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Okayama 700-8530, JAPAN

EDUCATION

- 2006 Tokyo University of Science, Tokyo, JAPAN
Ph.D. Pharmaceutical Science
- 2003 Tokyo University of Science, Tokyo, JAPAN
M.Sc. Chemistry
- 2001 Tokyo University of Science, Tokyo, JAPAN
B.Sc. Chemistry

EMPLOYMENT

- Oct. 2008–present Assistant Professor, Okayama University

AWARDS

- 2014 The Best Teacher Award in Faculty of Engineering, Okayama University
- 2009 Lectureship Award of the 89th Annual Meeting of the Chemical Society of Japan
- 2009 Science and Technology Award of Okayama Foundation of Science and Technology
- 2009 KANEKA CORPORATION Award in Synthetic Organic Chemistry, Japan
- 2006 Yamada Science Foundation Award (Support for Long-term Visit).

RESEARCH

EXPERIENCE

- Apr. 2006–Sep. 2008 Postdoctoral Fellow, Boston College, MA, USA.
“Three-Component Ag-Catalyzed Enantioselective Vinylogous Mannich and Aza-Diels-Alder Reactions with Alkyl-Substituted Aldehydes”
Research Advisor: Professor Amir H. Hoveyda
- Apr. 2003–Mar. 2006 Graduate Student Research (Ph.D. course),
Tokyo University of Science, Tokyo, JAPAN
“Development of Catalytic and β -Selective Mannosylation Reactions and their Application to the Synthesis of Pentasaccharide Core of N-Glycans”
Research Advisor: Professor Teruaki Mukaiyama
- Apr. 2001–Mar. 2003 Graduate Student Research (M.Sc. course)
Tokyo University of Science, Tokyo, JAPAN
“Development of New Glycosyl Donors for Stereoselective Sialylation, Glycosylation, and Mannosylation Reactions”
Research Advisor: Professor Teruaki Mukaiyama

Apr. 2000–Mar. 2001 Under Graduate Research, (B.Sc. course)
Tokyo University of Science, Tokyo, JAPAN
“*Protic Acid Catalyzed Stereoselective Glycosylation Using Glycosyl Fluorides*”
Research Advisor: Professor Teruaki Mukaiyama

RESEARCH INTERESTS

Asymmetric Synthesis
Organocatalyst (especially chiral nucleophilic catalysts)
Multicomponent Reaction
Natural Product Synthesis
Oligosaccharide Synthesis

PROFESSIONAL AFFILIATIONS

The American Chemical Society
The Chemical Society of Japan
The Society of Synthetic Organic Chemistry, Japan,
The Pharmaceutical Society of Japan
The Kinki Chemical Society Japan

PUBLICATIONS

- (31) **Kinetic Resolution of Secondary Carbinols by a Chiral *N,N*-4-Dimethylaminopyridine Derivative Containing a 1,1'-Binaphthyl Unit: Hydrogen Bonding Affects Catalytic Activity and Enantioselectivity.**
Fujii, K.; Mitsudo, K.; Mandai, H.*; Suga, S.*
Bull. Chem. Soc. Jpn. **2016**, 89, in press
DOI: 10.1246/bcsj.20160135
- (30) **Synthetic Terrein Inhibits Progression of Head and Neck Cancer by Suppressing Angiogenin Production**
Shibata, A.; Ibaragi, S.*; Mandai, H.; Tsumura, T.; Kishimoto, K.; Okui, T.; Hassan, N. M. M.; Shimo, T.; Omori, K.; Hu, G.-F.; Takashiba, S.; Suga, S.; Sasaki, A.
Anticancer Res. **2016**, 36, 2161-2168.
- (29) **Enantioselective Acyl Transfer Catalysis by a Combination of Common Catalytic Motifs and Electrostatic Interactions**
Mandai, H.*; Fujii, K.; Yasuhara, H.; Abe, K.; Mitsudo, K.; Korenaga, T.; Suga, S.*
Nat. Commun **2016**, 7, 11297
DOI: 10.1038/ncomms11297.
- (28) **Facile Synthesis of 1,4-Bis(Diaryl)-1,3-Butadiynes Bearing Two Amino Moieties by Electrochemical Reaction-Site Switching, and Their Solvatochromic Fluorescence**
Kamimoto, N.; Nakamura, N.; Tsutsumi, A.; Mandai, H.; Mitsudo, K.*; Wakamiya, A.; Murata, Y.; Hasegawa, J.-y.; Suga, S.*
Asian J. Org. Chem. **2016**, 5, 373-379.
DOI: 10.1002/ajoc.201500502.

- (27) **Bacteriogenic Iron Oxide as an Effective Catalyst for Baeyer-Villiger Oxidation with Molecular Oxygen and Benzaldehyde**
Mandai, K.; Hanata, M.; Mitsudo, K.; Mandai, H.; Suga, S.*; Hashimoto, H.; Takada, J. *Tetrahedron* **2015**, *71*, 9403-9407.
DOI: 10.1016/j.tet.2015.10.057.
- (26) **Synthesis and Properties of Ethene-Bridged Terthiophenes**
Mitsudo, K.*; Sato, H.; Yamasaki, A.; Kamimoto, N.; Goto, J.; Mandai, H.; Suga, S.*
Org. Lett. **2015**, *17*, 4858-4861.
DOI: 10.1021/acs.orglett.5b02417.
- (25) **Enantioselective Steglich Rearrangement of Oxindole Derivatives by Easily Accessible Chiral N,N-4-(Dimethylamino)pyridine Derivatives**
Mandai, H.*; Fujiwara, T.; Noda, K.; Fujii, K.; Mitsudo, K.; Korenaga, T.; Suga, S.*
Org. Lett. **2015**, *17*, 4436-4439.
DOI: 10.1021/acs.orglett.5b02089.
- (24) **An Efficient Petasis Boronic-Mannich Reaction of Chiral Lactol Derivatives Prepared from D-Araboascorbic Acid**
Mandai, H.*; Yamada, H.; Shimowaki, K.; Mitsudo, K.; Suga, S.*
Synthesis **2014**, *46*, 2672-2681.
DOI: 10.1055/s-0034-1378900.
- (23) **Synthetic (+)-Terrein Suppresses Interleukin-6/Soluble Interleukin-6 Receptor Induced-Secretion of Vascular Endothelial Growth Factor in Human Gingival Fibroblasts**
Mandai, H.*[†]; Omori, K.[†]; Yamamoto, D.; Tsumura, T.; Murota, K.; Yamamoto, S.; Mitsudo, K.; Ibaragi, S.; Sasaki, A.; Maeda, H.; Takashiba, S.; Suga, S.*
Bioorg. Med. Chem. **2014**, *22*, 5338-5344.
DOI: 10.1016/j.bmc.2014.07.047.
[†]These authors contributed equally.
- (22) **Remarkable Enhancement of the Rate of the Intramolecular Morita Baylis-Hillman Reaction by The Combination of a Nucleophilic Catalyst and 1,3-Diphenyl-2-Thiourea**
Mandai, H.*; Shimowaki, K.; Mitsudo, K.; Suga, S.*
Asian J. Org. Chem. **2014**, *3*, 437-441.
DOI: 10.1002/ajoc.201402001.
- (21) **Electro-Reductive Halogen-Deuterium Exchange and Methylation of Aryl Halides in Acetonitrile**
Mitsudo, K.*; Okada, T.; Shimohara, S.; Mandai, H.; Suga, S.*
Electrochemistry **2013**, *81*, 362-364.
DOI: 10.5796/electrochemistry.81.362.
- (20) **Recyclable Palladium Catalyst in PEG/CH₃CN Biphasic System for Electro-Oxidative Wacker-Type Reaction**
Mitsudo, K.*; Fukunaga, S.; Fujita, T.; Mandai, H.; Suga, S.; Tanaka, H.*
Electrochemistry **2013**, *81*, 347-349.
DOI: 10.5796/electrochemistry.81.347.
- (19) **Synthesis of Hexa(furan-2-yl)benzenes and Their P-Extended Derivatives**
Mitsudo, K.*; Harada, J.; Tanaka, Y.; Mandai, H.; Nishioka, C.; Tanaka, H.; Wakamiya, A.; Murata, Y.; Suga, S.*

- J. Org. Chem.* **2013**, *78*, 2763-2768.
DOI: 10.1021/jo302652r.
- (18) **Kinetic Resolution of Secondary Alcohols by Chiral DMAP Derivatives Prepared by the Ugi Multicomponent Reaction**
Mandai, H.*; Irie, S.; Akehi, M.; Yuri, K.; Yoden, M.; Mitsudo, K.; Suga, S.*
Heterocycles **2013**, *87*, 329-340.
DOI: 10.3987/COM-12-12624.
- (17) **Site-Selective Sequential Coupling Reactions Controlled by "Electrochemical Reaction Site Switching": A Straightforward Approach to 1,4-Bis(Diaryl)Buta-1,3-Diynes**
Mitsudo, K.*; Kamimoto, N.; Murakami, H.; Mandai, H.; Wakamiya, A.; Murata, Y.; Suga, S.*
Org. Biomol. Chem. **2012**, *10*, 9562-9569.
DOI: 10.1039/c2ob26567b.
- (16) **Kinetic Resolution of Secondary Alcohols by the Combination of a Chiral Brønsted Acid, DABCO, and Acetyl Chloride**
Mandai, H.*; Murota, K.; Mitsudo, K.; Suga, S.*
Org. Lett. **2012**, *14*, 3486-3489.
DOI: 10.1021/ol301373x.
- (15) **Studies on the Petasis Reaction of 2-Pyridinecarbaldehyde Derivatives and Its Products**
Mandai, H.*; Murota, K.; Suga, S.*
Heterocycles **2012**, *85*, 1655-1669.
DOI: 10.3987/COM-12-12500.
- (14) **Synthesis of Nitrogen-Bridged Terthiophenes by Tandem Buchwald-Hartwig Coupling and Their Properties**
Mitsudo, K.*; Shimohara, S.; Mizoguchi, J.; Mandai, H.; Suga, S.*
Org. Lett. **2012**, *14*, 2702-2705.
DOI: 10.1021/ol300887t.
- (13) **Studies on the Synthesis of DMAP Derivatives by Diastereoselective Ugi Reactions**
Mandai, H.*; Irie, S.; Mitsudo, K.; Suga, S.*
Molecules **2011**, *16*, 8815-8832.
DOI: 10.3390/molecules16108815.
- (12) **Kumada-Tamao-Corriu Coupling Using N-Heterocyclic Carbene Ligands Bearing Pyridyl and Ethylenedioxy Moieties**
Mitsudo, K.*; Doi, Y.; Sakamoto, S.; Murakami, H.; Mandai, H.; Suga, S.*
Chem. Lett. **2011**, *40*, 936-938.
DOI: 10.1246/cl.2011.936.
- (11) **Induction of MMP-13 Expression in Bone-Metastasizing Cancer Cells by Type I Collagen through Integrin $\alpha 1\beta 1$ and $\alpha 2\beta 1$ -p38 Mapk Signaling**
Ibaragi, S.; Shimo, T.*; Hassan, N. M. M.; Isowa, S.; Kurio, N.; Mandai, H.; Kodama, S.; Sasaki, A.
Anticancer Res. **2011**, *31*, 1307-1313.
- (10) **An Improved Protocol for Petasis Reaction of 2-Pyridinecarbaldehydes**
Mandai, H.*; Murota, K.; Sakai, T.
Tetrahedron Lett. **2010**, *51*, 4779-4782.

DOI: 10.1016/j.tetlet.2010.07.039.

- (9) **Three-Component Ag-Catalyzed Enantioselective Vinylogous Mannich and Aza-Diels-Alder Reactions with Alkyl-Substituted Aldehydes**
Mandai, H.; Mandai, K.; Snapper, M. L.*; Hoveyda, A. H.*
J. Am. Chem. Soc. **2008**, *130*, 17961-17969.
DOI: 10.1021/Ja807243t.
- (8) **6-Nitro-2-Benzothiazolyl α -Mannoside: A Highly Efficient Mannosyl Donor in Constructing β -Man(1 $\rightarrow$ 4)GlcN Linkage and Its Application to the Synthesis of the Pentasaccharide Core of N-Glycans**
Mandai, H.; Mukaiyama, T.*
Bull. Chem. Soc. Jpn. **2006**, *79*, 479-488.
DOI: 10.1246/bcsj.79.479.
- (7) **Efficient and Concise Synthesis of β Man1-4GlcN Linkage of Pentasaccharide Core by Using 6-Nitro-2-Benzothiazolyl α -Mannoside**
Mandai, H.; Mukaiyama, T.*
Chem. Lett. **2005**, *34*, 702-703.
DOI: 10.1246/cl.2005.702.
- (6) **6-Nitro-2-Benzothiazolyl α -Glucoside and α -Mannoside in β -Selective Glycosylations**
Hashihayata, T.; Mandai, H.; Mukaiyama, T.*
Bull. Chem. Soc. Jpn. **2004**, *77*, 169-178.
DOI: 10.1246/bcsj.77.169.
- (5) **Catalytic and β -Stereoselective Mannosylation of Several Glycosyl Acceptors with Mannosyl 6-Nitro-2-Benzothiazooate**
Hashihayata, T.; Mandai, H.; Mukaiyama, T.*
Chem. Lett. **2003**, *32*, 442-443.
DOI: 10.1246/cl.2003.442.
- (4) **Glycosyl 6-Nitro-2-Benzothiazooate. A Highly Efficient Donor for β -Stereoselective Glycosylation**
Mukaiyama, T.*; Hashihayata, T.; Mandai, H.
Chem. Lett. **2003**, *32*, 340-341.
DOI: 10.1246/cl.2003.340.
- (3) **A Catalytic and α -Selective Sialylation Using Novel 5-Azido Sialyl Fluoride**
Mukaiyama, T.*; Mandai, H.; Jona, H.
Chem. Lett. **2002**, *31*, 1182-1183.
DOI: 10.1246/cl.2002.1182.
- (2) **Protic Acid Catalyzed Stereoselective Glycosylation Using Glycosyl Fluorides**
Jona, H.; Mandai, H.; Chavasiri, W.; Takeuchi, K.; Mukaiyama, T.*
Bull. Chem. Soc. Jpn. **2002**, *75*, 291-309.
DOI: 10.1246/bcsj.75.291.
- (1) **A Catalytic and Stereoselective Glycosylation with Glucopyranosyl Fluoride by Using Various Protic Acids**
Jona, H.; Mandai, H.; Mukaiyama, T.*

Chem. Lett. **2001**, 30, 426-427.
DOI: 10.1246/cl.2001.426.