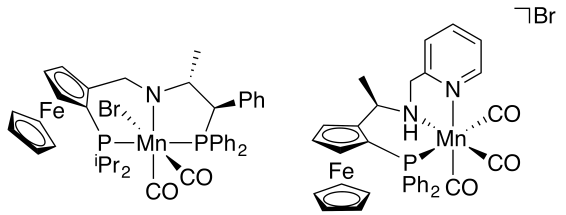
Mn(I) complexes with chiral pincer ligands in the asymmetric hydrogenation of ketones

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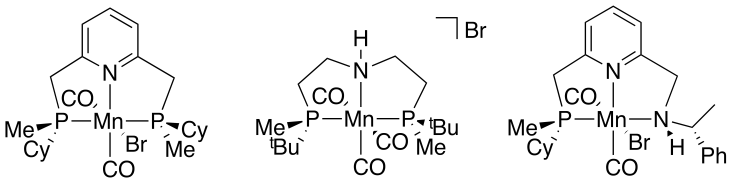
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In 2017, two Mn(I) complexes with chiral pincer ligands were reported as catalysts in the asymmetric hydrogenation of ketones, which is an appealing reaction for industrial application due to the low-toxicity, earth-abundance, and low cost of manganese. Complex **1** is active in ATH and complex **2** in AH [1,2].



1 **2**

We have prepared novel Mn(I) complexes with chiral PNP (**3**,**4**) and PNN pincer ligands (**5**) based on stereogenic phosphorus. We are testing these complexes as catalysts in the AH and ATH of ketones. The hydrogenation of acetophenone with complex **4** as catalyst (1 mol% catalyst, 50 bar H_2, toluene, 100 °C) gives 99% of yield and 48% of ee after 16 h. With the aim of enhancing the enantioselectivity, a more rigid linker will be introduced between the N and P atoms.



3 **4** **5**

[1] A. Zirakzadeh, S. R. M. M. de Aguiar, B. Stöger, M. Widhalm, K. Kirchner, *ChemCatChem*, **2017**, DOI: 10.1002/cctc.201700042.
[2] M. B. Widegren, G. J. Harkness, A.M.Z. Slawin, D. B. Cordes, M. L. Clarke, *Angew. Chem. Int. Ed.*, **2017**, DOI: 10.1002/ange.201702406.