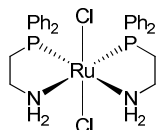
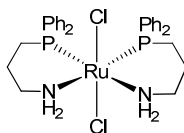


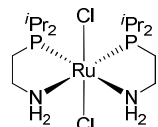
Ruthenium Aminophosphine Catalysts



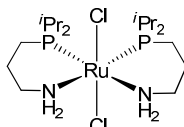
K44-0001
RuCl₂(PGly)₂
 Dichlorobis(2-(diphenylphosphino)ethyl-
 amine)ruthenium(II), ≥97.0%
 C₂₈H₃₂Cl₂N₂P₂Ru; F.W: 630.49
 [506417-41-0]



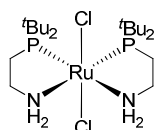
K44-0124
**Dichlorobis(3-(diphenylphosphino)propyl-
 amine)ruthenium(II), ≥97.0%**
 C₃₀H₃₆Cl₂N₂P₂Ru; F.W: 658.54
 [911128-25-1]



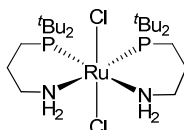
K44-0002
**Dichlorobis(2-(diisopropylphosphino)ethyl-
 amine)ruthenium(II), ≥97.0%**
 C₁₈H₄₀Cl₂N₂P₂Ru; F.W: 494.43
 [1092372-90-1]



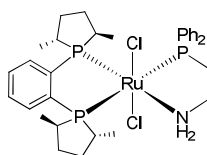
K44-0125
**Dichlorobis(3-(diisopropylphosphino)-
 propylamine)ruthenium(II), ≥97.0%**
 C₁₈H₄₄Cl₂N₂P₂Ru; F.W: 522.48



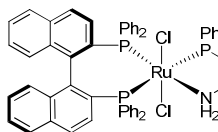
K44-0003
**Dichlorobis(2-(di-tert-butylphosphino)-
 ethylamine)ruthenium(II), ≥97.0%**
 C₂₀H₄₈Cl₂N₂P₂Ru; F.W: 550.53
 [1092372-91-2]



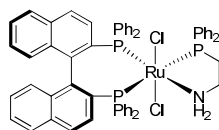
K44-0122
**Dichlorobis(3-(di-tert-butylphosphino)-
 propylamine)ruthenium(II), ≥97.0%**
 C₂₂H₅₂Cl₂N₂P₂Ru; F.W: 578.58



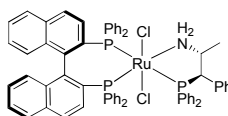
K44-0022
RuCl₂((R,R)-Me-DuPhos)(PGly)
 Dichloro(1,2-bis((2R,5R)-2,5 dimethylphos-
 pholanobenzene)(2-(diphenylphosphino)-
 ethylamine)ruthenium(II), ≥97.0%
 C₃₂H₄₃Cl₂NP₃Ru; F.W: 707.60



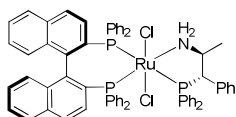
K44-0027
RuCl₂((R)-binap)(PGly)
 Dichloro((R)-bis(diphenylphosphino)-1,1-
 binaphthyl)(2-(diphenylphosphino)ethyl-
 amine)ruthenium(II), ≥97.0%
 C₅₈H₄₈Cl₂NP₃Ru; F.W: 1023.91



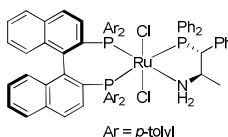
K44-0028
RuCl₂((S)-binap)(PGly)
 Dichloro((S)-bis(diphenylphosphino)-1,1-
 binaphthyl)(2-(diphenylphosphino)ethyl-
 amine)ruthenium(II), ≥97.0%
 C₅₈H₄₈Cl₂NP₃Ru; F.W: 1023.91



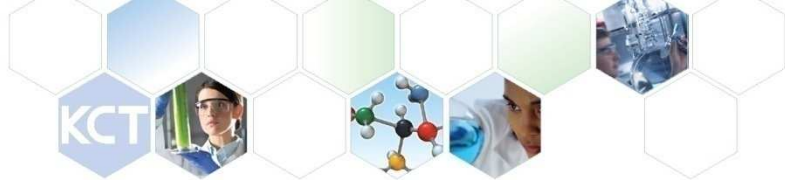
K44-0029
RuCl₂((R)-binap)((R,R)-Pnor)
 Dichloro((R)-bis(diphenylphosphino)-1,1-
 binaphthyl)((1R,2R)-2-amino-1-phenyl-
 propyldiphenylphosphine)ruthenium(II),
 ≥97.0%
 C₆₆H₅₇Cl₂NP₃Ru; F.W: 1129.06



K44-0033
RuCl₂((R)-binap)((S,S)-Pnor)
 Dichloro((R)-bis(diphenylphosphino)-1,1-
 binaphthyl)((1S,2S)-2-amino-1-phenyl-
 propyldiphenylphosphine)ruthenium(II),
 ≥97.0%
 C₆₆H₅₇Cl₂NP₃Ru; F.W: 1129.06

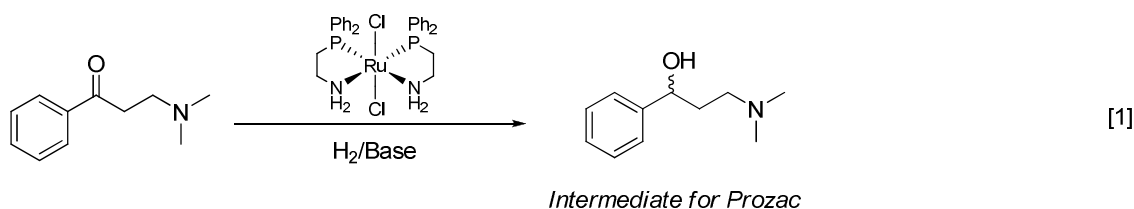


K44-0061
**Dichloro((R)-2,2'-Bis(bis(4-methylphenyl)-
 1,1'-binaphthyl)((1R,2R)-2-amino-1-phenyl-
 propyldiphenylphosphine)ruthenium(II),
 ≥97.0%**
 C₆₉H₆₂Cl₂NP₃Ru; F.W: 1170.13
 Ar = *p*-tolyl

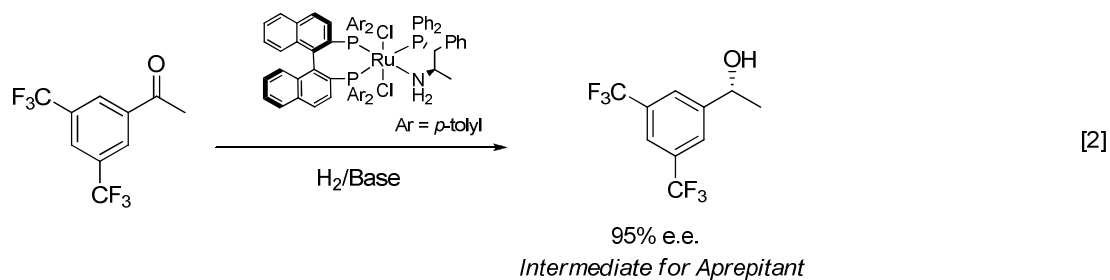


A growing area of application for aminophosphine ligands in asymmetric synthesis is in ruthenium-catalyzed hydrogenation. This process is integral for the preparation of valuable alcohols and amines which are essential intermediates in the pharmaceutical, agrochemical, and fine chemicals industries (reactions 1-3).¹ Ruthenium complexes of aminophosphines can also be employed to catalyze a one-pot tandem asymmetric Michael addition/hydrogenation protocol to synthesize new chiral alcohols. This reaction occurs with excellent enantio- and diastereoselectivity (reaction 4).²

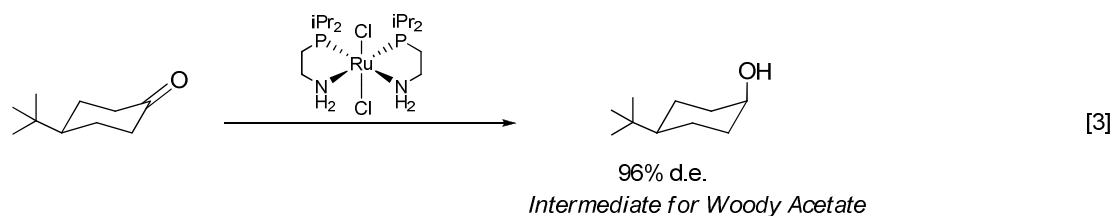
Hydrogenation of Ketones:



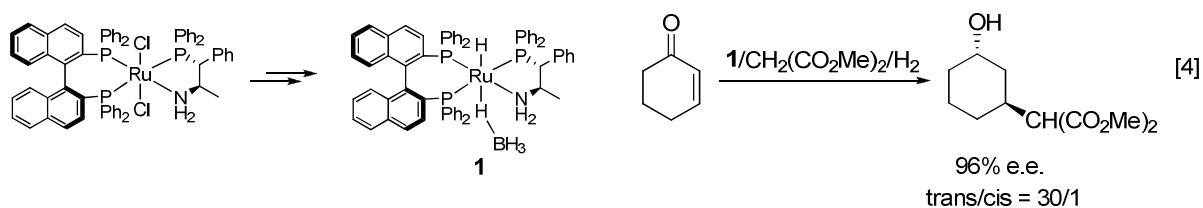
Enantioselective Hydrogenation of Ketones:



Asymmetric Hydrogenation of *tert*-Butylcyclohexanone:¹



Enantioselective Tandem Michael Addition/Hydrogenation:²



References

1. Abdur-Rashid K. *et al.* Int. Patent Appl. WO2009/006734
2. Guo R. *et al.* *J. Am. Chem. Soc.* **2005**, 127, 516