CURRICULUM VITAE

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Education/Career

2010.3 **BS**
Graduate School of Pharmaceutical Sciences, The University of Tokyo
Under the supervision of Prof. Masakatsu Shibasaki
2012.3 **Master**
Graduate School of Pharmaceutical Sciences, The University of Tokyo
Under the supervision of Prof. Motomu Kanai
2015.3 **Ph.D.**
Graduate School of Pharmaceutical Sciences, The University of Tokyo
Under the supervision of Prof. Motomu Kanai
2015.4-2017.10 **Research Scientist**
Sumitomo Dainippon Pharma Co., Ltd.
Drug Development Chemistry Group I, Drug Development Research Laboratories
2017.10-2017.12 **Postdoctoral Fellows**
Graduate School of Pharmaceutical Sciences, The University of Tokyo
Under the supervision of Prof. Motomu Kanai
2018.1-present **Assistant Professor**
Graduate School of Pharmaceutical Sciences, The University of Tokyo
Under the supervision of Prof. Motomu Kanai

2012.8-2012.12 **Visiting Scientist**
Department of Chemistry, University of California, Berkeley
Under the supervision of Prof. John F. Hartwig

Fellowship & Grant

2012.4-2015.3 Research Fellow of the Japan Society for the Promotion of Sciences (DC1)

[fellowship]

2018.10-2020.9 JSPS Grant-in-Aid for Research Activity Start-up #18H05969, #19K21123 [research grant]

2020.10-2024.3 MEXT Grant-in-Aid for Scientific Research on Transformative Research Areas (A) #20H05843 [research grant]

2021.4-2023.3 JSPS Grant-in-Aid for Young Scientists #21K15220 [research grant]

2021.10-2023.9 Research Grant from ENEOS [research grant]

2022.4 薬学振興会 基礎的研究助成 [research grant]

Award

2019 Teijin Pharmaceutical Award in Synthetic Organic Chemistry (SSOCJ, Japan)

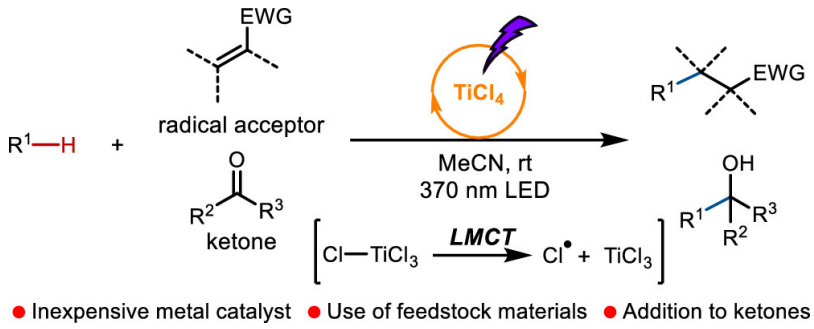
2020 JISEDAI Symposium Lectureship Award (CSJ, Japan)

Publication

1. Peng, X.; Hirao, Y.; Yabu, S.; Sato, H.; Higashi, M.; Akai, T.; Masaoka, S.; **Mitsunuma, H.***; Kanai, M.*
   Submitted.

2. Identification of a Self-Photosensitizing Hydrogen Atom Transfer Organocatalyst System
   Fuse, H.; Irie, Y.; Fuki, M.; Kobori, Y.; Kato, K.; Yamakata, A.; Higashi, M.; **Mitsunuma, H.***; Kanai, M.*
   J. Am. Chem. Soc. **2022**, *Accepted.*

3. Titanium(IV) Chloride-Catalyzed Photoalkylation via C(sp^3)–H Bond Activation of Alkanes
   Yamane, M.; Kanzaki, Y.; **Mitsunuma, H.***; Kanai, M.*
   Org. Lett. **2022**, *24*, 1486-1490.



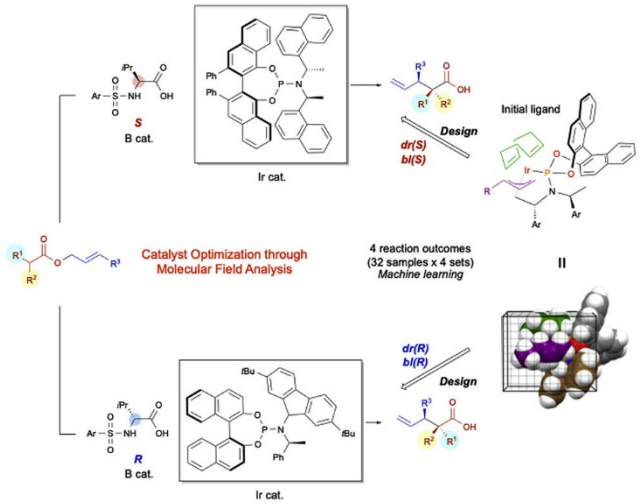
4. Data-driven catalyst optimization for stereodivergent asymmetric synthesis by

iridium/boron hybrid catalysis

Chen, H.; Yamaguchi, S.*; Morita, Y.; Nakao, H.; Zhai, X.; Shimizu, Y.; **Mitsunuma, H.***; Kanai, M.*

Cell Rep. Phys. Sci. **2021**, *3*, 100679.

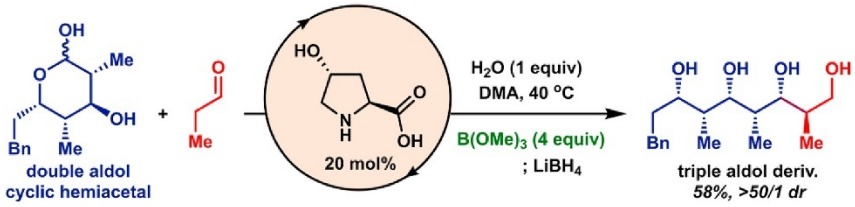
*Highlighted by Department News release, 日刊工業新聞, 化学工業日報, 日本経済新聞.



5. A 4-hydroxyproline/trimethyl borate system for asymmetric synthesis of triple aldols from double aldol cyclic hemiacetals

Hirao, Y.; Kanzaki, Y.; **Mitsunuma, H.***; Kanai, M.*

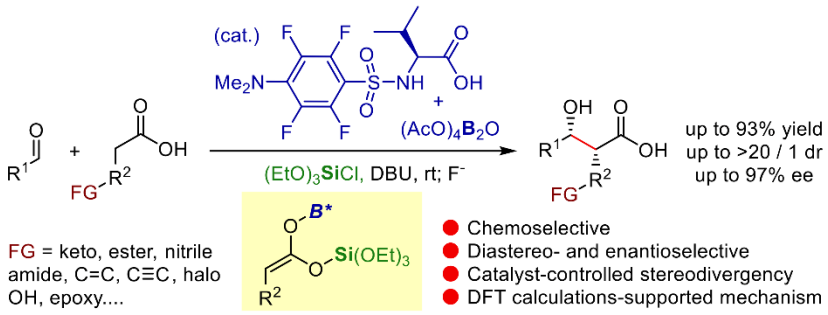
Tetrahedron **2021**, *98*, 132448.



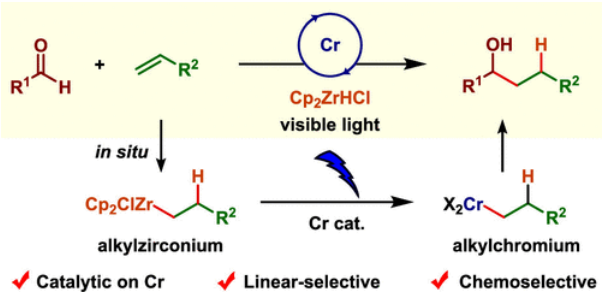
6. Siloxy Esters as Traceless Activators of Carboxylic Acids: Boron-Catalyzed Chemoselective Asymmetric Aldol Reaction

Fujita, T.; Yamane, M.; Sameera, W. M. C.; **Mitsunuma, H.***; Kanai, M.*

Angew. Chem. Int. Ed. **2021**, *60*, 24598-24604.



7. Chromium-Catalyzed Linear-Selective Alkylation of Aldehydes with Alkenes
   Hirao, Y.; Katayama, Y.; **Mitsunuma, H.***; Kanai, M.*
   Org. Lett. **2020**, *22*, 8584-8588.



8. Photocatalytic redox-neutral hydroxyalkylation of N-heteroaromatics with aldehydes
   Fuse, H.; Nakao, H.; Saga, Y.; Fukatsu, A.; Kondo, M.; Masaoka, S.: **Mitsunuma, H.***; Kanai, M.*
   Chem. Sci. **2020**, *11*, 12206-12211.
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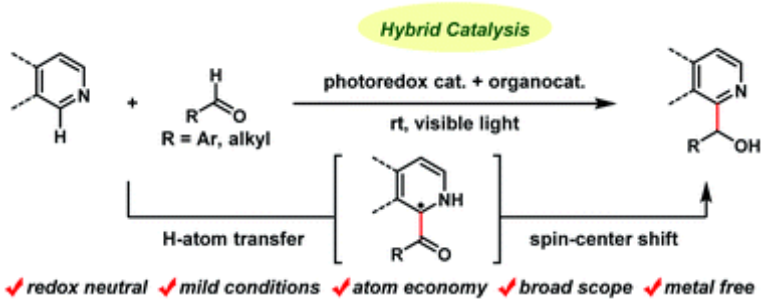
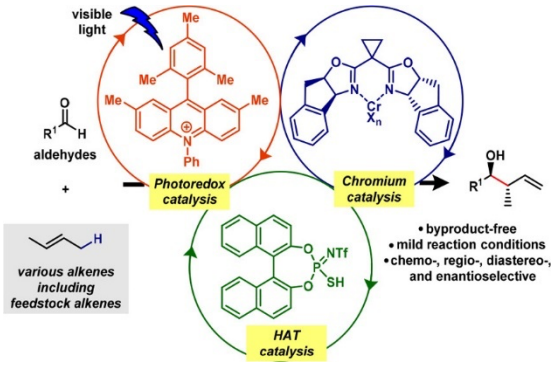
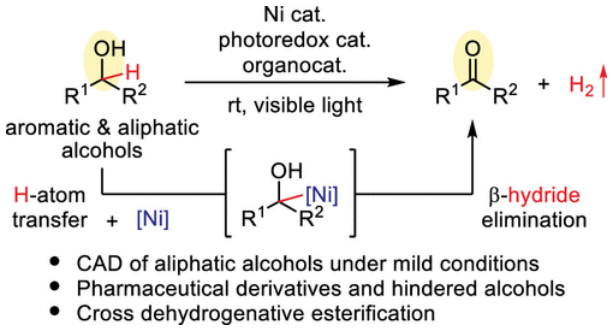


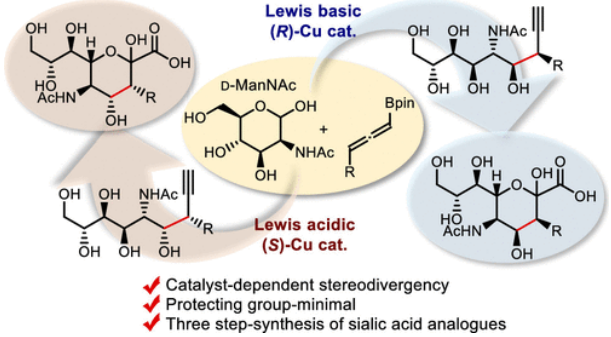
9. Catalytic Allylation of Aldehydes Using Unactivated Alkenes
   Tanabe, S.; **Mitsunuma, H.***; Kanai, M.*
   J. Am. Chem. Soc. **2020**, *142*, 12374-12381.
   *Highlighted by Department News release.



10. Catalytic Acceptorless Dehydrogenation of Aliphatic Alcohols.
    Fuse, H.; **Mitsunuma, H.***; Kanai, M.*
    J. Am. Chem. Soc. **2020**, *142*, 4493-4499.
    *Highlighted by Department News release.



11. Copper(I)-Catalyzed Stereodivergent Propargylation of N-Acetyl Mannosamine for Protecting Group Minimal Synthesis of C3-Substituted Sialic Acids
    Ishizawa, K.; Majima, S.; Wei, X.-F.; **Mitsunuma, H.**; Shimizu, Y.; Kanai, M.
    J. Org. Chem. **2019**, *84*, 10615-10628.



12. Amine-Tethered Phenylboronic Acid-Enabling Ring-Opening Strategy for Carbon Chain Elongation from Double Aldol Cyclic Hemiacetals
    Kanzaki, Y.; Hirao, Y.; **Mitsunuma, H.***; Kanai, M.*
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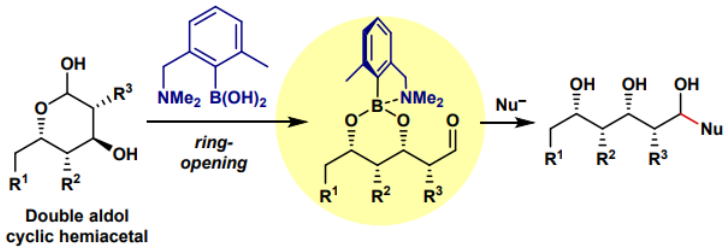


13. Catalytic Asymmetric Allylation of Aldehydes with Alkenes Mediated by Organophotoredox and Chiral Chromium Hybrid Catalysis

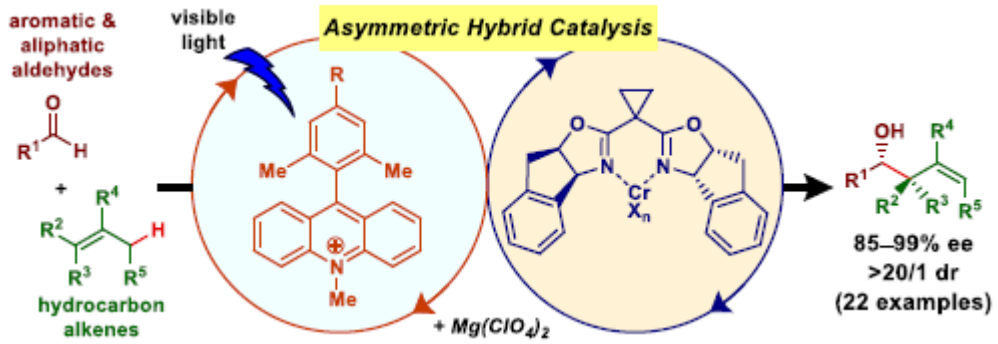
    Mitsunuma, H.*; Tanabe, S.; Fuse, H.; Ohkubo, K.; Kanai, M.*

    Chem. Sci. **2019**, *10*, 3459-3465.

    *Highlighted by UT press release, Chem.Sci. Special Movie, 日経産業新聞

    *Selected as 2019 Chemical Science HOT Article Collection and 2019 ChemSci Pick of the Week Collection

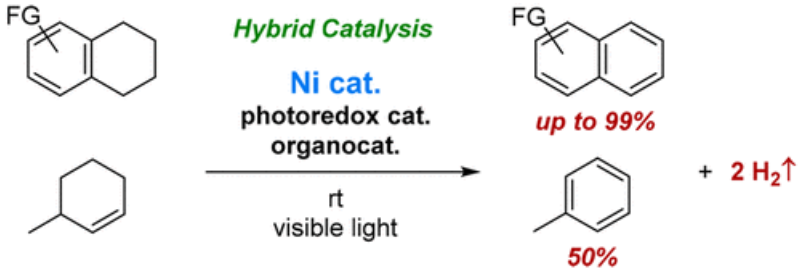
    *Selected as Inside Front Cover



14. Acceptorless Dehydrogenation of Hydrocarbons by Noble-Metal-Free Hybrid Catalyst System

    Fuse, H.; Kojima, M.; **Mitsunuma, H.**; Kanai, M.

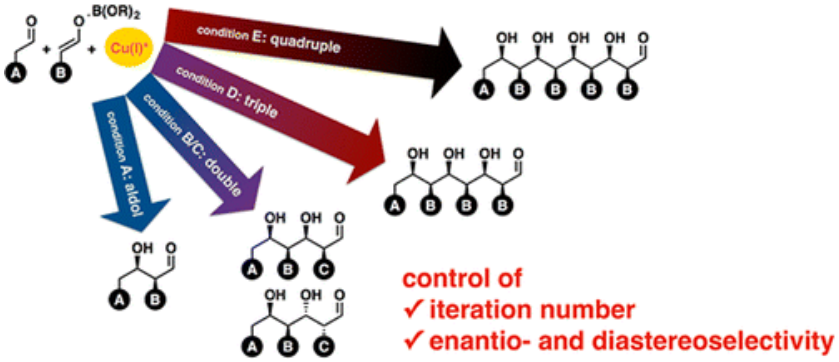
    Org. Lett. **2018**, *20*, 2042-2045.



15. Catalytic Asymmetric Iterative/Domino Aldehyde Cross-Aldol Reactions for the Rapid and Flexible Synthesis of 1,3-Polyols.

    Lin. L.; Yamamoto, K.; **Mitsunuma, H.**; Kanzaki, Y.; Matsunaga, S.; Kanai, M.

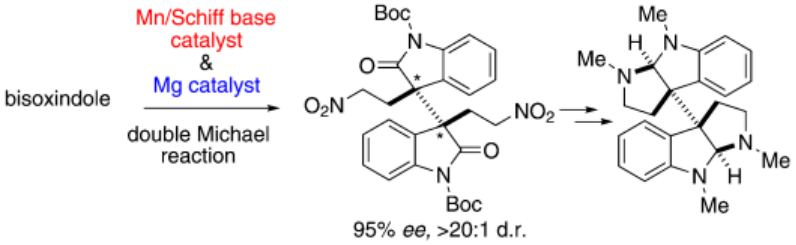
    J. Am. Chem. Soc. **2015**, *137*, 15418-15421.



16. Catalytic Asymmetric Total Synthesis of Chimonanthine, Folicanthine, and Calycanthine via Double Michael Reaction of Bisoxindole

Mitsunuma, H.; Shibasaki, M.; Kanai, M.; Matsunaga, S.

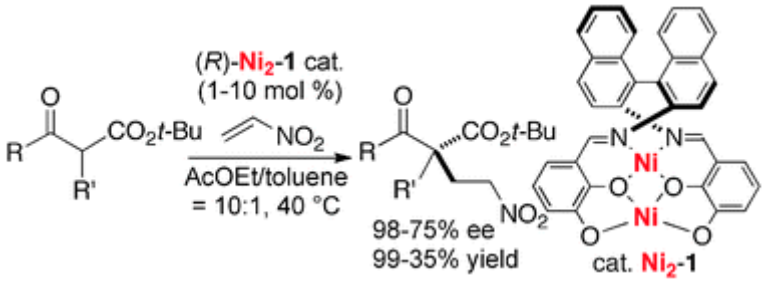
Angew. Chem. Int. Ed. **2012**, *51*, 5217-5221.



17. Dinuclear Ni_2-Schiff base complex-catalyzed asymmetric 1,4-addition of ß-keto esters to nitroethylene toward $\gamma^{2,2}$-amino acid synthesis

Mitsunuma, H.; Matsunaga, S.

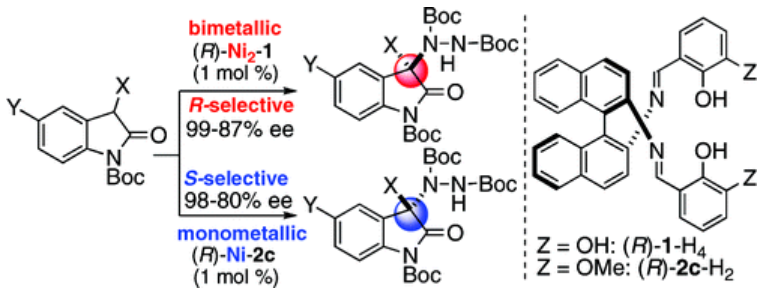
Chem. Commun. **2011**, *47*, 469-471.



18. Catalytic Asymmetric Synthesis of 3-Aminooxindoles: Enantiofacial Selectivity Switch in Bimetallic vs Monometallic Schiff Base Catalysis

Mouri, S.; Chen, Z.; **Mitsunuma, H.**; Furutachi, M.; Matsunaga, S.; Shibasaki, M.

J. Am. Chem. Soc. **2010**, *132*, 1255-1257.



19. A Homodinuclear Mn(III)$_2$-Schiff Base Complex for Catalytic Asymmetric 1,4-Additions of Oxindoles to Nitroalkenes.
Kato, Y.; Furutachi, M.; Chen, Z.; **Mitsunuma, H.**; Matsunaga, S.; Shibasaki, M.
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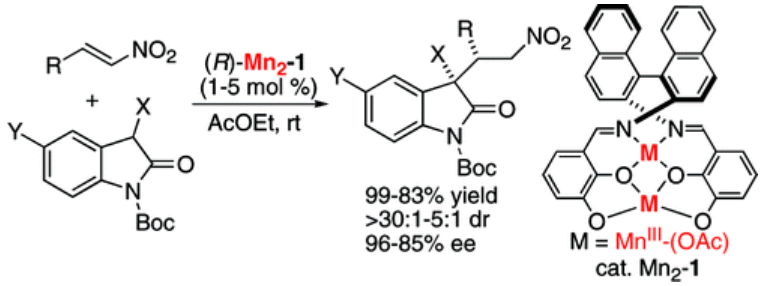

Review

1. Recent Progress of Chromium-Mediated Carbonyl Addition Reactions
Katayama, Y.; **Mitsunuma, H.***; Kanai, M.*
Synthesis **2021**, *54*, 1684-1694. [review]

References

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