

Original Papers

1. "Catalytic Asymmetric Synthesis of CF₃-Substituted Tertiary Propargylic Alcohols *via* Direct Aldol Reaction of α -N₃ Amide"
Hidetoshi Noda, Fuyuki Amemiya, Karin Weidner, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Sci. **2017**, *in press*.
2. "Reversible Stereoselective Folding/Unfolding Fueled by the Interplay of Photoisomerism and Hydrogen Bonding"
Christopher R. Opie, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2017**, *in press*.
3. "Unique Physical and Catalytic Properties Dictated by the B₃NO₂ Cycle"
Hidetoshi Noda, Makoto Furutachi, Yasuko Asada, Masakatsu Shibasaki,* and Naoya Kumagai*
Nat. Chem. **2017**, *in press*.
4. "Asymmetric Flow Catalysis: Mix-and-Go Solid-Phase Nd/Na Catalyst for Expedient Enantioselective Access to a Key Intermediate of AZD7594"
Akihito Nonoyama, Naoya Kumagai* and Masakatsu Shibasaki*
Tetrahedron **2017**, 73(11), 1517–1521.
5. "Direct Catalytic Asymmetric Aldol Reaction of α -Alkylamides"
Zijian Liu, Toshifumi Takeuchi, Roman Pluta, Fernando Arteaga Arteaga, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2017**, 19(3), 710–713.
6. "Catalytic Asymmetric Synthesis of 2,3,3,3-Tetrafluoro-2-Methyl-1-Arylpropan-1-Amines as Useful Building Blocks for SAR-Studies"
Lennart Brewitz, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Fluor. Chem. **2017**, 194, 1–7.
7. "Pyramidalization/Twisting of the Amide Functional Group via Remote Steric Congestion Triggered by Metal Coordination"
Shinya Adachi, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Sci. **2017**, 8(1), 85–90.
8. "Enantioselective Synthesis of α,α -Disubstituted α -Amino Acids via Direct Catalytic Asymmetric Addition of Acetonitrile to α -Iminoester"
Shaoquan Lin, Naoya Kumagai,* Masakatsu Shibasaki*
Org. Biomol. Chem. **2016**, 14(41), 9725–9730.
9. "Direct Catalytic Asymmetric Mannich-type Reaction of Alkylamides"
Fernando Arteaga Arteaga, Zijian Liu, Lennart Brewitz, Jianyang Chen, Bo Sun, Naoya Kumagai,* Masakatsu Shibasaki*
Org. Lett. **2016**, 18(10), 2391–2394.
10. "Preparation of Nd/Na Heterogeneous Catalyst from Bench-Stable and Inexpensive Nd Salt for an *anti*-Selective Catalytic Asymmetric Nitroaldol Reaction"
Akihito Nonoyama, Kazuki Hashimoto, Akira Saito, Naoya Kumagai,* Masakatsu Shibasaki*
Tetrahedron Lett. **2016**, 57(16), 1815–1819.
11. "Electrophilic Activation of α,β -Unsaturated Amides; Catalytic Asymmetric Vinylogous Conjugate Addition of Unsaturated γ -Butyrolactones"
Ming Zhang, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Eur. J. **2016**, 22(16), 5525–5529.
12. "Direct Catalytic Asymmetric Mannich-type Reaction of α,β -Unsaturated γ -Butyrolactam to Ketimines"
Shaoquan Lin, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Eur. J. **2016**, 22(10), 3296–3299.
13. "Direct Catalytic Asymmetric Mannich-type Reaction of α - and β -Fluorinated Amides"
Lennart Brewitz, Fernando Arteaga Arteaga, Liang Yin, Kaliyamoorthy Alagiri, Naoya Kumagai,* Masakatsu Shibasaki*
J. Am. Chem. Soc. **2015**, 137(50), 15929–15939.
14. "Direct Catalytic Asymmetric Mannich-type Reaction of α -N₃ Amide"
Zhongdong Sun, Karin Weidner, Naoya Kumagai,* Masakatsu Shibasaki*

- Chem. Eur. J.* **2015**, 21(49), 17574–17577.
15. “Stereoselective Total Synthesis of KAE609 via Direct Catalytic Asymmetric Alkynylation to Ketimine”
Hisashi Takada, Naoya Kumagai,* Masakatsu Shibasaki*
Org. Lett. **2015**, 17(19), 4762–4765.
 16. “Managing the Retro-Pathway in Direct Catalytic Asymmetric Aldol Reactions of Thioamides”
Youmei Bao, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Sci. **2015**, 6(11), 6124–6132.
 17. “Direct Catalytic Asymmetric Conjugate Addition of Saturated and Unsaturated Thioamides”
Nilanjana Majumdar, Akira Saito, Liang Yin, Naoya Kumagai,* Masakatsu Shibasaki*
Org. Lett. **2015**, 17(13), 3362–3365.
 18. “Direct Catalytic Asymmetric Mannich-type Reaction of Benzyl Isocyanide: Stereoselective Synthesis of 1,2-Diarylethylenediamines”
Keiji Tamura, Naoya Kumagai,* Masakatsu Shibasaki*
Eur. J. Org. Chem. **2015**, 3026–3031.
 19. “Direct Catalytic Asymmetric Aldol Reaction of α -N₃ Amide”
Karin Weidner, Zhongdong Sun, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2015**, 54(21), 6236–6240.
 20. “Catalytic Asymmetric Mannich-type Reaction of *N*-Alkylidene α -Aminoacetonitrile to Ketimines”
Shaoquan Lin, Yuji Kawato, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2015**, 54(17), 5183–5186.
 21. “A Carbon Nanotube Confinement Strategy to Implement Homogeneous Asymmetric Catalysis in the Solid Phase”
Kazuki Hashimoto, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Eur. J. **2015**, 21(11), 4262–4266.
 22. “Catalytic Generation of α -CF₃ Enolate: Direct Catalytic Asymmetric Mannich-type Reaction of α -CF₃ Amide”
Liang Yin, Lennart Brewitz, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2014**, 136(52), 17958–17961.
 23. “Chromatography-Free Synthesis of Corey’s Intermediate for Tamiflu”
Makoto Furutachi, Naoya Kumagai, Takumi Watanabe,* Masakatsu Shibasaki*
Tetrahedron **2014**, 70(47), 9113–9117.
 24. “Iterative Direct Aldol Strategy for Polypropionates: Enantioselective Total Synthesis of (–)-Membrenone A and B”
Kaliyamoorthy Alagiri, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2014**, 16(20), 5301–5303.
 25. “Design and Synthesis of a Bis(hydroxyphenyl)diamide Bearing a Pendant Thiazolium Unit; Application to the Catalytic Asymmetric Intramolecular Stetter Reaction”
Youmei Bao, Naoya Kumagai,* and Masakatsu Shibasaki*
Tetrahedron: Asymmetry **2014**, 25(20–21), 1401–1408.
 26. “Direct Catalytic Addition of Alkyl nitriles to Aldehydes by Transition Metal/NHC Complexes”
Devarajulu Sureshkumar, Venkataraman Ganesh, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Eur. J. **2014**, 20(48), 15723–15726.
 27. “Self-Assembled Asymmetric Catalyst Engaged in a Continuous-Flow Platform: An *anti*-Selective Catalytic Asymmetric Nitroaldol Reaction”
Kazuki Hashimoto, Naoya Kumagai,* Masakatsu Shibasaki*
Org. Lett. **2014**, 16(13), 3496–3499.
 28. “A Designed Amide as an Aldol Donor in the Direct Catalytic Asymmetric Aldol Reaction”
Karin Weidner, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2014**, 53(24), 6150–6154.
 29. “Concise Enantioselective Synthesis of δ,δ -Disubstituted δ -Valerolactones”
Akira Saito, Naoya Kumagai,* and Masakatsu Shibasaki*
Tetrahedron Lett. **2014**, 55(20), 3167–3171.
 30. “An Enantioselective Synthesis of the Key Intermediate for Triazole Antifungal Agents; Application to the Catalytic Asymmetric Synthesis of Efinaconazole (Jublia®)”

Keiji Tamura, Naoya Kumagai,* Masakatsu Shibasaki*

J. Org. Chem. **2014**, 79(7), 3272–3278.

31. “Direct Catalytic Asymmetric Vinylogous Conjugate Addition of Unsaturated Butyrolactones to α,β -Unsaturated Thioamides”
Liang Yin, Hisashi Takada, Shaoquan Lin, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2014**, 53(21), 5327–5331.
32. “Direct Aldol Strategy in Enantioselective Total Synthesis of Thuggacin B”
Akinobu Matsuzawa, Christopher R. Opie, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Eur. J. **2014**, 20(1), 68–71.
33. “A Modified Preparation Procedure for Carbon Nanotube-Confined Nd/Na Heterobimetallic Catalyst for *anti*-Selective Catalytic Asymmetric Nitroaldol Reactions”
Devarajulu Sureshkumar, Kazuki Hashimoto, Naoya Kumagai,* Masakatsu Shibasaki*
J. Org. Chem. **2013**, 78(22), 11494–11500.
34. “Direct Catalytic Asymmetric Addition of Acetonitrile to *N*-Thiophosphinoylimines”
Yuji Kawato, Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Commun. **2013**, 49(95), 11227–11229.
35. “An Enantioselective Synthesis of Voriconazole”
Keiji Tamura, Naoya Kumagai,* Masakatsu Shibasaki*
J. Org. Chem. **2013**, 78(22), 11396–11403.
36. “Catalytic Asymmetric Hydrophosphonylation of Ketimines”
Liang Yin, Youmei Bao, Naoya Kumagai,* Masakatsu Shibasaki*
J. Am Chem. Soc. **2013**, 135(28), 10338–10341.
37. “Direct Catalytic Asymmetric Vinylogous Mannich-type Reaction of γ -Butenolides to Ketimines”
Liang Yin, Hisashi Takada, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2013**, 52(28), 7310–7313.
38. “Direct Catalytic Asymmetric Mannich-type Reaction of α -Sulfanyl Lactones”
Sho Takechi, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2013**, 15(11), 2632–2635.
39. “Self-Assembling Nd/Na Heterobimetallic Asymmetric Catalyst Confined in Carbon Nanotube Network”
Takanori Ogawa, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2013**, 52(24), 6196–6201.
40. “In situ Manipulation of Catalyst Performance via Photocontrolled Aggregation/Dissociation State of the Catalyst”
Akihiro Nojiri, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Commun. **2013**, 49(41), 4628–4630.
41. “Two Approaches toward the Formal Total Synthesis of Oseltamivir Phosphate (Tamiflu[®]): Catalytic Enantioselective Three-Component Reaction Strategy and L-Glutamic Acid Strategy”
Kaliyamoorthy Alagiri, Makoto Furutachi, Kenzo Yamatsugu, Naoya Kumagai, Takumi Watanabe,* and Masakatsu Shibasaki*
J. Org. Chem. **2013**, 78(8), 4019–4026.
42. “Streamlined Catalytic Asymmetric Synthesis of Atorvastatin”
Yuji Kawato, Sandeep Chaudhary, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Eur. J. **2013**, 19(12), 3802–3806.
43. “Direct Catalytic Asymmetric Alkynylation of Ketoimines”
Liang Yin, Yasunari Otsuka, Hisashi Takada, Shinsuke Mouri, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2013**, 15(3), 698–701.
44. “Direct Catalytic Asymmetric Addition of Allylic Cyanides to Aldehydes for Expedient Access to Enantioenriched Unsaturated δ -Valerolactones”
Yasunari Otsuka, Hisashi Takada, Shigeo Yasuda, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Asian J. **2013**, 8(2), 354–358.
45. “Direct Asymmetric α -Allylation of Ketones with Allylic Alcohols via Pd/Enamine Cooperative Function”
Shigeo Yasuda, Naoya Kumagai,* Masakatsu Shibasaki*

- Heterocycles* **2012**, 86(1), 745–757.
46. “Catalytic Asymmetric Conjugate Addition of Thiols to α,β -Unsaturated Thioamides: Expedient Access to Enantioenriched 1,5-Benzothiazepines”
Takanori Ogawa, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2012**, 51(43), 8551–8554.
 47. “*anti*-Selective Direct Catalytic Asymmetric Aldol Reaction of Thiolactams”
Devarajulu Sureshkumar, Yuji Kawato, Mitsutaka Iwata, Naoya Kumagai,* Masakatsu Shibasaki*
Org. Lett. **2012**, 14(12), 3108–3111.
 48. “Concise Enantioselective Synthesis of Duloxetine via Direct Catalytic Asymmetric Aldol Reaction of Thioamide”
Yuta Suzuki, Mitsutaka Iwata, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Org. Chem. **2012**, 77(9), 4496–4500.
 49. “A Direct Catalytic Asymmetric Aldol Reaction of α -Sulfanyl Lactones: Efficient Synthesis of SPT Inhibitors”
Sho Takechi, Shigeo Yasuda, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2012**, 51(17), 4218–4222.
 50. “Reversible Heterochiral Aggregation/Dissociation of Bis(2-hydroxyphenyl)diamides Driven by UV/Vis Irradiation”
Akihiro Nojiri, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2012**, 51(9), 2137–2141.
 51. “Catalytic Asymmetric *anti*-Selective Nitroaldol Reaction En Route to Zanamivir”
Tatsuya Nitabaru, Naoya Kumagai,* Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2012**, 51(7), 1644–1647.
 52. “Intermediate as Catalyst; Catalytic Asymmetric Conjugate Addition of Nitroalkanes to α,β -Unsaturated Thioamides”
Takanori Ogawa, Shinsuke Mouri, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2012**, 14(1), 110–113.
 53. “Direct Catalytic Asymmetric Intramolecular Conjugate Addition of Thioamide to α,β -Unsaturated Esters”
Yuta Suzuki, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Eur. J. **2011**, 17(43), 11998–12001.
 54. “Asymmetric Synthesis of Isothiazoles Through Cu Catalysis: Direct Catalytic Asymmetric Conjugate Addition of Allyl Cyanide to α,β -Unsaturated Thioamides”
Yuka Yanagida, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2011**, 50(34), 7910–7914.
 55. “La/Ag Cooperative Cooperative Heterobimetallic Catalysis: A Catalytic Asymmetric Conia-ene Reaction”
Akinobu Matsuzawa, Tomoyuki Mashiko, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2011**, 50(33), 7616–7619.
 56. “A Simplified Catalytic System for Direct Catalytic Asymmetric Aldol Reaction of Thioamides; Application to an Enantioselective Synthesis of Atorvastatin”
Yuji Kawato, Mitsutaka Iwata, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Tetrahedron **2011**, 67(35), 6539–6546.
 57. “Direct Catalytic Enantio- and Diastereoselective Aldol Reaction of Thioamides”
Mitsutaka Iwata, Ryo Yazaki, I-Hon Chen, Devarajulu Sureshkumar, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2011**, 133(14), 5554–5560.
 58. “Cooperative Activation of Alkyne and Thioamide Functionalities; Direct Catalytic Asymmetric Conjugate Addition of Terminal Alkynes to α,β -Unsaturated Thioamides”
Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Asian J. **2011**, 6(7), 1778–1790.
 59. “Enantioselective Synthesis of a GPR40 Agonist AMG 837 via Catalytic Asymmetric Conjugate Addition of Terminal Alkyne to α,β -Unsaturated Thioamide”
Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2011**, 13(5), 952–955.
 60. “Catalytic Asymmetric Hydroxylation of α -Alkoxy carbonyl Amides with a Pr(OⁱPr)₃/Amide-Based Ligand

Catalyst”

Sho Takechi, Naoya Kumagai,* and Masakatsu Shibasaki*

Tetrahedron Lett. **2011**, 52(17), 2140–2143.

61. “Catalytic Asymmetric Amination of *N*-Nonsubstituted α -Alkoxy carbonyl Amides: Concise Enantioselective Synthesis of Mycestericin F and G”
Farouk Berhal, Sho Takechi, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Eur. J. **2011**, 17(6), 1915–1921.
62. “Expanding Stereochemical and Skeletal Diversity Derived from Petasis Reactions Using 1,3-Dipolar Cycloadditions”
Giovanni Muncipinto, Taner Kaya, J. Anthony Wilson, Naoya Kumagai, Paul A. Clemons, and Stuart L. Schreiber*
Org. Lett. **2010**, 12(22), 5230–5233.
63. “Direct Catalytic Asymmetric Conjugate Addition of Terminal Alkynes to α,β -Unsaturated Thioamides”
Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2010**, 132(30), 10275–10277.
64. “Direct Catalytic Asymmetric Aldol Reaction of Thioamides: A Concise Asymmetric Synthesis of (*R*)-Fluoxetine”
Mitsutaka Iwata, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Tetrahedron: Asymmetry **2010**, 21(13-14), 1688–1694.
65. “Solvent-Dependent Self-Discrimination of Bis(2-hydroxyphenyl)diamides”
Akinobu Matsuzawa, Akihiro Nojiri, Naoya Kumagai,* and Masakatsu Shibasaki*
Chem. Eur. J. **2010**, 16(17), 5036-5042.
66. “Direct Catalytic Asymmetric Addition of Allyl Cyanide to Ketones via Soft Lewis Acid/Hard Brønsted Base/Hard Lewis Base Catalysis”
Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2010**, 132(15), 5522–5531.
67. “Catalytic Asymmetric Conjugate Addition of α -Cyanoketones For the Construction of a Quaternary Stereogenic Center”
Yuji Kawato, Noriko Takahashi, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2010**, 12(7), 1484–1487.
68. “Catalytic Asymmetric Nitro-Mannich Reactions with a Yb/K Heterobimetallic Catalyst”
Tatsuya Nitabaru, Naoya Kumagai,* and Masakatsu Shibasaki*
Molecules **2010**, 15(3), 1280–1290.
69. “Direct Catalytic Asymmetric Aldol Reactions of Thioamides: Toward a Stereocontrolled Synthesis of 1,3-Polyols”
Mitsutaka Iwata, Ryo Yazaki, Yuta Suzuki, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2009**, 131(51), 18244–18245.
70. “Managing Highly Coordinative Substrates in Asymmetric Catalysis: a Catalytic Asymmetric Amination with a Lanthanum-based Ternary Catalyst”
Tomoyuki Mashiko, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2009**, 131(41), 14990–14999.
71. “*anti*-Selective Catalytic Asymmetric Nitroaldol Reaction via a Heterobimetallic Heterogeneous Catalyst”
Tatsuya Nitabaru, Akihiro Nojiri, Makoto Kobayashi, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2009**, 131(38), 13860–13869.
72. “Direct Catalytic Asymmetric Mannich-type Reaction of Thioamides”
Yuta Suzuki, Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2009**, 48(27), 5026–5029.
73. “Linking Structural Dynamics and Functional Diversity in Asymmetric Catalysis”
Akihiro Nojiri, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2009**, 131(10), 3779–3784.
74. “Direct Catalytic Asymmetric Addition of Allyl Cyanide to Ketones”
Ryo Yazaki, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2009**, 131(9), 3195–3197.

75. "Direct Catalytic Asymmetric Addition of Allylic Cyanides to Ketoimines"
Ryo Yazaki, Tatsuya Nitabaru, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2008**, *130*(44), 14477–14479.
76. "An Improved Lanthanum Catalyst System for Asymmetric Amination; Toward a Practical Asymmetric Synthesis of AS-3201 (Ranirestat)"
Tomoyuki Mashiko, Naoya Kumagai,* and Masakatsu Shibasaki*
Org. Lett. **2008**, *10*(13), 2725–2728.
77. "Asymmetric Catalysis via Dynamic Substrate/Ligand/Rare Earth Metal Conglomerate"
Akihiro Nojiri, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2008**, *130*(17), 5630–5631.
78. "A Catalytic Asymmetric *anti*-Selective Nitroaldol Reaction with a Neodymium-Sodium Heterobimetallic Complex"
Tatsuya Nitabaru, Naoya Kumagai,* and Masakatsu Shibasaki*
Tetrahedron Lett. **2008**, *49*(2), 272–276.
79. "En Route to an Efficient Catalytic Asymmetric Synthesis of AS-3201"
Tomoyuki Mashiko, Keiichi Hara, Daisuke Tanaka, Yuji Fujiwara, Naoya Kumagai,* and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2007**, *129*(37), 11342–11343.
80. "Catalytic Nucleophilic Activation of Acetonitrile via a Cooperative Catalysis of Cationic Ru Complex, DBU, and NaPF₆"
Naoya Kumagai,* Shigeki Matsunaga, and Masakatsu Shibasaki*
Tetrahedron **2007**, *63*(35), 8598–8608.
81. "Short Synthesis of Skeletally and Stereochemically Diverse Small Molecules by Coupling Petasis Condensation Reactions to Cyclization Reactions"
Naoya Kumagai, Giovanni Muncipinto, and Stuart L. Schreiber*
Angew. Chem., Int. Ed. **2006**, *45*(22), 3635–3638.
82. "Catalytic Chemoselective Addition of Acetonitrile to Enolizable Aldehydes with Cationic Ru Complex/DBU Combination"
Naoya Kumagai, Shigeki Matsunaga, and Masakatsu Shibasaki*
Chem. Commun. **2005**, (28) 3600–3602.
83. "Non-C₂-symmetric, Chirally Economical, and Readily Tunable Linked-BINOLs: Design and Application in Direct Asymmetric Mannich-type Reaction"
Takamasa Yoshida, Hiroyuki Morimoto, Naoya Kumagai, Shigeki Matsunaga, and Masakatsu Shibasaki*
Angew. Chem. Int. Ed. **2005**, *44*(22), 3470–3474.
84. "An Efficient Synthesis of Bicyclic Amidines by Intramolecular Cyclization"
Naoya Kumagai, Shigeki Matsunaga, and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2004**, *43*(4), 478–482.
85. "Direct catalytic Asymmetric Mannich-type Reaction of Hydroxyketone Using a Et₂Zn/linked-BINOL Complex: Synthesis of Either *anti*- α or *syn*- β -Amino Alcohols"
Shigeki Matsunaga, Takamasa Yoshida, Hiroyuki Morimoto, Naoya Kumagai, and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2004**, *126*(28), 8277–8285.
86. "Cooperative Catalysis of a Cationic Ruthenium Complex, Amine Base, and Na Salt: Catalytic Activation of Acetonitrile as Nucleophile"
Naoya Kumagai, Shigeki Matsunaga, and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2004**, *126*(42), 13632–13633.
87. "Direct Catalytic Aldol-Type Reactions Using RCH₂CN"
Yutaka Suto, Naoya Kumagai, Shigeki Matsunaga, Motomu Kanai, and Masakatsu Shibasaki*
Org. Lett. **2003**, *5*(17), 3147–3150.
88. "*anti*-Selective Direct Catalytic Asymmetric Mannich-type Reaction of Hydroxyketone Providing β -Amino Alcohols"
Shigeki Matsunaga, Naoya Kumagai, Shinji Harada, and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2003**, *125*(16), 4712–4713.
89. "Direct Catalytic Asymmetric Michael Reaction of Hydroxyketones: Asymmetric Zn Catalysis with a Et₂Zn/Linked-BINOL Complex"

Shinji Harada, Naoya Kumagai, Tomofumi Kinoshita, Shigeki Matsunaga, and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2003**, *125*(9), 2582–2590.

90. “Direct Catalytic Asymmetric Aldol Reaction of Hydroxyketones: Asymmetric Zn Catalysis with a Et₂Zn/Linked-BINOL Complex”
Naoya Kumagai, Shigeki Matsunaga, Tomofumi Kinoshita, Shinji Harada, Shigemitsu Okada, Shigeru Sakamoto, Kentaro Yamaguchi, and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2003**, *125*(8), 2169–2178.
91. “Reaction Design in View of Practicality”
Masakatsu Shibasaki, and Naoya Kumagai
Kagaku (Kyoto, Japan) **2002**, *57*(12), 27–29.
92. “Enantioselective 1,4-Addition of Unmodified Ketone Catalyzed by a Bimetallic Zn-Zn-linked-BINOL Complex”
Naoya Kumagai, Shigeki Matsunaga and Masakatsu Shibasaki*
Org. Lett. **2001**, *3*(26), 4251–4254.
93. “Direct Catalytic Enantio- and Diastereoselective Aldol Reaction Using a Zn-Zn-Linked-BINOL Complex: A Practical Synthesis of *syn*-1,2-Diols”
Naoya Kumagai, Shigeki Matsunaga, Naoki Yoshikawa, Takashi Ohshima, and Masakatsu Shibasaki*
Org. Lett. **2001**, *3*(10), 1539–1542.
94. “Direct Catalytic Asymmetric Aldol Reaction: Synthesis of Either *syn*- or *anti*- α,β -Dihydroxyketones”
Naoki Yoshikawa, Naoya Kumagai, Shigeki Matsunaga, Guido Moll, Takashi Ohshima, Takeyuki Shzuki, and Masakatsu Shibasaki*
J. Am. Chem. Soc. **2001**, *123*(10), 2466–2467.
95. “An Efficient Method for the Synthesis of Versatile Intermediate Leading to 13-Deoxy- and 9,13-Dideoxyphorbors”
Akihiro Sekine, Naoya Kumagai, Koichiro Uotsu, Takashi Ohshima, and Masakatsu Shibasaki*
Tetrahedron Lett. **2000**, *41*(4), 509–513.

Reviews and Accounts

1. “Strategic Immobilization of Molecular Catalysts onto Carbon Nanotubes via Noncovalent Interaction for Catalytic Organic Transformation”
Naoya Kumagai,* Masakatsu Shibasaki*
Isr. J. Chem. **2017**, *in press*.
2. “Nucleophilic and Electrophilic Activation of Non-Heteroaromatic Amides in Atom Economical Asymmetric Catalysis”
Naoya Kumagai,* Masakatsu Shibasaki*
Chem. Eur. J. **2016**, *22*(43), 15192–15200.
3. “Career in Catalysis: Masakatsu Shibasaki”
Naoya Kumagai,* Motomu Kanai,* and Hiroaki Sasai*
ACS Catal. **2016**, *6*(7), 4699–4709.
4. “Development of Asymmetric Cooperative Catalysts for Streamlined Synthesis of Therapeutics”
Naoya Kumagai,* and Masakatsu Shibasaki*
Kagaku **2015**, *66*(8), 33–41.
5. “Recent Advances in Catalytic Asymmetric C–C Bond-Forming Reactions to Ketimines Promoted by Metal-Based Catalysts”
Naoya Kumagai,* and Masakatsu Shibasaki*
Bull. Chem. Soc. Jpn. **2015**, *88*(4), 503–517.
6. “Asymmetric Catalysis with Bis(hydroxyphenyl)diamides/Rare Earth Metal Complexes”
Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2013**, *52*(1), 223–234.
7. “Catalytic Chemical Transformations with Conformationally Dynamic Catalytic Systems”
Naoya Kumagai,* and Masakatsu Shibasaki*
Catal. Sci. Technol. **2013**, *3*(1), 41–57.

8. "Cooperative Catalysis Using Thioamides Toward Truly Practical Organic Synthesis"
Naoya Kumagai,* and Masakatsu Shibasaki*
Isr. J. Chem. **2012**, 52(7), 604–612.
9. "Recent Advances in Direct Catalytic Asymmetric Transformations Under Proton-Transfer Conditions"
Naoya Kumagai,* and Masakatsu Shibasaki*
Angew. Chem., Int. Ed. **2011**, 50(21), 4760–4772.
10. "Development of Atom-Economical Catalytic Asymmetric Reactions Under Proton Transfer Conditions: Construction of Tetrasubstituted Stereogenic Centers and Their Application to Therapeutics"
Naoya Kumagai*
Chem. Pharm. Bull. **2011**, 59(1), 1–22.
11. "Inventing and Understanding Catalytic, Enantioselective Reactions"
Masakatsu Shibasaki,* Naoya Kumagai, and Tomoyuki Mashiko
Curr. Opin. Drug Discov. Dev. **2009**, 12(6), 862–875.
12. "Recent Progress in Asymmetric Bifunctional Catalysis Using Multimetallic Systems"
Masakatsu Shibasaki,* Motomu Kanai, Shigeki Matsunaga, and Naoya Kumagai
Acc. Chem. Res. **2009**, 42(8), 1117–1127.
13. "Strategies for Constructing Diverse Chiral Environments in Multimetallic Bifunctional Asymmetric Catalysis"
Masakatsu Shibasaki,* Shigeki Matsunaga, and Naoya Kumagai
Synlett **2008**, (11), 1583–1602.

Book Chapter

1. In *Cooperative Catalysis*, Ed. Peters, R., Wiley, Weinheim (2015)
"Lewis Acid–Brønsted Base Catalysis"
Naoya Kumagai and Masakatsu Shibasaki
2. In *Modern Alkyne Chemistry*, Eds. Trost, B. M. and Li, C.-J, Wiley, Weinheim (2015)
"Catalytic Conjugate Additions of Alkynes"
Naoya Kumagai and Masakatsu Shibasaki
3. In *Comprehensive Chirality*, Eds. Carreira E. M. and Yamamoto H., Elsevier, Amsterdam (2012)
"Chapter 4.14: Reactions Using Thioamide and Allylic Cyanides"
Naoya Kumagai
4. In *Topics in Organometallic Chemistry*,
"Multimetallic Multifunctional Catalysts For Asymmetric Reactions", Springer (2011).
Masakatsu Shibasaki, Motomu Kanai, Shigeki Matsunaga, and Naoya Kumagai
5. "Phospholane, 1,1-(1,2-Ethanediy1)-bis[2,5-diphenyl-(2*S*,2'*S*',5*S*,5'*S*')1 and Phospholane, 1,1-(1,2-Ethanediy1)-bis[2,5-diphenyl-(2*R*,2'*R*',5*R*,5'*R*')]" in *e-EROS: Encyclopedia of Reagents for Organic Synthesis* (2010).
Naoya Kumagai
6. In *Topics in Organometallic Chemistry*, Eds. Ikariya, T. and Shibasaki, M., Springer, Weinheim (2010).
"Chemistry of Bifunctional Molecular Catalysis"
Masakatsu Shibasaki, Motomu Kanai, Shigeki Matsunaga, and Naoya Kumagai
7. "1,2-Bis((2*R*,5*R*)-2,5-diisopropylphospholan-1-yl)benzene1 and 1,2-Bis ((2*S*,5*S*)-2,5-diisopropylphospholan-1-yl) benzene" in *e-EROS: Encyclopedia of Reagents for Organic Synthesis* (2009).
Naoya Kumagai
8. In *Acid Catalysis in Modern Organic Synthesis*, Eds. Yamamoto, H. and Ishihara, K., "Lanthanide Lewis Acid"
Wiley-VCH, Weinheim (2008).
Masakatsu Shibasaki, Shigeki Matsunaga, and Naoya Kumagai
9. In *Multimetallic Catalysis in Organic Synthesis*, Eds. Yamamoto, Y. and Shibasaki, M. Wiley-VCH (2005)
"Zinc Polymetallic Asymmetric Catalysis"
Masakatsu Shibasaki, and Naoya Kumagai
10. In *Catalysis For Fine Chemical Synthesis*, Ed. Roberts, S. Wiley-VCH (2004)
"Asymmetric Aldol and Michael Reactions"

Masakatsu Shibasaki, Shigeki Matsunaga, and Naoya Kumagai

11. In *Modern Aldol Reactions*, Ed. Mahrwald, R. Wiley-VCH (2003)
“Direct Catalytic Asymmetric Aldol Reaction Using Chiral Metal Complexes”
Masakatsu Shibasaki, Shigeki Matsunaga, and Naoya Kumagai

Patents

1. 熊谷直哉, 野田秀俊, 古舘信, 朝田康子, 柴崎正勝
「触媒、アミド結合の形成方法、及びアミド化合物の製造方法」
JP2016-028596
2. 柴崎正勝, 熊谷直哉, 野々山彰人, 橋本和樹, 齊藤誠
「触媒、及びその製造方法、並びに光学活性アンチ-1,2-ニトロアルカノール化合物の製造方法」
JP2015-229127
3. 柴崎正勝, 熊谷直哉, 高田久嗣
「化合物の製造方法」
JP2015-141582
4. 柴崎正勝, 熊谷直哉, Liang Yin
「光学活性 α -トリフルオロメチル- β -アミノ酸誘導体製造方法」
JP2014-193476
5. 柴崎正勝, 熊谷直哉, 橋本和樹
「反応容器、並びに光学活性アンチ-1, 2-ニトロアルカノール化合物の製造方法、及び製造装置」
JP2014-092452
6. 柴崎正勝, 熊谷直哉, 田村圭司
「化合物、及びその製造方法、並びにポリコナゾールの製造方法」
JP2013-191653
7. 柴崎正勝, 熊谷直哉, Liang Yin, Youmei Bao
「化合物、及びその製造方法、並びに光学活性 α -アミノホスホン酸誘導体の製造方法」
JP2013-134633
8. 柴崎正勝, 熊谷直哉, 小川貴徳
「触媒、及び光学活性アンチ-1,2-ニトロアルカノール化合物の製造方法」
JP2013-026234
9. 柴崎正勝, 渡邊匠, 熊谷直哉, 山次健三, Alagiri Kaliyamoorthy, 古舘信
「化合物、及びその製造方法、並びにリン酸オセルタミビルの製造方法」
JP2012-266285
10. 柴崎正勝, 熊谷直哉, 川戸勇士
「化合物、該化合物の製造方法、アセテート誘導体の製造方法、及びアトルバスタチンの製造方法、並びに不斉配位子の回収方法」
JP2012-223349
11. 柴崎正勝, 熊谷直哉
「化合物、及び不斉合成反応」
JP2011-271563
12. 柴崎正勝, 熊谷直哉
チオアミド化合物、チオアミド化合物の製造方法、[(4*R*,6*R*)-6-アミノエチル-1,3-ジオキサン-4-イル]アセテート誘導体の製造方法、及びアトルバスタチンの製造方法
JP2011-035006
13. Masakatsu Shibasaki, Naoya Kumagai, Tatsuya Nitabaru
Asymmetric Catalyst for *anti*-Selective Nitroaldol Reaction
PCT/JP2010/000387
14. Masakatsu Shibasaki, Naoya Kumagai, Tatsuya Nitabaru
Asymmetric Catalyst for *anti*-Selective Nitroaldol Reaction JP2009-165211.
特許第 5453003 号
15. Masakatsu Shibasaki, Naoya Kumagai, Tatsuya Nitabaru

Asymmetric Catalyst for *anti*-Selective Nitroaldol Reaction JP2007-285122.

16. Masakatsu Shibasaki, Naoya Kumagai, Tomoyuki Mashiko

Asymmetric Catalyst for Amination JP2008-031321.

特許第 5268052 号

Invited Lectures

- 2016 Dec 19 ITbM/IGER Chemistry Workshop 2017, Nagoya University
2016 July 7 University of Oxford, UK
2016 July 6 University of Cambridge, UK
2016 July 4 University of Bristol, UK
2015 Oct 16 Tokyo University of Agriculture and Technology, Tokyo
2015 Sep 7 University of Jyväskylä, Finland
2015 Sep 4 Aalto University, Finland
2015 Sep 1 University of Bologna, Italy
2015 Aug 28 21st International Symposium on Fluorine Chemistry
2015 Aug 21 University of Bern, Switzerland
2015 July 24 Meiji Seika ファルマ
2015 July 6 University of Alicante, Spain
2015 Jun 26 理研シンポジウム 第10回有機合成のフロンティア
2015 Mar 29 The 95th Annual Meeting 2015 of CSJ, Chiba
2015 Mar 7 Chuo University, Tokyo, Japan
2014 Oct 14 Award Address, Mitsui Chemical Catalysis Symposium at CSJ Festa, Tokyo
2014 Sep 16 Max-Planck-Institut für Kohlenforschung, Germany
2014 Sep 12 ESPCI Paris Tech, France
2014 Sep 4 KTH Stockholm, Sweden
2014 Jul 15 McGill University, Canada
2014 Jul 14 Montreal University, Canada
2014 Jul 4 University of Toronto, Canada
2014 Jan 29 新学術領域「分子活性化」第6回公開シンポジウム
2013 Nov 14 4th Symposium for Young Chemists on Molecular Activation
2013 Sep 25 第24回新薬創製談話会 沼津
2013 Jun 24 University of Freiburg, Freiburg, Germany
2013 Jun 21 Technical University of Berlin, Berlin, Germany
2013 May 16 九州大学薬学部
2013 May 10 University of Geneva, Geneva, Switzerland
2013 May 3 ETH Zurich, Zurich, Switzerland
2012 Oct 30 The 11th International Symposium on Advanced Technology (ISAT-Special), Kogakuin University, Hachioji, Tokyo
2012 Jul 25 University of Cologne, Germany
2012 Jul 23 RWTH Aachen University, Germany
2012 Jul 13 Bielefeld University, Germany
2012 Jun 22 University of Texas at El Paso, TX, USA
2012 Jun 21 University of Texas at Austin, TX, USA
2012 Jun 19 University of California Berkeley, CA, USA
2012 May 16 Shenyang Pharmaceutical University, Shenyang, China
2012 May 13 3rd Annual World Congress in Catalytic Asymmetric Synthesis, Beijing Convention Center, Beijing, China
2012 May 11 第10回次世代を担う有機化学シンポジウム
2012 Jan 27 千葉大学大学院薬学研究院 第2回若手講演会
2011 Oct 22 若手研究者のためのセミナー 東京農業工業大学
2011 Aug 16 EPS High-Technology Forum, Montreal, Canada

2011 Aug 5 The Scripps Research Institute, CA, USA
2011 Aug 2 Boston College, MA, USA
2011 Aug 1 MIT, MA, USA
2011 Apr 20 Dainippon-Sumitomo Pharma Co Ltd., Osaka, Japan
2010 Aug 9 University of Colorado, CO, USA
2010 Jul 19 Tampere University of Technology, Finland
2010 Jul 16 RSC-CSJ Joint Symposium—Chemistry for a Sustainable World, RSC Burlington House, London, UK
2010 May 21 1st Annual World Congress in Catalytic Asymmetric Synthesis, Beijing Convention Center, Beijing, China
2010 March 28 Award Address at the Annual Meeting of Pharmaceutical Society of Japan, Okayama Convention Center, Okayama, Japan
2008 Jun 27 Tampere University of Technology, Tampere, Finland
2003 Dec 6 若手研究者のためのセミナー 千葉大学

Awards

2014 Mitsui Chemicals Catalysis Science Award of Encouragement
2013 Young Scientists' Prize, The commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology
2013 Thieme Chemistry Journal Award
2012 Banyu Chemist Award (BCA)
2010 The Pharmaceutical Society of Japan Award for Young Scientists
2007 Chugai Award of Synthetic Organic Chemistry