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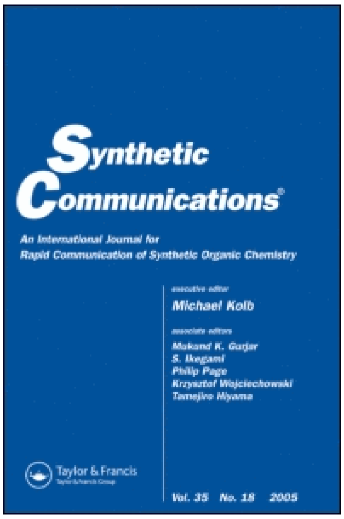

Synthetic Communications
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Synthesis of Chiral Aromatic Alcohols: Use of New C_2-Symmetric $Rh^{III}Cp^*$, Ru^{II}(cymene), or Ru^{II}(benzene) Complexes Containing Chiral Diaminocyclohexane Ligand as Asymmetric Transfer Hydrogenation Catalyst

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Online Publication Date: 01 January 2009

To cite this Article Montalvo-González, Rubén, Chávez, Daniel, Aguirre, Gerardo, Parra-Hake, Miguel and Somanathan, Ratnasamy(2009)'Synthesis of Chiral Aromatic Alcohols: Use of New C_2-Symmetric $Rh^{III}Cp^*$, Ru^{II}(cymene), or Ru^{II}(benzene) Complexes Containing Chiral Diaminocyclohexane Ligand as Asymmetric Transfer Hydrogenation Catalyst',Synthetic Communications,39:15,2737 — 2746

To link to this Article: DOI: 10.1080/00397910802663451

URL: http://dx.doi.org/10.1080/00397910802663451

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Synthetic Communications®, 39: 2737–2746, 2009
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ISSN: 0039-7911 print/1532-2432 online
DOI: 10.1080/00397910802663451

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Synthesis of Chiral Aromatic Alcohols: Use of New C_2-Symmetric $Rh^{III}Cp^*$, Ru^{II}(cymene), or Ru^{II}(benzene) Complexes Containing Chiral Diaminocyclohexane Ligand as Asymmetric Transfer Hydrogenation Catalyst

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Abstract: Twelve chiral secondary alcohols were synthesized by asymmetric transfer hydrogenation (ATH) using C_2-symmetric bis(sulfonamide) ligand (**2**) derived from (1*R*,2*R*)-cyclohexane-1,2-diamine and complexed with $[RhCl_2Cp^*]_2$, $[RuCl_2(\text{cymene})]_2$, or $[RuCl_2(\text{benzene})]_2$ and then used in situ in the reduction of prochiral ketones. The alcohols were obtained in 85–99% yield and 90–99% enantioselectivity with isopropanol as the hydrogen source. Two-fold rate enhancement and better yields were achieved (88–99%) with 80–99% enantioselectivity using the complex $[RhCl_2Cp^*]_2$ and aqueous sodium formate as the hydrogen source.

Keywords: Bis(sulfonamide) ligands, chiral secondary alcohols, Ru^{II}(arene), $Rh^{III}Cp^*$

Received October 25, 2008.

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