Curriculum Vitae

Minami Odagi, Ph.D.

Assistant Professor

Department of Biotechnology and Life Science,

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Date of Birth

September 18, 1988

Citizenship

Japanese

Academic Career

2015–Present	Assistant Professor, Tokyo University of Agriculture and Technology
2017–2018	Visiting Researcher, University of Florida, US, (Prof. Daniel Seidel)

Education

2007–2011	B.S. in Agriculture, Tamagawa University, Japan (Prof. Yukiharu Sato), March 2011 Extramural research at Sagami Chemical Research Institute (Dr. Hitoshi Kakitani, Enzyme engineering group)
2011–2013	M.S. Graduate Student in Life Science and Technology, Tokyo University of Agriculture and Technology (Prof. Kazuo Nagasawa), March 2013
2013–2015	Ph.D. Graduate Student in Life Science and Technology, Tokyo University of Agriculture and Technology (Prof. Kazuo Nagasawa), September 2015
2015	JSPS Research Fellowship for Young Scientists (DC2)
2012	Visiting Student (December), RWTH Aachen University, Germany, (Prof. Magnus Rueping)

Awards

2022	Incentive Award in Synthetic Organic Chemistry, Japan
2022	Daiichisankyo Award in Synthetic Organic Chemistry, Japan
2023	Lecture Award for Young Chemists in Chemical Society of Japan
2023	Young Scientist's Research Award in Natural Product Chemistry
2024	Thieme Chemistry Journals Award

Publications *corresponding author, †equally contribution

40. X. Hu, Z. Zhu, Z. Li, A. Adili, M. Odagi, K. A. Abboud, D. Seidel*
"Catalytic Enantioselective [4+2] Cycloadditions of Salicylaldehyde Acetals with Enol Ethers"
Angew. Chem. Int. Ed. **2023**, *59*, e202315759.

39. Y. Mizumoto, R. Sakamoto, K. Iijima, N. Nakaya, M. Odagi, M. Tera, T. Hirokawa, T. Sakaki, K. Yasuda, K. Nagasawa
"Differential Metabolic Stability of 4α,25- and 4β,25-Dihydroxyvitamin D3 and Identification of Their Metabolites"
Biomolecules **2023**, *13*, Article number:1036.

38. H. Ishizuka, A. Nureki, K. Adachi, Y. Takayanagi, M. Odagi, M. Yotsu-Yamashita, K. Nagasawa
"Approaches to Construction of the Medium-Sized Ring Structure in Zetekitoxin AB by Ring-Closing Metathesis"
J. Org. Chem. **2023**, *88*, 10223-10231.

37. A. Nureki, K. Adachi, H. Ishizuka, K. Maeno, Y. Orihara, M. Odagi, M. Yotsu-Yamashita, K. Nagasawa
"Stereoselective Construction of Tertiary Alcohol at C11 of Zetekitoxin AB"
Asian J. Org. Chem. **2023**, *12*, e202300205.

36. M. Odagi*, K. Hosoya, K. Nagasawa
"Synthesis of Pentacyclic Core Structure of Aspidosperma Alkaloids by Sequential Ring Construction Via Oxidative Phenolic Coupling"
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35. K. Sugimoto, I. Mori, T. Kato, K. Yasui, B. Xu, C. H. Tan*, M. Odagi*, K. Nagasawa*
"Guanidinium Hypoiodite-Catalyzed Intramolecular Oxidative Coupling Reaction of Oxindoles with β-Dicarbonyls"
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34. R. Sakamoto, M. Odagi, K. Nagasawa*
"A 1,3-Boron Shift Reaction of Homoallenylboronates to Synthesis of 2-Boryl-1,3-Dienes"
Chem. Commun. **2023**, *59*, 4217–4220.

33 M. Odagi*, I. Mori, K. Sugimoto, K. Nagasawa*
"Enantioselective Oxidative Enolate Coupling of Oxindoles Catalyzed by Chiral Guanidinium Hypoiodite"
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32. R. Watanabe, Y. Takayanagi, O. Chiba, S. Itoda, H. Ishizuka, M. Odagi, M. Ozawa, H. Uchida, R. Matsushima, K. Konoki, M. Yotsu-Yamashita,* K. Nagasawa*, T. Suzuki*
"Nontoxic Enantiomeric Reference Materials for Saxitoxins"
Anal. Chem. **2022**, *94*, 11144–11150.

31. R. Sakamoto, M. Odagi, A. Izumiseki, K. Konuki, K. Nagasawa*
"Stereodivergent Synthesis of 1,3-Dienes via Protodeboronation of Homoallenylboronic Esters"
J. Org. Chem. **2022**, *87*, 8084–8098.

30. A Nagata, K. Iijima, R. Sakamoto, Y. Mizumoto, M. Iwaki, M. Takiwaki, Y. Kikutani, S. Fukuzawa, M. Odagi, M. Tera, K. Nagasawa*
"Synthesis of deuterium-labeled vitamin D metabolites as internal standards for LC-MS analysis"
Molecules **2022**, *24*, Article number:2427.

29. Y. Mizumoto, R. Sakamoto, A. Nagata, S. Sakane, A. Kittaka, M. Odagi, M. Tera, K. Nagasawa*
"Synthesis of C2-Alkoxy-Substituted 19-Nor Vitamin D3 Derivatives: Stereoselectivity and Biological Activity"

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28. A. Mendoza, Y. Takemoto, K. T. Cruzado, S. S. Masoud, A. Nagata, A. Tantipanjaporn, S. Okuda, F. Kawagoe, R. Sakamoto, M. Odagi, S. Mototani, M. Togashi, M. Kawatani, H. Aono, H. Osada, H. Nakagawa, T. Higashi, K. Nagasawa,* M. Uesugi*
"Controlled lipid β-oxidation and carnitine biosynthesis by a vitamin D metabolite"
Cell Chem. Biol. **2022**, *29*, 660–669.

27. M. Odagi,* T. Matoba, K. Nagasawa*
"Enantioselective Total Synthesis of Cepharatines via Bioinspired Ring Reconstruction"
J. Org. Chem. **2022**, *87*, 1065–1073.

26. K. Nakano, T. Orihara, M. Kawaguchi, K. Hosoya, S. Hirao, R. Tsutsumi, M. Yamanaka,* M. Odagi,* K. Nagasawa*
"Mechanistic Insights into Entropy-driven 1,2-Type Friedel-Crafts Reaction with Conformationally Flexible Guanidine-Bisthiourea Bifunctional Organocatalysts"
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25. M. Odagi,* T. Matoba, K. Hosoya, K. Nagasawa*
"Enantioselective Total Synthesis of (+)-Stephadiamine through Bioinspired Aza-Benzilic Acid Type Rearrangement"
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24. T. Orihara, M. Kawaguchi, K. Hosoya, R. Tsutsumi, M. Yamanaka,* M. Odagi,* K. Nagasawa*
"Enantioselective Epoxidation of 2,3-Disubstituted Naphthoquinones by a Side Chain Truncated Guanidine–Urea Bifunctional Organocatalyst"
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23. Z. Zhu, M. Odagi, N. Supantanapong, W. Zhu, J. Saame, H. -U. Khalil, K. A. Abboud, I. Leito, D. Seidel*
"Modular Design of Chiral Conjugate-Base-Stabilized Carboxylic Acids: Catalytic Enantioselective [4+2] Cycloadditions of Acetals"
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22. K. Hosoya, K. Iida, M. Odagi,* K. Nagasawa*
"Synthesis of Hydrocarbazole Derivatives by Oxidative Dearomative Cyclization of Diarylamines using a Hypervalent Iodine Reagent"
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21. M. Odagi,* K. Okuda, H. Ishizuka, K. Adachi, K. Nagasawa*
"Synthesis of Spiroguanidine Derivatives by Dearomative Oxidative Cyclization using Hypervalent Iodine Reagent"
Asian. J. Org. Chem. **2020**, *9,* 218–221.

20. K. Adachi, T. Yamada, H. Ishizuka, M. Oki, S. Tsunogae, N. Shimada, O. Chiba, T. Orihara, M. Hidaka, T. Hirokawa, M. Odagi, K. Konoki,* M. Yotsu-Yamashita,* K. Nagasawa*
"Synthesis of C12-keto saxitoxin derivatives with unusual inhibitory activity against voltage-gated sodium channels"
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19. Z. Zhu,† M. Odagi,† C. Zhao, K. A. Abboud, H. U. Kirm, J. Saame, M. Lõkov, I. Leito, D. Seidel*
"Highly acidic conjugate-base-stabilized carboxylic acids catalyze enantioselective oxa-Pictet-Spengler reactions with ketals"
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18. H. Ishizuka, K. Adachi, M. Odagi, K. Nagasawa*
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Presence of a Visible-Light Photoredox Catalyst"
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17. A. Nagata, Y. Akagi, S. S. Masoud, M. Yamanaka, A. Kittaka, M. Uesugi, M. Odagi, K. Nagasawa*
"Stereoselective Synthesis of Four Calcitriol Lactone Diastereomers at C23 and C25"
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15. M. Odagi,* Y. Yamamoto, K. Nagasawa*
"Total Synthesis of (+)-Gracilamine Based on Oxidative Phenolic Coupling Reaction and Determination of its Absolute Configuration"
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14. M. Shiozawa, K. Iida, M. Odagi, M. Yamanaka, K. Nagasawa*
"A synthesis of 2,6,7–trisubstituted prenylated indole"
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13. M. Kawaguchi, K. Nakano, K. Hosoya, T. Orihara, M. Yamanaka,* M. Odagi,* K. Nagasawa*
"Asymmetric Epoxidation of 1,4-Naphthoquinones Catalyzed by Guanidine-Urea Bifunctional Organocatalyst"
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12. M. Odagi,* K. Furukori, K. Takayama, K. Noguchi, K. Nagasawa*
"Total Synthesis of Rishirilide B Based on Organocatalytic Oxidative Kinetic Resolution: Revision of Absolute Configuration of (+)-Rishirilide B"
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11. M. Shashar, M. E. Belghasem, S. Matsuura, J. Walker, S. Richards, F. Alousi, K. Rijal, V. B. Kolachalama, M. Balcells, M. Odagi, K. Nagasawa, J. M. Henderson, A. Gautam, R. Rushmore, J. Francis, D. Kirchhofer, K. Kolandaivelu, D. H. Sherr, E. R. Edelman, K. Ravid, V. C. Chitalia*
"Targeting STUB1-tissue factor axis normalizes hyperthrombotic uremic phenotype without increasing bleeding risk"
Sci. Transl. Med. **2017**, *9*, eaam8475.

10. T. Kato, K. Yasui, M. Odagi,* K. Nagasawa*
"Guanidinium Hydroiodide/Cumene Hydroperoxide-Mediated Intermolecular Oxidative Coupling Reaction of β-Ketoamides with Oxindoles"
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9. M. Odagi,* K. Hosoya, Y. Yamamoto, K. Nagasawa*
"Oxidative kinetic resolution of *cis*-fused tricyclic 1-tetralone derivatives by guanidine-bisurea bifunctional organocatalyst"
Synlett **2017**, *28*, 1305–1309.

8. K. Yasui, K. Kojima, T. Kato, M. Odagi, M. Kato, K. Nagasawa*
"Guanidinium Iodide/Urea Hydrogen Peroxide–Catalyzed Azidation of Dicarbonyl Compounds with Trimethylsilyl Azide"
Tetrahedron **2017** *72*, 5350–5354.

7. M. Odagi,* Y. Yamamoto, K. Nagasawa*
"Asymmetric α-Amination of β-Keto Esters using Guanidine-Bisurea Bifunctional Organocatalyst"

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6. M. Odagi, K. Furukori, Y. Yamamoto, M. Sato, K. Iida, M. Yamanaka, K. Nagasawa*
"Origin of Stereocontrol in Guanidine-Bisurea Bifunctional Organocatalyst that Promotes α-Hydroxylation of Tetralone-Derived β-Ketoesters: Asymmetric Synthesis of β- or γ-Substituted Tetralone Derivatives via Organocatalytic Oxidative Kinetic Resolution"
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5. M. Odagi, T. Watanabe, K. Nagasawa*
"Development of Guanidine-Bisurea Bifunctional Organocatalyst Bearing Chirality at the Inner and Outer Sides of the Urea Groups, and Application to Enantioselective α-Hydroxylation of Pyranoindolizine Intermediate for Camptothecin Synthesis"
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4. M. Odagi, K. Takayama, M. Sato, M. Yamanaka, K. Nagasawa*
"Development of Guanidine-Bisurea Bifunctional Organocatalyst with a Chiral Pyrrolidine Moiety and Application to α-Hydroxylation of Tetralone-Derived β-Keto Esters"
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3. M. Odagi, K. Takayama, K. Furukori, T. Watanabe, K. Nagasawa*
"Development of Novel Guanidine-Bisurea Bifunctional Organocatalysts and Their Application to Asymmetric α-Hydroxylation of Tetralone-Derived β-Keto Esters"
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2. T. Watanabe, M. Odagi, K. Furukori, K. Nagasawa*
"Asymmetric α-Hydroxylation of Lactone with Vinylogous Pyridone using Guanidine-Urea Bifunctional Organocatalyst: Catalystic Enantioselective Synthesis of a Key Intermediate for (20*S*)-Camptothecin Analogues"
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"Asymmetric α-Hydroxylation of Tetralone Derived β-Ketoesters using Guanidine-Urea Bifunctional Organocatalyst in the Presence of Cumene Hydroperoxide"
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Reviews *corresponding author

9. M. Odagi*, K. Nagasawa*
“Chiral Hypoiodite Salt Catalysts for Enantioselective Oxidative Transformations”
ChemCatChem **2023**, *15*, e202300820.

8. M. Odagi*, K. Nagasawa*
“Exploring Guanidinium Organocatalysts for Hypoiodite-Mediated Reactions”
Chem. Rec. **2023**, *23*, e202300030.

7. M. Odagi*, K. Nagasawa*
“Total Synthesis of Fused Polycyclic Alkaloids Based on Oxidative Phenolic Coupling Reaction and Aza-Michael Reaction”
Synlett **2023**, *34*, 1087-1097.

6. K. Hosoya, K. Iida, M. Odagi*, K. Nagasawa*
“Recent Advances in Synthetic Strategies for the C4a,C9a-Fused Tetracyclic Hydrocarbazole Core Structure of Minfiensine and Related Akuammiline Alkaloids”
Heterocycles **2021**, *103*, 110-128.

5. K. Adachi, H. Ishizuka, M. Odagi, K. Nagasawa
“Synthetic approaches to zetekitoxin AB, a potent voltage-gated sodium channel inhibitor”

Marine Drugs **2020**, *18*, Article number: 24.

4. M. Odagi,* K. Nagasawa*
"Recent Advances in Natural Products Synthesis Using Bifunctional Organocatalysts bearing a Hydrogen-bonding Donor Moiety"
Asian J. Org. Chem. **2019**, *8*, 1766–1774.

3. K. Hosoya, M. Odagi, K. Nagasawa*
"Guanidine Organocatalysis for Enantioselective Carbon-Heteroatom Bond-forming Reactions"
Tetrahedron Lett. **2018**, *59*, 687–696.

2. Y. Akagi, A. Nagata, M. Odagi, K. Nagasawa*
"Synthetic studies of (23*S*,25*R*)-1,α,25-dihydroxyvitamin D_3 26,23-lactone (calcitriol lactone) and its derivatives"
J. Steroid Biochem. Mol. Biol. **2018**, 177, 240–246.

1. M. Odagi,* K. Furukori, Y. Yamamoto, K. Nagasawa*
"Total Synthesis of (+)-Linoxepine"
Heterocycles **2017**, *95*, 116–126.

Books

2. K. Nagasawa, M. Odagi, M. Kato
"Conformationally Flexible Guanidine-(Thio)Urea Bifunctional Organocatalysts"
Guanidines as Reagents and Catalyst I (Philipp Selig, Ed.), Springer (**2017**), 157-178.

1. 小田木陽, 長澤和夫
"官能基複合型不斉グアニジン触媒と生理活性物質合成への応用"
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日本語総説・解説

9. 小田木陽
"脱芳香族化で拓く多環縮環型天然物の全合成 –戦略を以て、複雑天然物を制す！"
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8. 小田木陽
"酸化的フェノールカップリングと分子内アザーマイケル反応を基盤とした Hasubanan アルカロイド類の合成研究"
有機合成化学協会誌 **2023**, *81*, 1150–1158.

7. 小田木陽, 山中正浩
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6. 小田木陽, 長澤和夫
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"戦略を以てトリカブト毒を制す アコニチン型アルカロイドの効率的合成"
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4. 小田木陽
"有機分子触媒反応を基盤とする(+)-Gracilamine の合成研究"
有機合成化学協会誌 **2018**, *76*, 434–437.

3. 小田木陽
"有機分子触媒による脱芳香族化反応を基盤とした全炭素第四級不斉炭素構築法"
有機合成化学協会誌 **2017**, *75*, 1288–1289.

2. 小田木陽, 長澤和夫
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化学 **2014**, *69*, 70–71.