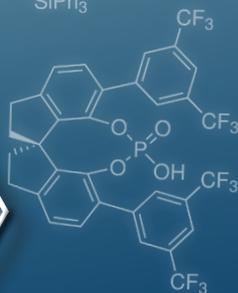
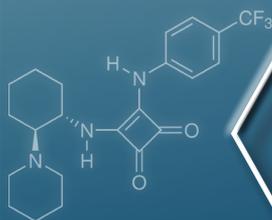
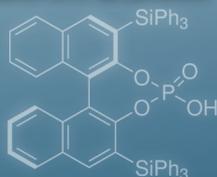
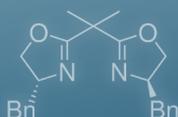
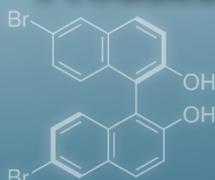




High Purity Chiral Reagents

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High Purity Chiral Reagents

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- Gold Elements & Compounds
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Ephraim S. Honig, Ph.D., M.B.A.
Chief Executive Officer



DAICEL 03/19

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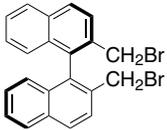
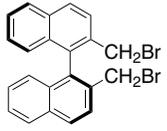
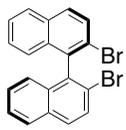
Glossary of Terms

[α]_D	Specific rotation
AAS	Atomic Absorption Standard
ACS	Conforms to American Chemical Society specifications
air sensitive	.....	Product may chemically react with atmospheric oxygen or carbon dioxide at ambient conditions. Handle and store under an inert atmosphere of nitrogen or argon.
amp	.....	Ampouled
b.p.	.....	Boiling point in °C at 760mm, unless otherwise noted
d.	.....	Density
dec.	.....	Decomposes
elec. gr.	.....	Electronic Grade, suitable for electronic applications
f.p.	.....	Flash point in °F
gran.	.....	Granular
heat sensitive	.....	Product may chemically degrade if stored for prolonged periods of time at ambient temperatures or higher. Store at 5°C or lower.
hydrate	.....	Unspecified water content which may vary slightly from lot to lot
hygroscopic	.....	Product may absorb water if exposed to the atmosphere for prolonged periods of time (dependent on humidity and temperature). Handle and store under an inert atmosphere of nitrogen or argon.
light sensitive	.....	Product may chemically degrade if exposed to light
liq.	.....	Liquid
m.p.	.....	Melting point in °C
moisture sensitive	.....	Product may chemically react with water. Handle and store under an inert atmosphere of nitrogen or argon.
NMR grade	.....	Suitable as a Nuclear Magnetic Resonance reference standard
optical grade	.....	For optical applications
pwdr.	.....	Powder
primary standard	.....	Used to prepare reference standards and standardize volumetric solutions
PURATREM	.....	Product has a minimum purity of 99.99% (metals basis)
purified	.....	A grade higher than technical, often used where there are no official standards
P. Vol.	.....	Pore volume
pyrophoric reagent	.....	Product may spontaneously ignite if exposed to air at ambient conditions
REO	.....	Rare Earth Oxides. Purity of a specific rare-earth metal expressed as a percentage of total rare-earths oxides.
SA	.....	Surface area
store cold	.....	Product should be stored at -18°C or 4°C, unless otherwise noted (see product details)
subl.	.....	Sublimes
superconductor grade	.....	A high purity, analyzed grade, suitable for preparing superconductors
tech. gr.	.....	Technical grade for general industrial use
TLC	.....	Suitable for Thin Layer Chromatography
v.p.	.....	Vapor pressure mm of Hg
xtl.	.....	Crystalline

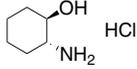
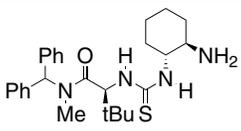
About Purity

Chemical purity	.....	is reported after the chemical name, e.g. Ruthenium carbonyl, 99%
Metals purity	.....	is reported in parentheses with the respective element, e.g. Gallium (III) bromide, anhydrous, granular (99.999%-Ga) PURATREM where 100% minus the metal purity is equal to the maximum allowable percentage of trace metal impurity

CARBON (Compounds)

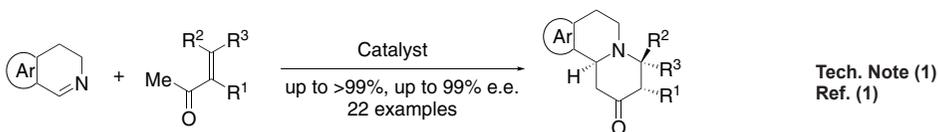
06-0486 NEW	(R)-2,2'-Bis(bromomethyl)-1,1'-binaphthalene, 95% (99% ee) (86631-56-3) FW: 440.2; white to Light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		250mg
06-0487 NEW	(S)-2,2'-Bis(bromomethyl)-1,1'-binaphthalene, 95% (99% ee) (37803-02-4) FW: 440.2; white to Light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		250mg
06-0483	(1R)-2,2'-Dibromo-1,1'-binaphthalene, min. 98% (86688-08-6) C ₂₀ H ₁₂ Br ₂ ; FW: 412.12; white to light-yellow solid Note: Sold in collaboration with Daicel for research purposes only.		50mg 100mg
06-0484	(1S)-2,2'-Dibromo-1,1'-binaphthalene, min. 98% (150024-49-0) C ₂₀ H ₁₂ Br ₂ ; FW: 412.12; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg 100mg

NITROGEN (Compounds)

07-7222 NEW	(1R,2R)-2-Aminocyclohexanol hydrochloride, 95% (99% ee) (13374-31-7) FW: 151.6; white to Light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		1g
07-2061 NEW	(2S)-2-[[[(1R,2R)-2-Aminocyclohexyl]amino]thioxomethyl]amino]-N-(diphenylmethyl)-N,3,3-trimethylbutanamide, 98%, (99% ee) (1421052-39-2) C ₂₇ H ₃₈ N ₄ OS; FW: 466.70; white to yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg

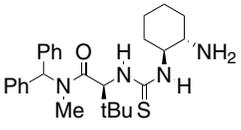
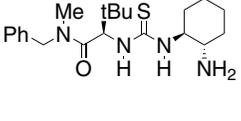
Technical Note:

- Formal aza-Diels-Alder Reaction: A highly enantio- and diastereoselective synthesis of indolo- and benzoquinolizidine compounds has been developed through the formal aza-Diels-Alder reaction of enones with cyclic imines.



References:

- J. Am. Chem. Soc.*, **2013**, *135*, 1891-1894.

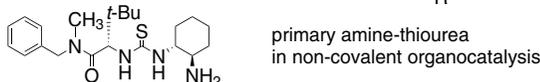
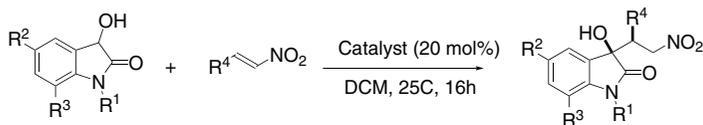
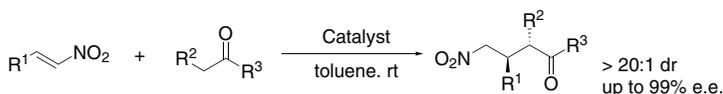
07-2060 NEW	(2S)-2-[[[(1S,2S)-2-Aminocyclohexyl]amino]thioxomethyl]amino]-N-(diphenylmethyl)-N,3,3-trimethylbutanamide, 98%, (99% ee) (1421697-46-2) C ₂₇ H ₃₈ N ₄ OS; FW: 466.70; white to yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-0955 NEW	(2R)-2-[[[(1S,2S)-2-Aminocyclohexyl]amino]thioxomethyl]amino]-N-(phenylmethyl)-N,3,3-trimethylbutanamide, 98%, (99% ee) C ₂₇ H ₃₄ N ₄ OS; FW: 390.60; white to yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg

NITROGEN (Compounds)

07-0956 **(2S)-2-[[[(1R,2R)-2-Aminocyclohexyl]amino]thioxomethyl]amino]-N,3,3-trimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee)** (479423-21-7) 50mg
NEW $C_{27}H_{34}N_4OS$; FW: 390.60; white to yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

Technical Notes:

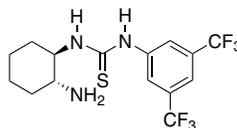
- Conjugate Addition:** Primary amine-thiourea derivative is an active and highly enantioselective catalyst for the conjugate addition of ketones to nitroalkenes.
- Michael Addition:** The asymmetric Michael addition of dioxindoles to β -substituted nitroalkenes is reported. The bifunctional primary amine-thiourea, by means of a non-covalent-based mode of catalysis, secures direct access to 3-substituted 3-hydroxyoxindole derivatives with high stereocontrol.



References:

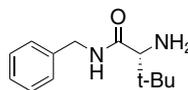
- J. Am. Chem. Soc.*, **2006**, *128*, 7170-7171.
- Chem. Commun.*, **2012**, *48*, 3336-3338.

07-0988 **N-[(1R,2R)-2-Aminocyclohexyl]-N'-[3,5-bis(trifluoromethyl)phenyl]thiourea, 98%, (99% ee)** (860994-58-7) 100mg
NEW $C_{15}H_{17}F_6N_3S$; FW: 385.40; white to yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

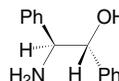


07-7018 **(2S)-2-Amino-3,3-dimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee)** (207121-91-3) 100mg
NEW $C_{13}H_{20}N_2O$; FW: 220.30; white to yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

07-7019 **(2R)-2-Amino-3,3-dimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee)** (268556-62-3) 500mg
NEW $C_{13}H_{20}N_2O$; FW: 220.30; white to yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.



07-0040 **(1R,2S)-2-Amino-1,2-diphenylethanol, min. 98%** (23190-16-1) 5g
 $C_{14}H_{15}NO$; FW: 213.28; white to light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

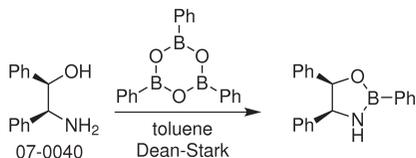


Technical Notes:

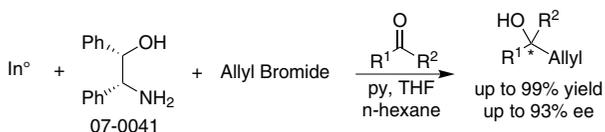
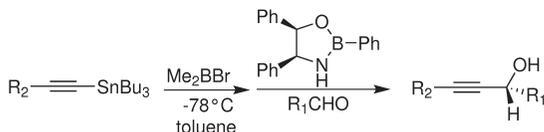
- Ligand used to make chiral oxaborolidines for the enantioselective alkynylation of aldehydes
- Ligand used in organoindium reagents for asymmetric Barbier-type allylations
- Ligand used in organoindium reagents for asymmetric Barbier-type propargylations

NITROGEN (Compounds)

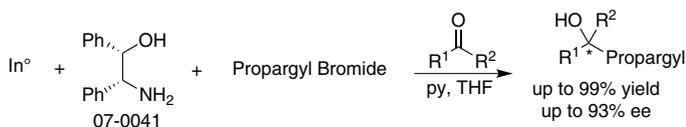
07-0040 (1R,2S)-2-Amino-1,2-diphenylethanol, min. 98% (23190-16-1)
(continued)



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)

References:

1. *J. Am. Chem. Soc.*, **1994**, *116*, 3151
2. *J. Org. Chem.*, **2010**, *75*, 642
3. *J. Org. Chem.*, **2012**, *77*, 889

07-0041 (1S,2R)-2-Amino-1,2-diphenylethanol, min. 98% (23364-44-5)

C₁₄H₁₅NO; FW: 213.28; white to light yellow pwd.

Note: Sold in collaboration with Daicel for research purposes only.

5g
25g

Technical Note:

1. See 07-0040 (page 2)

07-2081 N-[(1S,2S)-2-Amino-1,2-diphenylethyl]-1,1,1-trifluoromethanesulfonamide, 100mg

NEW

95%, (99% ee) (167316-28-1)

C₁₅H₁₅F₃N₂O₂S; FW: 344.40; white to yellow pwd.

Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

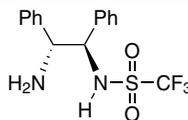
1. See 07-2080 (page 3)

07-2080 N-[(1R,2R)-2-Amino-1,2-diphenylethyl]-1,1,1-trifluoromethanesulfonamide, 98%, (99% ee) (852212-89-6)

NEW

C₁₅H₁₅F₃N₂O₂S; FW: 344.40; white to yellow pwd.

Note: Sold in collaboration with Daicel for research purposes only.

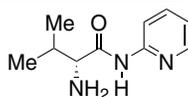


100mg

07-0519 (2R)-2-Amino-3-methyl-N-2-pyridinylbutanamide, min. 98% (1568043-19-5)

C₁₀H₁₅N₃O; FW: 193.25; white to light yellow pwd.

Note: Sold in collaboration with Daicel for research purposes only.



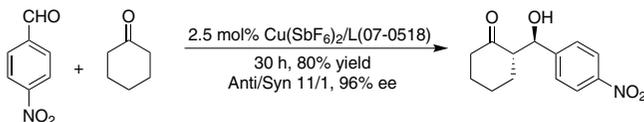
100mg
500mg

Technical Note:

1. Ligand for the copper-catalyzed asymmetric aldol reaction

NITROGEN (Compounds)

07-0519 (2R)-2-Amino-3-methyl-N-2-pyridinylbutanamide, min. 98% (1568043-19-5)
(continued)



Tech. Note (1)
Ref. (1)

References:

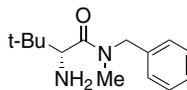
1. *Chem. Commun.*, 2011, 47, 224

07-0518	(2S)-2-Amino-3-methyl-N-2-pyridinylbutanamide, min. 98% (167261-43-0) C ₁₆ H ₁₅ N ₃ O; FW: 193.25; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	100mg 500mg
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Technical Note:

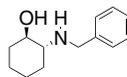
1. See 07-0519 (page 3)

07-8034 NEW	(2R)-2-Amino-N,3,3-trimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee) C ₁₄ H ₂₂ N ₂ O; FW: 234.30; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	100mg
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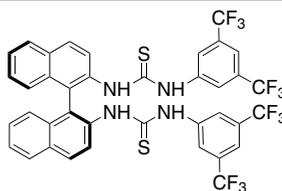
07-8033 NEW	(2S)-2-Amino-N,3,3-trimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee) (947383-62-2) C ₁₄ H ₂₂ N ₂ O; FW: 234.30; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	100mg
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07-0637	(1R,2R)-2-Benzylamino-1-cyclohexanol, min. 98% (141553-09-5) C ₁₃ H ₁₉ NO; FW: 205.30; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	500mg 2g
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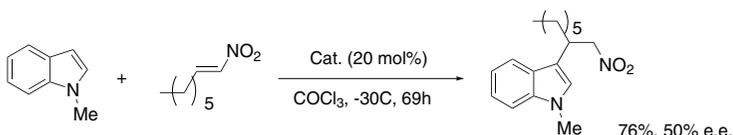
07-0638	(1S,2S)-2-Benzylamino-1-cyclohexanol, min. 98% (322407-34-1) C ₁₃ H ₁₉ NO; FW: 205.30; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	500mg 2g
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07-8410 NEW	N,N'-(S)-[1,1'-Binaphthalene]-2,2'-diylbis[N ¹ -[3,5-bis(trifluoromethyl)phenyl]thiourea], 95%, (99% ee) (914497-25-9) C ₃₈ H ₂₂ F ₁₂ N ₄ S ₂ ; FW: 826.70; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	100mg
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Technical Note:

1. **Friedel-Crafts Addition:** It has been shown that catalytic amounts (10-20 mol%) of novel axially chiral bis-arylthioureas promote the asymmetric organocatalytic Friedel-Crafts type addition of indole and N-methylindole to nitroolefins.



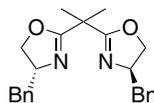
Tech. Note (1)
Ref. (1)

References:

1. *Tetrahedron Lett.*, 2006, 47, 7037-7042.

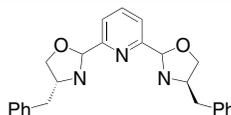
NITROGEN (Compounds)

07-7043 **2,2-Bis[(4R)-4-benzyl-2-oxazolin-2-yl]propane, 98%, (99% ee)** (141362-77-8) 100mg
NEW
 $C_{23}H_{26}N_2O_2$; FW: 362.50; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.



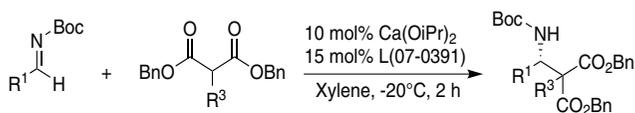
07-7044 **2,2-Bis[(4S)-4-benzyl-2-oxazolin-2-yl]propane, 98%, (99% ee)** (176706-98-2) 100mg
NEW
 $C_{23}H_{26}N_2O_2$; FW: 362.50; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.

07-0390 **2,6-Bis[(4R)-benzyl-2-oxazolin-2-yl]pyridine, min. 98%** (365215-38-9) 25mg
 100mg
 $C_{25}H_{23}N_3O_2$; FW: 397.47; white to light yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.

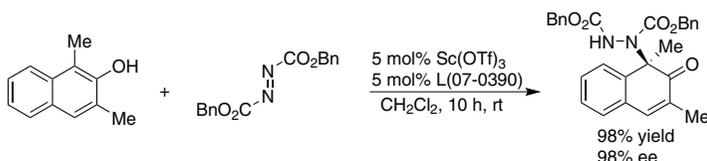


Technical Notes:

- Ligand for the Calcium-catalyzed asymmetric Mannich reaction of malonates with imines
- Ligand for the Scandium-catalyzed asymmetric dearomatization of 2-naphthols by electrophilic amination



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

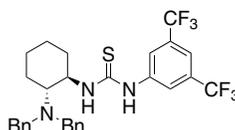
- J. Org. Chem.*, **2010**, *75*, 963
- Angew. Chem. Int. Ed.*, **2015**, *54*, 2356

07-0391 **2,6-Bis[(4S)-benzyl-2-oxazolin-2-yl]pyridine, min. 98%** (151670-69-8) 25mg
 $C_{25}H_{23}N_3O_2$; FW: 397.47; white to light yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only. 100mg

Technical Note:

- See 07-0390 (page 5)

07-6320 **N-[(1R,2R)-2-[Bis(phenylmethyl)amino]cyclohexyl]-N'-[3,5-bis(trifluoromethyl)phenyl]thiourea, 98%, (99% ee)** (1240466-16-3) 50mg
NEW
 $C_{29}H_{29}F_6N_3S$; FW: 565.60; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.

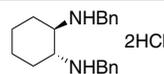


07-6321 **N-[(1S,2S)-2-[Bis(phenylmethyl)amino]cyclohexyl]-N'-[3,5-bis(trifluoromethyl)phenyl]thiourea, 98%, (99% ee)** (1233369-39-5) 50mg
NEW
 $C_{29}H_{29}F_6N_3S$; FW: 565.60; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

- See 07-6320 (page 5)

07-4073 **(1R,2R)-N,N'-Bis(phenylmethyl)-1,2-cyclohexanediamine dihydrochloride, min. 98%** (212611-88-6) 1g
 $C_{20}H_{26}N_2 \cdot 2HCl$; FW: 367.36; white to light yellow powder. 5g
 Note: Sold in collaboration with Daicel for research purposes only.

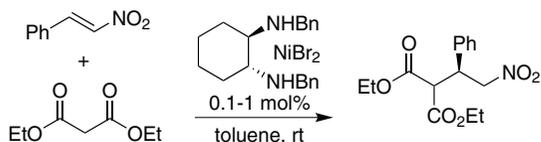


Technical Notes:

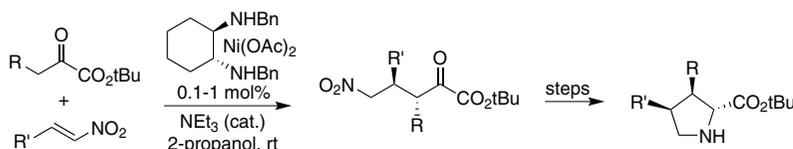
- Ligand for Ni-catalyzed enantioselective Michael additions of 1,3-dicarbonyl compounds to nitroalkenes
- Ligand for Ni-catalyzed enantioselective conjugate addition of α -ketoesters to nitroalkenes

NITROGEN (Compounds)

07-4073 (1R,2R)-N,N'-Bis(phenylmethyl)-1,2-cyclohexanediamine dihydrochloride, min. 98%
(continued) (212611-88-6)



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

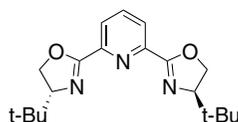
1. *J. Am. Chem. Soc.*, **2007**, *129*, 11583
2. *J. Am. Chem. Soc.*, **2010**, *132*, 4036

07-4074 (1S,2S)-N,N'-Bis(phenylmethyl)-1,2-cyclohexanediamine dihydrochloride, min. 98%
C₂₀H₂₆N₂·2HCl; FW: 367.36; white to light yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only. 1g
5g

Technical Note:

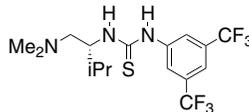
1. See 07-4073 (page 5)

07-7051 **NEW** 2,6-Bis[(4R)-4-tert-butylloxazolin-2-yl]pyridine, 98%, (99% ee) (185346-17-2) 100mg
C₁₉H₂₇N₃O₂; FW: 329.40; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.



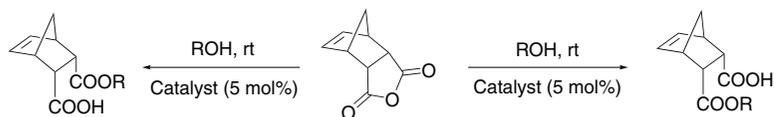
07-7050 **NEW** 2,6-Bis[(4S)-4-tert-butylloxazolin-2-yl]pyridine, 98%, (99% ee) (118949-63-6) 100mg
C₁₉H₂₇N₃O₂; FW: 329.40; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

07-7130 **NEW** (R)-1-[3,5-Bis(trifluoromethyl)phenyl]-3-[1-(dimethylamino)-3-methylbutan-2-yl]thiourea, 98%, (99% ee) (1048692-61-0) 50mg
C₁₆H₂₁F₆N₃S; FW: 401.40; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.



Technical Note:

1. **Methanolysis:** Both ureas and thioureas derived from L-valine or D-valine act as bifunctional organocatalysts able to induce the enantioselective alcoholysis of mono-, bi-, and tricyclic meso anhydrides.



Tech. Note (1)
Ref. (1)

ROH= MeOH, CH₂=CHCH₂OH, C₆H₅CH₂OH

References:

1. *J. Org. Chem.*, **2010**, *75*, 5417-5420.

NITROGEN (Compounds)

07-7029

NEW

3-[[3,5-Bis(trifluoromethyl)phenyl]amino]-4-[[[(8 α ,9S)-10,11-dihydro-6'-methoxycinchonan-9-yl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1352957-59-5)

C₃₂H₃₀F₆N₄O₃; FW: 632.60; white to yellow pwr.

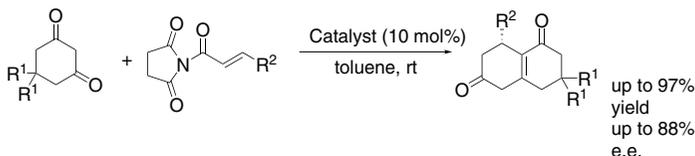
Note: Sold in collaboration with Daicel for research purposes only.



50mg

Technical Note:

- Michael Addition:** The enantioselective tandem Michael addition reaction of dimedone and related 1,3-dicarbonyl compounds with α,β -unsaturated N-acylated succinimides catalyzed by a chiral squaramide catalyst has been investigated.



Tech. Note (1)
Ref. (1)

References:

- Tetrahedron: Asymmetry*, **2014**, *25*, 310-317.

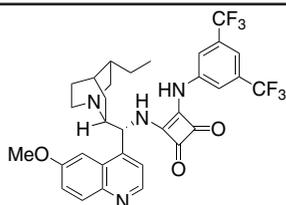
07-7028

NEW

3-[[3,5-Bis(trifluoromethyl)phenyl]amino]-4-[[[(9R)-10,11-dihydro-6'-methoxycinchonan-9-yl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1407166-63-5)

C₃₂H₃₀F₆N₄O₃; FW: 632.60; white to yellow pwr.

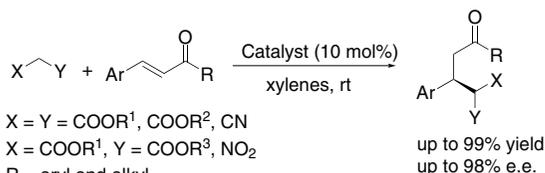
Note: Sold in collaboration with Daicel for research purposes only.



50mg

Technical Note:

- Conjugate Addition:** Conjugate addition reactions of a wide range of nucleophilic enol species with enones, catalyzed by a cinchona alkaloid derived thiourea organocatalyst, have been developed with attending good yields and high enantioselectivities under a mild reaction condition.



Tech. Note (1)
Ref. (1)

X = Y = COOR¹, COOR², CN

X = COOR¹, Y = COOR³, NO₂

R = aryl and alkyl

References:

- J. Am. Chem. Soc.*, **2006**, *128*, 12652-12653.

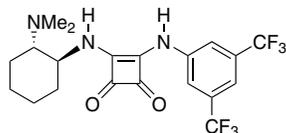
07-7128

NEW

3-[[3,5-Bis(trifluoromethyl)phenyl]amino]-4-[[[(1S,2S)-2-(dimethylamino)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 95%, (99% ee) (1263205-96-4)

C₂₀H₂₁F₆N₃O₂; FW: 449.40; white to yellow pwr.

Note: Sold in collaboration with Daicel for research purposes only.



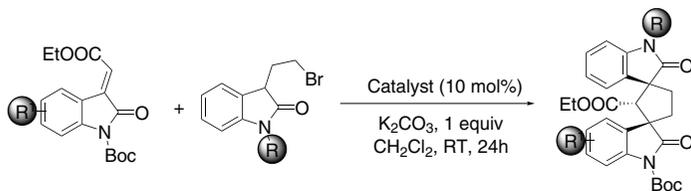
100mg

Technical Note:

- Michael/Alkylation Cascade Reaction:** A rapid and efficient organocatalytic cascade sequence for the direct construction of spirocyclopentane bioindoles has been carried out by using a chiral squaramide catalyst in the presence of a base.

NITROGEN (Compounds)

07-7128 3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[(1S,2S)-2-(dimethylamino)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 95%, (99% ee) (1263205-96-4)



Tech. Note (1)
Ref. (1)

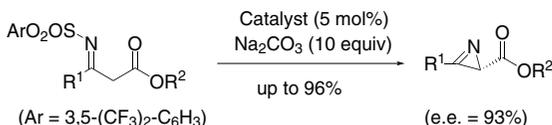
References:

1. *Chem. Eur. J.*, **2012**, *18*, 6737-6741.

07-7129 3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[(1R,2R)-2-(dimethylamino)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1211565-07-9) 100mg
NEW
C₂₀H₂₁F₆N₃O₂; FW: 449.40; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

1. **Neber Reaction:** The first enantioselective Neber reaction of β-ketoxime sulfonates catalyzed by a bifunctional thiourea has been developed.

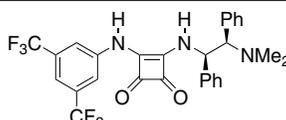


Tech. Note (1)
Ref. (1)

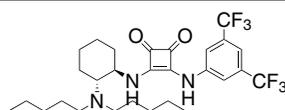
References:

1. *Org. Lett.*, **2011**, *13*, 6374-6377.

07-1025 3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[(1R,2R)-2-(dimethylamino)-1,2-diphenylethyl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1223105-89-2) 50mg
NEW
C₂₆H₂₃F₆N₃O₂; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

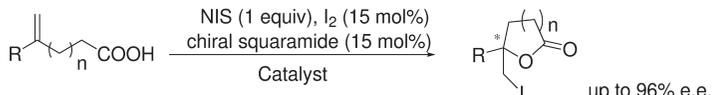


07-8510 3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[(1R,2R)-2-(dipentylamino)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1411983-40-8) 50mg
NEW
C₂₈H₃₇F₆N₃O₂; FW: 561.60; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.



Technical Note:

1. **Iodolactonization:** Asymmetric iodolactonization of γ- and δ-unsaturated carboxylic acids has been explored in the presence of six different chiral organocatalysts.



Tech. Note (1)
Ref. (1)

References:

1. *Angew. Green Chem.*, **2014**, *16*, 1521-1526.

07-8511 3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[(1S,2S)-2-(dipentylamino)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1411983-41-9) 50mg
NEW
C₂₈H₃₇F₆N₃O₂; FW: 561.60; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

NITROGEN (Compounds)

07-8436

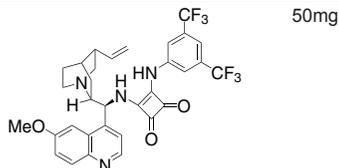
NEW

3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]-4-[[[(8*α*,9*S*)-6'-methoxycinchonan-9-yl]amino]-3-cyclobutene-1,2-dione, 95%, (99% ee)

(1256245-84-7)

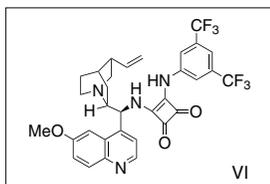
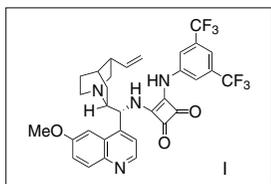
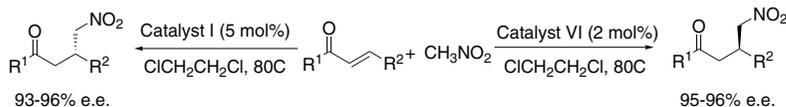
C₃₂H₂₈F₆N₄O₃; FW: 630.60; white to yellow pwr.

Note: Sold in collaboration with Daicel for research purposes only.

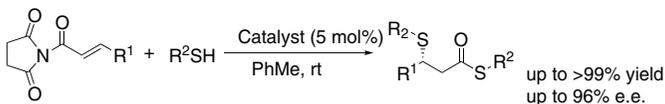


Technical Notes:

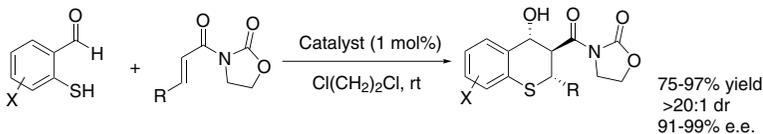
- Michael Addition:** A series of squaramide-based organocatalysts were facily synthesized and applied as hydrogen bonding organocatalysts in the enantioselective Michael addition of nitroalkanes to chalcones.
- Sulfa-Michael Addition/Thioesterification:** A novel highly enantioselective one-pot dithiolation through sulfa-Michael addition/thioesterification of thiols with α,β -unsaturated N-acylated succinimides catalyzed by squaramide has been developed.
- Michael-Aldol Reaction:** Highly enantio- and diastereoselective tandem Michael-aldol reactions, efficiently catalyzed by a cinchona alkaloid thiourea via synergistic noncovalent hydrogen-bonding activation of both the Michael donor and acceptor, have been developed.
- Sulfa-Michael/Aldol Cascade Reaction:** A bifunctional squaramide catalyzed sulfa-Michael/aldol cascade reaction between 1,4-dithiane-2,5-diol and chalcones with a low catalyst loading has been developed.
- The organocatalyzed enantioselective synthesis of a series of chiral 2-amino-5,6,7,8-tetrahydro-5-oxo-4H-chromene-3-carbonitriles was achieved using bifunctional squaramides as the catalysts.
- Cascade Reaction:** The reaction features a new activation mode of organocatalytic dynamic kinetic resolution involving a Michael-retro-Michael-Michael-Michael cascade.
- A powerful cascade reaction was developed for the synthesis of chromeno[4,3-b]pyrrolidines with high yields and excellent stereoselectivities.



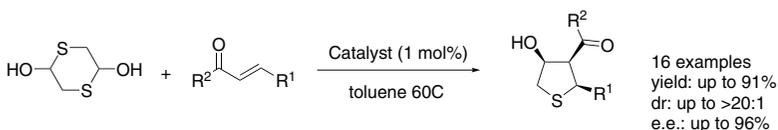
Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)

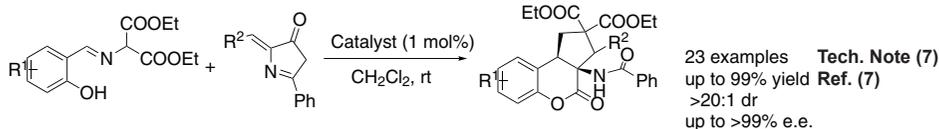
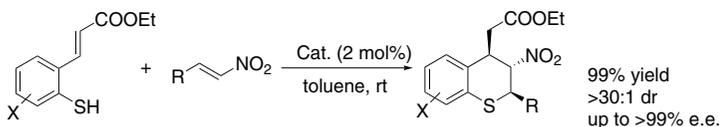
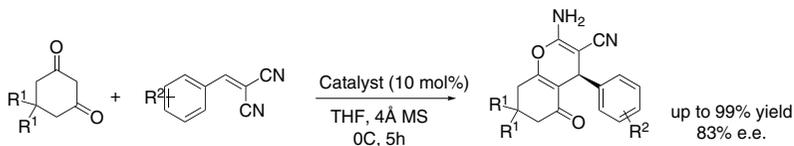


Tech. Note (4)
Ref. (4)

NITROGEN (Compounds)

07-8436
(continued)

3-[[3,5-Bis(trifluoromethyl)phenyl]amino]4-[[[8 α ,9S]-6'-methoxycinchonan-9-yl]amino]-3-cyclobutene-1,2-dione, 95%, (99% ee) (1256245-84-7)



References:

1. *Org. Lett.*, **2010**, *12*, 5450-5453.
2. *Org. Biomol. Chem.*, **2014**, *12*, 1585-1594.
3. *J. Am. Chem. Soc.*, **2007**, *129*, 1036-1037.
4. *Org. Lett.*, **2012**, *14*, 1090-1093.
5. *Tetrahedron: Asymmetry*, **2012**, *23*, 1343-1349.
6. *Angew. Chem. Int. Ed.*, **2008**, *47*, 4177-4179.
7. *Chem. Commun.*, **2014**, *50*, 2428-2430.

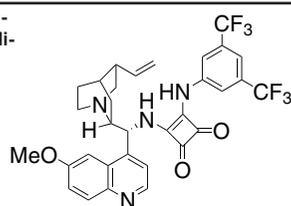
07-8435

3-[[[3,5-Bis(trifluoromethyl)phenyl]amino]4-[[[9R]-6'-methoxycinchonan-9-yl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1256245-79-0)

C₃₂H₂₈F₆N₄O₃; FW: 630.60; white to yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

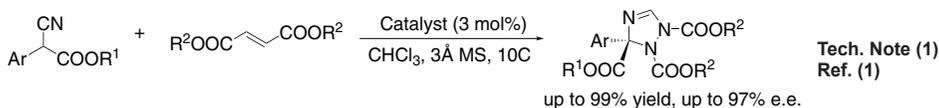
50mg

NEW



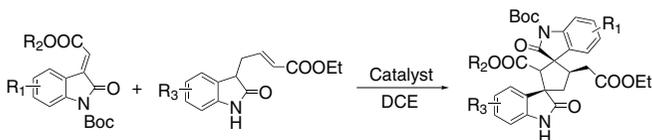
Technical Notes:

1. See 07-8436
2. **Hydrazination/Cyclization Cascade Reaction:** An efficient enantioselective hydrazination/cyclization cascade reaction of α -substituted isocyanooacetates to azodicarboxylates catalyzed by cinchona alkaloid derived squaramide catalysts has been investigated.
3. **Michael-Michael Cascade Reaction:** An organocatalytic Michael-Michael cascade for the enantioselective construction of spirocyclopentane bioindoles was developed in moderate to good yield with good diastereoselectivities and excellent enantioselectivities.



NITROGEN (Compounds)

07-8435 3-[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[9R]-6'-methoxycinchonan-9-yl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1256245-79-0)
(continued)



16 examples
up to 76% yield,
15:1 dr,
>99% e.e.

Tech. Note (2)
Ref. (2)

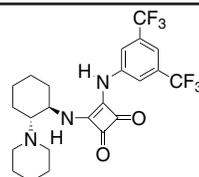
References:

1. *J. Org. Chem.*, **2013**, *78*, 9377-9382.
2. *Org. Lett.*, **2014**, *16*, 544-547.

07-5610 3-[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[1R,2R]-2-(1-piperidinyl)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 98%
NEW (1211565-11-5)

C₂₃H₂₅F₆N₃O₂; FW: 489.50; orange powdr.

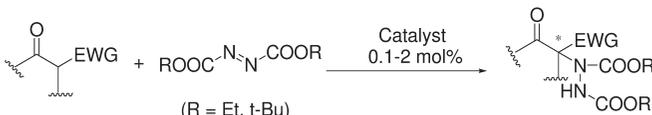
Note: Sold in collaboration with Daicel for research purposes only.



50mg

Technical Notes:

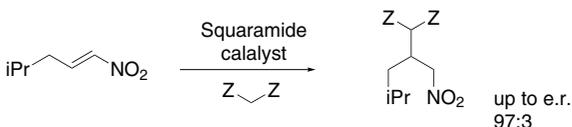
1. **α -Hydrazination:** Catalytic enantioselective α -hydrazination of 1,3-dicarbonyl compounds with azodicarboxylates was investigated in the presence of our newly developed hydrogen bonding catalyst.
2. **Michael Addition:** Asymmetric organocatalytic 1,4-additions provide access to a large number of biologically relevant compounds.



(R = Et, t-Bu)

15 examples 88-98% e.e.

Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

1. *Org. Lett.*, **2010**, *12*, 2028-2031.
2. *Org. Biomol. Chem.*, **2013**, *11*, 7705-7711.

07-5611 3-[[3,5-Bis(trifluoromethyl)phenyl]amino]amino]-4-[[[1S,2S]-2-(1-pyrrolidinyl)cyclohexyl]amino]-3-cyclobutene-1,2-dione, 98%, (99% ee) (1346683-42-8)
NEW

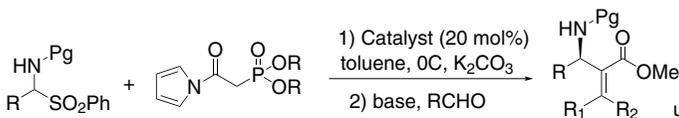
C₂₂H₂₃F₆N₃O₂; FW: 475.40; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

50mg

Technical Note:

1. **Mannich Reaction:** The asymmetric addition of the present HWE reagents to N-carbamoyl imines generated in situ was achieved. The corresponding Mannich adducts can be further transformed to aza-MBH type products in good to excellent enantioselectivities.



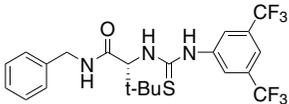
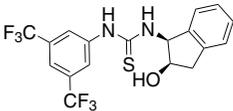
up to 96% e.e.

Tech. Note (1)
Ref. (1)

References:

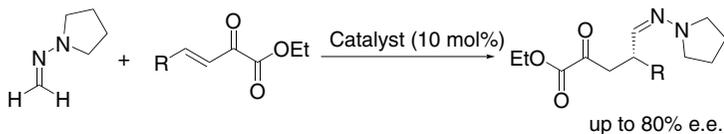
1. *Chem. Sci.*, **2011**, *2*, 1918-1921.

NITROGEN (Compounds)

07-0630 NEW	(2R)-2-[[[3,5-Bis(trifluoromethyl)phenyl]amino]thioxomethyl]amino]-3,3-dimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee) C ₂₂ H ₂₃ F ₆ N ₃ OS; FW: 491.50; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-0631 NEW	(2S)-2-[[[3,5-Bis(trifluoromethyl)phenyl]amino]thioxomethyl]amino]-3,3-dimethyl-N-(phenylmethyl)butanamide, 98%, (99% ee) (1490388-03-8) C ₂₂ H ₂₃ F ₆ N ₃ OS; FW: 491.50; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-6300 NEW	N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1S,2R)-2,3-dihydro-2-hydroxy-1H-inden-1-yl]thiourea, 95%, (99% ee) (949480-57-3) C ₁₈ H ₁₄ F ₆ N ₂ OS; FW: 420.4; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg

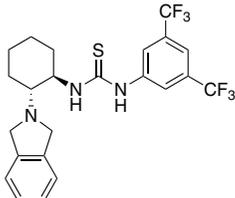
Technical Notes:

- Nucleophilic Conjugate Addition:** (1S,2R)-1-Aminoindan-2-ol-derived thioureas behave as efficient H-bonding organocatalysts for the nucleophilic conjugate addition of formaldehyde hydrazones to β,γ -unsaturated α -keto esters as enone surrogates, affording the corresponding adducts in good yields and enantioselectivities.
- Friedel-Crafts Alkylation:** A novel study on the influence of external Bronsted acids on thiourea catalysts in the asym. Friedel-Crafts alkylation of indoles with nitroalkenes is reported.



References:

- Org. Lett.*, **2007**, *9*, 3303-3306.
- Eur. J. Org. Chem.*, **2011**, (20-21), 3700-3705.

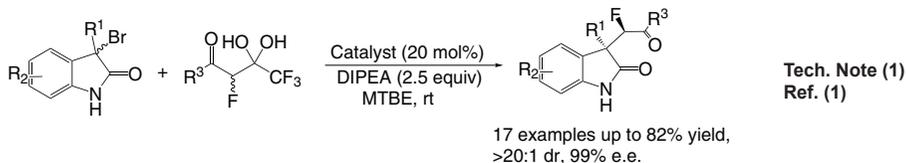
07-8418 NEW	N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1R,2R)-2-(1,3-dihydro-2H-isoindol-2-yl)cyclohexyl]thiourea, 95%, (99% ee) (620960-27-2) C ₂₃ H ₂₃ F ₆ N ₂ S; FW: 487.50; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-8419 NEW	N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1S,2S)-2-(1,3-dihydro-2H-isoindol-2-yl)cyclohexyl]thiourea, 98%, (99% ee) C ₂₃ H ₂₃ F ₆ N ₂ S; FW: 487.50; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-1336 NEW	N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1S,2S)-2-(dimethylamino)cyclohexyl]urea, 95%, (99% ee) (1221442-12-1) C ₁₇ H ₂₁ F ₆ N ₃ O; FW: 397.4; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg

Technical Note:

- Monofluoroalkylation:** A new practical organocatalytic asymmetric protocol for the introduction of a monofluoroalkyl group into the oxindole framework has been successfully developed.

NITROGEN (Compounds)

07-1336 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1S,2S)-2-(dimethylamino)cyclohexyl]urea, 95%, (continued)**
 (1221442-12-1)



References:

1. *Org. Lett.*, **2014**, *16*, 1960-1963.

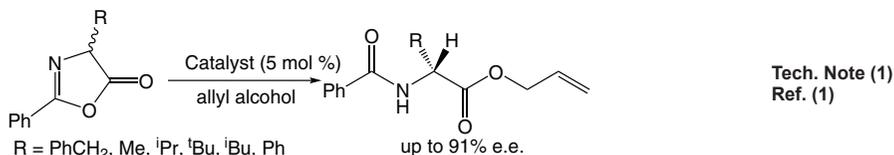
07-1337 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1R,2R)-2-(dimethylamino)cyclohexyl]urea, 98%, (99% ee)** (820242-14-6) 100mg

NEW

$C_{17}H_{21}F_6N_3O$; FW: 397.4; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

- Dynamic Kinetic Resolution:** Bifunctional organocatalysts of the type shown, with a quasi Lewis acidic urea or thiourea unit and a Brønsted basic amine functionality, effect the dynamic kinetic resolution of azlactones with high enantioselectivity.



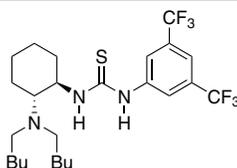
References:

1. *Angew. Chem. Int. Ed.*, **2005**, *44*, 807-811.

07-1345 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1R,2R)-2-(dipentylamino)cyclohexyl]thiourea, 98%, (99% ee)** 50mg

NEW

$C_{25}H_{37}F_6N_3S$; FW: 525.60; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.



07-1346 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1S,2S)-2-(dipentylamino)cyclohexyl]thiourea, 98%, (99% ee)** (1429516-79-9) 50mg

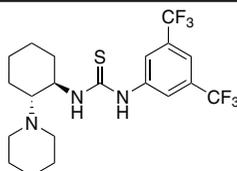
NEW

$C_{25}H_{37}F_6N_3S$; FW: 525.60; white to yellow powder.
 Note: Sold in collaboration with Daicel for research purposes only.

07-6318 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1R,2R)-2-(1-piperidinyl)cyclohexyl]thiourea, 98%, (99% ee)** (1289514-24-4) 50mg

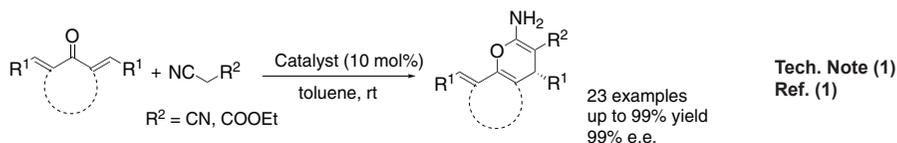
NEW

$C_{20}H_{25}F_6N_3S$; FW: 453.50; light red xtl.
 Note: Sold in collaboration with Daicel for research purposes only.



Technical Note:

- Conjugate Addition:** Organocatalytic conjugate addition of malononitrile to conformationally restricted dienones has been studied. A series of chiral primary and tertiary amine catalysts were screened.



References:

1. *Tetrahedron Lett.*, **2011**, *76*, 3797-3804.

NITROGEN (Compounds)

07-6319 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(1S,2S)-2-(1-piperidinyl)cyclohexyl]thiourea, 98%, (99% ee)** (1244061-69-5) 50mg

NEW

$C_{20}H_{25}F_6N_3S$; FW: 453.50; white to yellow powdr.

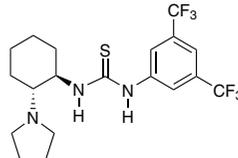
Note: Sold in collaboration with Daicel for research purposes only.

07-1350 **1-[3,5-Bis(trifluoromethyl)phenyl]-3-[(1R,2R)-2-(pyrrolidin-1-yl)cyclohexyl]thiourea, 98%, (99% ee)** (1314743-49-1) 50mg

NEW

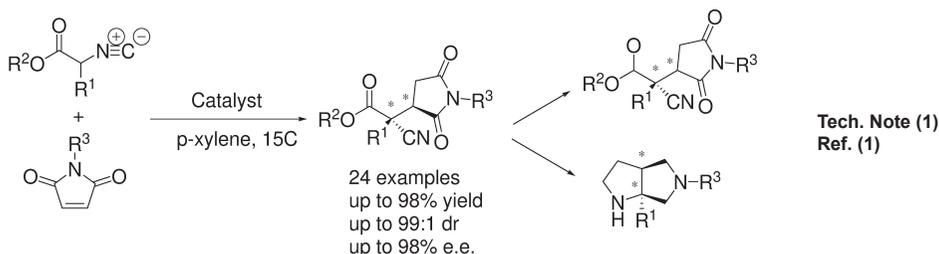
$C_{19}H_{23}F_6N_3S$; FW: 439.50; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.



Technical Note:

- Michael Addition:** A highly diastereoselective and enantioselective Michael addition of α -substituted isocynoacetates with maleimides catalyzed by bifunctional tertiary amine thioureas has been developed.



References:

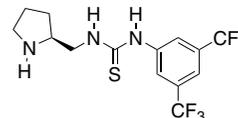
- J. Org. Chem.*, **2012**, *77*, 2947-2953.

07-0912 **N-[3,5-Bis(trifluoromethyl)phenyl]-N'-[(2S)-2-pyrrolidinylmethyl]thiourea, 98%** (904928-30-9) 100mg

NEW

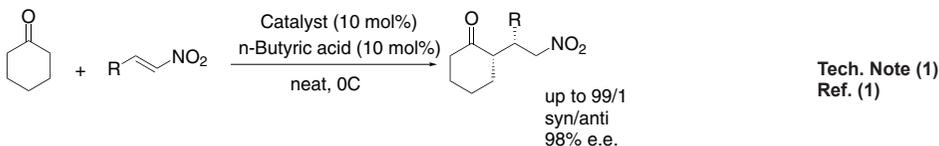
$C_{14}H_{15}F_6N_3S$; FW: 371.30; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.



Technical Note:

- Michael Addition:** Asymmetric Michael additions of cyclohexanone to both aryl and alkyl nitroolefins in the presence of 20 mol% of organocatalyst and 10 mol% of n-butyric acid afford adducts with high diastereoselectivities and enantioselectivities.



References:

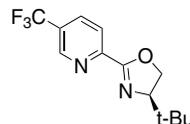
- Org. Lett.*, **2006**, *8*, 2901-2904.

07-7173 **2-[(4R)-4-tert-Butyl-4,5-dihydro-2-oxazolyl]-5-(trifluoromethyl)pyridine, 98%, (99% ee)** (1428537-19-2) 50mg

NEW

$C_{13}H_{15}F_3N_3O$; FW: 272.30; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.



07-7124 **2-[(4S)-4-tert-Butyl-4,5-dihydro-2-oxazolyl]-5-(trifluoromethyl)pyridine, 98%, (99% ee)** (1416819-91-4) 100mg

NEW

$C_{13}H_{15}F_3N_3O$; FW: 272.30; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

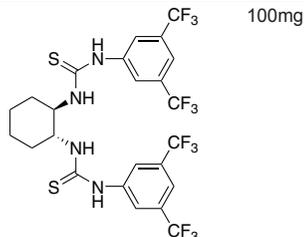
NITROGEN (Compounds)

07-6312

NEW

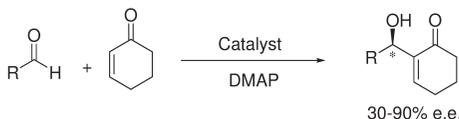
N,N'-(1R,2R)-1,2-Cyclohexanediylbis[N'-(3,5-bis(trifluoromethyl)phenyl)thiourea], 98%, (99% ee)
(743458-79-9)

C₂₄H₂₀F₁₂N₄S₂; FW: 656.6; white to yellow pwr.
Note: Sold in collaboration with Daicel for research purposes only.

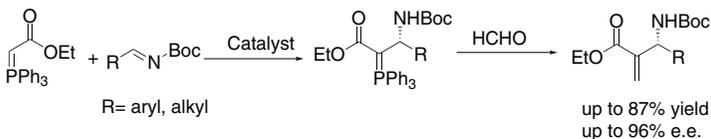


Technical Notes:

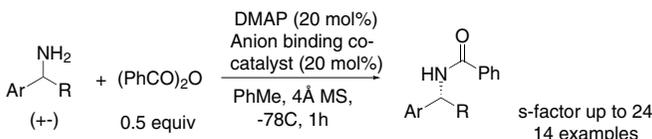
- Baylis-Hillman Reaction:** A new chiral bis-thiourea-type organocatalyst developed for the Baylis-Hillman reaction provided a drastic rate enhancement. Allylic alcohols were obtained with up to 90% ee in the case of cyclohexanecarboxaldehyde.
- Mannich Reaction:** The first asymmetric Mannich-type reaction of stabilized phosphorus ylides and N-Boc aldimines was described promoted by a readily available and recyclable chiral bithiourea organocatalyst.
- Benzoylation:** A new concept for asymmetric nucleophilic catalysis is presented. Acyl pyridinium salts derived from 4-(dimethylamino)pyridine (DMAP) and benzoic anhydride are rendered chiral via interaction with a chiral thiourea anion receptor.



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)

References:

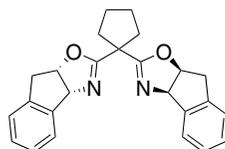
- Tetrahedron Lett.*, **2004**, 45, 5589-5592.
- J. Am. Chem. Soc.*, **2008**, 130, 2456-2457.
- J. Am. Chem. Soc.*, **2009**, 131, 17060-17061.

07-7220

NEW

(3aR,3'aR,8aS,8'aS)-2,2'-Cyclopentylidenebis[3a,8a-dihydro-8H-indeno[1,2-d]oxazole] 98%, (99% ee)
(2005443-90-1)

FW: 384.5; white to Light yellow pwr.
Note: Sold in collaboration with Daicel for research purposes only.

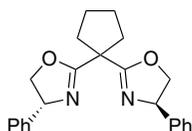


07-7210

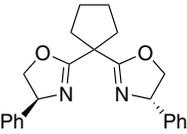
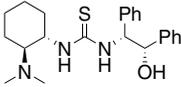
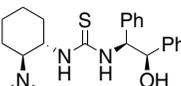
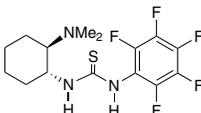
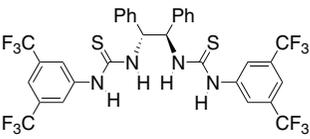
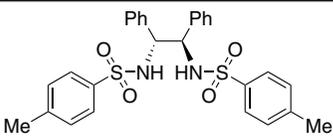
NEW

(4R,4'R)-2,2'-Cyclopentylidenebis[4,5-dihydro-4-phenyloxazole], 95% (99% ee) (1246401-49-9)

FW: 360.4; white to Light yellow pwr.
(store cold)
Note: Sold in collaboration with Daicel for research purposes only.

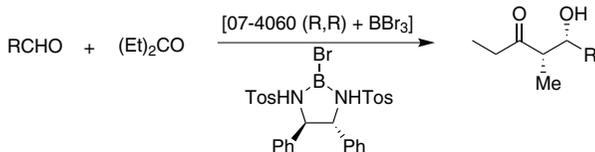


NITROGEN (Compounds)

07-7218 NEW	(4S,4'S)-2,2'-Cyclopentylidenebis[4,5-dihydro-4-phenyloxazole], 98%, (99% ee) (1639791-77-7) FW: 360.4; white to light yellow powdr. (store cold) Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-6326 NEW	N-[(1S,2S)-2-(Dimethylamino)cyclohexyl]-N'-[(1R,2S)-2-hydroxy-1,2-diphenylethyl]thiourea, 98%, (99% ee) $C_{23}H_{31}N_3OS$; FW: 397.60; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-6325 NEW	N-[(1S,2S)-2-(Dimethylamino)cyclohexyl]-N'-[(1S,2R)-2-hydroxy-1,2-diphenylethyl]thiourea, 98%, (99% ee) $C_{23}H_{31}N_3OS$; FW: 397.60; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-2063 NEW	1-[(1R,2R)-2-(Dimethylamino)cyclohexyl]-3-(perfluorophenyl)thiourea, 98%, (99% ee) $C_{15}H_{18}F_5N_2S$; FW: 367.40; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-2064 NEW	1-[(1S,2S)-2-(Dimethylamino)cyclohexyl]-3-(perfluorophenyl)thiourea, 98%, (99% ee) $C_{15}H_{18}F_5N_2S$; FW: 367.40; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-8020 NEW	N,N'-[(1S,2S)-1,2-Diphenyl-1,2-ethanediyl]bis[N'-[3,5-bis(trifluoromethyl)phenyl]thiourea], 95%, (99% ee) (1416334-72-9) $C_{32}H_{22}F_{12}N_4S_2$; FW: 754.70; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-0821 NEW	N,N'-[(1R,2R)-1,2-Diphenyl-1,2-ethanediyl]bis[N'-[3,5-bis(trifluoromethyl)phenyl]thiourea], 98%, (99% ee) (1012051-90-9) $C_{32}H_{22}F_{12}N_4S_2$; FW: 754.70; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-7234	(R)-Diphenylprolinol trimethyl silyl ether, 95% (99% ee) (943757-71-9) See page 54		
07-4060	(1R,2R)-N,N-Di-p-tosyl-1,2-diphenyl-1,2-ethylenediamine, min. 98% (121758-19-8) $C_{28}H_{28}N_2O_4S_2$; FW: 520.67; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		500mg 1g

Technical Notes:

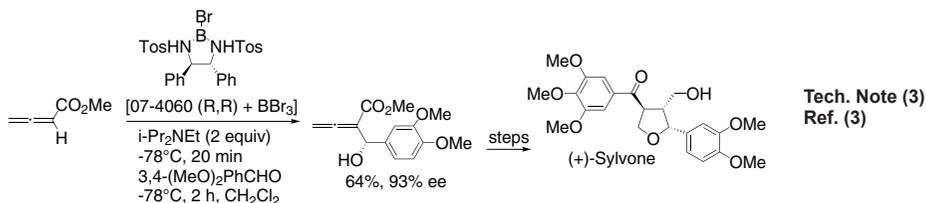
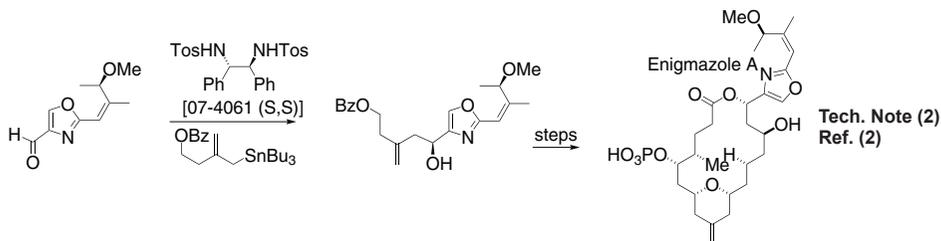
- Chiral reagent used the natural product synthesis of the rice and corn weevil aggregation pheromone sitophilure
- Chiral reagent used in the total synthesis of enigmazole A
- Chiral reagent used in the enantioselective synthesis of Furan Lignan (+)-Sylvone



Tech. Note (1)
Ref. (1)

NITROGEN (Compounds)

07-4060 (1R,2R)-N,N'-Di-p-tosyl-1,2-diphenyl-1,2-ethylenediamine, min. 98% (121758-19-8)
(continued)



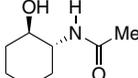
References:

1. *J. Am. Chem. Soc.*, **1989**, *111*, 5493
2. *J. Am. Chem. Soc.*, **2010**, *132*, 10286
3. *J. Org. Chem.*, **2015**, *80*, 10359

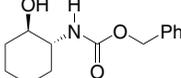
07-4061	(1S,2S)-N,N'-Di-p-tosyl-1,2-diphenyl-1,2-ethylenediamine, min. 98% (170709-41-8) C ₂₈ H ₂₈ N ₂ O ₄ S ₂ ; FW: 520.67; white to light yellow pwr. Note: Sold in collaboration with Daicel for research purposes only.	500mg 1g
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Technical Note:

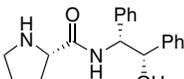
1. See 07-4060 (page 16)

07-0785	N-[(1R,2R)-2-Hydroxycyclohexyl]acetamide, min. 98% (214348-95-5) C ₈ H ₁₅ NO ₂ ; FW: 157.21; white to light yellow pwr. Note: Sold in collaboration with Daicel for research purposes only.	 1g 5g
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07-0786	N-[(1S,2S)-2-Hydroxycyclohexyl]acetamide, min. 98% (190848-36-3) C ₈ H ₁₅ NO ₂ ; FW: 157.21; white to light yellow pwr. Note: Sold in collaboration with Daicel for research purposes only.	1g 5g
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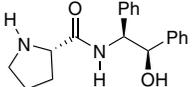
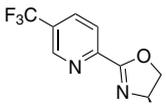
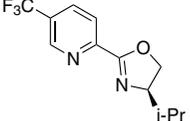
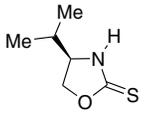
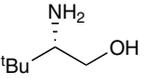
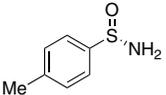
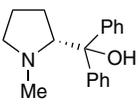
07-1005	[(1R,2R)-2-Hydroxycyclohexyl]carbamic Acid Phenylmethyl Ester, min. 98% (134108-76-2) C ₁₄ H ₁₉ NO ₃ ; FW: 249.31; white to light yellow pwr. Note: Sold in collaboration with Daicel for research purposes only.	 1g 5g
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07-1006	[(1S,2S)-2-Hydroxycyclohexyl]carbamic Acid Phenylmethyl Ester, min. 98% (198422-64-9) C ₁₄ H ₁₉ NO ₃ ; FW: 249.31; white to light yellow pwr. Note: Sold in collaboration with Daicel for research purposes only.	1g 5g
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07-0984	(2S)-N-[(1R,2S)-2-Hydroxy-1,2-diphenylethyl]-2-pyrrolidinecarboxamide, 98%, (99% ee) (529486-23-5) C ₁₉ H ₂₂ N ₂ O ₂ ; FW: 310.40; white to yellow pwr. Note: Sold in collaboration with Daicel for research purposes only.	 100mg
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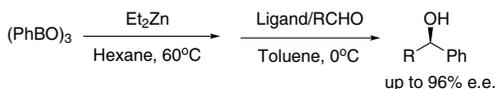
NEW

NITROGEN (Compounds)

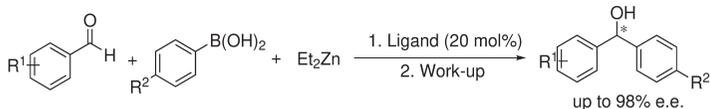
07-0983 NEW	(2S)-N-[(1S,2R)-2-Hydroxy-1,2-diphenylethyl]-2-pyrrolidinecarboxamide, 98%, (99% ee) (529486-25-7) C ₁₉ H ₂₂ N ₂ O ₂ ; FW: 310.40; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-1040 NEW	2-[(4R)-4-Isobutyl-4,5-dihydro-2-oxazolyl]-5-(trifluoromethyl)pyridine, 98%, (99% ee) C ₁₃ H ₁₅ F ₃ N ₂ O; FW: 272.30; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.		50mg
07-7058 NEW	2-[(4R)-4-Isopropyl-4,5-dihydro-2-oxazolyl]-5-(trifluoromethyl)pyridine, 98%, (99% ee) C ₁₂ H ₁₃ F ₃ N ₂ O; FW: 258.20; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.		100mg
07-0615	(R)-4-Isopropyl-2-oxazolidinethione, min. 98% (1217463-35-8) C ₆ H ₁₁ NOS; FW: 145.22; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.		500mg 2g
07-0616	(S)-4-Isopropyl-2-oxazolidinethione, min. 98% (104499-08-3) C ₆ H ₁₁ NOS; FW: 145.22; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.		500mg 2g
07-7224 NEW	L-tert-Leucinol, 98% (99% ee) (13374-31-7) FW: 117.2; white to light yellow solid Note: Sold in collaboration with Daicel for research purposes only.		1g
07-7228 NEW	(S)-4-Methylbenzenesulfonamide, 95% (99% ee) (188447-91-8) FW: 155.2; white to Light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.		1g
07-1170	(2R)-(-)-N-Methyl-α,α-diphenyl-2-pyrrolidinemethanol, min. 98% (144119-12-0) C ₁₈ H ₂₁ NO; FW: 267.37; white to light yellow powder.; m.p. 68-71° Note: Sold in collaboration with Daicel for research purposes only.		100mg 250mg

Technical Notes:

- Chiral amino alcohol assisted asymmetric, enantioselective, aryl transfer of triphenylboroxin to a set of aryl aldehydes in the presence of chiral amino alcohols derived from (S)-proline.
- Pyrrolidinylmethanol compound used for the zinc-catalyzed addition of arylboronic acids to aromatic aldehydes, proceeding in high yields and high enantioselectivities (up to 98% ee).



Tech. Note (1)
Ref. (1)



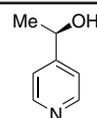
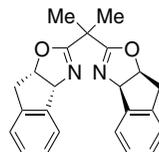
Tech. Note (2)
Ref. (2)

References:

- Tetrahedron Asymmetry* **2005**, *16*, 2299
- Tetrahedron Lett.*, **2005**, *46*, 7827

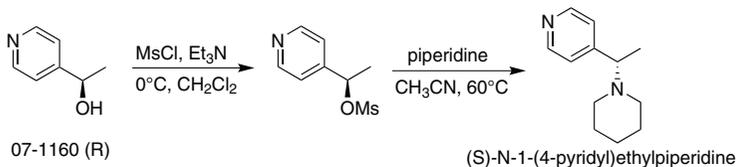
NITROGEN (Compounds)

07-1171	(2S)-(+)-N-Methyl-α,α-diphenyl-2-pyrrolidinemethanol, min. 98% (110529-22-1) C ₁₈ H ₂₁ NO; FW: 267.37; white to pale-yellow powder; m.p. 66-69° Note: Sold in collaboration with Daicel for research purposes only.	100mg 250mg
07-1035 NEW	(3aR,3'aR,8aS,8'aS)-2,2'-(1-Methylethylidene)bis[3a,8a-dihydro-8H-indeno[1,2-d]oxazole], 95%, (99% ee) (189623-45-8) C ₂₃ H ₂₂ N ₂ O ₂ ; FW: 358.40; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	100mg
07-1034 NEW	(3aS,3'aS,8aR,8'aR)-2,2'-(1-Methylethylidene)bis[3a,8a-dihydro-8H-indeno[1,2-d]oxazole], 98%, (99% ee) (175166-51-5) C ₂₃ H ₂₂ N ₂ O ₂ ; FW: 358.40; gray powder. Note: Sold in collaboration with Daicel for research purposes only.	100mg
07-1160	(R)-(+)-α-Methyl-4-pyridinemethanol, min. 98% (27854-88-2) C ₇ H ₉ NO; FW: 123.15; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	50mg 100mg

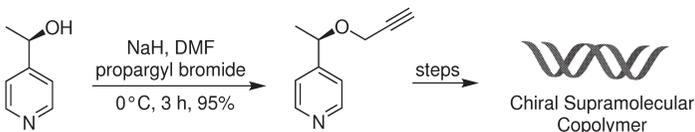


Technical Notes:

- Used for the synthesis of chiral 1-(4-pyridinyl)ethylamines
- Precursor for intermediates of highly stable chiral (A)6-B Supramolecular Copolymers



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

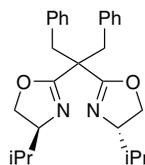
- J. Org. Chem.*, **2004**, 69, 6781
- J. Am. Chem. Soc.*, **2011**, 133, 11124

07-1161	(S)-(-)-α-Methyl-4-pyridinemethanol, min. 98% (54656-96-1) C ₇ H ₉ NO; FW: 123.15; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	50mg 100mg
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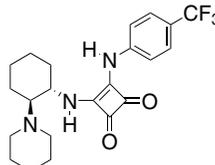
Technical Note:

- See 07-1160 (page 19)

07-7105 NEW	(4S,4'S)-2,2'-[2-Phenyl-1-(phenylmethyl)ethylidene]bis[4-(1-methylethyl)-4,5-dihydrooxazole], 95%, (99% ee) (444575-98-8) C ₂₇ H ₃₄ N ₂ O ₂ ; FW: 418.60; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	50mg
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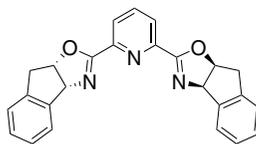


07-0905 NEW	3-[[[(1S,2S)-2-(1-Piperidinyl)cyclohexyl]amino]-4-[[4-(trifluoromethyl)phenyl]amino]-3-cyclobutene-1,2-dione, 95%, (99% ee) (1312991-08-4) C ₂₂ H ₂₆ F ₃ N ₃ O ₂ ; FW: 421.50; white to yellow powder. Note: Sold in collaboration with Daicel for research purposes only.	50mg
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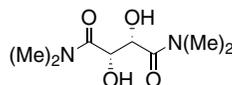
NITROGEN (Compounds)

07-7212 (3aR,3'aR,8aS,8'aS)-2,2'-(2,6-Pyridinediyl) bis[3a,8a-dihydro-8H-indeno[1,2-d]oxazole], 98% (99% ee) (357209-32-6)
NEW FW: 393.4; white to Light yellow powdr.
 (store cold)
 Note: Sold in collaboration with Daicel for research purposes only.



500mg

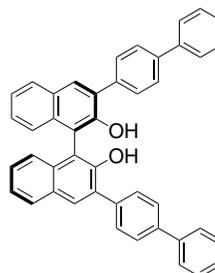
07-7226 N,N,N',N'-Tetramethyl-D-tartaramide, 98% (99% ee) (63126-52-3)
NEW FW: 204.2; white to Light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



5g

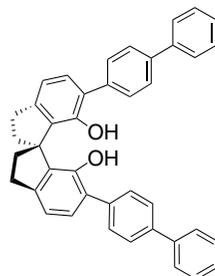
OXYGEN (Compounds)

08-1090 (R)-3,3'-Bis([1,1'-biphenyl]-4-yl)-[1,1'-binaphthalene]-2,2'-diol, 98% (99% ee) (215433-52-6)
NEW C₄₄H₃₀O₂; FW: 590.72; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



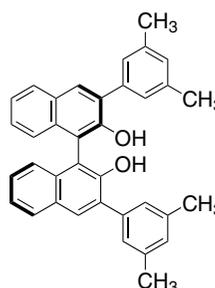
100mg

08-0460 (S)-6,6'-Bis([1,1'-biphenyl]-4-yl)-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) (1258327-00-2)
NEW C₄₁H₃₂O₂; FW: 556.71; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



10mg

08-1040 (R)-3-3'-Bis[3,5-bis(methyl)phenyl]-1,1'-bi-2-naphthol, 98% (99% ee) (215433-51-5)
NEW C₃₆H₃₀O₂; FW: 494.63; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



100mg

08-1041 (S)-3-3'-Bis[3,5-bis(methyl)phenyl]-1,1'-bi-2-naphthol, 98% (99% ee) (435327-17-6)
NEW C₃₆H₃₀O₂; FW: 494.63; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.

100mg

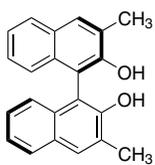
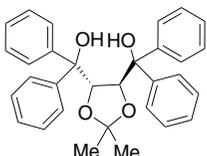
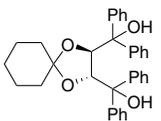
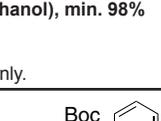
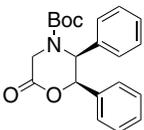
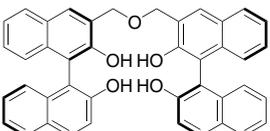
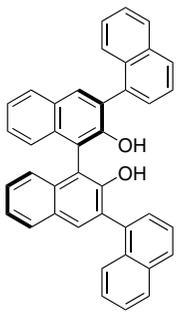
OXYGEN (Compounds)

08-0163	<p>(1R)-6,6'-Bis[3,5-bis(trifluoromethyl)phenyl]-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, min. 98% <i>(1286189-16-9)</i> $C_{33}H_{20}F_{12}O_2$; FW: 676.49; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		25mg 100mg	
08-0164	<p>(1S)-6,6'-Bis[3,5-bis(trifluoromethyl)phenyl]-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, min. 98% <i>(1258327-01-3)</i> $C_{33}H_{20}F_{12}O_2$; FW: 676.49; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		25mg 100mg	
08-0441	NEW	<p>(R)-6,6'-Bis[4-(1,1-dimethylethyl)phenyl]-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) $C_{37}H_{40}O_2$; FW: 516.73; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		50mg
08-0440	NEW	<p>(S)-6,6'-Bis[4-(1,1-dimethylethyl)phenyl]-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) $C_{37}H_{40}O_2$; FW: 516.73; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		50mg
08-0470	NEW	<p>(R)-6,6'-Bis[3,5-dimethylphenyl]-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) <i>(930784-56-8)</i> $C_{33}H_{32}O_2$; FW: 460.61; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		50mg
08-0471	NEW	<p>(S)-6,6'-Bis[3,5-dimethylphenyl]-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) $C_{33}H_{32}O_2$; FW: 460.61; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		50mg
08-1080	NEW	<p>(S)-3,3'-Bis[4-(2-naphthalenyl)phenyl]-[1,1'-binaphthalene]-2,2'-diol, 95% (99% ee) <i>(309934-87-0)</i> $C_{52}H_{34}O_2$; FW: 690.84; white to light yellow powder. Note: Sold in collaboration with Daicel for research purposes only.</p>		25mg

OXYGEN (Compounds)

08-1030 NEW	(R)-3,3'-Bis(phenyl)-1,1'-bi-2-naphthol, 98% (99% ee) (75684-93-4) C ₃₂ H ₂₂ O ₂ ; FW: 438.53; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg
08-1031 NEW	(S)-3,3'-Bis(phenyl)-1,1'-bi-2-naphthol, 98% (99% ee) (102490-05-1) C ₃₂ H ₂₂ O ₂ ; FW: 438.53; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		100mg
08-0185	(R)-(-)-6,6'-Dibromo-1,1'-bi-2-naphthol, 98% (99% ee) (65283-60-5) C ₂₀ H ₁₂ Br ₂ O ₂ ; FW: 444.12; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		500mg 2g
08-0186	(S)-(+)-6,6'-Dibromo-1,1'-bi-2-naphthol, 98% (99% ee) (80655-81-8) C ₂₀ H ₁₂ Br ₂ O ₂ ; FW: 444.12; white to light-yellow solid Note: Sold in collaboration with Daicel for research purposes only.		500mg 2g
08-0152	(R)-(+)-6,6'-Dibromo-2,2'-bis(methoxymethoxy)-1,1'-binaphthalene, min. 98% (99% ee) (179866-74-1) C ₂₄ H ₂₀ Br ₂ O ₄ ; FW: 532.22; white to light yellow powdr.; m.p. 133° Note: Sold in collaboration with Daicel for research purposes only.		100mg 500mg
08-0153	(S)-(-)-6,6'-Dibromo-2,2'-bis(methoxymethoxy)-1,1'-binaphthalene, min. 98% (99% ee) (211560-97-3) C ₂₄ H ₂₀ Br ₂ O ₄ ; FW: 532.22; white to light yellow powdr.; m.p. 133° Note: Sold in collaboration with Daicel for research purposes only.		100mg 500mg
08-1252 NEW	(R)-6,6'-Dibromo-2,2',3,3'-tetrahydro-1,1'-spirobi[1H-indene]-7,7'-diol, 95% (99 ee) (1286189-15-8) FW: 410.1; white to Light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		250mg
08-2520 NEW	(R)-2,2'-Dihydroxy-α,α,α',α'-tetraphenyl-[1,1'-binaphthalene]-3,3'-dimethanol, 95% (99% ee) (336185-31-0) C ₄₆ H ₃₄ O ₄ ; FW: 650.76; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
08-2521 NEW	(S)-2,2'-Dihydroxy-α,α,α',α'-tetraphenyl-[1,1'-binaphthalene]-3,3'-dimethanol, 95% (99% ee) (309269-73-6) C ₄₆ H ₃₄ O ₄ ; FW: 650.76; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg

OXYGEN (Compounds)

08-1021	(1S)-3,3'-Dimethyl-[1,1'-binaphthalene]-2,2'-diol, 95% (99% ee) (55515-99-6) C ₂₂ H ₁₆ O ₂ ; FW: 314.38; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
NEW		
08-1020	(1R)-3,3'-Dimethyl-[1,1'-binaphthalene]-2,2'-diol, 98% (99% ee) (55515-98-5) C ₂₂ H ₁₆ O ₂ ; FW: 314.38; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
NEW		
		
08-1258	(4S,5S)-2,2-Dimethyl-α,α,α',α'-tetraphenyl-1,3-dioxolane-4,5-dimethanol, 98% (99% ee) (93379-49-8) FW: 466.6; white to Light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	1g
NEW		
		
08-0611	(2R,3R)-1,4-Dioxaspiro[4.5]decane-2,3-diylibis(diphenylmethanol), min. 98% (114026-76-5) C ₃₄ H ₃₄ O ₄ ; FW: 506.63; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	500mg 2g
NEW		
		
08-0612	(2S,3S)-1,4-Dioxaspiro[4.5]decane-2,3-diylibis(diphenylmethanol), min. 98% (123287-35-4) C ₃₄ H ₃₄ O ₄ ; FW: 506.63; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	500mg 2g
NEW		
		
08-1262	(2R,3S)-6-Oxo-2,3-diphenyl-4-morpholinecarboxylic acid t-butyl ester, 98% (99% ee) (112741-49-8) FW: 353.4; white to Light yellow powdr. (store cold) Note: Sold in collaboration with Daicel for research purposes only.	1g
NEW		
		
08-1256	(1R,1''R)-3,3''-[Oxybis(methylene)]bis-[1,1'-binaphthalene]-2,2''-diol, 95% (99% ee) (265116-85-6) FW: 614.7; white to Light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
NEW		
		
08-1070	(R)-[1,3':1',1'':3'',1''''-Quaternaphthalene]-2',2''-diol, 98% (99% ee) (851615-07-1) C ₄₀ H ₂₆ O ₂ ; FW: 538.65; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
NEW		
		
08-1071	(S)-[1,3':1',1'':3'',1''''-Quaternaphthalene]-2',2''-diol, 98% (99% ee) (863659-88-5) C ₄₀ H ₂₆ O ₂ ; FW: 538.65; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
NEW		

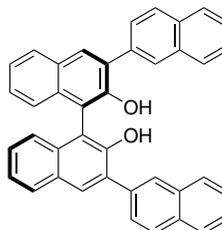
OXYGEN (Compounds)

08-1060

NEW

(R)-[2,3':1',1'':3'',2''-Quaternaphthalene]-2',2''-diol,
98% (99% ee) (215433-53-7)

$C_{40}H_{26}O_2$; FW: 538.65; white to light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.



100mg

08-1061

NEW

(S)-[2,3':1',1'':3'',2''-Quaternaphthalene]-2',2''-diol, 98% (99% ee) (863659-89-6)

$C_{40}H_{26}O_2$; FW: 538.65; white to light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

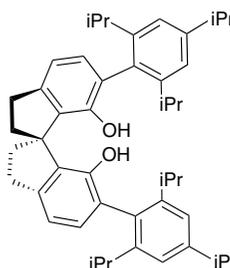
100mg

08-1254

NEW

(R)-2,2',3,3'-Tetrahydro-6,6'-bis(2,4,6-tri-isopropylphenyl)-1,1'-spirobi[1H-indene]-7,7'-diol,
95% (99% ee) (1372719-98-6)

FW: 657; white to Light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.



50mg

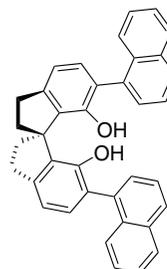
08-0450

NEW

(R)-2,2',3,3'-Tetrahydro-6,6'-di(1-naphthalenyl)-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee)
 (1292849-40-1)

$C_{37}H_{28}O_2$; FW: 504.63; white to light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

10mg



08-0451

NEW

(S)-2,2',3,3'-Tetrahydro-6,6'-di(1-naphthalenyl)-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) (1258327-02-4)

$C_{37}H_{28}O_2$; FW: 504.63; white to light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

10mg

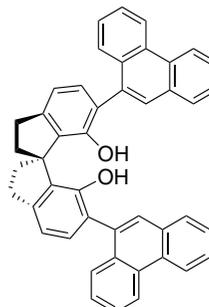
08-8025

NEW

(R)-2,2',3,3'-Tetrahydro-6,6'-di-9-phenanthrenyl-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee)
 (1372719-96-4)

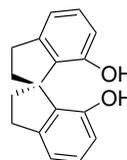
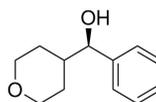
$C_{48}H_{32}O_2$; FW: 604.73; white to light yellow pwdr.
 Note: Sold in collaboration with Daicel for research purposes only.

10mg



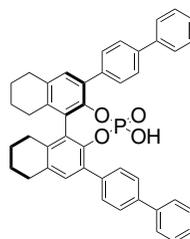
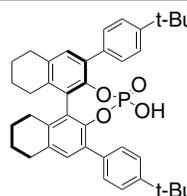
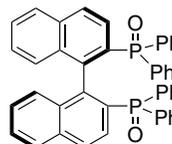
OXYGEN (Compounds)

08-8026 NEW	(S)-2,2',3,3'-Tetrahydro-6,6'-di-9-phenanthrenyl-1,1'-spirobi[1H-indene]-7,7'-diol, 98% (99% ee) C ₄₅ H ₃₂ O ₂ ; FW: 604.73; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	10mg
08-1260 NEW	(αR)-Tetrahydro-α-phenyl-2H-pyran-4-methanol, 98% (99% ee) (1800345-36-1) FW: 192.3; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	500mg
08-2066 NEW	(S)-2,2',3,3'-Tetrahydro-1,1'-spirobi[indene]-7,7'-diol, 98% (99% ee) (223259-63-0) C ₁₇ H ₁₆ O ₂ ; FW: 252.31; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	250mg
08-2065	(R)-2,2',3,3'-Tetrahydro-1,1'-spirobi[indene]-7,7'-diol, 99% (223259-62-9) C ₁₇ H ₁₆ O ₂ ; FW: 252.31; white solid Note: Sold in collaboration with Daicel for research purposes only.	250mg 1g



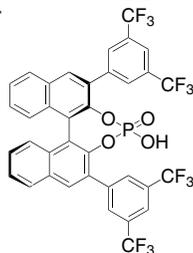
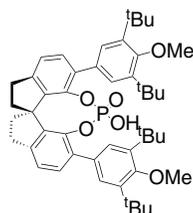
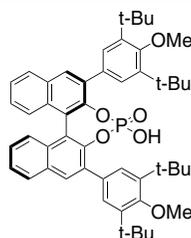
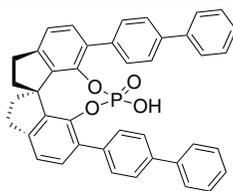
PHOSPHORUS (Compounds)

15-0312 NEW	(R)-[1,1'-Binaphthalene]-2,2'-diylbis[1,1-diphenyl-1,1'-phosphine oxide], 98% (99% ee) (94041-16-4) C ₄₄ H ₃₂ O ₂ P ₂ ; FW: 654.69; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	1g
15-0313 NEW	(S)-[1,1'-Binaphthalene]-2,2'-diylbis[1,1-diphenyl-1,1'-phosphine oxide], 98% (99% ee) (94041-16-4) C ₄₄ H ₃₂ O ₂ P ₂ ; FW: 654.69; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	1g
15-0392 NEW	(11bR)-2,6-Bis[4-(tert-butyl)phenyl]-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (1569807-27-7) C ₄₀ H ₄₅ O ₄ P; FW: 620.8; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0568 NEW	(11bS)-2,6-Bis[4-(tert-butyl)phenyl]-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% C ₄₀ H ₄₅ O ₄ P; FW: 620.8; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0418 NEW	(11bR)-2,6-Bis([1,1'-biphenyl]-4-yl)-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (861909-35-5) C ₄₄ H ₃₇ O ₄ P; FW: 660.7; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg



PHOSPHORUS (Compounds)

15-0422 NEW	(11bS)-2,6-Bis([1,1'-biphenyl]-4-yl)-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin, 98% (99% ee) C ₄₄ H ₃₇ O ₄ P; FW: 660.7; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0293 NEW	(11aR)-3,7-Bis([1,1'-biphenyl]-4-yl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) (1297613-77-4) C ₄₁ H ₃₁ O ₄ P; FW: 618.67; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	25mg
15-0294 NEW	(11aS)-3,7-Bis([1,1'-biphenyl]-4-yl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) (1258327-06-8) C ₄₁ H ₃₁ O ₄ P; FW: 618.67; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	25mg
15-0554 NEW	(11bR)-2,6-Bis[3,5-bis(1,1-dimethylethyl)-4-methoxyphenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin, 98% (99% ee) (957790-93-1) C ₅₀ H ₅₇ O ₆ P; FW: 785.0; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0352 NEW	(11bS)-2,6-Bis[3,5-bis(1,1-dimethylethyl)-4-methoxyphenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin, 98% (99% ee) C ₅₀ H ₅₇ O ₆ P; FW: 785.0; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0532 NEW	(11aR)-3,7-Bis[3,5-bis(tert-butyl)-4-methoxyphenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₄₇ H ₅₉ O ₆ P; FW: 750.9; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0534 NEW	(11aS)-3,7-Bis[3,5-bis(tert-butyl)-4-methoxyphenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₄₇ H ₅₉ O ₆ P; FW: 750.9; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-1366 NEW	(11bR)-2,6-Bis[3,5-bis(trifluoromethyl)phenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin, 98%, (99% ee) (791616-62-1) C ₃₆ H ₁₇ F ₁₂ O ₄ P; FW: 772.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg

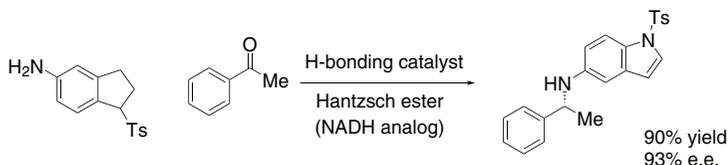


PHOSPHORUS (Compounds)

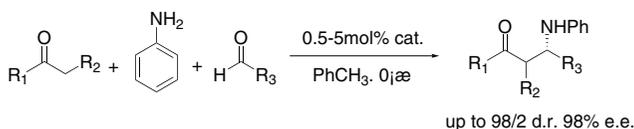
15-1366 (11bR)-2,6-Bis[3,5-bis(trifluoromethyl)phenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f]
(continued) [1,3,2]dioxaphosphepin, 98%, (99% ee) (791616-62-1)

Technical Notes:

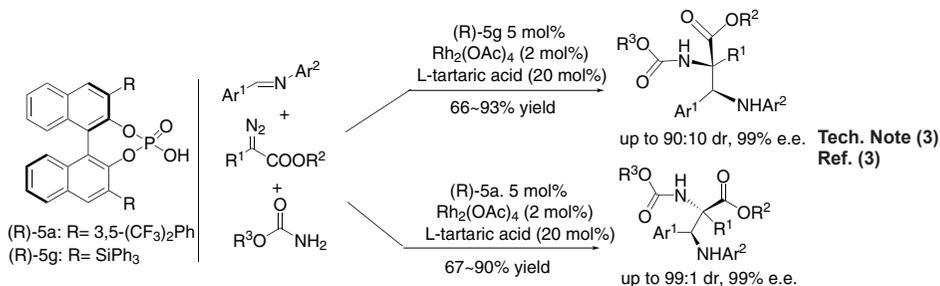
- Reductive Amination Reaction:** The first enantioselective organocatalytic reductive amination reaction has been accomplished.
- Mannich Reaction:** In the presence of a catalytic amt. of the phosphoric acid, anti-selective Mannich reactions of cyclic ketones with a wide scope of aldimines were obtained.
- The diastereoselectively switchable enantioselective trapping of protic carbamate ammonium ylides with imines is reported. The $\text{Rh}_2(\text{OAc})_4$ and chiral Brønsted acid cocatalyzed three-component Mannich-type reaction of a diazo compound, a carbamate, and an imine provides rapid and efficient access to both syn- and anti- α -substituted α,β -diamino acid derivatives.
- Protonation:** A catalytic asymmetric protonation of ketene dithioacetals is described. Various racemic α -aryl hydrocoumarin derivatives are transformed into enantioenriched dithioacetal-protected hydrocoumarins in the presence of a chiral Brønsted acid catalyst.
- Povarov Cyclization:** Tetrahydroquinolines containing two quaternary stereogenic centers were synthesized with excellent ee and dr via a four-component cyclization reaction catalyzed by a chiral phosphoric acid.
- Pictet-Spengler Reaction:** β -Carbolines could be synthesized with good enantioselectivity by the Pictet-Spengler reaction catalyzed by a chiral binol-derived Brønsted acid.
- In the glycosylation of racemic alcohols with 1 using the chiral phosphoric acid as an activator, one enantiomer of the racemic alcohol selectively reacts with 1 to give the corresponding glycoside with good to excellent α/β -stereo- and diastereoselectivity in high yield.



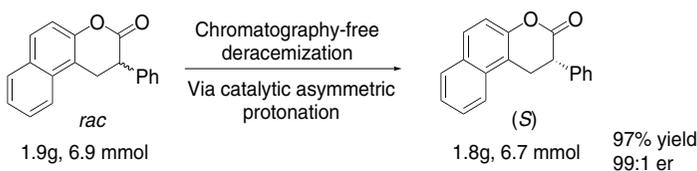
Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



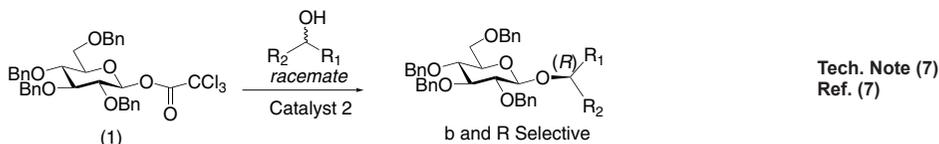
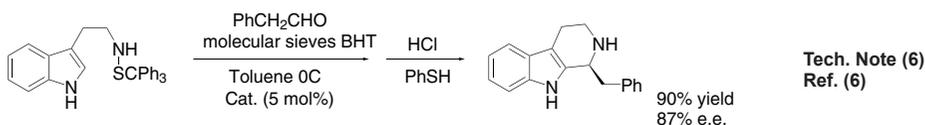
Tech. Note (3)
Ref. (3)



Tech. Note (4)
Ref. (4)

PHOSPHORUS (Compounds)

15-1366 (11bR)-2,6-Bis[3,5-bis(trifluoromethyl)phenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphospepin, 98%, (99% ee) (791616-62-1)
(continued)



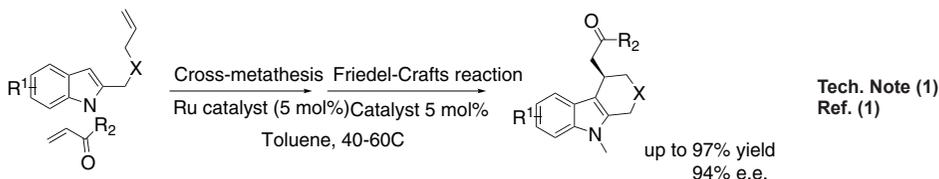
References:

1. *J. Am. Chem. Soc.*, **2006**, *128*, 84-86.
2. *J. Am. Chem. Soc.*, **2007**, *129*, 3790-3791.
3. *J. Am. Chem. Soc.*, **2011**, *133*, 8428-8431.
4. *J. Am. Chem. Soc.*, **2012**, *134*, 18245-18248.
5. *J. Am. Chem. Soc.*, **2013**, *135*, 8193-8196.
6. *Angew. Chem. Int. Ed.*, **2007**, *46*, 7485-7487.
7. *Angew. Chem. Int. Ed.*, **2013**, *52*, 12131-12134.

15-1367 (11bS)-2,6-Bis[3,5-bis(trifluoromethyl)phenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphospepin, 98%, (99% ee) (878111-17-2) 100mg
NEW
C₃₆H₁₇F₁₂O₄P; FW: 772.5; white to light yellow pwr.
Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

1. **Friedel-Crafts Alkylation:** Chiral phosphoric acids were used as catalysts for the Friedel-Crafts alkylations of indolyl enones while both a ruthenium complex and chiral phosphoric acids were used as catalysts for sequential olefin cross-metathesis and Friedel-Crafts alkylations of allyloxymethyl or allylaminomethyl indoles and enones.



References:

1. *Angew. Chem. Int. Ed.*, **2009**, *48*, 7428-7431.

PHOSPHORUS (Compounds)

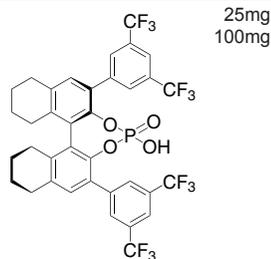
15-1376

NEW

(11bR)-2,6-Bis[3,5-bis(trifluoromethyl)phenyl]-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1011465-24-9)

C₃₆H₂₅F₁₂O₄P; FW: 780.5; white to light yellow powdr.

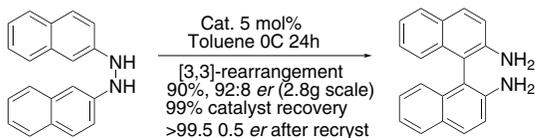
Note: Sold in collaboration with Daicel for research purposes only.



25mg
100mg

Technical Notes:

- The preparation of binaphthol monophosphoric acid derivatives.
- Sigmatropic Rearrangements:** Used in the organocatalytic aryl-aryl bond-forming process for the regio- and atroposelective synthesis of 2,2'-diamino-1,1'-binaphthalenes (BINAMs). In the presence of catalytic amounts of axially chiral phosphoric acids, achiral N,N'-binaphthyl hydrazines undergo a facile [3,3]-sigmatropic rearrangement to afford enantiomerically enriched BINAM derivatives in good to excellent yield.



Tech. Note (2)
Ref. (1)

References:

- JP 4725757, EP 1038877, US 6274745, 2000-3-21.
- J. Am. Chem. Soc.*, **2013**, *135*, 7414-7417.

15-1377

NEW

(11bS)-2,6-Bis[3,5-bis(trifluoromethyl)phenyl]-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee)

C₃₆H₂₅F₁₂O₄P; FW: 780.5; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

25mg
100mg

Technical Note:

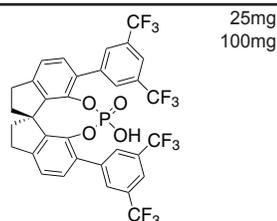
- See 15-1376 (page 29)

15-0527

(11aR)-3,7-Bis[3,5-bis(trifluoromethyl)phenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, min. 98% (1297613-76-3)

C₃₃H₁₉F₁₂O₄P; FW: 738.46; white to light yellow powdr.

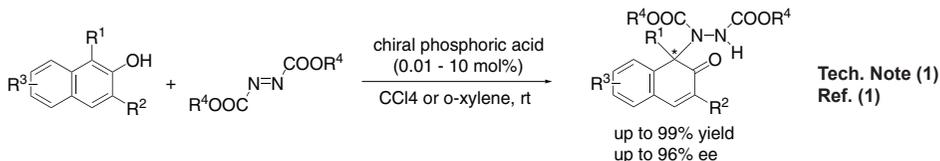
Note: Sold in collaboration with Daicel for research purposes only.



25mg
100mg

Technical Note:

- Asymmetric dearomatization of β-naphthols through an amination reaction catalyzed by a chiral phosphoric acid.



Tech. Note (1)
Ref. (1)

References:

- Angew. Chem. Int. Ed.*, **2015**, *54*, 647.

15-0528

(11aS)-3,7-Bis[3,5-bis(trifluoromethyl)phenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, min. 98% (1258327-07-9)

C₃₃H₁₉F₁₂O₄P; FW: 738.46; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

25mg
100mg

PHOSPHORUS (Compounds)

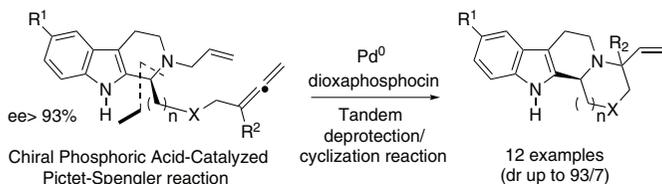
15-0528 (11aS)-3,7-Bis[3,5-bis(trifluoromethyl)phenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, min. 98% (1258327-07-9)
(continued)

Technical Notes:

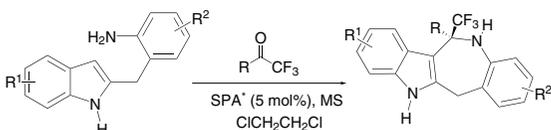
1. Organocatalytic asymmetric multicomponent reactions of aromatic aldehydes and anilines with β -ketoesters: facile and atom-economical access to chiral tetrahydropyridines.
2. Pd(0)-catalyzed tandem deprotection/cyclization of tetrahydro- β -carbolines on allenes: application to the synthesis of indolo[2,3-*a*]quinolizidines.
3. Enantioselective synthesis of benzazepinoindoles bearing trifluoromethylated quaternary stereocenters, catalyzed by chiral spirocyclic phosphoric acids.



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)

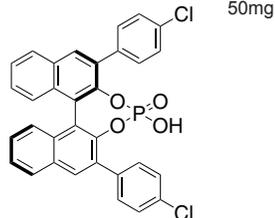
References:

1. *Chem Commun.*, **2013**, 49, 1401.
2. *Org. Lett.*, **2014**, 16, 1924.
3. *Chem Commun.*, **2014**, 50, 7538.

15-0368 (11bR)-2,6-Bis(4-chlorophenyl)-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee)
(922711-71-5)

NEW

C₃₂H₁₉Cl₂O₄P; FW: 569.4; white to light yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.



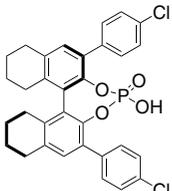
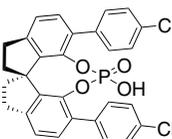
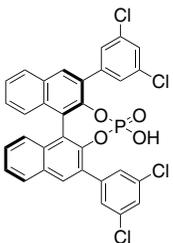
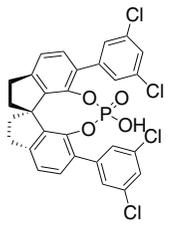
15-0372 (11bS)-2,6-Bis(4-chlorophenyl)-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee)

NEW

C₃₂H₁₉Cl₂O₄P; FW: 569.4; white to light yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

50mg

PHOSPHORUS (Compounds)

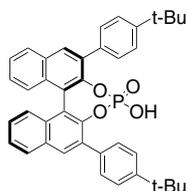
15-0384	(11bR)-2,6-Bis(4-chlorophenyl)-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (915038-16-3) C ₃₂ H ₂₇ Cl ₂ O ₄ P; FW: 577.4; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0386	(11bS)-2,6-Bis(4-chlorophenyl)-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₃₂ H ₂₇ Cl ₂ O ₄ P; FW: 577.4; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0276	(11aR)-3,7-Bis(4-chlorophenyl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) C ₂₉ H ₂₁ Cl ₂ O ₄ P; FW: 535.36; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0275	(11aS)-3,7-Bis(4-chlorophenyl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) (1258327-05-7) C ₂₉ H ₂₁ Cl ₂ O ₄ P; FW: 535.36; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0362	(11bR)-2,6-Bis(3,5-dichlorophenyl)-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 95% (99% ee) (1191451-24-7) C ₃₂ H ₁₇ Cl ₄ O ₄ P; FW: 638.3; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0366	(11bS)-2,6-Bis(3,5-dichlorophenyl)-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (1374030-20-2) C ₃₂ H ₁₇ Cl ₄ O ₄ P; FW: 638.3; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0514	(11aR)-3,7-Bis(3,5-dichlorophenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₂₉ H ₁₉ Cl ₄ O ₄ P; FW: 604.2; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0516	(11aS)-3,7-Bis(3,5-dichlorophenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₂₉ H ₁₉ Cl ₄ O ₄ P; FW: 604.2; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg

PHOSPHORUS (Compounds)

15-3280

NEW

(11bR)-2,6-Bis[4-(1,1-dimethylethyl)phenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (861909-30-0)
 $C_{40}H_{37}O_4P$; FW: 612.71; white to yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



50mg

15-0342

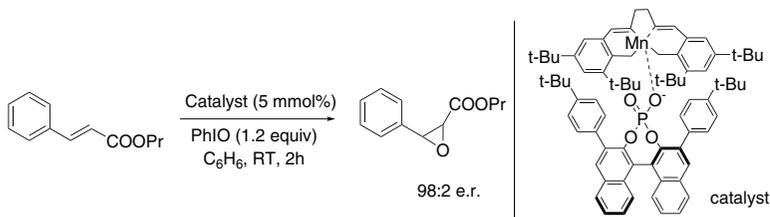
NEW

(11bS)-2,6-Bis[4-(1,1-dimethylethyl)phenyl]-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1217901-32-0)
 $C_{40}H_{37}O_4P$; FW: 612.7; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.

50mg

Technical Note:

- Epoxidation:** A highly active and enantioselective ion-pair epoxidation catalyst, consisting of an achiral Mn-salen complex and a chiral phosphate counteranion, mediates the epoxidization of a wide range of alkenes with high yields and enantioselectivities.



Tech. Note (1)
Ref. (1)

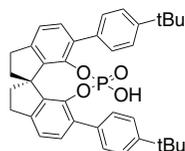
References:

- Angew. Chem. Int. Ed.*, **2010**, *49*, 628-631.

15-0339

NEW

(11aR)-3,7-Bis((4-(1,1-dimethylethyl)phenyl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee)
 $C_{37}H_{39}O_4P$; FW: 578.7; white to yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



25mg

15-0338

NEW

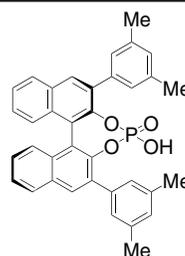
(11aS)-3,7-Bis((4-(1,1-dimethylethyl)phenyl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee)
 $C_{37}H_{39}O_4P$; FW: 578.70; white to yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.

25mg

15-1368

NEW

(11bR)-2,6-Bis(3,5-dimethylphenyl)-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (861909-53-7)
 $C_{36}H_{29}O_4P$; FW: 556.6; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



100mg

Technical Note:

- Catalyst for the enantioselective cyanosilylation of aromatic ketones using chiral lithium salts of (R)-BINOL- or (S)-BINAM-derived phosphoric acid compounds.

References:

- Angew. Chem. Int. Ed.*, **2009**, *48*, 7428-7431.

PHOSPHORUS (Compounds)

15-1369 (11bS)-2,6-Bis(3,5-dimethylphenyl)-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f] 100mg

NEW

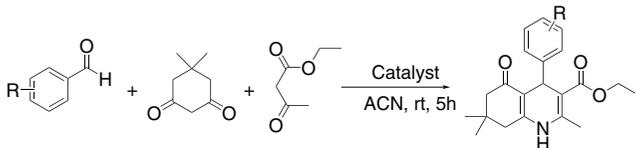
[1,3,2]dioxaphosphepin, 98%, (99% ee) (1170736-59-0)

C₃₆H₂₉O₄P; FW: 556.6; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

- Hantzsch Reaction:** The four-component Hantzsch reaction provides access to pharmaceutically important dihydropyridines.



69~94%
up to 94% e.e.

Tech. Note (1)
Ref. (1)

References:

- Org. Lett.*, **2009**, *11*, 2957-2959.

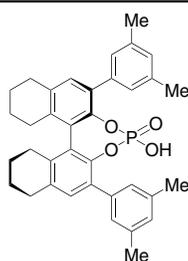
15-1373

NEW

(11bR)-2,6-Bis(3,5-dimethylphenyl)-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1065214-95-0)

C₃₆H₃₇O₄P; FW: 564.7; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.



25mg
100mg

Technical Note:

- The preparation of binaphthol monophosphoric acid derivatives.

References:

- JP 4725757, EP 1038877, US 6274745, 2000-3-21.

15-1374

NEW

(11bS)-2,6-Bis(3,5-dimethylphenyl)-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee)

C₃₆H₃₇O₄P; FW: 564.7; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

- The preparation of binaphthol monophosphoric acid derivatives.

References:

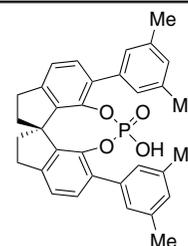
- JP 4725757, EP 1038877, US 6274745, 2000-3-21.

15-0542

(11aR)-3,7-Bis(3,5-dimethylphenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg] [1,3,2]dioxaphosphocin, min. 98% (1297613-75-2)

C₃₃H₃₁O₄P; FW: 522.57; white to light yellow powdr.

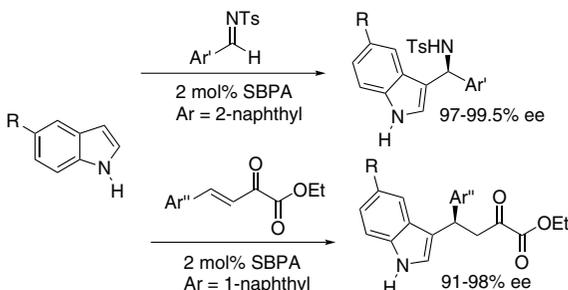
Note: Sold in collaboration with Daicel for research purposes only.



25mg
100mg

Technical Note:

- Spinol-based phosphoric acid (SBPA) as a highly enantioselective catalyst for asymmetric organocatalysis.



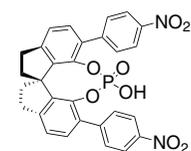
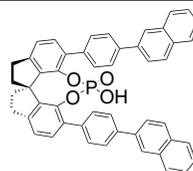
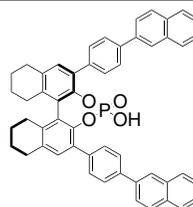
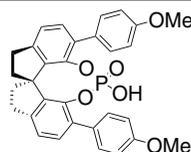
Tech. Note (1)
Ref. (1)

References:

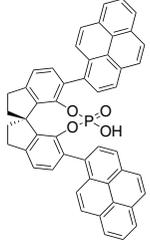
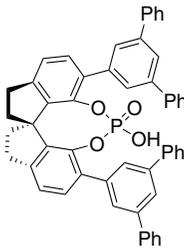
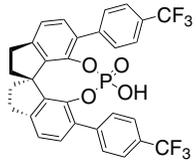
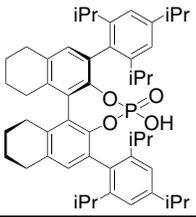
- J. Org. Chem.*, **2011**, *76*, 4125.

PHOSPHORUS (Compounds)

15-0543	(11aS)-3,7-Bis(3,5-dimethylphenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, min. 98% (1412439-82-7) C ₃₃ H ₃₁ O ₄ P; FW: 522.57; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	25mg 100mg
15-0494 NEW	(11aR)-3,7-Bis(4-methoxyphenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₃₁ H ₂₇ O ₆ P; FW: 526.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0508 NEW	(11aS)-3,7-Bis(4-methoxyphenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₃₁ H ₂₇ O ₆ P; FW: 526.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0388 NEW	(11bR)-2,6-Bis[4-(2-naphthalenyl)phenyl]-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₅₂ H ₄₁ O ₄ P; FW: 760.9; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0390 NEW	(11bS)-2,6-Bis[4-(2-naphthalenyl)phenyl]-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₅₂ H ₄₁ O ₄ P; FW: 760.9; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0546 NEW	(11aR)-3,7-Bis[4-(2-naphthalenyl)phenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₄₆ H ₃₅ O ₄ P; FW: 718.8; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0548 NEW	(11aS)-3,7-Bis[4-(2-naphthalenyl)phenyl]-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₄₆ H ₃₅ O ₄ P; FW: 718.8; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0576 NEW	(11aR)-3,7-Bis(4-nitrophenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 95% (99% ee) (1352810-37-7) C ₂₉ H ₂₁ N ₂ O ₈ P; FW: 556.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0512 NEW	(11aS)-3,7-Bis(4-nitrophenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1412439-84-9) C ₂₉ H ₂₁ N ₂ O ₈ P; FW: 556.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg



PHOSPHORUS (Compounds)

15-0277 NEW	(11aR)-3,7-Bis(1-pyrenyl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 95%, (99% ee) C ₄₆ H ₃₁ O ₄ P; FW: 714.7; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		25mg
15-0278 NEW	(11aS)-3,7-Bis(1-pyrenyl)-10,11,12,13-tetrahydro-5-hydroxy-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) C ₄₆ H ₃₁ O ₄ P; FW: 714.7; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		25mg
15-0526 NEW	(11aR)-3,7-Bis([1,1':3',1''-terphenyl]-5'-yl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1352810-38-8) C ₅₃ H ₃₉ O ₄ P; FW: 770.8; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0530 NEW	(11aS)-)-3,7-Bis([1,1':3',1''-terphenyl]-5'-yl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₅₃ H ₃₉ O ₄ P; FW: 770.8; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0484 NEW	(11aR)-3,7-Bis(4-(trifluoromethyl)phenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₃₁ H ₂₁ F ₆ O ₄ P; FW: 602.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0492 NEW	(11aS)-3,7-Bis(4-(trifluoromethyl)phenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₃₁ H ₂₁ F ₆ O ₄ P; FW: 602.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-1395 NEW	(R)-3,3'-Bis(2,4,6-triisopropylphenyl)-5,5',6,6',7,7',8,8'-octahydro-1,1'-binaphthyl-2,2'-diyl Hydrogenphosphate, 98%, (99% ee) (929294-27-9) C ₅₀ H ₆₅ O ₄ P; FW: 761; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		25mg 100mg
15-1394 NEW	(S)-3,3'-Bis(2,4,6-triisopropylphenyl)-5,5',6,6',7,7',8,8'-octahydro-1,1'-binaphthyl-2,2'-diyl Hydrogenphosphate, 98%, (99% ee) (878111-20-7) C ₅₀ H ₆₅ O ₄ P; FW: 761; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		25mg 100mg

PHOSPHORUS (Compounds)

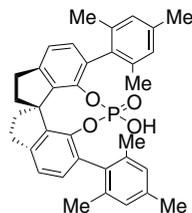
15-0538

NEW

(11aR)-3,7-Bis(2,4,6-trimethylphenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1801196-27-9)

$C_{35}H_{35}O_4P$; FW: 550.6; white to brown powder.

Note: Sold in collaboration with Daicel for research purposes only.



50mg

15-0544

NEW

(11aS)-3,7-Bis(2,4,6-trimethylphenyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee)

$C_{35}H_{35}O_4P$; FW: 550.6; white to light yellow powder.

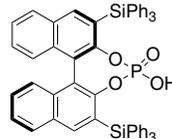
Note: Sold in collaboration with Daicel for research purposes only.

15-0340

(R)-(-)-3,3'-Bis(triphenylsilyl)-1,1'-binaphthyl-2,2'-diyl hydrogen phosphate, min. 98% [(R)-TiPSY] (791616-55-2)

$C_{56}H_{41}O_4PSi_2$; FW: 865.07; white to light yellow powder; m.p. 329-335°

Note: Sold in collaboration with Daicel for research purposes only.

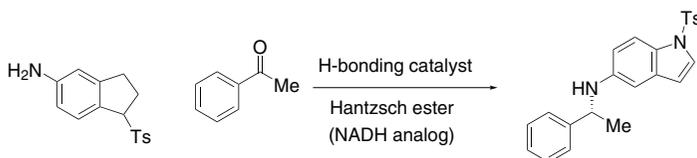


10mg

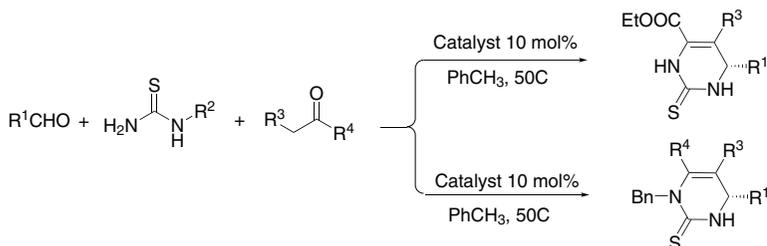
100mg

Technical Notes:

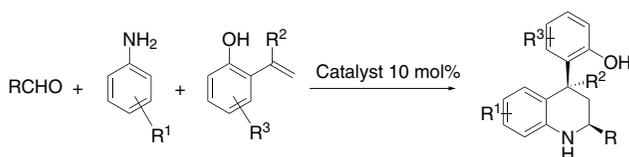
- See 15-1366. Catalyst used in:
- Reductive Amination:** The development of a new chiral phosphoric acid catalyst has provided a convenient strategy for the enantioselective construction of protected primary amines and provided a highly stereoselective method for the reductive amination of heterocyclic amines.
- Biginelli and Biginelli-like Reaction:** Organocatalytic enantioselective Biginelli and Biginelli-like reactions by chiral phosphoric acids derived from 3,3'-disubstituted binaphthols
- Povarov Reaction:** An organocatalytic asymmetric three-component Povarov reaction involving 2-hydroxystyrenes to give cis-disubstituted tetrahydroquinolines in high stereoselectivities of up to >99:1 dr and 97% ee.
- Cascade Spirocyclization:** The gold/chiral Brønsted acid relay catalysis enabled a highly stereoselective three-component reaction of salicylaldehydes, anilines, and alkynols to give aromatic spiroacetals in high yields and stereoselectivities.
- aza-Pinacol Cyclization:** The first highly enantioselective catalytic protocol for the reductive coupling of ketones and hydrazones is reported.



Tech. Note (2)
Ref. (1)



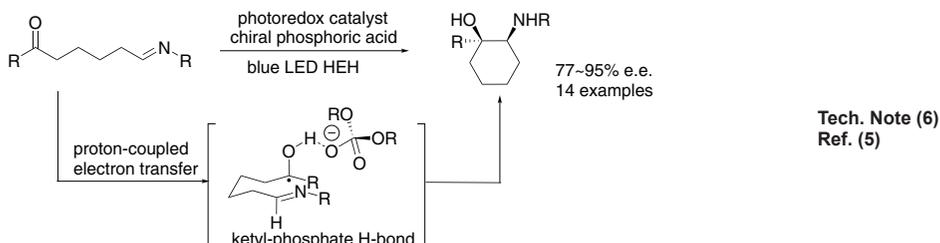
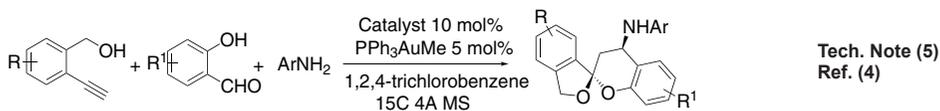
Tech. Note (3)
Ref. (2)



Tech. Note (4)
Ref. (3)

PHOSPHORUS (Compounds)

15-0340 (R)-(-)-3,3'-Bis(triphenylsilyl)-1,1'-binaphthyl-2,2'-diyl hydrogen phosphate, min. 98%
(continued) [(R)-TIPSY] (791616-55-2)



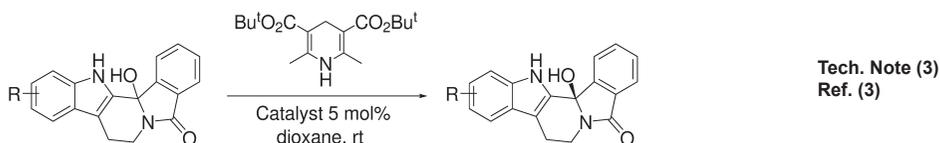
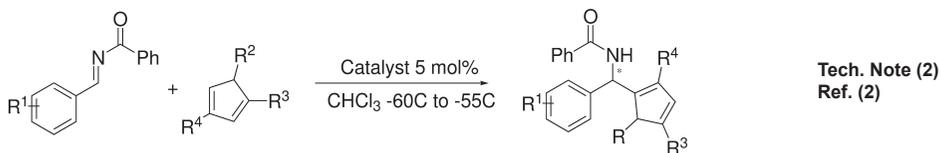
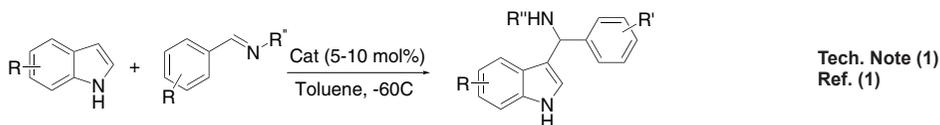
References:

1. *J. Am. Chem. Soc.* **2006**, *128*, 84-86
2. *J. Am. Chem. Soc.* **2009**, *131*, 15301-15310.
3. *J. Am. Chem. Soc.* **2012**, *77*, 6970-6979.
4. *Org. Lett.*, **2013**, *15*, 460-463.
5. *J. Am. Chem. Soc.* **2013**, *135*, 17735-17738.

15-0341 (S)-(+)-3,3'-Bis(triphenylsilyl)-1,1'-binaphthyl-2,2'-diyl hydrogen phosphate, 10mg
min. 98% [(S)-TIPSY] (929097-92-7) 100mg
C₅₆H₄₁O₃PSi₂; FW: 865.07; white to light-yellow solid; m.p. 329-335°
Note: Sold in collaboration with Daicel for research purposes only.

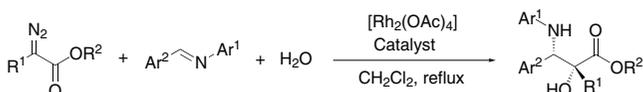
Technical Notes:

1. **Friedel-Crafts Reaction:** Catalyst for the highly enantioselective Friedel-Crafts reactions of indoles with imines.
2. Catalyst used in the highly enantioselective Friedel-Crafts reaction of pyrrole derivatives with N-acyl imines.
3. **Transfer Hydrogenation:** Chiral phosphoric acid catalyzed enantioselective transfer hydrogenation of hydroxylactams to provide enantioenriched tetrahydro-β-carbolines in dioxane at room temperature (up to 94% yield, 90% ee).
4. **Multicomponent Reaction:** Catalyzed by [Rh₂(OAc)₄] and a chiral phosphoric acid, an enantioselective symmetric three-component reaction of diazo compounds with imines and water is reported to give β-amino-α-hydroxy acid derivatives.



PHOSPHORUS (Compounds)

15-0341 (S)-(+)-3,3'-Bis(triphenylsilyl)-1,1'-binaphthyl-2,2'-diyl hydrogen phosphate, min. 98%
(continued) [(S)-TiPSY] (929097-92-7)

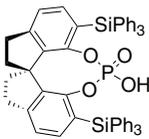
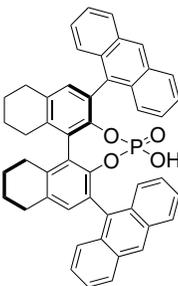
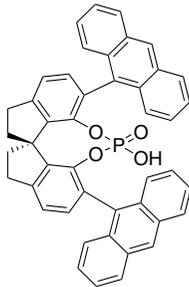


16 examples
up to 86% yield
98:2 dr, 97% e.e.

Tech. Note (4)
Ref. (4)

References:

1. *J. Am. Chem. Soc.* **2007**, *129*, 1484-1485.
2. *Org. Lett.*, **2007**, *9*, 4065-4068.
3. *Org. Lett.*, **2013**, *15*, 2688-2691.
4. *ChemCatChem*, **2011**, *3*, 653-656.

15-0520 NEW	(11aR)-3,7-Bis(triphenylsilyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1372719-94-2) C ₅₃ H ₄₃ O ₅ PSi ₂ ; FW: 831.1; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0524 NEW	(11aS)-3,7-Bis(triphenylsilyl)-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₅₃ H ₄₃ O ₅ PSi ₂ ; FW: 831.1; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0378 NEW	(11bR)-2,6-Di-9-anthracenyl-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin, 95% (99% ee) (1011465-29-4) C ₄₈ H ₃₇ O ₄ P; FW: 708.8; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0382 NEW	(11bS)-2,6-Di-9-anthracenyl-8,9,10,11,12,13,14,15-octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin, 98% (99% ee) C ₄₈ H ₃₇ O ₄ P; FW: 708.8; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0334 NEW	(11aR)-3,7-Di-9-anthracenyl-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) (1345628-08-1) C ₄₈ H ₃₁ O ₄ P; FW: 666.71; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		25mg
15-0335 NEW	(11aS)-3,7-Di-9-anthracenyl-10,11,12,13-tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99% ee) (1393527-23-5) C ₄₈ H ₃₁ O ₄ P; FW: 666.71; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.		25mg

PHOSPHORUS (Compounds)

15-0552

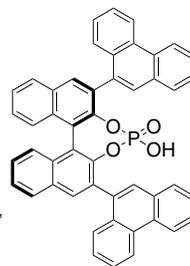
NEW

(11bR)-2,6-Di-9-phenanthrenyl-4-hydroxy-4-oxide-dinaphtho[2,1-d':1',2'-f][1,3,2]dioxaphoshepin, (864943-22-6)

C₄₈H₂₉O₃P; FW: 700.7; white to light yellow powdr.

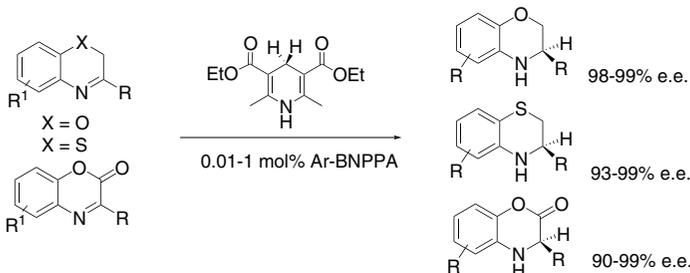
Note: Sold in collaboration with Daicel for research purposes only.

50mg

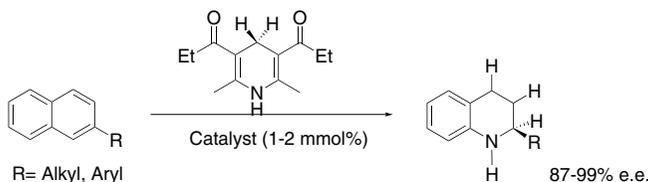


Technical Notes:

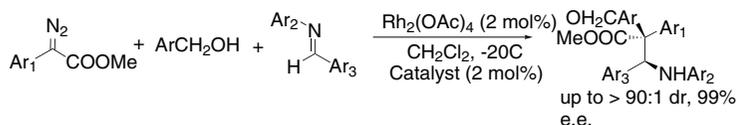
- Hydrogenation:** A highly efficient transfer hydrogenation of benzoxazines, benzothiazines, and benzoxazinones with as low as 0.01 mol% BINOL phosphate catalyst furnishes the dihydro-2H-benzoxazines, -benzothiazines, and -benzoxazinones
- A Brønsted acid catalyzed cascade transfer hydrogenation provides direct access to 2-aryl- and 2-alkyl-substituted tetrahydroquinolines with excellent enantioselectivities under mild conditions and using very low amounts of catalyst.
- Three-Component Reaction:** An asymmetric three-component reaction of diazo compounds and alcohols with imines catalyzed cooperatively by a rhodium complex and a chiral Brønsted acid provides a general and efficient entry to β-amino-α-hydroxyl acid derivatives.
- Diels-Alder Reaction:** A mild, enantioselective Diels-Alder reaction, catalyzed by a chiral magnesium phosphate species, has been developed for the synthesis of various chiral spirooxindoles.



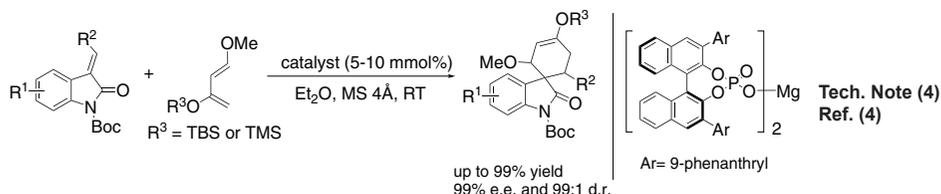
Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)



PHOSPHORUS (Compounds)

15-0552 (11bR)-2,6-Di-9-phenanthrenyl-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, (864943-22-6)

(continued)

References:

1. *Angew. Chem. Int. Ed.*, **2006**, 45, 6751-6755.
2. *Angew. Chem. Int. Ed.*, **2006**, 45, 3683-3686.
3. *J. Am. Chem. Soc.*, **2008**, 130, 7782-7783.
4. *Angew. Chem. Int. Ed.*, **2013**, 52, 4628-4632.

15-0837 (11bS)-2,6-Di-9-phenanthrenyl-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, **98%** (1043567-32-3) 50mg

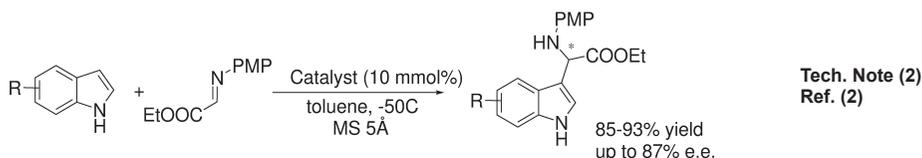
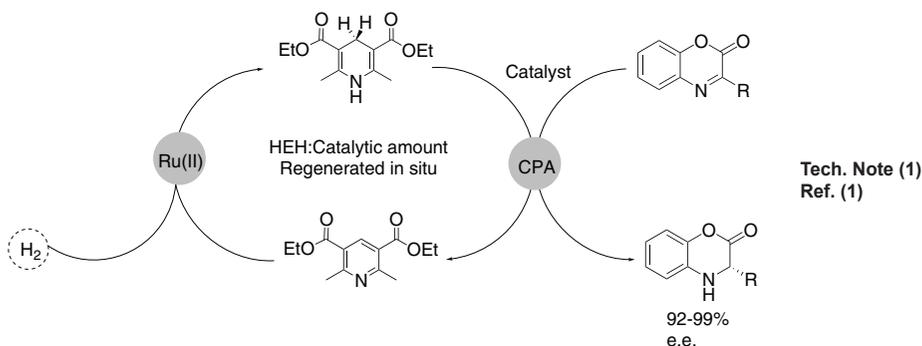
NEW

$C_{48}H_{29}O_4P$; FW: 700.71; red brown powdr.

Note: Sold in collaboration with Daicel for research purposes only.

Technical Notes:

1. **Hydrogenation:** A catalytic amount of Hantzsch ester that could be regenerated in situ by Ru complexes under hydrogen gas has been employed in the biomimetic asymmetric hydrogenation of benzoxazinones with up to 99% ee in the presence of chiral phosphoric acid.
2. **Friedel-Crafts Reaction:** Chiral phosphoric acid-catalyzed enantioselective Friedel-Crafts reaction of indoles with ethyl glyoxylate imines was developed. With 10 mol% of the catalyst.



References:

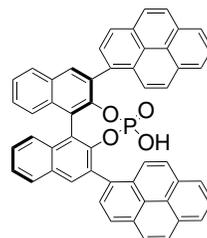
1. *J. Am. Chem. Soc.*, **2011**, 133, 16432-16435.
2. *Tetrahedron. Lett.*, **2009**, 65, 1603-1607.

15-0364 (11bR)-2,6-Di-1-pyrenyl-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, **98%**, (**99%** ee) 50mg

NEW

$C_{52}H_{31}O_4P$; FW: 748.80; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.



15-0365 (11bS)-2,6-Di-1-pyrenyl-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, **98%**, (**99%** ee) 50mg

NEW

$C_{52}H_{31}O_4P$; FW: 748.8; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

PHOSPHORUS (Compounds)

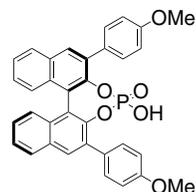
15-0309

NEW

(11bR)-4-Hydroxy-2,6-bis(4-methoxyphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (695162-88-0)

C₃₄H₂₅O₆P; FW: 560.50; white to yellow powdr.

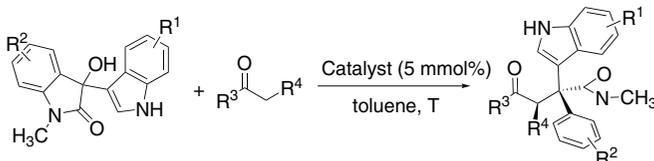
Note: Sold in collaboration with Daicel for research purposes only.



50mg

Technical Note:

1. **Alkylation:** A Brønsted acid catalyzed alkylation of ketones is described.



Tech. Note (1)
Ref. (1)
up to 98% yield
99:1 d.r. 97%
e.e.
25 examples

References:

1. *Angew. Chem. Int. Ed.*, **2012**, *51*, 1899-1902.

15-0308

NEW

(11bS)-4-Hydroxy-2,6-bis(4-methoxyphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1374030-19-9)

C₃₄H₂₅O₆P; FW: 560.5; white to yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

50mg

Technical Note:

1. See 15-0309 (page 41)

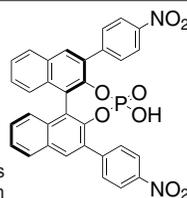
15-0344

NEW

(11bR)-4-Hydroxy-2,6-bis(4-nitrophenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (695162-89-1)

C₃₂H₁₉N₂O₈P; FW: 590.5; white to yellow powdr.

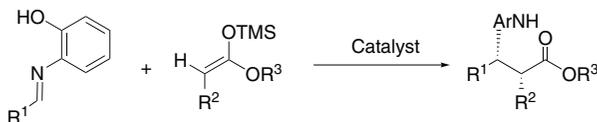
Note: Sold in collaboration with Daicel for research purposes only.



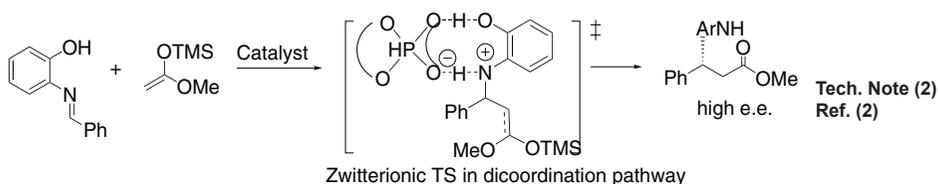
50mg

Technical Notes:

1. **Mannich Reaction:** The Mannich-type reaction of ketene silyl acetals with aldimines proceeded highly enantioselectively to afford the syn isomer of β -aminoesters **3** with up to 96% ee under the influence of the catalyst.
2. Mannich-type reaction of ketene silyl acetals with aldimines proceeded catalytically by means of a phosphoric acid diester with good diastereoselectivity and high enantioselectivity (up to 96% ee). The highest enantioselectivity was achieved by the phosphoric acid diester bearing 4-nitrophenyl groups on the 3,3'-positions of BINOL.
3. **Self-Coupling Reaction:** The enantioselective BINOL-phosphate catalyzed formation of a quaternary carbon center, bearing a N-atom has been achieved through the self-coupling reaction of enamides
4. **Hydrocyanation:** A first organocatalytic enantioselective route was developed for the conversion of readily prepared and air stable aliphatic hydrazones to synthetically valuable α -hydrazinonitriles.
5. See 15-1386.



Tech. Note (1)
Ref. (1)

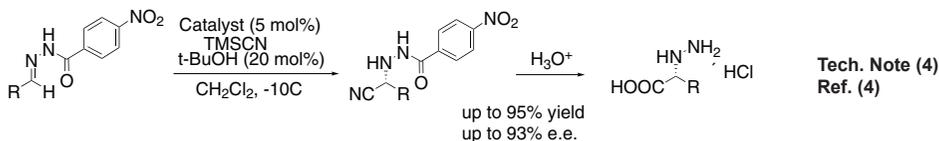
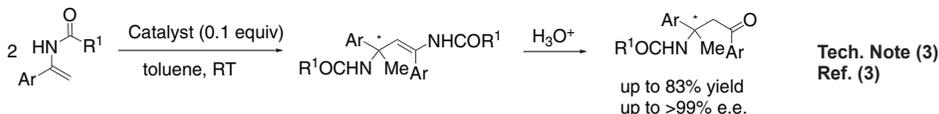


Tech. Note (2)
Ref. (2)
high e.e.

Zwitterionic TS in dicoordination pathway

PHOSPHORUS (Compounds)

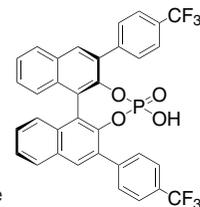
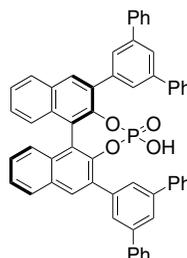
15-0344 (11bR)-4-Hydroxy-2,6-bis(4-nitrophenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (695162-89-1)



References:

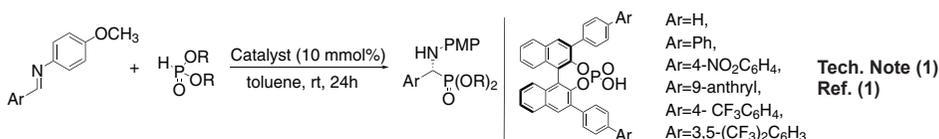
1. *Angew. Chem. Int. Ed.*, **2004**, 43, 1566-1568.
2. *J. Am. Chem. Soc.*, **2007**, 129, 6756-6764.
3. *Chem. Commun.*, **2008**, (38), 4637-4639
4. *Org. Lett.*, **2010**, 12, 188-191.

15-0346 NEW	(11bS)-4-Hydroxy-2,6-bis(4-nitrophenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (878111-16-1) C ₃₂ H ₁₉ N ₂ O ₈ P; FW: 590.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0348 NEW	(11bR)-4-Hydroxy-2,6-bis([1,1':3',1''-terphenyl]-5'-yl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (361342-55-4) C ₅₆ H ₃₇ O ₄ P; FW: 804.9; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0317 NEW	(11bS)-4-Hydroxy-2,6-bis([1,1':3',1''-terphenyl]-5'-yl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1496637-05-8) C ₅₆ H ₃₇ O ₄ P; FW: 804.90; white to yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-1392 NEW	(11bR)-4-Hydroxy-2,6-bis[4-(trifluoromethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 95%, (99% ee) (791616-59-6) C ₃₄ H ₁₉ F ₆ O ₄ P; FW: 636.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg



Technical Note:

1. **Hydrophosphonylation:** Catalyst for the highly enantioselective hydrophosphonylation reaction of diisopropyl phosphite with aldimine to give α-amino.



References:

1. *Tetrahedron Lett.*, **2009**, 65, 4950-4956.

PHOSPHORUS (Compounds)

15-1393 (11bS)-4-Hydroxy-2,6-bis[4-(trifluoromethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 95%, (99% ee) (1264573-23-0) 100mg

NEW

$C_{34}H_{19}F_6O_4P$; FW: 636.5; white to light yellow powder.

Note: Sold in collaboration with Daicel for research purposes only.

15-3713 (11bS)-4-Hydroxy-2,6-bis(2,4,6-trimethylphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin (878111-18-3) 50mg

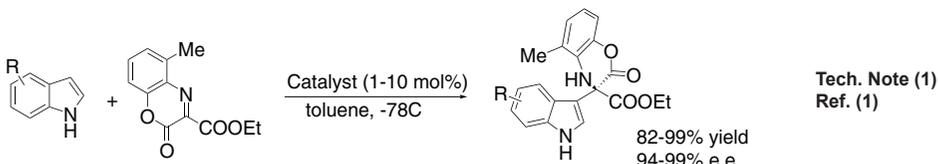
NEW

$C_{38}H_{33}O_4P$; FW: 584.64; white to yellow powder.

Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

- Addition:** Catalyst for the enantioselective addition of indoles to ketamine.



References:

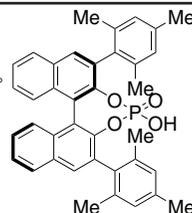
- Org. Biomol. Chem.*, **2014**, *12*, 724-727.

15-3712 (11bR)-4-Hydroxy-2,6-bis(2,4,6-trimethylphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (695162-87-9) 50mg

NEW

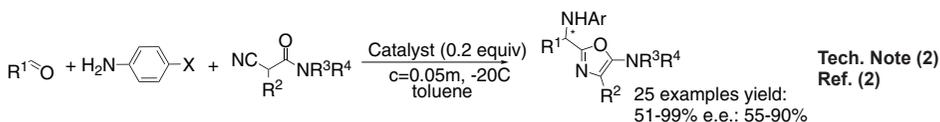
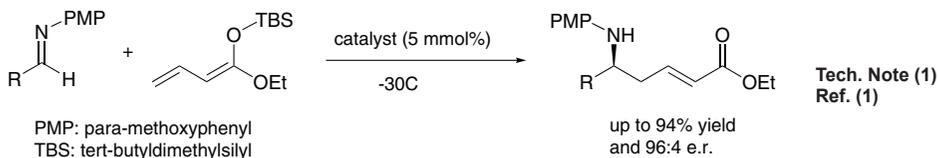
$C_{38}H_{33}O_4P$; FW: 584.64; white to yellow powder; m.p. 224-230.5°

Note: Sold in collaboration with Daicel for research purposes only.



Technical Notes:

- Mannich Reaction:** Catalyst for the enantioselectively highly-regioselective addition of a silyl dienolate to imines in good yields to give α,β -unsaturated δ -amino carboxylic esters in one step.
- Reactions of aldehydes, anilines, and α -isocyanacetamides in the presence of a catalytic amount of chiral phosphoric acid afforded the 5-(1-aminoalkyl)-5-aminooxazole.



References:

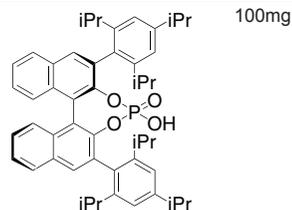
- Angew. Chem. Int. Ed.*, **2008**, *47*, 3631-3634.
- Angew. Chem. Int. Ed.*, **2009**, *48*, 6717-6721.

PHOSPHORUS (Compounds)

15-1381

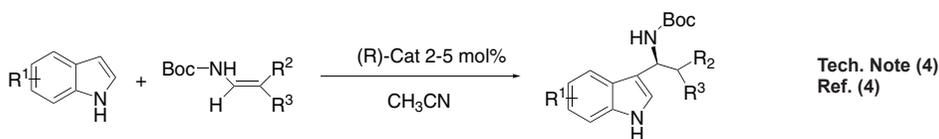
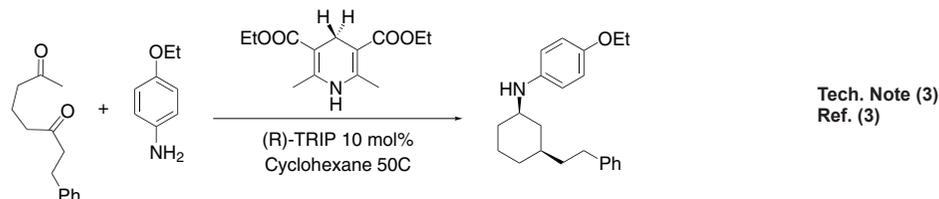
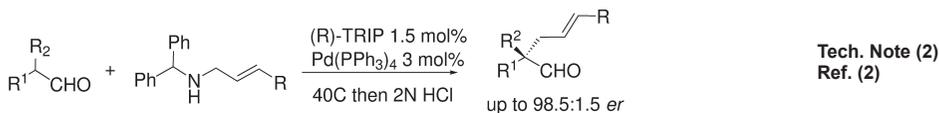
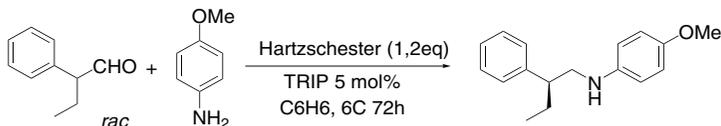
NEW

(11bR)-4-Hydroxy-2,6-bis[2,4,6-tris(1-methylethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (791616-63-2)
 $C_{50}H_{57}O_4P$; FW: 753.0; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



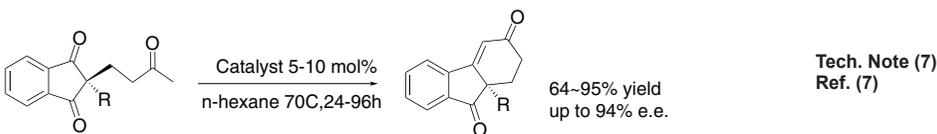
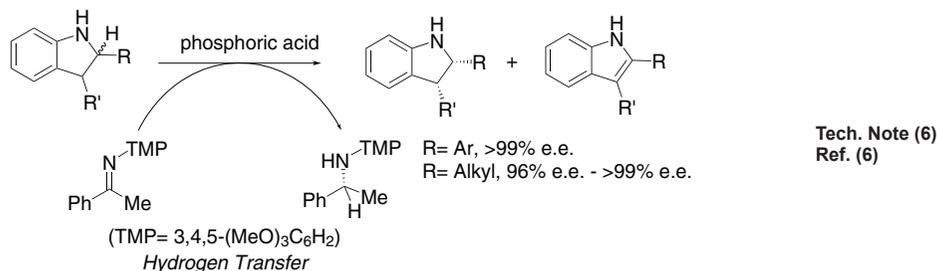
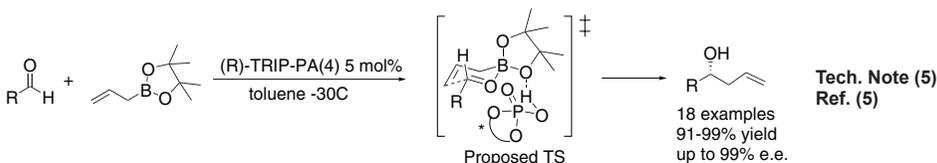
Technical Notes:

- Reductive Amination:** Catalyst for the organocatalytic asymmetric reductive amination of aldehydes. Treating racemic α -branched aldehydes with *p*-anisidine and a Hantzsch ester in the presence of catalyst, TRIP, gave β -branched secondary amines.
- α -Allylation:** Highly enantioselective Pd/chiral acid-catalyzed α -allylation of α -branched aldehydes with an allyl amine as the allylating species, that creates all-carbon quaternary stereogenic centers in high yields and enantioselectivities.
- Hydrogenation:** A achiral amine in combination with a catalytic amount of a chiral Brønsted acid can accomplish an aldol addition-dehydration-conjugate reduction-reductive amination to provide potential intermediates of pharmaceutically active compounds in good yields and excellent enantioselectivities.
- Friedel-Crafts Reaction:** The first enantioselective catalysis of the Friedel-Crafts reaction via activation of electron-rich multiple bonds by a chiral Brønsted acid.
- Allylboration:** A new high-yielding and highly enantioselective chiral Brønsted acid-catalyzed allylboration of aldehydes.
- Aza-Darzens Reaction:** Aza-Darzens reaction of ethyl diazoacetate with aldimines, derived from phenyl glyoxal, furnished cis-aziridine carboxylates with excellent enantioselectivities by means of a chiral phosphoric acid.
- Intramolecular Aldol Condensation:** Transformation applicable to a wide variety of substrates to give chiral cyclohexenones in high yields and with excellent enantioselectivity.



PHOSPHORUS (Compounds)

15-1381 (11bR)-4-Hydroxy-2,6-bis[2,4,6-tris(1-methylethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (791616-63-2)



References:

1. *J. Am. Chem. Soc.*, **2006**, *128*, 13074-13075.
2. *J. Am. Chem. Soc.*, **2007**, *129*, 11336-11337.
3. *J. Am. Chem. Soc.*, **2007**, *129*, 7498-7499.
4. *J. Am. Chem. Soc.*, **2007**, *129*, 292-293.
5. *J. Am. Chem. Soc.*, **2010**, *132*, 11884-11886.
6. *J. Am. Chem. Soc.*, **2013**, *135*, 11740-11743.
7. *Angew. Chem. Int. Ed.*, **2009**, *48*, 9652-9654.

15-1382 (11bS)-4-Hydroxy-2,6-bis[2,4,6-tris(1-methylethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (874948-63-7) 100mg

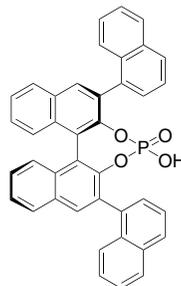
NEW

C₅₀H₅₇O₄P; FW: 753.0; white to light yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.

15-1388 (11bR)-4-Hydroxy-2,6-di-1-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) 100mg

NEW

C₄₀H₂₅O₄P; FW: 600.6; white to light yellow powdr.
Note: Sold in collaboration with Daicel for research purposes only.



PHOSPHORUS (Compounds)

15-1389

NEW

(11bS)-4-Hydroxy-2,6-di-1-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (929097-93-8)

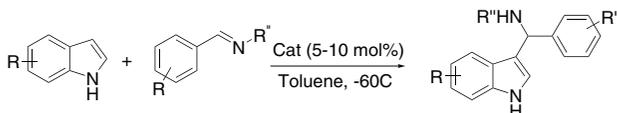
C₄₀H₂₅O₄P; FW: 600.6; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

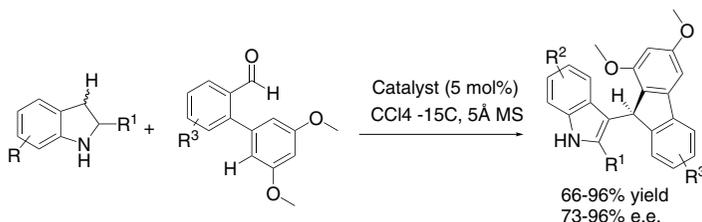
25mg
100mg

Technical Notes:

- Friedel-Crafts Reaction:** Catalyst for the Highly enantioselective Friedel-Crafts reactions of indoles with imines.
- Chiral phosphoric acid catalyzed tandem double Friedel-Crafts reactions between indoles and 2-formylbiphenyls were realized under mild conditions.



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

- J. Am. Chem. Soc.*, **2007**, *129*, 1484-1485.
- Chem. Eur. J.*, **2009**, *15*, 8709-8712.

15-1390

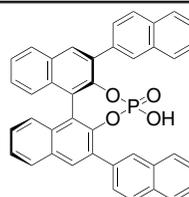
NEW

(11bR)-4-Hydroxy-2,6-di-2-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (791616-56-3)

C₄₀H₂₅O₄P; FW: 600.6; white to light yellow powdr.

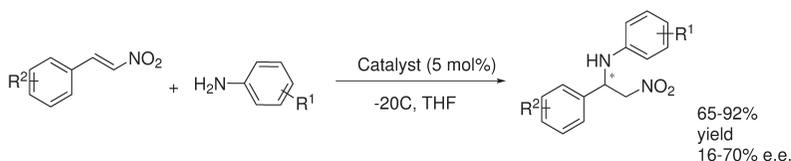
Note: Sold in collaboration with Daicel for research purposes only.

100mg

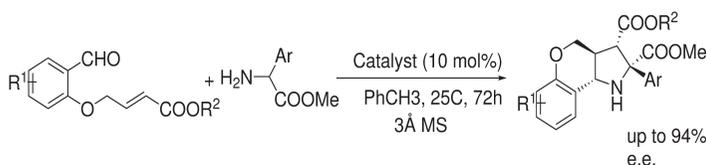


Technical Notes:

- aza-Michael Addition:** Catalyst for the enantioselective aza-Michael addition of aromatic amines to nitroolefins.
- Cycloaddition:** A chiral phosphoric acid-catalyzed intramolecular 1,3-dipolar cycloaddition of 4-(2-formylphenoxy)butenoates with amino esters provides hexahydrobenzo[4,3-b]pyrrolidine derivatives in high enantioselectivity (up to 94% ee).



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

- Chinese J Catal*, **2011**, *32*, 1573-1576.
- Org. Biomol. Chem.*, **2010**, *8*, 2016-2019.

PHOSPHORUS (Compounds)

15-1391

NEW

(11bS)-4-Hydroxy-2,6-di-2-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (874948-60-4)

C₄₀H₂₅O₄P; FW: 600.6; white to light yellow powdr.

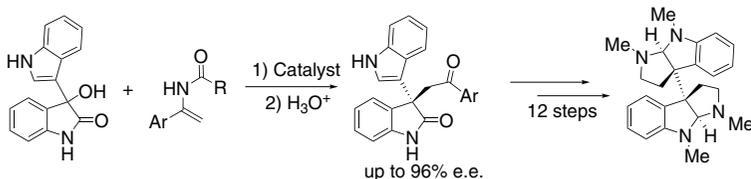
Note: Sold in collaboration with Daicel for research purposes only.

25mg

100mg

Technical Note:

- Nucleophilic Substitution:** Catalyst for the nucleophilic substitution involving 3-hydroxyoxindoles giving 3,3'-disubstituted oxindoles with concomitant generation of an all-carbon quaternary stereogenic center in high yield and excellent enantioselectivity.



Tech. Note (1)
Ref. (1)

References:

- Angew. Chem. Int. Ed.*, **2012**, *51*, 1046-1050.

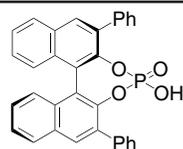
15-1386

NEW

(11bR)-4-Hydroxy-2,6-diphenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (695162-86-8)

C₃₂H₂₁O₄P; FW: 500.5; white to light yellow powdr.

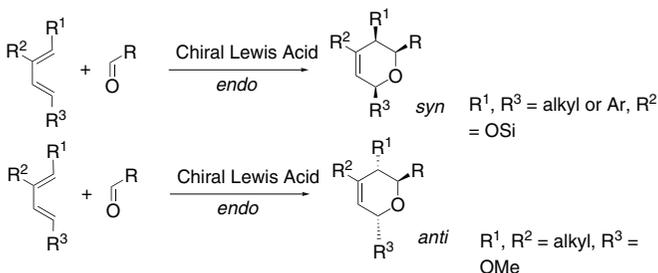
Note: Sold in collaboration with Daicel for research purposes only.



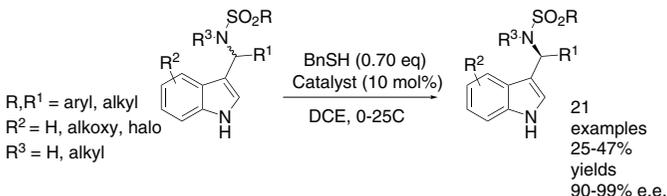
100mg

Technical Notes:

- Diels-Alder Reaction:** A highly enantioselective anti-diastereoselective hetero-Diels-Alder reaction between a glyoxylate and siloxy- or methoxydienes using a chiral phosphoric acid catalyst that possesses less bulky phenyl groups at the 3 and 3' positions of binaphthyl has been developed.
- Kinetic Resolution:** In the presence of 10 mol% of a chiral phosphoric acid, a variety of racemic N-benzylic sulfonamides having N-(3-indolyl)methyl groups smoothly undergo kinetic resolution with benzyl thiol at 0 °C or at room temperature and the remaining sulfonamides are recovered in moderate to excellent yields and with excellent ee.



Tech. Note (1)
Ref. (1)



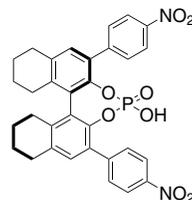
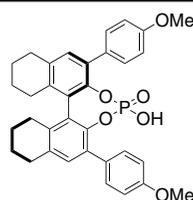
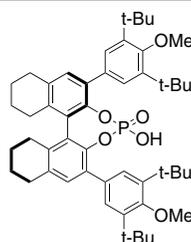
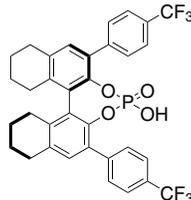
Tech. Note (2)
Ref. (2)

References:

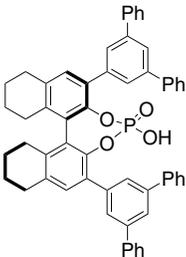
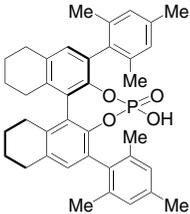
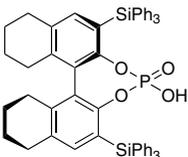
- J. Am. Chem. Soc.*, **2009**, *131*, 12882-12883.
- Chem. Commun.*, **2012**, *48*, 898-900.

PHOSPHORUS (Compounds)

15-1387 NEW	(11bS)-4-Hydroxy-2,6-diphenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (874948-59-1) C ₃₂ H ₂₁ O ₃ P; FW: 500.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
15-0404 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis[4-(trifluoromethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (791616-70-1) C ₃₄ H ₂₇ F ₆ O ₄ P; FW: 644.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0406 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis[4-(trifluoromethyl)phenyl]-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₃₄ H ₂₇ F ₆ O ₄ P; FW: 644.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0436 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(3,5-di-tert-butyl-4-methoxyphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₅₀ H ₆₅ O ₈ P; FW: 793.0; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0438 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(3,5-di-tert-butyl-4-methoxyphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₅₀ H ₆₅ O ₈ P; FW: 793.0; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0408 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(4-methoxyphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (1011465-27-2) C ₃₄ H ₃₃ O ₆ P; FW: 568.6; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0412 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(4-methoxyphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₃₄ H ₃₃ O ₆ P; FW: 568.6; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0414 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(4-nitrophenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (791616-68-7) C ₃₂ H ₂₇ N ₂ O ₈ P; FW: 598.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0416 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(4-nitrophenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₃₂ H ₂₇ N ₂ O ₈ P; FW: 598.5; white to light yellow powdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg

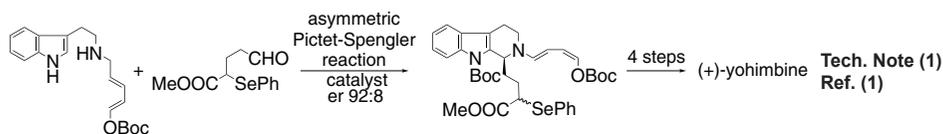


PHOSPHORUS (Compounds)

15-0394 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis([1,1':3',1''-terphenyl]-5'-yl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (1569807-15-3) C ₅₆ H ₄₅ O ₄ P; FW: 812.9; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0396 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis([1,1':3',1''-terphenyl]-5'-yl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (1496637-09-2) C ₅₆ H ₄₅ O ₄ P; FW: 812.9; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0424 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(2,4,6-trimethylphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (1011465-23-8) C ₃₈ H ₄₁ O ₄ P; FW: 592.7; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0434 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(2,4,6-trimethylphenyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) C ₃₈ H ₄₁ O ₄ P; FW: 592.7; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
15-0820 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(triphenylsilyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (957790-94-2) C ₅₆ H ₄₉ O ₄ PSi ₂ ; FW: 873.13; white to yellow pwdr.; m.p. >264° Note: Sold in collaboration with Daicel for research purposes only.		50mg

Technical Note:

- Pictet-Spengler Reaction:** The binolphosphoric acid-catalyzed Pictet-Spengler reaction of an N-(5-oxy-2,4-pentadienyl)tryptamine derivative with methyl 5-oxo-2-(phenylseleno)pentanoate leads to the tetrahydro-β-carboline in a 92:8 enantiomeric ratio.



References:

- J. Org. Chem., 2011, 76, 8907-8912.

15-0821 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-bis(triphenylsilyl)-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1157989-25-7) C ₅₆ H ₄₉ O ₄ PSi ₂ ; FW: 873.13; white to yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.		50mg
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PHOSPHORUS (Compounds)

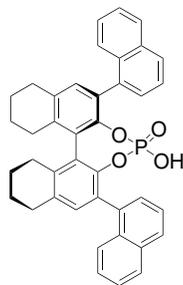
15-1383

NEW

(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-1-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1242066-20-1)

C₄₀H₃₃O₄P; FW: 608.7; white to light yellow powdr.

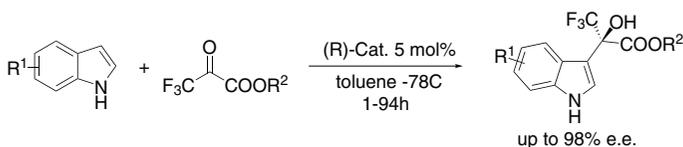
Note: Sold in collaboration with Daicel for research purposes only.



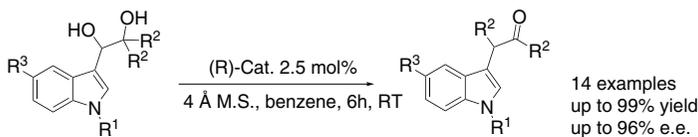
25mg
100mg

Technical Notes:

- Friedel-Crafts Alkylation:** Chiral phosphoric acid catalyzed Friedel-Crafts alkylation of indoles with 3,3,3-trifluoropropylate gave the corresponding adducts in excellent yields with high enantioselectivities.
- Pinacol Rearrangement:** It has been found that indolyl diols can be treated with chiral phosphoric acids to effect a regio- and enantioselective pinacol rearrangement with high efficiency.



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)

References:

- Asian J. Chem.*, **2010**, 5, 470-472.
- Angew. Chem. Int. Ed.*, **2010**, 49, 9734-9736.

15-1384

NEW

(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-1-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee)

C₄₀H₃₃O₄P; FW: 608.7; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

25mg
100mg

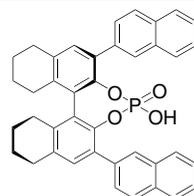
15-1378

NEW

(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-2-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (922711-75-9)

C₄₀H₃₃O₄P; FW: 608.7; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.



25mg
100mg

Technical Notes:

- The preparation of binaphthol monophosphoric acid derivatives.
- Organocatalyst developed for the diastereo- and enantioselective 1,4-conjugate addn. of a variety of β-ketoesters to nitroolefins, employed in the addn. reaction, providing the corresponding nitroalkanes in high yield (up to 97%) with moderate diastereoselectivities (up to 2.6:1 dr) and enantioselectivities (up to 58% ee).

References:

- JP 4725757, EP 1038877, US 6274745, 2000-3-21.
- Lett. in Org. Chem.*, **2010**, 7, 219-225.

15-1379

NEW

(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-2-naphthalenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee)

C₄₀H₃₃O₄P; FW: 608.7; white to light yellow powdr.

Note: Sold in collaboration with Daicel for research purposes only.

25mg
100mg

Technical Note:

- The preparation of binaphthol monophosphoric acid derivatives.

References:

- JP 4725757, EP 1038877, US 6274745, 2000-3-21.

PHOSPHORUS (Compounds)

15-0376 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-9-phenanthrenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 95% (99% ee) (1028416-47-8) $C_{48}H_{37}O_4P$; FW: 708.8; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0566 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-9-phenanthrenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (934201-93-1) $C_{48}H_{37}O_4P$; FW: 708.8; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-1396 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-diphenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (791616-65-4) $C_{32}H_{29}O_4P$; FW: 508.5; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	100m
15-1397 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-diphenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (945852-48-2) $C_{32}H_{29}O_4P$; FW: 508.5; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
15-0444 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-1-pyrenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) (1225195-02-7) $C_{52}H_{37}O_4P$; FW: 756.8; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0446 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-2,6-di-1-pyrenyl-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98% (99% ee) $C_{52}H_{37}O_4P$; FW: 756.8; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-1370 NEW	(11bR)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (297752-25-1) $C_{20}H_{21}O_4P$; FW: 356.4; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg
15-1371 NEW	(11bS)-8,9,10,11,12,13,14,15-Octahydro-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin, 98%, (99% ee) (1193697-61-8) $C_{20}H_{21}O_4P$; FW: 356.4; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	100mg

Technical Note:

1. The preparation of binaphthol monophosphoric acid derivatives.

References:

1. JP 4725757, EP 1038877, US 6274745, 2000-3-21.

Technical Note:

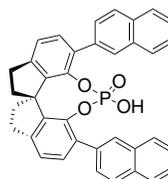
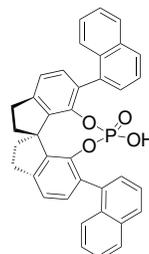
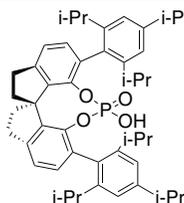
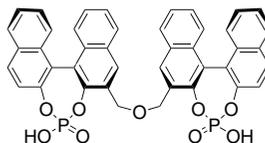
1. The preparation of binaphthol monophosphoric acid derivatives.

References:

1. JP 4725757, EP 1038877, US 6274745, 2000-3-21.

PHOSPHORUS (Compounds)

15-0356 NEW	(11bS,11'bS)-2,2'-[Oxybis(methylene)]bis[4-hydroxy-4,4'-dioxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin], 95% (99% ee) (1447217-75-5) C ₄₂ H ₂₈ O ₉ P ₂ ; FW: 738.6; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0354 NEW	(11bR,11'bR)-2,2'-[Oxybis(methylene)]bis[4-hydroxy-4,4'-dioxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphopin], 98% (99% ee) (1022915-09-8) C ₄₂ H ₂₈ O ₉ P ₂ ; FW: 738.6; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0574 NEW	(11aR)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-bis[2,4,6-trisopropylphenyl]-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 95% (99% ee) (1372719-95-3) C ₄₇ H ₅₉ O ₄ P; FW: 718.9; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0464 NEW	(11aS)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-bis[2,4,6-trisopropylphenyl]-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1258276-28-6) C ₄₇ H ₅₉ O ₄ P; FW: 718.9; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0377 NEW	(11aR)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-di-1-naphthalenyl-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1297613-73-0) C ₃₇ H ₂₇ O ₄ P; FW: 566.59; white to yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-2185 NEW	(11aS)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-di-1-naphthalenyl-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin 98% (99% ee) (1258327-08-0) C ₃₇ H ₂₇ O ₄ P; FW: 566.59; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-2190 NEW	(11aR)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-di-2-naphthalenyl-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) (1297613-74-1) C ₃₇ H ₂₇ O ₄ P; FW: 566.59; white to light yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg
15-0290 NEW	(11aS)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-di-2-naphthalenyl-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98% (99% ee) C ₃₇ H ₂₇ O ₄ P; FW: 566.59; white to yellow pwdr. Note: Sold in collaboration with Daicel for research purposes only.	50mg



PHOSPHORUS (Compounds)

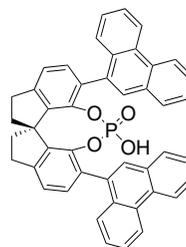
15-1363

(11aR)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-di-9-phenanthrenyl-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, min. 98% (1372719-93-1)

C₄₅H₃₁O₂P; FW: 666.70; white to light yellow pwr.

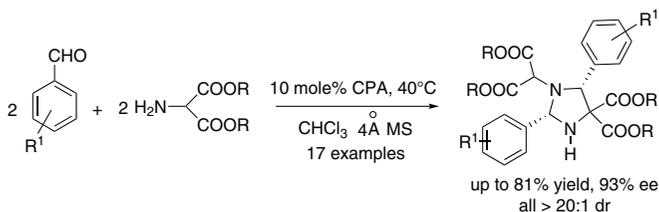
Note: Sold in collaboration with Daicel for research purposes only.

25mg
100mg

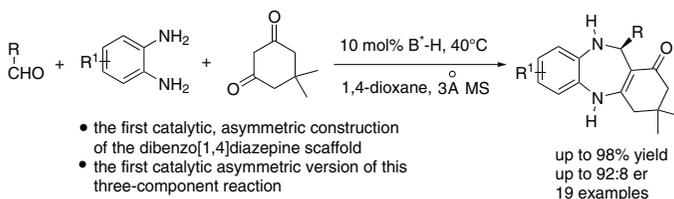


Technical Notes:

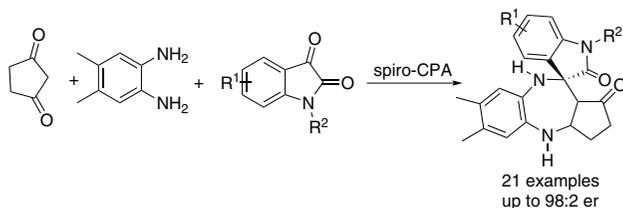
1. Catalytic asymmetric homo-1,3-dipolar cycloadditions of azomethine ylides: diastereo and enantioselective synthesis of imidazolines.
2. Enantioselective construction of the biologically significant dibenzo[1,4]diazepine scaffold via organocatalytic asymmetric three-component reactions.
3. Enantioselective construction of the biologically important cyclopenta[1,4]diazepine framework enabled by asymmetric catalysis by chiral spiro-phosphoric acid.
4. Triply hydrogen-bond-directed enantioselective assembly of pyrrolobenzo-1,4-diazine skeletons with quaternary stereocenters.



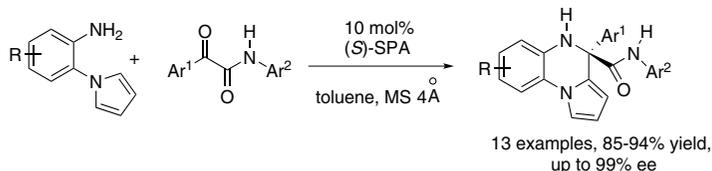
Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)



Tech. Note (4)
Ref. (4)

References:

1. *Tetrahedron Asymmetry*, **2014**, 25, 617.
2. *Adv. Synth. Catal.*, **2009**, 356, 2009.
3. *Eur. J. Org. Chem.*, **2015**, 2015, 7926.
4. *Chem-Eur. J.*, **2015**, 21, 9039.

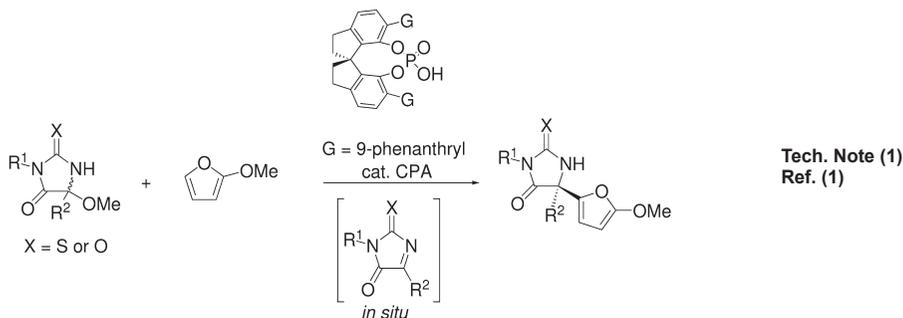
PHOSPHORUS (Compounds)

15-1364 (11aS)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-di-9-phenanthrenyl-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, min. 98% (1585988-92-6) 25mg
 C₄₆H₃₁O₄P; FW: 666.70; white to light yellow powdr. 100mg

Note: Sold in collaboration with Daicel for research purposes only.

Technical Note:

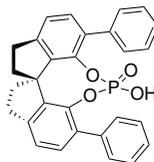
- Chiral Bronsted, acid-catalyzed, enantioselective Friedel-Crafts reaction of 2-methoxyfuran with aliphatic ketimines generated in situ.



References:

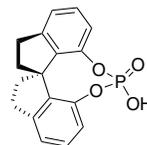
- Chem. Sci.*, **2016**, 7, 1057.

15-2170 (11aR)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-diphenyl-diindeno[7,1-de:1',7'-fg] [1,3,2]dioxaphosphocin, 98% (99% ee) (1297613-72-9) 50mg
NEW C₂₉H₂₃O₄P; FW: 466.46; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



15-2171 (11aS)-10,11,12,13-Tetrahydro-5-hydroxy-3,7-diphenyl-diindeno[7,1-de:1',7'-fg] [1,3,2]dioxaphosphocin, 98% (99% ee) (1258327-04-6) 50mg
NEW C₂₉H₂₃O₄P; FW: 446.46; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.

15-5965 (11aR)-10,11,12,13-Tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg][1,3,2]dioxaphosphocin, 98%, (99%) (1352810-35-5) 100mg
NEW C₁₇H₁₅O₄P; FW: 314.27; white to yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.



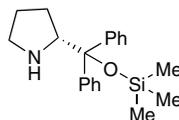
15-5966 (11aS)-10,11,12,13-Tetrahydro-5-hydroxy-5-oxide-diindeno[7,1-de:1',7'-fg] [1,3,2]dioxaphosphocin, 98%, (99% ee) (1258327-03-5) 100mg
NEW C₁₇H₁₅O₄P; FW: 314.27; orange powdr.
 Note: Sold in collaboration with Daicel for research purposes only.

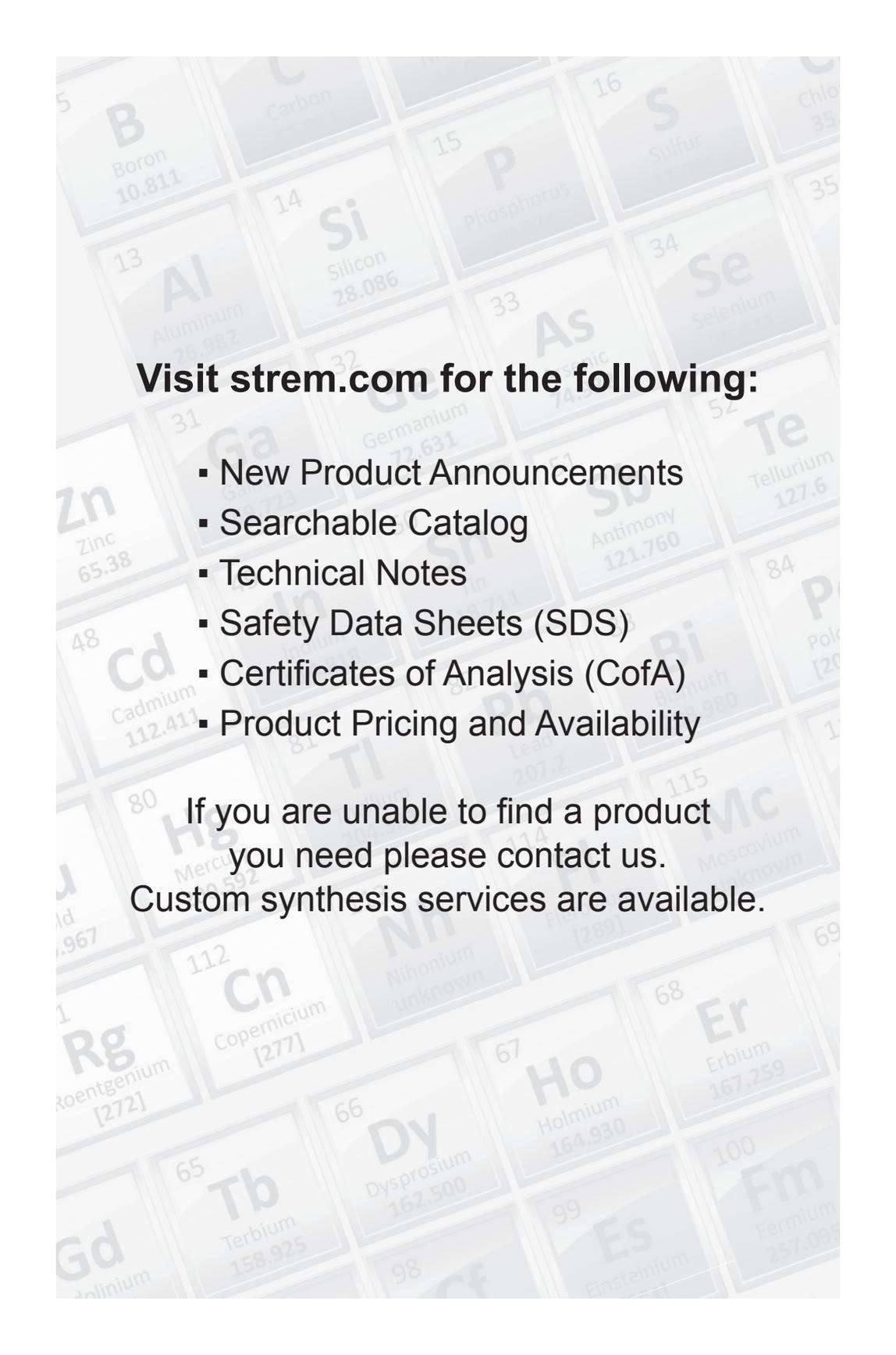
SILICON (Compounds)

14-5023 (R)-3,3'-Bis(triphenylsilyl)-5,5',6,6',7,7',8,8'-octahydro-1,1'-bi-2,2'-naphthol, 98% (99% ee) (1041186-22-4) 50mg
NEW C₅₆H₅₀O₂Si₂; FW: 811.17; white to light yellow powdr.
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14-5024 (S)-3,3'-Bis(triphenylsilyl)-5,5',6,6',7,7',8,8'-octahydro-1,1'-bi-2,2'-naphthol, 98% (99% ee) 50mg
NEW C₅₆H₅₀O₂Si₂; FW: 811.17; white to light yellow powdr.
 Note: Sold in collaboration with Daicel for research purposes only.

07-7234 (R)-Diphenylprolinol trimethyl silyl ether, 95% (99% ee) 1g
NEW (943757-71-9)
 FW: 325.5; white to light brown viscous liq.
 (store cold)
 Note: Sold in collaboration with Daicel for research purposes only.



The background of the entire page is a grayscale, semi-transparent periodic table of elements. The elements are arranged in their standard grid pattern, with their symbols, atomic numbers, and names visible. The text is overlaid on this background.

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