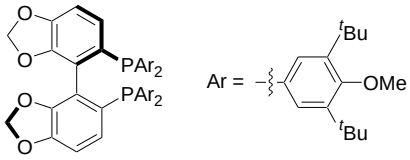
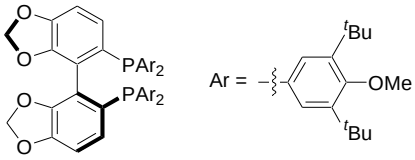
DTBM-SEGPHOS®

DTBM-SEGPHOS® provides extreme sterically demanding environment around the metal center. One of the most remarkable results is asymmetric hydrogenation of 2-substituted 3-oxocarboxylates, accompanied by dynamic kinetic resolution. Due to its unique structural and electronic features, many complexes of DTBM-SEGPHOS® such as gold, palladium, and especially copper complexes show excellent activities and enantioselectivities in a variety of asymmetric reactions.

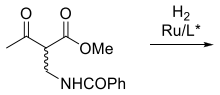
(R)-(-)-DTBM-SEGPHOS®		(S)-(+)-DTBM-SEGPHOS®	
CAS No.	**566940-03-2**	**CAS No.**	**210169-40-7**
Formula	**$C_{74}H_{100}O_8P_2$**	**Formula**	**$C_{74}H_{100}O_8P_2$**
M.W.	**1179.53**	**M.W.**	**1179.53**





Tech Note

1 Ru Catalyzed Asymmetric Hydrogenation of α-Substituted β-Keto Esters Accompanied with Dynamic Kinetic Resolution



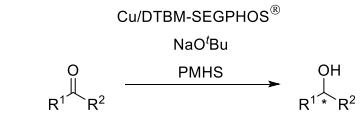
BINAP :	90% ee, 74% de	SEGPHOS® :	80% de
XylBINAP :	95% ee, 99% de	DM-SEGPHOS® :	98% ee, 94% de
DT-BINAP :	99% ee, 98% de	**DTBM-SEGPHOS® ***	**99% ee, 99% de**

(DT = 3,5-di-^{t}Bu)

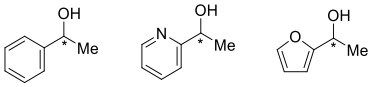
*CH_2Cl_2/MeOH (7/1) was used as solvent.

Saito, T.; Yokozawa, T.; Ishizaki, T.; Moroi, T.; Sayo, N.; Miura, T.; Kumobayashi, H. *Adv. Synth. Catal*. **2001**, *343*, 264.
doi:10.1002/1615-4169(20010330)343:3<264::AID-ADSC264>3.0.CO;2-T

2 Cu Catalyzed Asymmetric Reaction: 2.1 Hydrosilylation of Aryl Alkyl Ketones & Heteroaryl Alkyl Ketones



R^1 = aryl, heteroaryl
R^2 = alkyl



96% ee **90% ee** **92% ee**

Lipshutz, B. H. *Org Lett*. **2002**, *4*, 4045.
doi: 10.1021/ol026755n
Lipshutz, B. H. *J. Am. Chem. Soc*. **2003**, *125*, 8779.
doi: 10.1021/ja021391f
Lipshutz, B. H. *Org. Lett*. **2006**, *8*, 2969.
doi: 10.1021/ol060854+

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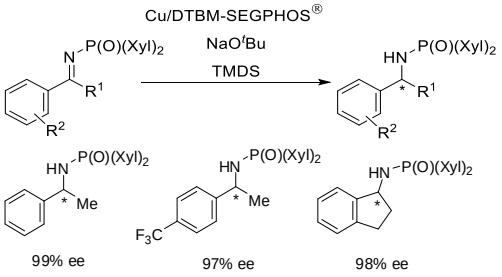
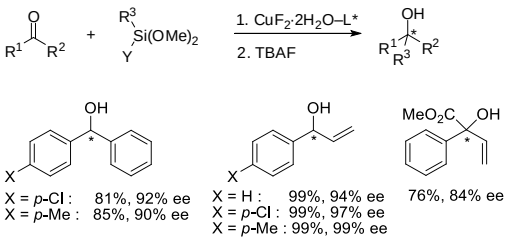
2.2 Hydrosilylation of Activated Imines



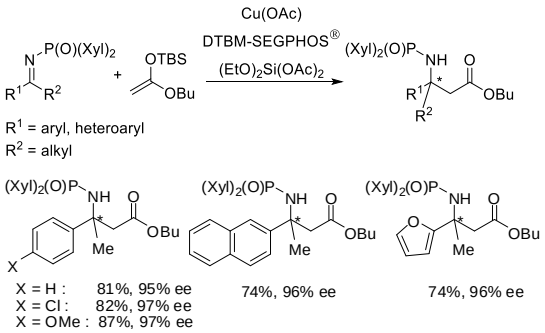
Lipshutz, B. H.; Shimizu, H. *Angew. Chem. Int. Ed*. **2004**, *43*, 2228.
doi: 10.1002/anie.200353294

2.3 1,2-Addition of Vinyl Silane and Phenyl Silanes to Aldehydes and Activated Ketones



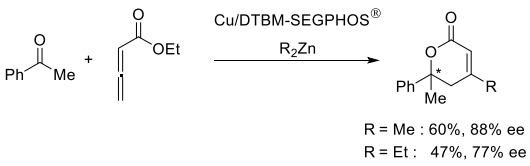
Kanai, M.; Shibasaki, M. *J. Am. Chem. Soc.* **2005**, *127,* 4138.
doi: 10.1021/ja0507362

2.4 1,2-Addition of Silyl Enolates to Ketimines



Kanai, M.; Shibasaki, M. *J. Am. Chem. Soc*. **2007**, *129*, 500.
doi: 10.1021/ja068226a

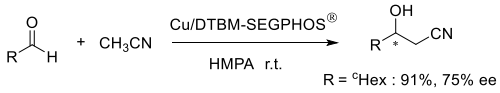
2.5 Reductive Aldol Reaction



Kanai, M.; Shibasaki, M. *J. Am. Chem. Soc*. **2006**, *128*, 14440. doi: 10.1021/ja0652565

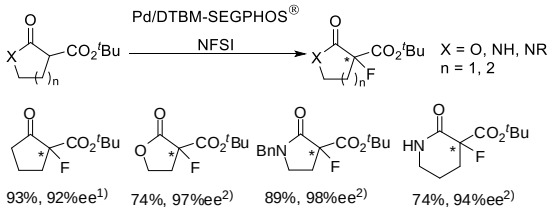
2.6 Direct Catalytic Enantioselective Nitrile

Aldol Reaction



Kanai, M.; Shibasaki, M. *Org. Lett.* **2005**, 7, 3757.
doi: 10.1021/ol051423e
US7355061B (Takasago)

3 Pd Catalyzed Asymmetric Reaction:
3.1 Fluorination



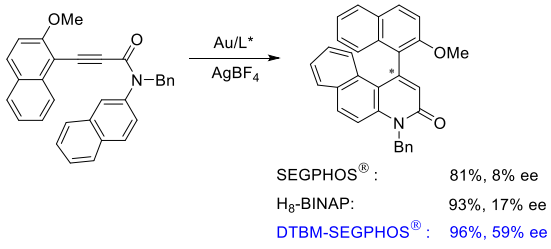
Sodeoka, M. *J. Am. Chem. Soc.* **2002**, *124*, 14530.
doi: 10.1021/ja028464f
Sodeoka, M. *J. Org. Chem*. **2007**, *72*, 246.
doi: 10.1021/jo062048m

4 Au Catalyzed Asymmetric Reaction:

4.1 Cyclopropanation

Toste, F. D. *J. Am. Chem. Soc*. **2005**, *127*, 18002. doi: 10.1021/ja0552500

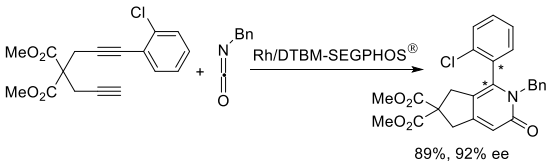
4.2 Cycloisomerization



Tanaka, K. *J. Org. Chem*. **2011**, *7*, 944.
doi: 10.3762/bjoc.7.105

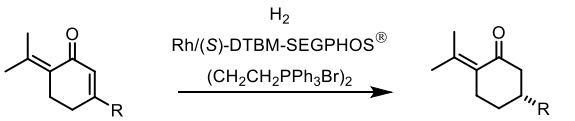
5 Rh Catalyzed Asymmetric Reactions:

5.1 Cyclization of Alkyne with Isocyanate



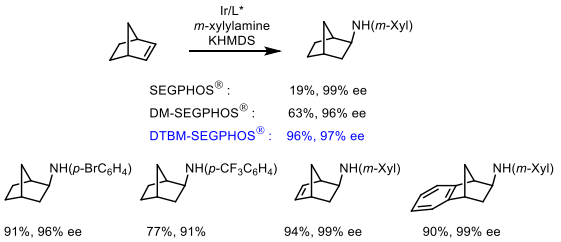
Tanaka, K. *Org. Lett.* **2005**, *7*, 4737
doi: 10.1021/ol052041b

5.2 Hydrogenation of Cyclic Enones



Ohshima, T.; Tadaoka, H.; Hori, K.; Sayo, N.; Mashima, K. *Chem. Eur. J.* **2008**, *14*, 2060.
doi: 10.1002/chem.200701505

6 Ir Catalyzed Asymmetric Hydroamination



Hartwig, J. F. *J. Am. Chem. Soc*. **2008**, *130*, 12220.
doi: 10.1021/ja803523z