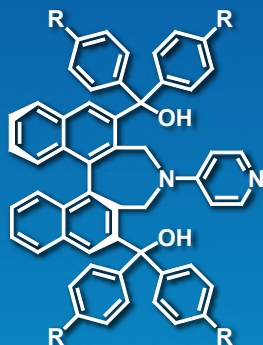


# New



# DMAP-type Chiral Nucleophilic Catalysts for Enantioselective Acylation



R=H [P2617]

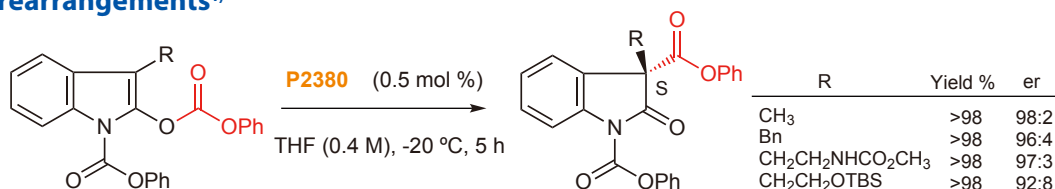
R=C(CH<sub>3</sub>)<sub>3</sub> [P2380]

## Advantages

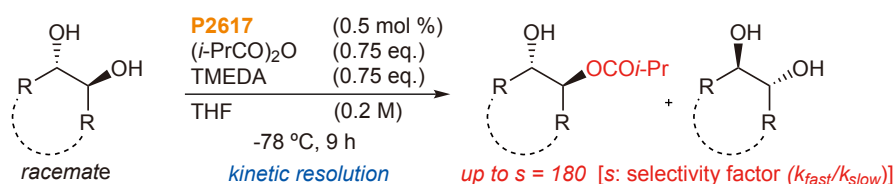
- Chiral 4-dimethylaminopyridine (DMAP)-structured organocatalysts derived from axial chirality of binaphthyl
- Catalyze versatile asymmetric acylation reactions
- High catalytic activity, chemoselectivity and enantioselectivity

## Applications

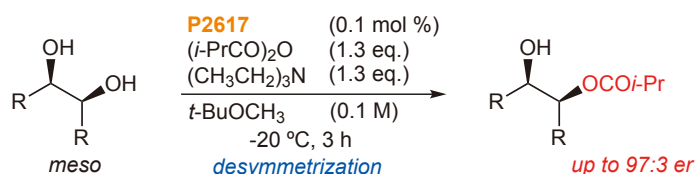
### Steglich rearrangements<sup>1)</sup>



### Kinetic resolution of D,L-1,2-diols<sup>3)</sup>



### Desymmetrization of meso-1,2-diols<sup>4)</sup>



1) H. Mandai, K. Fujii, H. Yasuhara, K. Abe, K. Mitsudo, T. Korenaga, S. Suga, *Nat. Commun.* **2016**, 7, 11297.

2) K. Fujii, K. Mitsudo, H. Mandai, S. Suga, *Bull. Chem. Soc. Jpn.* **2016**, 89, 1081.

3) K. Fujii, K. Mitsudo, H. Mandai, S. Suga, *Adv. Synth. Catal.* **2017**, 359, 2778.

4) H. Mandai, H. Yasuhara, K. Fujii, Y. Shimomura, K. Mitsudo, S. Suga, *J. Org. Chem.* **2017**, 82, 6846.

**P2617** (S)-[4-(Pyridin-4-yl)-4,5-dihydro-3H-dinaphtho[2,1-c:1',2'-e]azepine-2,6-diyl]bis(diphenylmethanol) 50mg

**P2380** (S)-[4-(Pyridin-4-yl)-4,5-dihydro-3H-dinaphtho[2,1-c:1',2'-e]azepine-2,6-diyl]bis[bis[4-(tert-butyl)phenyl]methanol] 50mg

These materials were produced by collaboration with Prof. Seiji Suga and Assist. Prof. Hiroki Mandai, Okayama University.



# DMAP-type Chiral Nucleophilic Catalysts for Enantioselective Acylation

## Introduction of the Researcher

### Suga Lab

Division of Applied Chemistry, Graduate School of Natural Science and Technology,  
Okayama University



### Research Description

The Suga research group focuses on the development of new synthetic methods in the field of organic electrochemistry, organic functional materials, and organocatalysts. The chiral nucleophilic catalyst listed in this leaflet was developed by the Suga group based on their own innovative design concept. The catalysts exhibit extremely high catalytic activity and high enantioselectivity in various enantioselective acyl transfer reactions and have performance far superior to existing chiral nucleophilic catalysts.

The asymmetric organocatalysts (**P2617** and **P2380**) are chiral DMAP derivatives, developed by the Suga group. They show extremely high catalytic activity (0.1-0.5 mol % catalyst) and enantioselectivity in chiral acylation reactions, such as Steglich rearrangements<sup>1)</sup>, the kinetic resolution of secondary carbinols<sup>2)</sup> and D,L-1,2-diols<sup>3)</sup>, and the desymmetrization of *meso*-1,2-diols.<sup>4)</sup>

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