

STREM CATALOG

Part of Ascensus Specialties



Solvias (R)- and (S)-MeO BIPHEP Ligand Kits

Sold in collaboration with Solvias for research purposes only.

Catalog #96-3655 Solvias (R)-MeO-BIPHEP Ligand Kit

Components include 100mg of the seven items listed below:

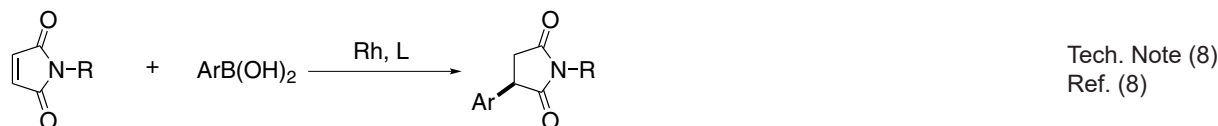
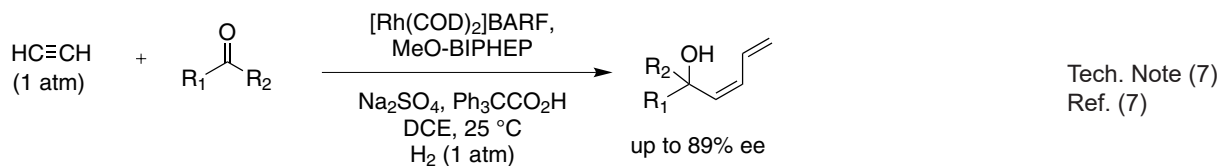
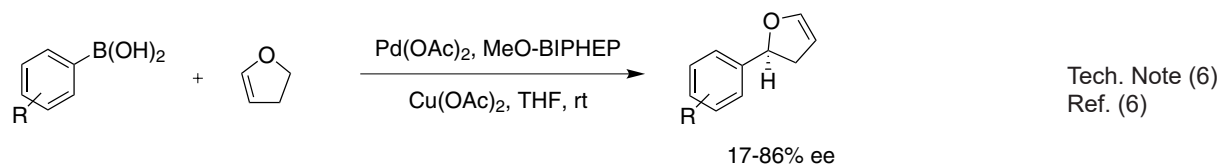
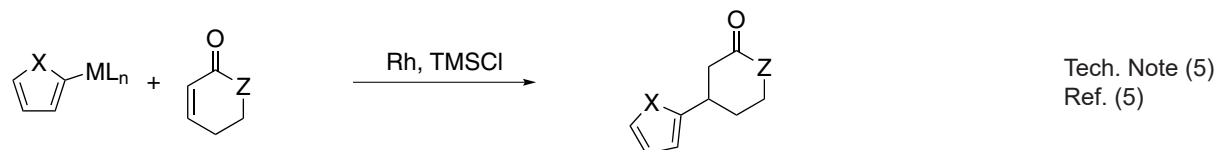
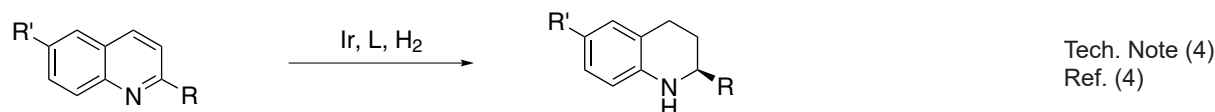
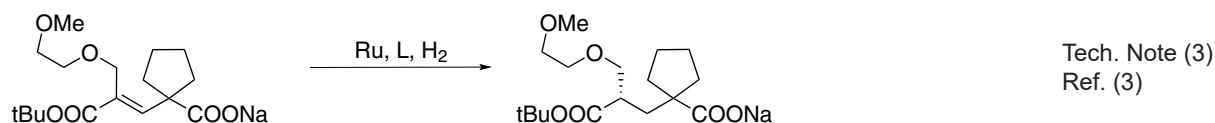
| | | |
|--------------------|--------------------|--------------------|
| 15-0178 | 15-0112 | 15-048 |
| 15-0654 | 15-0156 | 15-0044 |
| 15-0652 | | |

15-0178 (R)-(+)-2,2'-Bis(diphenylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (R)-MeO-BIPHEP 100mg
 (133545-16-1) 500mg
 $C_{38}H_{32}O_2P_2$; FW: 582.53; off-white xtl. 2g
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit 10g
 component.

In many respects the catalytic profile of the MeOBIPHEP ligands is similar to that of other atropisomeric diphosphines such as binap and its many analogs. The nature of the PR₂ group strongly influences the catalytic performance of the metal complexes. The rhodium and ruthenium MeO-BIPHEP catalysts are highly effective for the hydrogenation of various C=O, C=C and C=N bonds and several synthetically useful C-C coupling reactions

Technical Notes:

1. See 15-0042.
2. Ru and Ir catalyzed dynamic kinetic resolution for the synthesis of hydroxy, amino acid derivatives.
3. Ru-catalyzed asymmetric hydrogenation of ketones and alkenes.
4. Ir catalyzed enantioselective hydrogenation of heteroaromatic compounds.
5. Conjugate addition using 2-heteroaryl titanates and zinc reagents.
6. Enantio- and regioselective heck-type reaction of aryl boronic acids with 2,3-dihydrofuran.
7. Rhodium-catalyzed carbonyl Z-dienylation.
8. Rhodium-catalyzed asymmetric 1,4 addition of arylboronic acids to maleimides and enones.



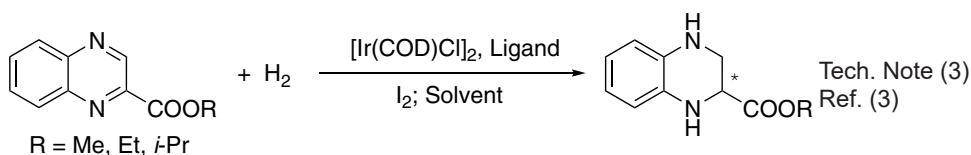
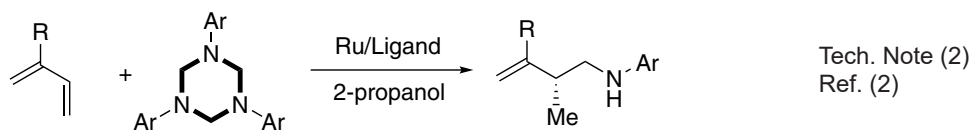
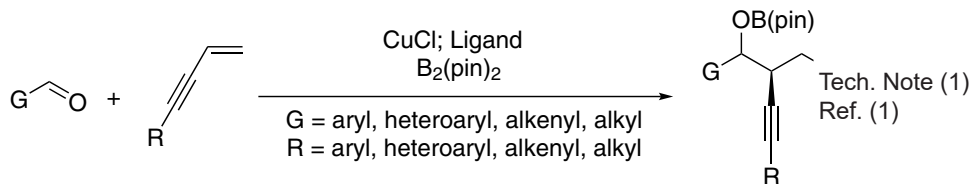
References:

1. *Adv. Synth. Catal.*, **2004**, 346, 842.
2. *Org. Lett.*, **2006**, 8, 4573.
3. *Org. Process Res. Devel.*, **2001**, 5, 438.
4. *J. Am. Chem. Soc.*, **2003**, 125, 10536.
5. *Org. Lett.*, **2009**, 11, 4200.
6. *J. Org. Chem.*, **2007**, 72, 3875.
7. *J. Am. Chem. Soc.*, **2006**, 128, 16040.
8. *J. Org. Chem.*, **2011**, 76, 6925.

15-0112 (R)-(+)-2,2'-Bis(di-2-furanylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (145214-57-9) 100mg
 $C_{30}H_{24}O_6P_2$; FW: 542.47; off-white powdr. 500mg
 (store cold) 2g
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit component. 10g

Technical Notes:

1. Cu-catalyzed diastereo- and enantioselective reactions of bis(pinacolato)diboron 1,3-enynes and aldehydes.
2. Ru-catalyzed enantioselective, hydroaminomethylation of dienes and isoprene with 1,3,5-tris(aryl)-hexahydro-1,3,5-triazines.
3. Ir-catalyzed asymmetric hydrogenation of quinoxaline-2-carboxylates.



References:

1. *J. Am. Chem. Soc.*, **2014**, 136, 11304.
2. *Chem. Sci.*, **2016**, 7, 136.
3. *Tetrahedron*, **2016**, 72, 1375.

15-0488 (R)-(+)-2,2'-Bis[di(3,5-xylyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (394248-45-4) 100mg
 $C_{46}H_{48}O_2P_2$; FW: 694.84; white powdr. 500mg
 (store cold) 2g
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit component. 10g

Technical Note:

1. See 15-0178 (page 6)

15-0654 (R)-(+)-2,2'-Bis(di-*i*-propylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (150971-45-2) 100mg
 $C_{26}H_{40}O_2P_2$; FW: 446.56; white powdr. 500mg
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit component. 10g

Technical Note:

1. See 15-0178 (page 6)

15-0156 (R)-(+)-2,2'-Bis(di-*p*-tolylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (133545-24-1) 100mg
 $C_{42}H_{40}O_2P_2$; FW: 638.73; white to pale yellow solid 500mg
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit component. 10g

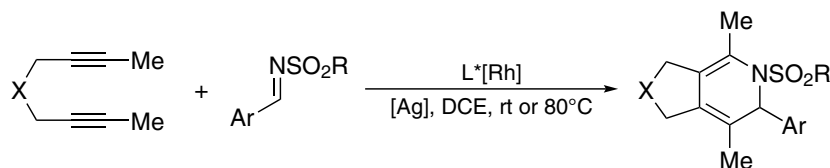
Technical Note:

1. See 15-0178 (page 6)

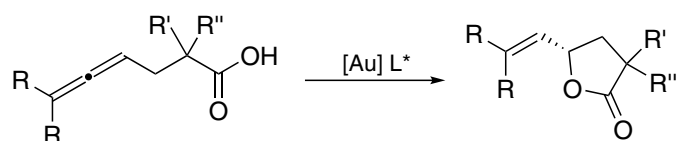
15-0044 (R)-(+)-2,2'-Bis[di(3,5-di-*t*-butylphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% 100mg
 (192138-05-9) 500mg
 $C_{70}H_{96}O_2P_2$; FW: 1031.49; white powdr. 2g
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit component. 10g

Technical Notes:

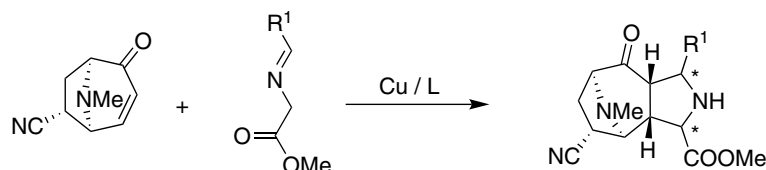
1. Ligand for the highly enantioselective, rhodium-catalyzed [2+2+2] cycloaddition of diynes to sulfonimines.
2. Ligand for asymmetric gold-catalyzed lactonizations in water at room temperature.
3. Ligand for Rh-Catalyzed Asymmetric [3+2] Cycloaddition Reactions.



Tech. Note (1)
Ref. (1)



Tech. Note (2)
Ref. (2)



Tech. Note (3)
Ref. (3)

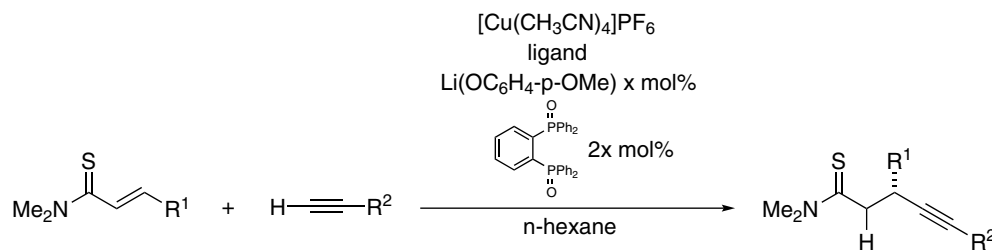
References:

1. *J. Am. Chem. Soc.*, **2013**, *135*, 4576.
2. *Angew. Chem. Int. Ed.*, **2014**, *53*, 10658.
3. *Angew. Chem.* **2016**, *128*, 7892–7896.

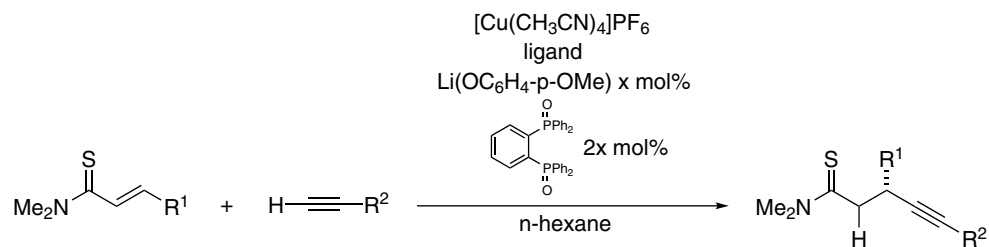
15-0652 (R)-(-)-2,2'-Bis[di(3,5-di-*i*-propyl-4-dimethylaminophenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% 100mg
 (352655-40-4) 500mg
 $C_{70}H_{100}N_4O_2P_2$; FW: 1091.55; white powdr. 2g
 (store cold) 10g
 Note: Sold in collaboration with Solvias for research purposes only. Solvias (R)-MeO BIPHEP Ligand Kit component.

Technical Notes:

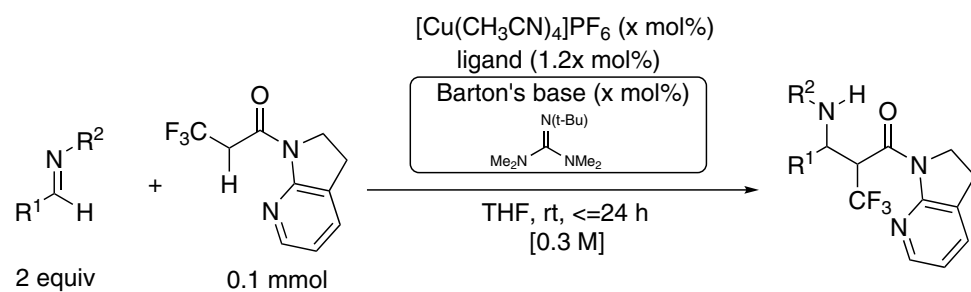
1. Direct catalytic asymmetric conjugate addition of terminal alkynes to α,β -unsaturated thioamides.
2. Catalytic generation of α -CF₃ enolate: Direct catalytic asymmetric Mannich-Type reaction of α -CF₃ amide.
3. Direct catalytic asymmetric Mannich-Type reaction of α - and β -fluorinated amides.
4. Direct catalytic asymmetric conjugate addition of saturated and unsaturated thioamides.
5. Palladium-Catalyzed enantioselective alkoxy-carbonylation of propargylic carbonates with (R)- or (S)-3,4,5-(MeO)₃-MeOBIPHEP.
6. Ligand for the Chemo-, Regio-, and Enantioselective Rhodium-Catalyzed Allylation of Pyrida-zinones with Terminal Allenes.



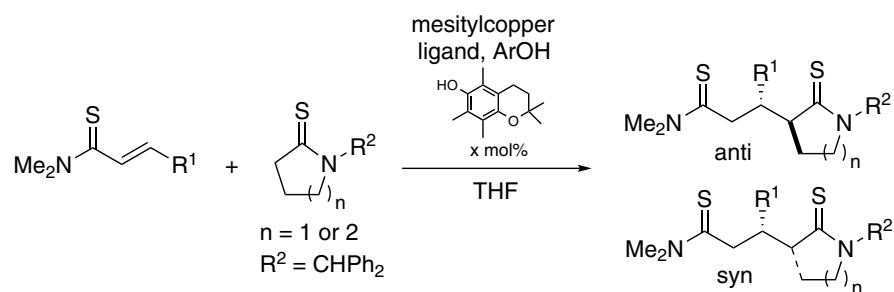
Tech. Note (1)
Ref. (1)



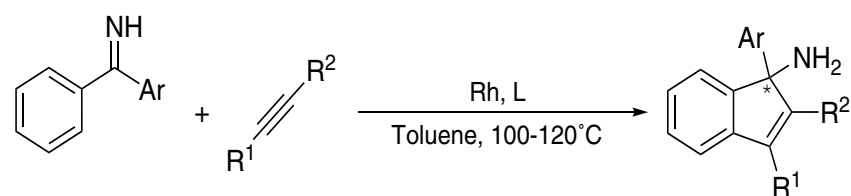
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Ref. (2)



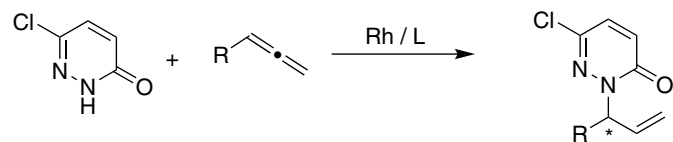
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Ref. (3)



Tech. Note (4)
Ref. (4)



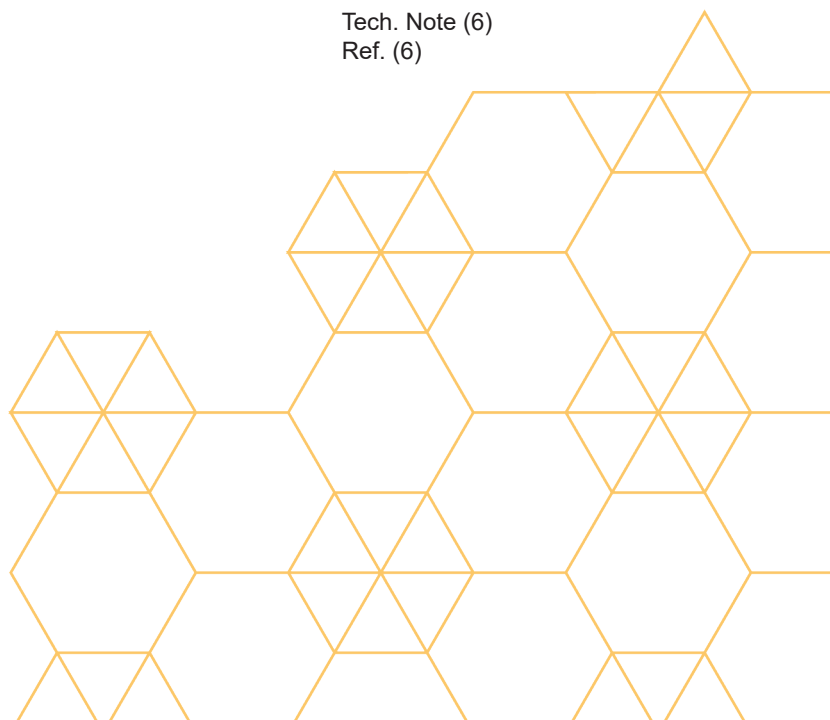
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Ref. (5)



Tech. Note (6)
Ref. (6)

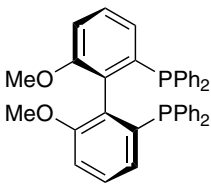
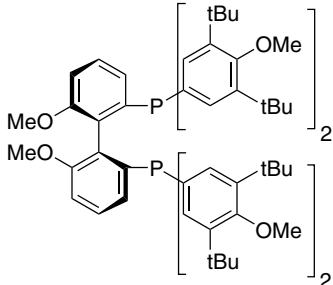
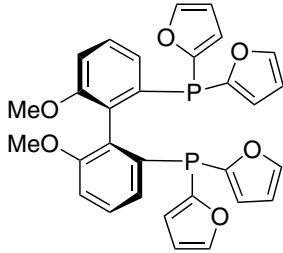
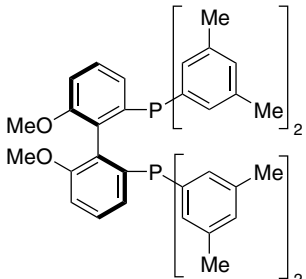
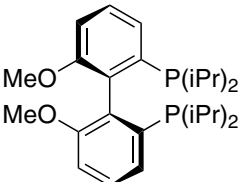
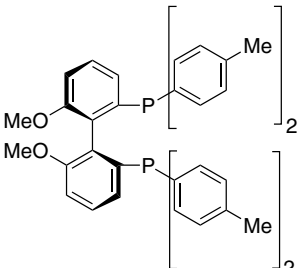
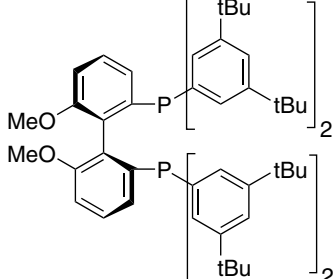
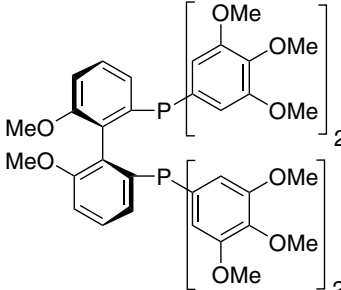
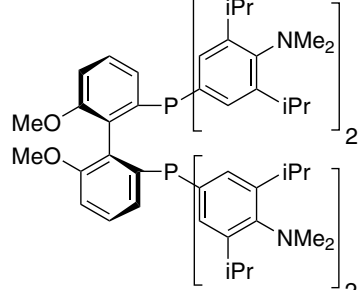
References:

1. *J. Am. Chem. Soc.*, **2010**, *132*, 10275.
2. *J. Am. Chem. Soc.*, **2014**, *136*, 17958.
3. *J. Am. Chem. Soc.*, **2015**, *137*, 15929.
4. *Org. Lett.*, **2015**, *17*, 3362.
5. *Chem. Eur. J.*, **2017**, *23*, 8590.
6. *Org. Lett.* **2017**, *19*, 2326–2329.



Catalog #96-3656 Solvias (S)-MeO-BIPHEP Ligand Kit

Components include 100mg of the nine items listed below:

| | | |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|  <p>15-0179</p> |  <p>15-0043</p> |  <p>15-0113</p> |
|  <p>15-0489</p> |  <p>15-0655</p> |  <p>15-0157</p> |
|  <p>15-0045</p> |  <p>15-0159</p> |  <p>15-0653</p> |

| | | |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 15-0179 | (S)-(-)-2,2'-Bis(diphenylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (S)-MeO-BIPHEP (133545-17-2) C ₃₈ H ₃₂ O ₂ P ₂ ; FW: 582.53; white xtl. Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 100mg 500mg 2g 10g |
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Technical Note:

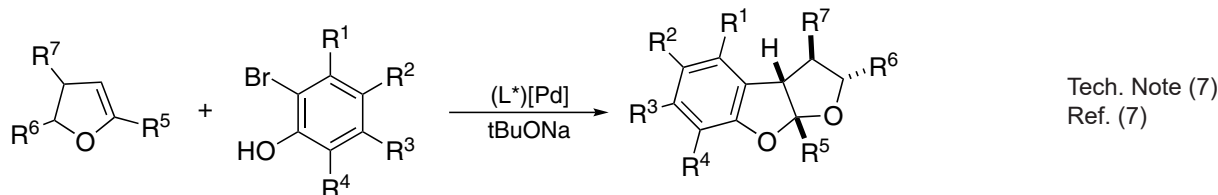
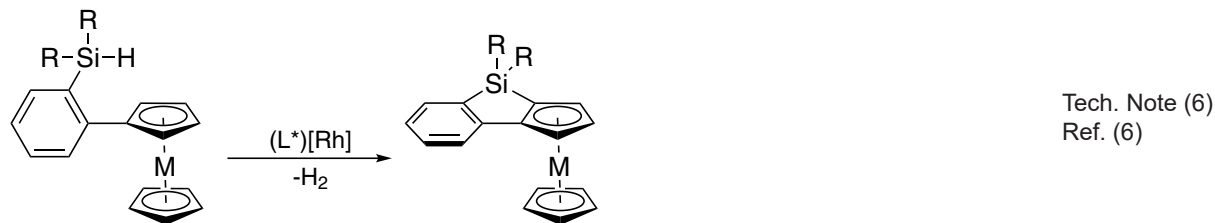
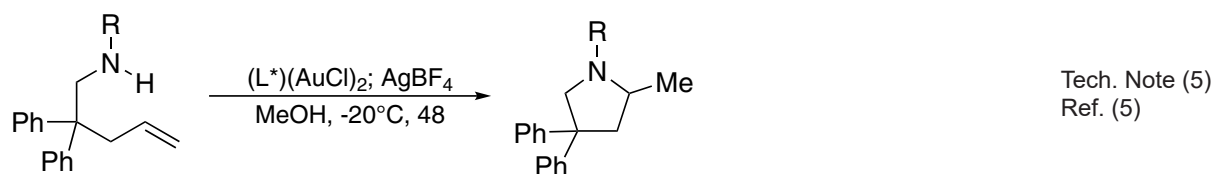
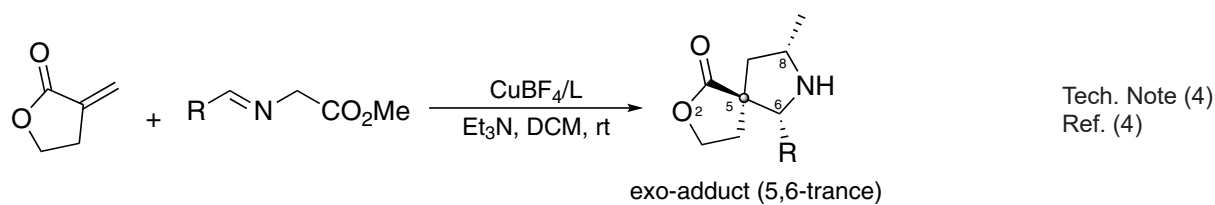
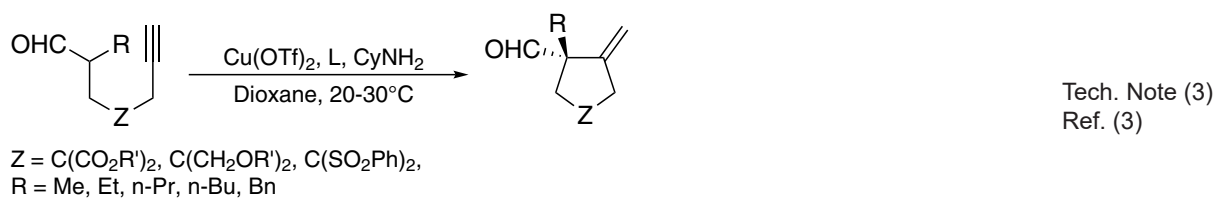
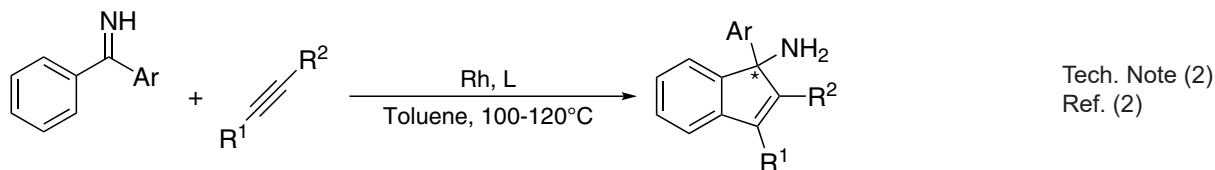
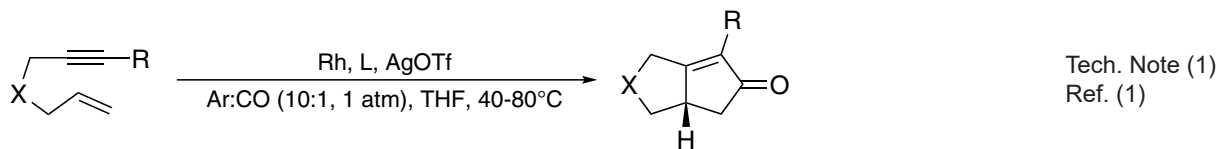
1. See 15-0178 (page 6)

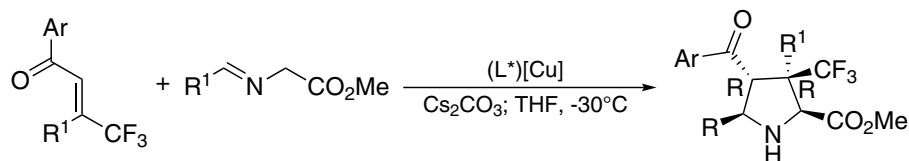
| | | |
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| 15-0043 | (S)-(+)-2,2'-Bis[di(3,5-di-t-butyl-4-methoxyphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (910134-30-4) C ₇₄ H ₁₀₄ O ₆ P ₂ ; FW: 1151.60; white xtl. Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 100mg 500mg 2g 10g |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|

Technical Notes:

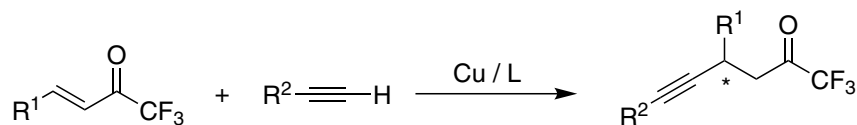
1. Ligand for asymmetric Rh-catalyzed Pausan-Khand reaction.
2. Ligand for enantioselective Rh-catalyzed [3+2] annulation of aromatic ketimines.
3. Ligand for enantioselective copper-organocatalyzed preparation of cyclopentanes bearing an all-carbon quaternary stereocenters.
4. Ligand for Cu(I)-catalyzed exo-selective construction of spiro-[butyrolactonepyrrolidine] via 1,3-dipolar cycloaddition of azomethine.
5. Ligand for gold-catalyzed enantioselective intramolecular hydroamination of unactivated alkenes.
6. Ligand for rhodium-catalyzed enantioselective intramolecular C-H silylation for the syntheses of planar-chiral metallocene siloles.

7. Ligand for palladium-catalyzed enantioselective intermolecular carboetherification of dihydrofurans.
8. Copper(I)-catalyzed asymmetric exo-selective [3+2] cycloaddition of azomethine ylides with β -trifluoromethyl β , β -disubstituted enones.
9. Ligand for Cu-Catalyzed Asymmetric Conjugate Alkynylation of α,β -Unsaturated 1,1,1-Trifluoromethyl Ketones with Terminal Alkynes.
10. Ligand for Rhodium-Catalyzed Asymmetric N-H Functionalization of Quinazolinones with Allylic Carbonates.

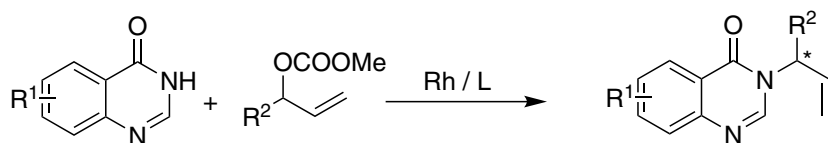




Tech. Note (8)
Ref. (10)



Tech. Note (9)
Ref. (8)



Tech. Note (10)
Ref. (9)

References:

1. *Adv. Synth. Catal.*, **2010**, 352, 2032.
2. *Angew. Chem. Int. Ed.*, **2011**, 50, 11098.
3. *Chem. Commun.*, **2012**, 48, 6559.
4. *Chem. Commun.*, **2013**, 49, 9642.
5. *Adv. Synth. Catal.*, **2014**, 356, 3187.
6. *Angew. Chem. Int. Ed.*, **2015**, 54, 6918.
7. *J. Am. Chem. Soc.*, **2016**, 138, 4014.
8. *Chem. Eur. J.* **2016**, 22, 10057 – 10064.
9. *Chem. Eur. J.* **2017**, 23, 18156 – 18160.
10. *Chem. Commun.*, **2017**, 53, 8152.

| | | |
|----------------|-------------------------------------------------------------------------------------------------------------------|-------|
| 15-0113 | (S)-(-)-2,2'-Bis(di-2-furanylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (145214-59-1) | 100mg |
| | C ₃₀ H ₂₄ O ₆ P ₂ ; FW: 542.47; off-white powdr. | 500mg |
| | (store cold) | 2g |
| | Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 10g |

Technical Note:

1. See 15-0178 (page 6)

| | | |
|----------------|-------------------------------------------------------------------------------------------------------------------|-------|
| 15-0489 | (S)-(-)-2,2'-Bis[di(3,5-xylyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (362634-22-8) | 100mg |
| | C ₄₆ H ₄₈ O ₂ P ₂ ; FW: 694.84; white powdr. | 500mg |
| | (store cold) | 2g |
| | Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 10g |

Technical Note:

1. See 15-0178 (page 6)

| | | |
|----------------|-------------------------------------------------------------------------------------------------------------------|-------|
| 15-0655 | (S)-(-)-2,2'-Bis(di-i-propylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (150971-43-0) | 100mg |
| | C ₂₆ H ₄₀ O ₂ P ₂ ; FW: 446.56; white powdr. | 500mg |
| | Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 2g |
| | | 10g |

Technical Note:

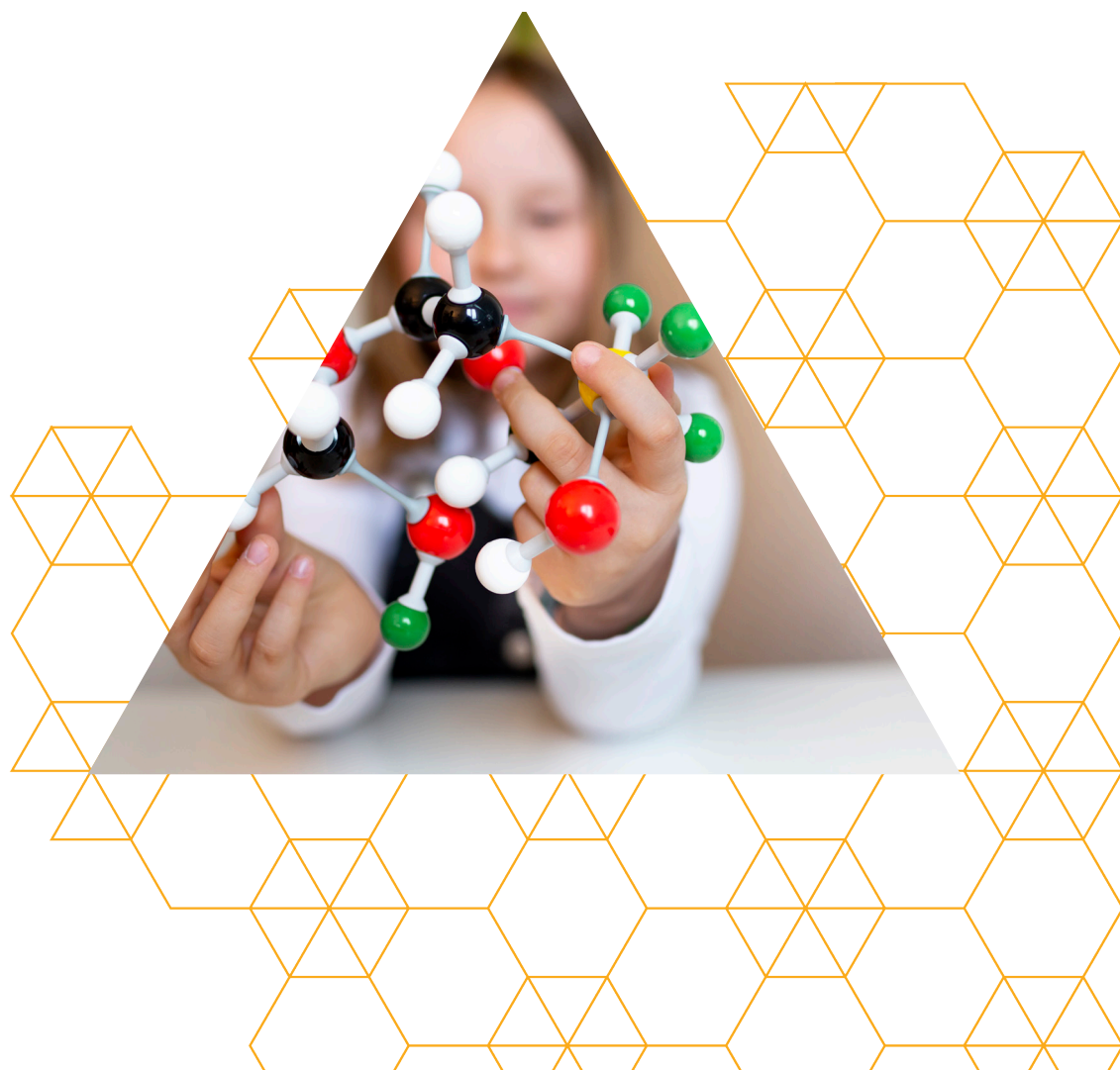
1. See 15-0178 (page 6)

| | | |
|----------------|-------------------------------------------------------------------------------------------------------------------|-------|
| 15-0157 | (S)-(-)-2,2'-Bis(di-p-tolylphosphino)-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (133545-25-2) | 100mg |
| | C ₄₂ H ₄₀ O ₂ P ₂ ; FW: 638.73; white powdr. | 500mg |
| | Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 2g |
| | | 10g |

Technical Note:

1. See 15-0178 (page 6)
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| | | |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 15-0045 | (S)-(-)-2,2'-Bis[di(3,5-di-<i>t</i>-butylphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (167709-31-1) $C_{70}H_{96}O_2P_2$; FW: 1031.49; white powdr. Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 100mg 500mg 2g 10g |
| Technical Note: 1. See 15-0044 (page 3) | | |
| 15-0159 | (S)-(-)-2,2'-Bis[di(3,4,5-trimethoxyphenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (927396-01-8) $C_{50}H_{56}O_{14}P_2$; FW: 942.94; off-white powdr. <i>air sensitive, (store cold)</i> Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 100mg 500mg 2g 10g |
| Technical Note: 1. See 15-0178 (page 6) | | |
| 15-0653 | (S)-(+)-2,2'-Bis[di(3,5-di-<i>i</i>-propyl-4-dimethylaminophenyl)phosphino]-6,6'-dimethoxy-1,1'-biphenyl, min. 97% (919338-66-2) $C_{70}H_{100}N_4O_2P_2$; FW: 1091.55; white powdr. (<i>store cold</i>) Note: Sold in collaboration with Solvias for research purposes only. Solvias (S)-MeO BIPHEP Ligand Kit component. | 100mg 500mg 2g 10g |
| Technical Note: 1. See 15-0652 (page 4) | | |





Headquartered in Bellevue, WA, **Ascensus Specialties is the global leader in catalysts, ligands, building blocks, and specialty reagents.** Our 60+ years of synthetic knowhow, allows us to bring additional value to our clients through our custom synthesis and cGMP services. From world-class production plants in Elma, WA, Evans City, PA, Newburyport, MA, and Cambridge, UK, Ascensus has a global reach that ensures our clients can consistently manufacture their products to the highest standards.

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