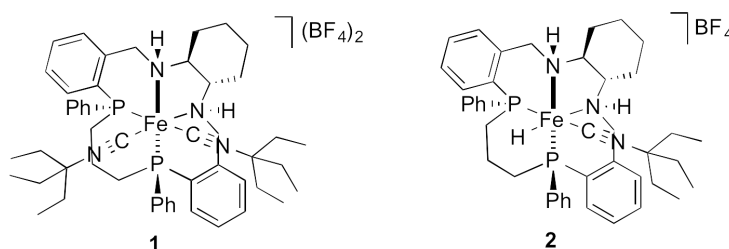


Base-Free Asymmetric Transfer Hydrogenation of Base-Sensitive Ketones

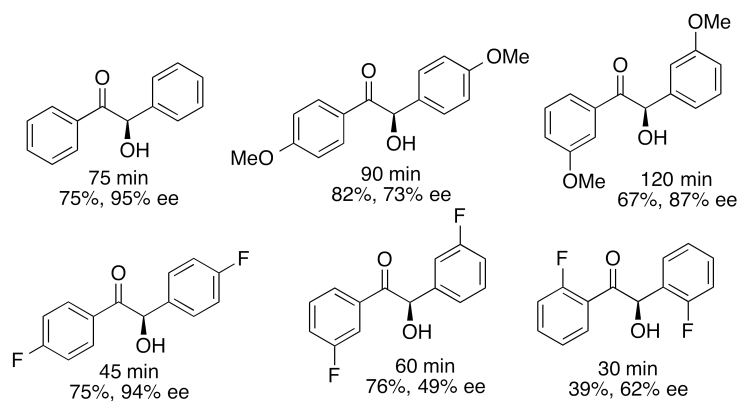
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¹ETH Zürich

In general, the iron(II) catalysts employed in the asymmetric transfer hydrogenation of ketones (ATH) require basic conditions, which sets severe limitations to the reaction scope. Upon base activation, the catalyst $[\text{Fe}(\text{CNR})_2(\text{N}_2\text{P}_2)]^{2+}$ (**1**) recently reported by our group has shown high activity (up to >99.5% yield) and enantioselectivity (up to 99% ee) in the ATH of polar double bonds. [1] In order to broaden the substrate scope to base sensitive substrates, we prepared the hydrido isonitrile complex **2**, which does not require base activation as it bears the HFeNH motif responsible for hydrogen transfer.



Complex **2** catalyzes the asymmetric transfer hydrogenation of base-sensitive substrates, such as benzils, in good yield and excellent enantioselectivity without the addition of base.



[1] (a) R. Bigler, A. Mezzetti, *Org. Lett.*, **2014**, *16*, 6460. (b) R. Bigler, R. Huber, A. Mezzetti, *Angew. Chem. Int. Ed.*, **2015**, *54*, 5171. (c) R. Bigler, A. Mezzetti, *Org. Process Res. Dev.*, **2016**, *20*, 253. (d) Bigler, R.; Huber, R.; Stöckli, M.; Mezzetti, A. *ACS Catal.* **2016**, *6*, 6455.