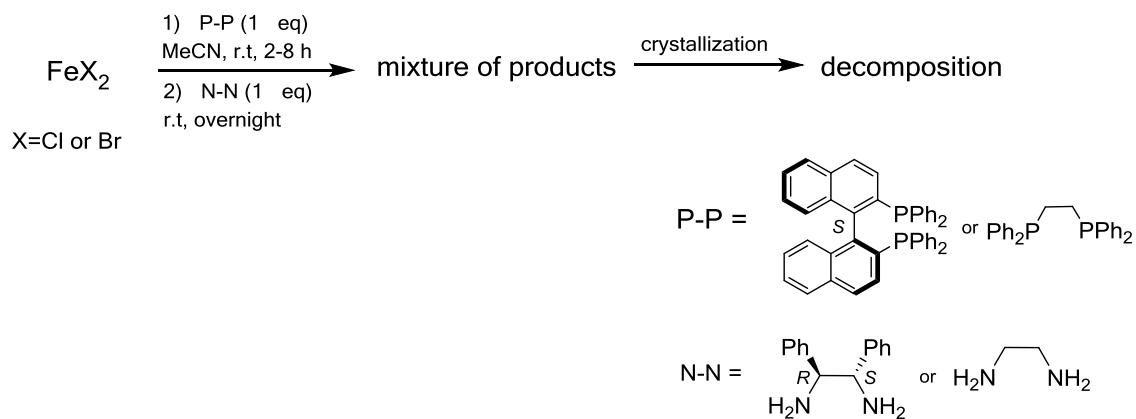
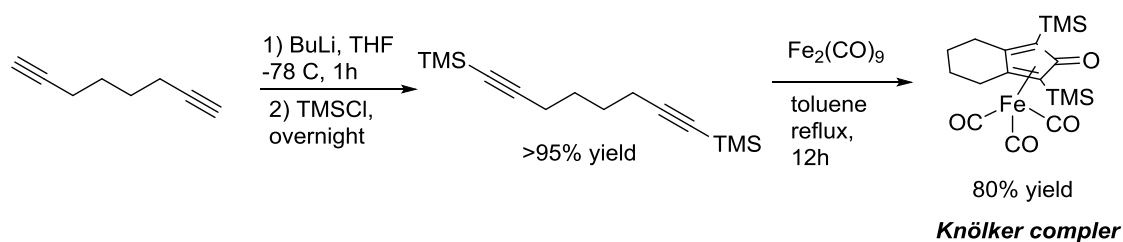
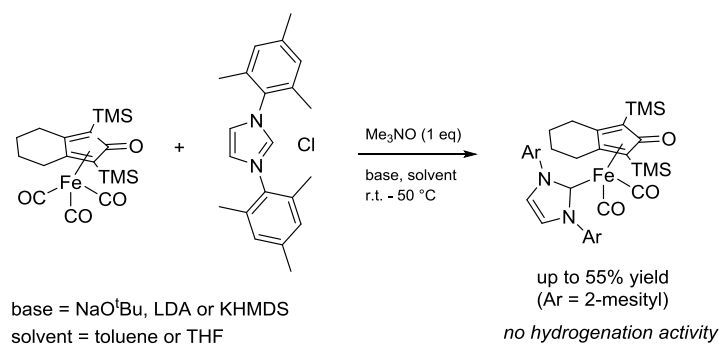




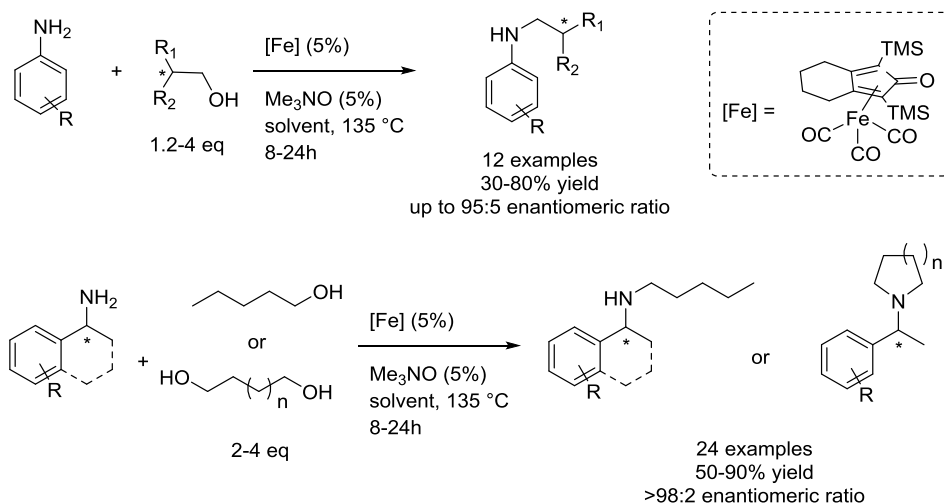
Scheme 1. Procedure for the synthesis of $[\text{Fe}(\text{P-P})(\text{N-N})\text{X}_2]$ complexes



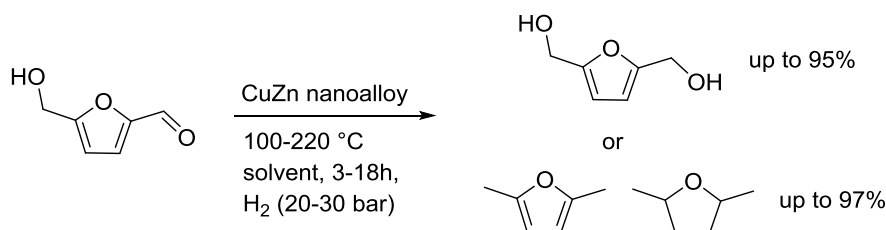
Scheme 2. Synthesis of the Knölker complex.



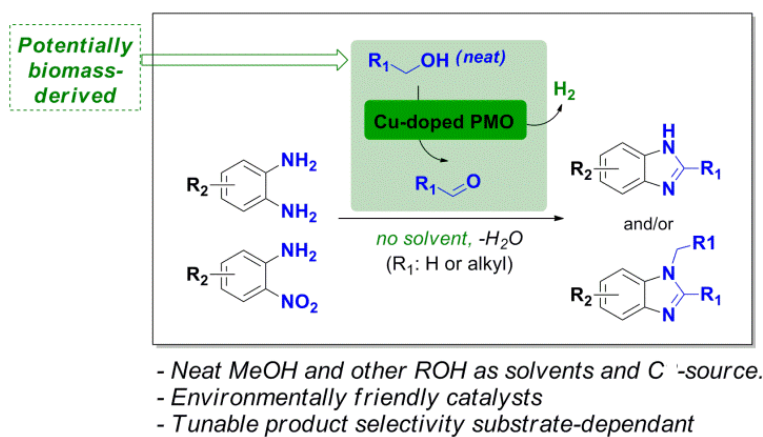
Scheme 3. Synthesis of a model achiral iron-carbene complex derived from the Knölker complex.



Scheme 4. Scope of the iron-catalyzed alkylation of amines with alcohols using enantiopure starting materials.



Scheme 5. Tunable and selective hydrogenation of 5-hydroxymethylfurfural.



Scheme 6. Copper-catalyzed synthesis of benzimidazoles