

平成24年度 研究業績

笹井宏明 (大阪大学産業科学研究所、A01班 公募班員)

1. 発表論文等 (査読付き論文, 著書, 総説等の発表状況)

(1) Vanadium-catalyzed Enantioselective Friedel–Crafts-type Reactions

Takizawa, S.; Arteaga, F. A.; Yoshida, Y.; Kodera, J.; Nagata, Y.; Sasai, H.* *Dalton Trans.* **2013**, in press.

(2) DFT Study on 5-Endo-trig-type Cyclization of 3-Alkenoic Acids Using Pd-SPRIX Catalyst: Importance of the Rigid Spiro Framework for both Selectivity and Reactivity

Gabr, R. K.; Hatakeyama, T.; Takenaka, K.; Takizawa, S.; Okada, Y.; Nakamura, M.*; Sasai, H.* *Chem. Eur. J.* **2013**, in press.

(3) Facile Synthesis of α -Methylidene- γ -butyrolactones: Intramolecular Rauhut-Currier Reaction Promoted by Chiral Acid-Base Organocatalysts

Takizawa, S.; Nguyen, T. M.-N.; Grossmann, A.; Suzuki, M.; Enders, D.; Sasai, H.* *Tetrahedron* **2013**, *69*, 1202-1209.

(4) Design and Synthesis of Spiro Bis(1,2,3-triazolium) Salts as Chiral Ionic Liquids

Yoshida, Y.; Takizawa, S.; Sasai, H. *Tetrahedron Asymmetry* **2012**, *23*, 843-851.

(5) Enantioselective Synthesis of α -Alkylidene- γ -butyrolactones via an Intramolecular Rauhut-Currier Reaction Promoted by Acid-Base Organocatalysts

Takizawa, S.; Nguyen, T. M.-N.; Grossmann, A.; Enders, D.; Sasai, H. *Angew. Chem. Int. Ed.* **2012**, *51*, 5423-5426.

Direct C–C Bond Formation (Henry, aza-Henry)

Sasai, H. In *Comprehensive Chirality*; Yamamoto, H.; Carreira, E., Eds. ELSEVIER Ltd, UK, 2012; Volume 4 (Synthetic Methods III - Catalytic Methods: C-C Bond Formation), Chapter 4.12, pp 214-242.

(aza) Morita–Baylis–Hillman Reaction

Sasai, H.; Takizawa, S. In *Comprehensive Chirality*; Yamamoto, H.; Carreira, E., Eds. ELSEVIER Ltd, UK, 2012; Volume 6 (Synthetic Methods V - Organocatalysis), Chapter 6.9, pp 234-263.

2. 学会発表等 (国内外の招待講演および国際会議での発表状況)

(1) Development of Chiral Spiro Bis(isoxazoline) Ligand “SPRIX”

Sasai, H. BIT's 3rd Annual World Congress of Catalytic Asymmetric Synthesis-2012, Beijing, China, May 12-14, 2012 (招待講演).

- (2) Exploring Novel Enantioselective Domino Reactions Promoted by Bifunctional Organocatalysts
Sasai, H. 3rd International Symposium on Organic Synthesis and Drug Development (ISOSDD2012), Changzhou, China, May 20-23, 2012 (招待講演).
- (3) Development of Enantioselective Carbon-Carbon Bond Forming Reactions Using Multi-functional Organocatalyst
Sasai, H. International Conference on Functional Organic Materials and Related Devices, Hsinchu, Taiwan, June 16-17, 2012 (招待講演)..
- (4) Several Catalytic Enantioselective Reactions Promoted by Vanadium Complexes
Takizawa, S.; Sasai, H. Osaka-Bielefeld Symposium on Chiral Synthetic Chemistry, Bielefeld, Germany, July 11, 2012 (口頭発表).
- (5) Enantioselective C-C Bond-forming Reactions Catalyzed by Vanadium(V) Complexes
Sasai, H.; Takizawa, S.; Kodera, J. 8th International Vanadium Symposium Chemistry, Biological Chemistry, & Toxicology (V8), Washington DC, USA, August 15-18, 2012 (招待講演).
- (6) Umpolung Reactivity of Pd Enolate: Cyclative Diacetoxylation of Alkynyl Cyclohexadienones Catalyzed by Pd-SPRIX
Takenaka, K.; Mohanta, S. C.; Takizawa, S.; Sasai, H. The 6th Kansai-CMDS Meeting on OMCOS, 2012, Gangwon-do, Korea, September 21-23, 2012 (招待講演).
- (7) Dual Activation in Asymmetric Organocatalyses
Sasai, H. 17th Malaysian Chemical Congress (17MCC) 2012, Kuala Lumpur, Malaysia, October 15-17, 2012 (基調講演).
- (8) Development of Chiral Spiro Bis(isoxazoline) Ligand “SPRIX”
Sasai, H. Cambodian Malaysian Chemical Conference (CMCC) 2012, Siem Reap, Cambodia, October 19-21, 2012 (招待講演).
- (9) Umpolung Reactivity of Pd Enolate
Takenaka, K.; Mohanta, S. C.; Takizawa, S.; Sasai, H. Aachen-Osaka Symposium “Biological and Chemical Methods for Selective Catalysis”, Aachen, Germany, December 3-5, 2012 (口頭発表).
- (10) Enantioselective Organocatalyzed Aza-Morita-Baylis-Hillman (Aza-MBH) Reaction of Ketimines
Takizawa, S.; Arteaga, A. F.; Yoshida, Y.; Vellaisamy, S.; Rémond, E.; Bayardon, J.; Jugé, S.; Sasai, H. Aachen-Osaka Symposium “Biological and Chemical Methods for Selective Catalysis”, Aachen, Germany, December 3-5, 2012 (口頭発表).

(11) Design and Synthesis of Organocatalysts Bearing Spiro Backbone

Fan, L.; Takizawa, S.; Sasai, H. Aachen-Osaka Symposium “Biological and Chemical Methods for Selective Catalysis”, Aachen, Germany, December 3-5, 2012 (口頭発表).

(12) Study on Asymmetric Environment of SPRIX Ligand

Lin, X.; Takenaka, K.; Takizawa, S.; Sasai, H. Aachen-Osaka Symposium “Biological and Chemical Methods for Selective Catalysis”, Aachen, Germany, December 3-5, 2012 (口頭発表).

(13) Enantioselective Pd(II)/Pd(IV) Catalysis Using SPRIX Ligand: Efficient Synthesis of Chiral Tetrahydrofuran Derivatives

Takenaka, K.; Dhage, Y. D.; Takizawa, S.; Sasai, H. Aachen-Osaka Symposium “Biological and Chemical Methods for Selective Catalysis”, Osaka, Japan, March 11-13, 2013 (口頭発表).

(14) Development of New Efficient Synthesis Method of Spiro Bis(1,2,3-triazole)s and Their Applications

Yoshida, Y.; Takizawa, S.; Sasai, H. Aachen-Osaka Symposium “Biological and Chemical Methods for Selective Catalysis”, Osaka, Japan, March 11-13, 2013 (口頭発表).

3. 特許

キラルスピロビストリアゾール化合物, その製造方法及びその用途
国立大学法人大阪大学, 笹井宏明, 滝澤忍, 吉田泰志
特開 2012-188387

4. 学会・シンポジウム等の開催状況

- (1) The 12th International Kyoto Conference on New Aspect of Organic Chemistry, Kyoto, 2012, Nov. 12-16 (笹井宏明, 組織委員).
- (2) The 8th International Vanadium Symposium Chemistry, Biological Chemistry, & Toxicology (V8), Washington DC, 2012, Aug. 16-18 (笹井宏明, 組織委員).
- (3) Symposium “Molecular Chirality Asia 2012”, Fukuoka, 2012, May 18-19 (笹井宏明, 組織委員)

5. 受賞等

なし

6. 新聞報道等

なし

7. 国民との科学・技術対話

大阪大学の大学祭（いちょう祭）の一環として開催された市民向けのサイエンスカフェにて、博士課程学生が触媒的不斉合成について紹介した。

8. 領域内の共同研究の準備・実施状況とその成果

前班員の畠山琢次博士（京大化研）との共同研究が、Chem. Eur. J. 誌に受理された（in press）