

# 佐藤 格 (Itaru Sato)

所属 (Domain) 理学野化学領域 (Domain of Chemistry)

・ 博士後期課程量子線科学専攻 (Major in Quantum Beam Science)

## ● 研究テーマ (Research theme)

### ① 天然物化学

(Natural Product Chemistry)

### ② 有機合成化学

(Synthetic Organic Chemistry)

### ③ 不斉合成

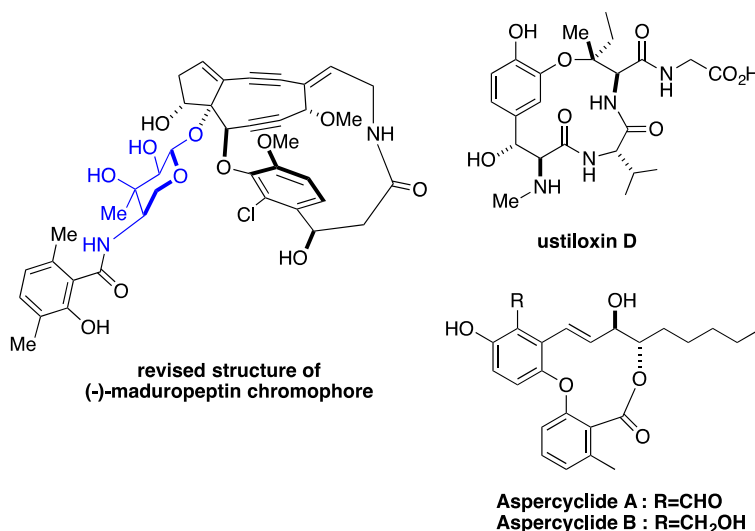
(Asymmetric Synthesis)

極めて魅力的な機能性と新奇な構造を併せ持つ天然有機化合物群に対し、その合理的な機能と構造の相関を明らかにすべく合成化学的手法からアプローチを行う。その過程で開発した合目的な合成手法の一般化により、官能基共存性を維持しつつかつ強力な反応の開発も精力的に行っている。

Natural products are secondary metabolites produced and used by terrestrial organisms. The compounds possess numerous structural diversity and show unique biological activities. The purpose of our study is: 1) to synthesize these interesting scaffold, and 2) to understand rational structure design for biological functionalities. On the other hand, synthetic method itself is also in our interest. In the synthetic study prior to total synthesis, we always require selective reactions. Thus, some chemo-, enantio-, and diastereo selective reactions are developed in our lab.

Our recent synthetic targets are enediyne antibiotics, cyclic peptides, and diaryl heptanoids. The structure of maduropeptin chromophore is revised by our first total synthesis[5]. Unique cyclic peptide, ustiloxin D is also synthesized in our lab. This compound has a chiral tertiary alkyl aryl linkage within a peptide-based cyclic scaffold. Our developed arylation method could transform tert-alcohol to its aryl ether at rt and any signals of epimerization was not observed[3].

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- [2] Jing Li, Martin J. Lear, Yuya Kawamoto, Shigenobu Umemiya, Alice R. Wong, Eungsang Kwon, Itaru Sato, Yujiro Hayashi, Oxidative Amidation of Nitroalkanes with Amine Nucleophiles using Molecular Oxygen and Iodine, *Angew. Chem. Int. Ed.* **2015**, *53*, 12986-12990.
- [3] Syuji Harada, Daisuke Hayashi, Itaru Sato, Masahiro Hirama, Copper(II)-Catalyzed *O*-Arylation of Tertiary Alcohols with Arylbismuth(III) Reagents: A Convenient System for Aryl Transfer, *Synlett*, **2012**, *23*, 405-408.
- [4] Tatsuya Yoshino, Itaru Sato, Masahiro Hirama, Total Synthesis of Aspercyclides A and B via Intramolecular Oxidative Diaryl Ether Formation, *Org. Lett.* **2012**, *14*, 4290-4292.
- [5] Kazuo Komano, Satoshi Shimamura, Yutaro Norizuki, Donglin Zhao, Chizuko Kabuto, Itaru Sato, Masahiro Hirama, Total Synthesis and Structure Revision of the (-)-Maduropeptin Chromophore, *J. Am. Chem. Soc.* **2009**, *131*, 12072.



キーワード (Keyword)

専門分野 (Specialized Field)

共同研究可能技術 (Possible Technology of Cooperative research)

関連論文・特許情報 website

(Related articles・patent information)

研究設備 (Research Facility)

研究室URL (Lab. URL)

E-mail

天然物化学, 有機合成化学, 不斉合成

天然物化学, 有機合成化学, 不斉合成

有機合成

(Organic Synthesis)

<https://info.ibaraki.ac.jp/Profiles/27/0002649/profile.html>

有機合成実験施設および必要とする分析装置

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