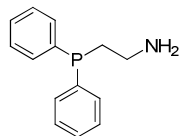
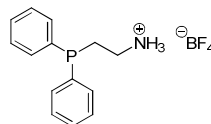




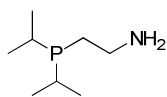
Achiral Aminophosphine Ligands



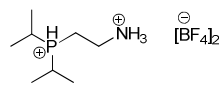
K15-0001
2-(Diphenylphosphino)ethylamine, ≥97.0%
 $C_{14}H_{16}NP$; F.W: 229.26; [4848-43-5]



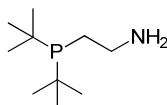
K15-0151
2-(diphenylphosphino)ethanaminium tetrafluoroborate, ≥97.0%
 $C_{14}H_{17}BF_4NP$; F.W: 317.06



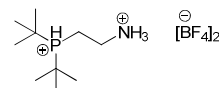
K15-0002
2-(Diisopropylphosphino)ethylamine, ≥97.0%
 $C_8H_{20}NP$; F.W: 161.22, [1053657-14-9]



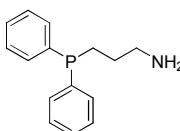
K15-0153
(2-ammonioethyl)diisopropylphosphonium bis(tetrafluoroborate), ≥97.0%
 $C_8H_{22}B_2F_8NP$; F.W: 336.85



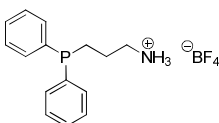
K15-0003
2-(Di-tert-butylphosphino)ethylamine, ≥97.0%
 $C_{10}H_{24}NP$; F.W: 189.28; [1053658-84-6]



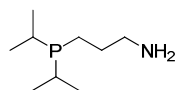
K15-0155
(2-ammonioethyl)di-tert-butylphosphonium bis(tetrafluoroborate), ≥97.0%
 $C_{10}H_{26}B_2F_8NP$; F.W: 363.89



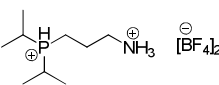
K15-0054
3-(Diphenylphosphino)propylamine, ≥97.0%
 $C_{15}H_{18}NP$; F.W: 243.28; [16605-03-1]



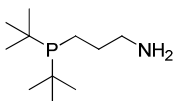
K15-0156
3-(diphenylphosphino)propan-1-aminium tetrafluoroborate, ≥97.0%
 $C_{15}H_{19}BF_4NP$; F.W: 331.10



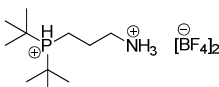
K15-0055
3-(Diisopropylphosphino)propylamine, ≥97.0%
 $C_9H_{22}NP$; F.W: 175.25



K15-0158
(3-ammoniopropyl)diisopropylphosphonium bis(tetrafluoroborate), ≥97.0%
 $C_9H_{23}B_2F_8NP$; F.W: 349.87

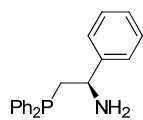


K15-0056
3-(Di-tert-butylphosphino)propylamine, ≥97.0%
 $C_{11}H_{26}NP$; F.W: 203.30

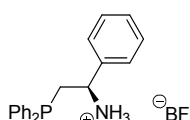


K15-0160
(3-ammoniopropyl)di-tert-butylphosphonium bis(tetrafluoroborate), ≥97.0%
 $C_{11}H_{27}B_2F_8NP$; F.W: 377.92

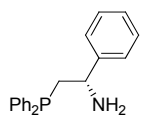
Chiral Aminophosphine Ligands



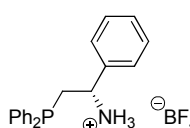
K15-0077
(-)-(R)-2-(diphenylphosphino)-1-phenylethanamine, ≥97.0%
 $C_{26}H_{24}NP$; F.W: 305.35; [141096-35-7]



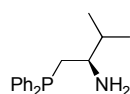
K15-0149
(R)-2-(diphenylphosphino)-1-phenylethanaminium tetrafluoroborate, ≥97.0%
 $C_{20}H_{21}BF_4NP$; F.W: 393.16



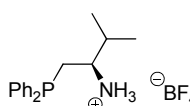
K15-0078
(+)-(S)-2-(diphenylphosphino)-1-phenylethanamine, ≥97.0%
 $C_{26}H_{24}NP$; F.W: 305.35; [1103533-85-2]



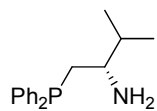
K15-0150
(S)-2-(diphenylphosphino)-1-phenylethanaminium tetrafluoroborate, ≥97.0%
 $C_{20}H_{21}BF_4NP$; F.W: 393.16



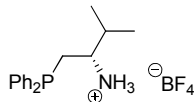
K15-0129
(R)-1-(diphenylphosphino)-3-methylbutan-2-amine, ≥97.0%
 $C_{17}H_{22}NP$; F.W: 271.34



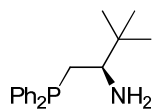
K15-0169
(R)-1-(diphenylphosphino)-3-methylbutan-2-aminium tetrafluoroborate, ≥97.0%
 $C_{17}H_{23}BF_4NP$; F.W: 359.15



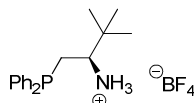
K15-0130
(S)-1-(diphenylphosphino)-3-methylbutan-2-amine, ≥97.0%
 C₁₇H₂₂NP; F.W: 271.34; [146476-37-1]



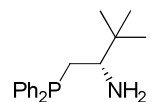
K15-0170
(S)-1-(diphenylphosphino)-3-methylbutan-2-aminium tetrafluoroborate, ≥97.0%
 C₁₇H₂₃BF₄NP; F.W: 359.15



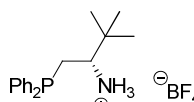
K15-0131
(R)-1-(diphenylphosphino)-3,3-dimethylbutan-2-amine, ≥97.0%
 C₁₈H₂₄NP; F.W: 285.36



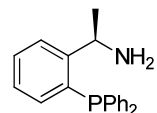
K15-0171
(R)-1-(diphenylphosphino)-3,3-dimethylbutan-2-aminium tetrafluoroborate, ≥97.0%
 C₁₈H₂₅BF₄NP; F.W: 373.18



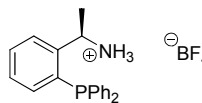
K15-0132
(S)-1-(diphenylphosphino)-3,3-dimethylbutan-2-amine, ≥97.0%
 C₁₈H₂₄NP; F.W: 285.36; [286454-86-2]



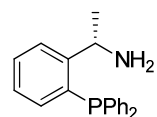
K15-0172
(S)-1-(diphenylphosphino)-3,3-dimethylbutan-2-aminium tetrafluoroborate, ≥97.0%
 C₁₈H₂₅BF₄NP; F.W: 373.18



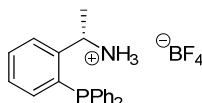
K15-0075
(R)-1-(2-(diphenylphosphino)phenyl)ethanamine, ≥97.0%
 C₂₀H₂₀NP; F.W: 305.35; [192057-60-6]



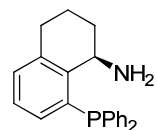
K15-0147
(R)-1-(2-(diphenylphosphino)phenyl)ethanaminium tetrafluoroborate, ≥97.0%
 C₂₀H₂₁BF₄NP; F.W: 393.16



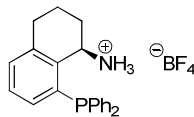
K15-0076
(S)-1-(2-(diphenylphosphino)phenyl)ethanamine, ≥97.0%
 C₂₀H₂₀NP; F.W: 305.35; [913196-43-7]



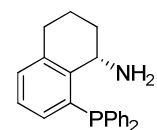
K15-0148
(S)-1-(2-(diphenylphosphino)phenyl)ethanaminium tetrafluoroborate, ≥97.0%
 C₂₀H₂₁BF₄NP; F.W: 393.16



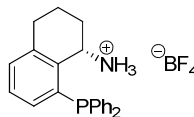
K15-0127
(R)-8-(diphenylphosphino)-1,2,3,4-tetrahydronaphthalen-1-amine, ≥97.0%
 C₂₂H₂₂NP; F.W: 331.39; [960128-64-7]



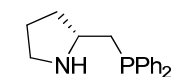
K15-0167
(R)-8-(diphenylphosphino)-1,2,3,4-tetrahydronaphthalen-1-aminium tetrafluoroborate, ≥97.0%
 C₂₂H₃₁BF₄NP; F.W: 419.20



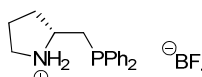
K15-0128
(S)-8-(diphenylphosphino)-1,2,3,4-tetrahydronaphthalen-1-amine, ≥97.0%
 C₂₂H₂₂NP; F.W: 331.39



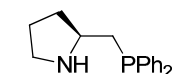
K15-0168
(S)-8-(diphenylphosphino)-1,2,3,4-tetrahydronaphthalen-1-aminium tetrafluoroborate, ≥97.0%
 C₂₂H₃₁BF₄NP; F.W: 419.20



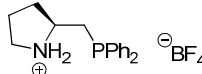
K15-0095
(R)-2-((diphenylphosphino)methyl)pyrrolidine, ≥97.0%
 C₁₇H₂₀NP; F.W: 269.32; [428514-91-4]



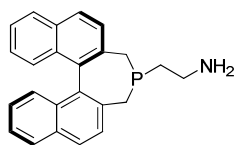
K15-0145
(R)-2-((diphenylphosphino)methyl)pyrrolidinium tetrafluoroborate, ≥97.0%
 C₁₇H₂₁BF₄NP; F.W: 357.13



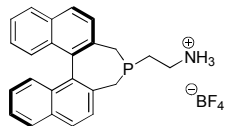
K15-0096
(S)-2-((diphenylphosphino)methyl)pyrrolidine, ≥97.0%
 C₁₇H₂₀NP; F.W: 269.32; [60261-46-3]



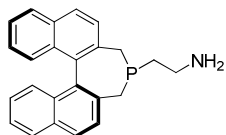
K15-0146
(S)-2-((diphenylphosphino)methyl)pyrrolidinium tetrafluoroborate, ≥97.0%
 C₁₇H₂₁BF₄NP; F.W: 357.13



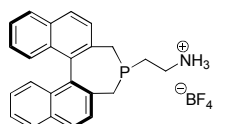
K15-0050
 (-)-2-((11bR)-3H-Binaphtho[2,1-c:1',2'-e]-phosphepin-4(5H)-yl)ethanamine, $\geq 97.0\%$
 $C_{24}H_{22}NP$; F.W: 355.41



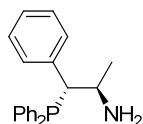
K15-0161
 2-((11bR)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)ethanaminium tetrafluoroborate, $\geq 97.0\%$
 $C_{24}H_{23}BF_4NP$; F.W: 443.22



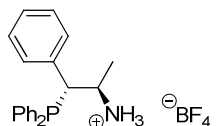
K15-0051
 (+)-2-((11bS)-3H-Binaphtho[2,1-c:1',2'-e]-phosphepin-4(5H)-yl)ethanamine, $\geq 97.0\%$
 $C_{24}H_{22}NP$; F.W: 355.41



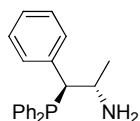
K15-0162
 2-((11bS)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)ethanaminium tetrafluoroborate, $\geq 97.0\%$
 $C_{24}H_{23}BF_4NP$; F.W: 443.22



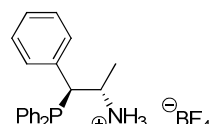
K15-0004
 (-)-(1R,2R)-2-Amino-1-phenylpropyldiphenylphosphine, $\geq 97.0\%$
 $C_{21}H_{22}NP$; F.W: 319.38; [799297-44-2]



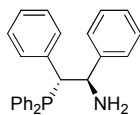
K15-0141
 (1R,2R)-1-(diphenylphosphino)-1-phenylpropan-2-aminium tetrafluoroborate, $\geq 97.0\%$
 $C_{21}H_{23}BF_4NP$; F.W: 407.19



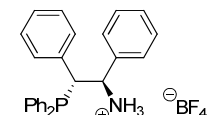
K15-0005
 (+)-(1S,2S)-2-Amino-1-phenylpropyldiphenylphosphine, $\geq 97.0\%$
 $C_{21}H_{22}NP$; F.W: 319.38; [341968-71-6]



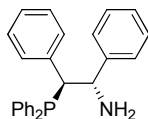
K15-0142
 (1S,2S)-1-(diphenylphosphino)-1-phenylpropan-2-aminium tetrafluoroborate, $\geq 97.0\%$
 $C_{21}H_{23}BF_4NP$; F.W: 407.19



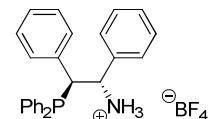
K15-0046
 (1R,2R)-2-(Diphenylphosphino)-1,2-diphenylethanamine, $\geq 97.0\%$
 $C_{26}H_{24}NP$; F.W: 318.45; [1091606-68-6]



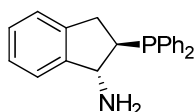
K15-0139
 (1R,2R)-2-(diphenylphosphino)-1,2-diphenylethanaminium tetrafluoroborate, $\geq 97.0\%$
 $C_{26}H_{25}BF_4NP$; F.W: 469.26



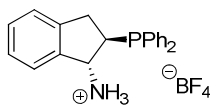
K15-0047
 (1S,2S)-2-(Diphenylphosphino)-1,2-diphenylethanamine, $\geq 97.0\%$
 $C_{26}H_{24}NP$; F.W: 318.45; [1091606-67-5]



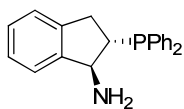
K15-0140
 (1S,2S)-2-(diphenylphosphino)-1,2-diphenylethanaminium tetrafluoroborate, $\geq 97.0\%$
 $C_{26}H_{25}BF_4NP$; F.W: 469.26



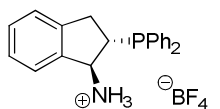
K15-0093
 (1R,2R)-2-(diphenylphosphino)-2,3-dihydro-1H-inden-1-amine, $\geq 97.0\%$
 $C_{21}H_{20}NP$; F.W: 317.36; [1091606-70-0]



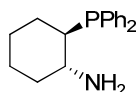
K15-0143
 (1R,2R)-2-(diphenylphosphino)-2,3-dihydro-1H-inden-1-aminium tetrafluoroborate, $\geq 97.0\%$
 $C_{21}H_{21}BF_4NP$; F.W: 405.17



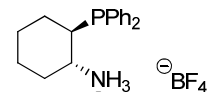
K15-0094
 (1S,2S)-2-(diphenylphosphino)-2,3-dihydro-1H-inden-1-amine, $\geq 97.0\%$
 $C_{21}H_{20}NP$; F.W: 317.36; [1091606-69-7]



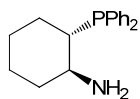
K15-0144
 (1S,2S)-2-(diphenylphosphino)-2,3-dihydro-1H-inden-1-aminium tetrafluoroborate, $\geq 97.0\%$
 $C_{21}H_{21}BF_4NP$; F.W: 405.17



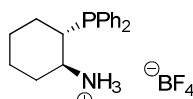
K15-0137
 (1R,2R)-2-(diphenylphosphino)cyclohexanamine, $\geq 97.0\%$
 $C_{18}H_{22}NP$; F.W: 283.35; [452304-59-5]



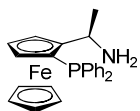
K15-0173
 (1R,2R)-2-(diphenylphosphino)cyclohexanaminium tetrafluoroborate, $\geq 97.0\%$
 $C_{18}H_{23}BF_4NP$; F.W: 371.16



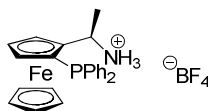
K15-0138
(1S,2S)-2-(diphenylphosphino)cyclohexanamine, ≥97.0%
 C₁₈H₂₂NP; F.W: 283.35; [452304-63-1]



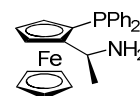
K15-0174
(1S,2S)-2-(diphenylphosphino)cyclohexanaminium tetrafluoroborate, ≥97.0%
 C₁₈H₂₃BF₄NP; F.W: 371.16



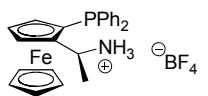
K26-0011
(R)-1-((S)-2-Diphenylphosphino)ferrocenylethylamine, ≥97.0%
 C₂₄H₂₄FeNP; F.W: 413.27



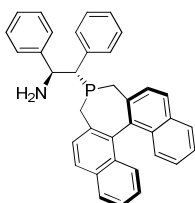
K26-0023
(R)-1-((S)-2-Diphenylphosphino)ferrocenylethylaminium tetrafluoroborate, ≥97.0%
 C₂₄H₂₅BF₄FeNP; F.W: 501.08



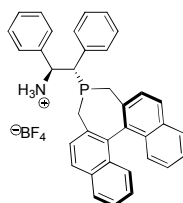
K26-0012
(S)-1-((R)-2-Diphenylphosphino)ferrocenylethylamine, ≥97.0%
 C₂₄H₂₄FeNP; F.W: 413.27; [607389-84-4]



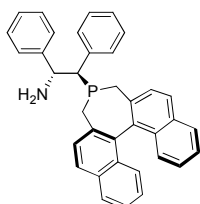
K26-0024
(S)-1-((R)-2-Diphenylphosphino)ferrocenylethylaminium tetrafluoroborate, ≥97.0%
 C₂₄H₂₅BF₄FeNP; F.W: 501.08



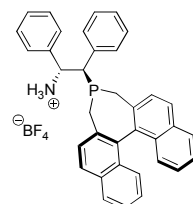
K15-0097
(+)-(1S,2S)-2-((4R,11bS)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1,2-diphenylethanamine, ≥97.0%
 C₃₆H₃₀NP; F.W: 507.60; [1092064-02-2]



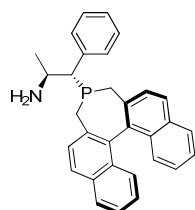
K15-0163
(1S,2S)-2-((4R,11bS)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1,2-diphenylethanaminium tetrafluoroborate, ≥97.0%
 C₃₆H₃₁BF₄NP; F.W: 595.42



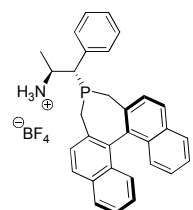
K15-0098
(-)-(1R,2R)-2-((4S,11bR)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1,2-diphenylethanamine, ≥97.0%
 C₃₆H₃₀NP; F.W: 445.53



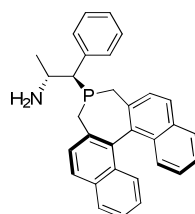
K15-0164
(1R,2R)-2-((4S,11bR)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1,2-diphenylethanaminium tetrafluoroborate, ≥97.0%
 C₃₆H₃₁BF₄NP; F.W: 595.42



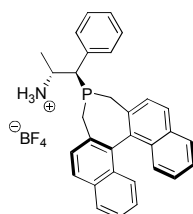
K15-0099
(1S,2S)-1-((4R,11bS)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1-phenylpropan-2-amine, ≥97.0%
 C₃₁H₂₈NP; F.W: 445.53; [1092064-04-4]



K15-0165
(1S,2S)-1-((4R,11bS)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1-phenylpropan-2-aminium tetrafluoroborate, ≥97.0%
 C₃₁H₂₉BF₄NP; F.W: 533.35



K15-0100
(1R,2R)-1-((4S,11bR)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1-phenylpropan-2-amine, ≥97.0%
 C₃₁H₂₈NP; F.W: 445.53

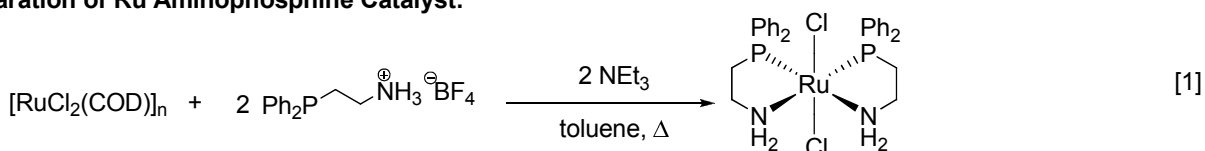


K15-0166
(1R,2R)-1-((4S,11bR)-3H-dinaphtho[2,1-c:1',2'-e]phosphepin-4(5H)-yl)-1-phenylpropan-2-aminium tetrafluoroborate, ≥97.0%
 C₃₁H₂₉BF₄NP; F.W: 533.35

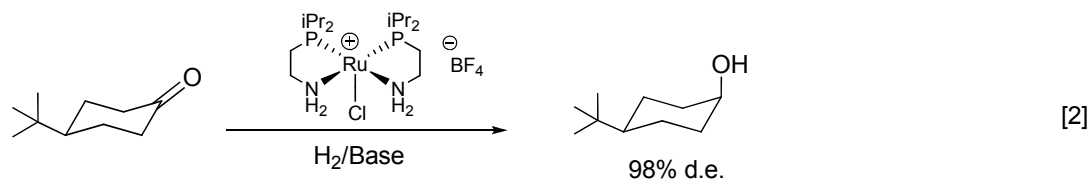


Aminophosphines represent a new class of "privileged" ligands for asymmetric catalysis. They exhibit high performance in a large array of catalytic transformations such as hydrogenation,¹ Michael addition,² the addition of organolithium reagents to aldehydes,³ allylic alkylation,⁴ hydroformylation⁵ and cycloaddition reactions.⁶ Kanata Chemical Technologies offers a leading portfolio of chiral and achiral aminophosphines and their corresponding quaternary aminophosphine salts which offer increased air-stability and shelf-life. Pertinent examples are depicted in reactions 1-4.

Preparation of Ru Aminophosphine Catalyst:

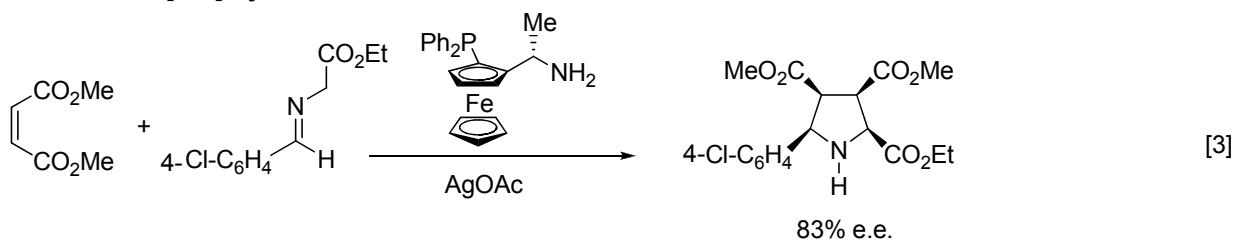


Asymmetric Hydrogenation of *tert*-Butylcyclohexanone:^{1a}

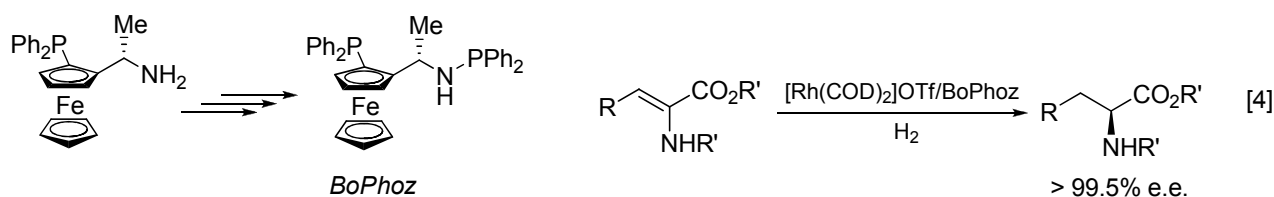


Intermediate for Woody Acetate

Enantioselective [2+2] Cycloaddition:⁶



BoPhoz Ligands in Asymmetric Rh-Catalyzed Hydrogenation:^{1b}



References

1. (a) Chen, X. *et al.* US Patent Appl. 60/948, 238, 2007. (b) Boaz, N. W. *et al.* *Org. Lett.* **2002**, 4, 2421.
2. Guo, R. *et al.* *J. Am. Chem. Soc.* **2005**, 127, 516.
3. Rönnholm, P. *et al.* *Org. Lett.* **2007**, 9, 3781.
4. Saitoh, A. *et al.* *Tetrahedron Asymmetry* **1997**, 8, 3567.
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6. Zeng, W. *et al.* *J. Am. Chem. Soc.* **2007**, 129, 750.