専攻	修士課程修了
2014年3月	京都大学大学院 薬学研究科 創薬科学専攻	博士後期課程修了
2014年4月	第一薬科大学 薬学部 育薬研究センター	助教
2015年11月	千葉大学大学院 理学研究科 化学コース	特任助教
2017年4月	千葉大学大学院 理学研究科 化学研究部門	特任助教
2020年5月	東京工業大学 理学院 化学系	助教

【受賞】

2013年3月	日本薬学会第133年会（横浜）優秀発表賞
2014年4月	平成25年度笹川科学研究奨励賞
2017年12月	2017年度有機合成化学協会 東レ研究企画賞

【発表論文】

1. **S. Kuwano**, E. Takahashi, J. Kikushima, S. Sase, K. Goto*
“Efficient Oxyselenation and Aminosenation Utilizing a Selenenyl Iodide Based on the Characteristic Thermodynamics of Its Reaction with Olefins”
New J. Chem. **2023**, DOI: 10.1039/D2NJ06346H.
2. K. Goto,* T. Sano, R. Masuda, S. Otaka, R. Kimura, S. Sase, **S. Kuwano**
“Stable Cysteine Sulfenic Acid: Synthesis by Direct Oxidation of a Thiol, Crystallographic Analysis, and Elucidation of Reactivities”
Phosphorus, Sulfur, Silicon, Relat. Elem. **2023**, DOI: 10.1080/10426507.2023.2195650.
3. T. Inokuma, K. Iritani, Y. Takahara, C. Sun, Y. Yamaoka, **S. Kuwano**, K. Yamada,*
“Remote electronic effect on the N-heterocyclic carbene-catalyzed asymmetric intramolecular Stetter reaction and structural revision of products”
Chem. Commun. **2023**, DOI: 10.1039/d3cc00693j.

4. K. Yamada,* A. Yamauchi, T. Fujiwara, K. Hashimoto, Y. Wang, **S. Kuwano**, T. Inokuma
“Kinetic Resolution of α -Hydroxyamide via N-Heterocyclic Carbene-Catalyzed Acylation”
Asian J. Org. Chem. **2022**, *11*, e202200452.
5. R. Masuda, **S. Kuwano**, S. Sase, M. Bortoli, A. Madabeni, L. Orian, K. Goto*
“Model Study on the Catalytic Cycle of Glutathione Peroxidase Utilizing Selenocysteine-Containing Tripeptides: Elucidation of the Protective Bypass Mechanism Involving Selenocysteine Selenenic Acids”
Bull. Chem. Soc. Jpn. **2022**, *95*, 1360–1379.
6. Y. Wang, A. Yamauchi, K. Hashimoto, T. Fujiwara, T. Inokuma, Y. Mitani, K. Ute, **S. Kuwano**, Y. Yamaoka, K. Takasu,* K. Yamada.*
“Enhanced Molecular Recognition through Substrate–Additive Complex Formation in N-Heterocyclic-Carbene-Catalyzed Kinetic Resolution of α -Hydroxythioamides”
ACS Catal. **2022**, *12*, 6100–6107.
7. E. Ogino, **S. Kuwano**, T. Arai*
“Chiral Aminomethylbinaphthol-catalyzed Diastereo- and Enantioselective Epoxidation of Trisubstituted Acrylonitriles”
Adv. Synth. Catal. **2022**, *364*, 1503–1506.
8. **S. Kuwano**, E. Takahashi, K. Ebisawa, Y. Ishikawa, S. Sase, K. Goto*
“Oxyselenation and Aminoselenation of Alkenes Utilizing an Isolable Selenenyl Iodide”
Mendeleev Commun. **2022**, *32*, 80–82.
9. R. Masuda, **S. Kuwano**, K. Goto*
“Late-Stage Functionalization of the Periphery of Oligophenylene Dendrimers with Various Arene Units via Fourfold C-H Borylation”
J. Org. Chem. **2021**, *86*, 14433–14443.
(Selected as a "Supplementary Cover")
10. **S. Kuwano**, E. Ogino, T. Arai*
“Enantio- and Diastereoselective Double Mannich Reaction of Malononitrile with *N*-Boc Imines Using Quinine-derived Bifunctional Organoiodine Catalyst”
Org. Biomol. Chem. **2021**, *19*, 6969–6973.

11. Y. Nishida, T. Suzuki, Y. Takagi, E. Amma, R. Tajima, **S. Kuwano**, T. Arai*
“A Hypervalent Cyclic Dibenziodolium Salt as a Halogen-Bond-Donor Catalyst for the [4+2] Cycloaddition of 2-Alkenylindoles.”
ChemPlusChem **2021**, *86*, 741–744.
12. E. Ogino, A. Nakamura, **S. Kuwano**, T. Arai*
“Chiral C₂-Symmetric Aminomethylbinaphthol as Synergistic Catalyst for Asymmetric Epoxidation of Alkylidenemalononitriles: Easy Access to Chiral Spirooxindoles”
Org. Lett. **2021**, *23*, 1980–1985.
(Selected as a "Cover picture")
13. J. Ma, T. Suzuki, **S. Kuwano**, T. Arai*
“Catalytic Asymmetric Chlorination of α -Ketoesters Using N-PFB-PyBidine-Zn(OAc)₂”
Catalysts **2020**, *10*, 1177–1185.
14. T. Suzuki, **S. Kuwano**, T. Arai*
“Non-bonding Electron Pair versus π -Electrons in Solution Phase Halogen Bond Catalysis: Povarov Reaction of 2-Vinylindoles and Imines”
Adv. Synth. Catal. **2020**, *362*, 3208–3212.
15. A. Nakamura, **S. Kuwano**, J. Sun, K. Araseki, E. Ogino, T. Arai*
“Practically Useful Chiral Dinuclear Benzyliminobinaphthoxy-Pd Catalyst for Asymmetric Mannich Reaction of Aldimines and Isatin-derived Ketimines with Alkylmalononitriles”
Adv. Synth. Catal. **2020**, *362*, 3105–3109.
16. **S. Kuwano**, Y. Nishida, T. Suzuki, T. Arai*
“Catalytic Asymmetric Mannich-Type Reaction of Malononitrile with *N*-Boc α -Ketimoesters Using Chiral Organic Base Catalyst with Halogen Bond Donor Functionality”
Adv. Synth. Catal. **2020**, *362*, 1674–1678.
(featured by *Synfacts* **2020**, *16*, 0736.)
17. **S. Kuwano**,* Y. Hosaka, T. Arai*
“Chiral Benzazaborole-Catalyzed Regioselective Sulfonylation of Unprotected Carbohydrate Derivatives”
Chem. Eur. J. **2019**, *25*, 12920–12923.

18. T. Arai,* Y. Iimori, M. Shirasugi, R. Shinohara, Y. Takagi, T. Suzuki, J. Ma, **S. Kuwano**, H. Masu
“Bis(imidazolidine)pyridine-CoCl₂: A Novel, Catalytically Active Neutral Complex for Asymmetric Michael Reaction of 1,3-Carbonyl Compounds with Nitroalkenes”
Adv. Synth. Catal. **2019**, *361*, 3704–3711.
19. **S. Kuwano**, T. Suzuki, M. Yamanaka, R. Tsutsumi, T. Arai*
“Catalysis Based on C–I··· π Halogen Bonds: Electrophilic Activation of 2-Alkenylindoles by Cationic Halogen-Bond-Donors for [4+2] Cycloadditions”
Angew. Chem. Int. Ed. **2019**, *58*, 10220–10224.
20. **S. Kuwano**,* Y. Hosaka, T. Arai*
“Chiral Benzazaborole as Catalyst for Enantioselective Sulfonylation of *cis*-1,2-Diols”
Org. Biomol. Chem. **2019**, *17*, 4475–4482.
(Selected as a "Inside Front Cover")
21. **S. Kuwano**, T. Suzuki, Y. Hosaka, T. Arai*
“Chiral Organic Base Catalyst with Halogen Bonding Donor Functionality: Asymmetric Mannich Reaction of Malononitrile with N-Boc Aldimines and Ketimines”
Chem. Commun. **2018**, *54*, 3847–3850.
22. **S. Kuwano**, T. Suzuki, T. Arai*
“2-Iodoimidazolium Salt-catalyzed Friedel–Crafts Reaction: Synthesis of Bis(indolyl)methane Alkaloids”
Heterocycles, **2018**, *97*, 163–169.
23. T. Arai,* T. Tosaka, **S. Kuwano**
“Catalytic Asymmetric Mannich Reaction of Isatin-derived *N*-Boc Imines with Malononitrile by Bis(imidazolidine)-derived Pincer Rh Complex”
ChemistrySelect. **2017**, *2*, 7368–7371.
24. B. Kang, Y. Wang, **S. Kuwano**, Y. Yamaoka, K. Takasu,* K. Yamada*
“Site-selective Benzoin-type Cyclization of Unsymmetrical Dialdoses Catalyzed by N-Heterocyclic Carbenes for Divergent Cyclitol Synthesis”
Chem. Commun. **2017**, *53*, 4469–4472.

25. T. Arai,* T. Suzuki, T. Inoue, **S. Kuwano**
“Chiral Bis(imidazolidine)iodobenzene (I-Bidine) Organocatalyst for Thiochromane Synthesis Using an Asymmetric Michael/Henry Reaction”
Synlett **2017**, 28, 122–127.
26. **S. Kuwano**,* T. Masuda, K. Yamaguchi, T. Arai
“N-Heterocyclic Carbene-promoted [3+2] Cycloaddition of Allenyl Sulfone and Arylidenemalononitriles”
Heterocycles, **2017**, 95, 232–242.
27. Y. Wang, R. Oriez, **S. Kuwano**, Y. Yamaoka, K. Takasu, K. Yamada*
“Oxa- and Azacycle-formation via Migrative Cyclization of Sulfonylalkynol and Sulfonylalkynamide with N-Heterocyclic Carbene”
J. Org. Chem. **2016**, 81, 2652–2664.
28. **S. Kuwano**,* T. Masuda
“N-Heterocyclic Carbene Catalyzed Monoacylation of Vicinal Diols”
Synthesis **2016**, 48, 573–578.
29. T. Arai,* C. Tokumitsu, T. Miyazaki, **S. Kuwano**, A. Awata
“Catalytic Asymmetric [3+2]-Cycloaddition for Stereodivergent Synthesis of Chiral Indolyl-pyrrolidines”
Org. Biomol. Chem. **2016**, 14, 1831–1839.
30. B. Kang, T. Sutou, Y. Wang, **S. Kuwano**, Y. Yamaoka, K. Takasu,* K. Yamada*
“N-Heterocyclic Carbene-Catalyzed Benzoin Strategy for Divergent Synthesis of Cyclitol Derivatives from Alditols”
Adv. Synth. Catal. **2015**, 357, 131–147.
31. **S. Kuwano**, S. Harada, B. Kang, R. Oriez, Y. Yamaoka, K. Takasu,* K. Yamada*
“Enhanced Rate and Selectivity by Carboxylate Salt as a Basic Cocatalyst in Chiral N-Heterocyclic Carbene-Catalyzed Asymmetric Acylation of Secondary Alcohols”
J. Am. Chem. Soc. **2013**, 135, 11485–11488.
32. S. Harada, **S. Kuwano**, Y. Yamaoka, K. Yamada,* K. Takasu*
“Kinetic Resolution of Secondary Alcohols Catalyzed by Chiral Phosphoric Acids”
Angew. Chem. Int. Ed. **2013**, 52, 10227–10230.
(featured by *Synfacts* **2013**, 9, 1236.)

33. **S. Kuwano**, S. Harada, R. Oriez, K. Yamada*

“Chemoselective Conversion of α -Unbranched Aldehyde to Amide, Ester, and Carboxylic Acids by NHC-Catalysis”

Chem. Commun. **2012**, 48, 145–147.