

# WITTIG [2,3]-REARRANGEMENT AS A FORMAL ASYMMETRIC ALKYLATION OF $\alpha$ -BRANCHED CYCLOPENTANONES

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Asymmetric catalytic  $\alpha$ -alkylation of  $\alpha$ -branched ketones is highly challenging task due to the steric hindrance of substrates. We previously described an efficient organocatalytic methods for the Wittig [2,3]-rearrangement (Fig. 1) [1], [2].

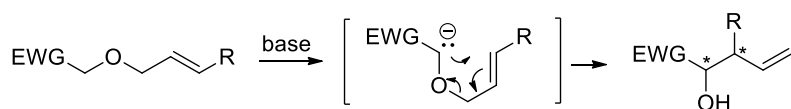


Fig. 1 Wittig [2,3]-rearrangement.

In this approach, we examine the asymmetric Wittig [2,3]-rearrangement of cyclic ketones as a formal  $\alpha$ -alkylation of  $\alpha$ -branched ketones. Enamine catalysis was applied for the  $\alpha$ -alkylation of cyclopentanone derivatives and  $\alpha$ -alkylated products were obtained in excellent enantiomeric purities and in good diastereoselectivities and yields (Fig. 2).

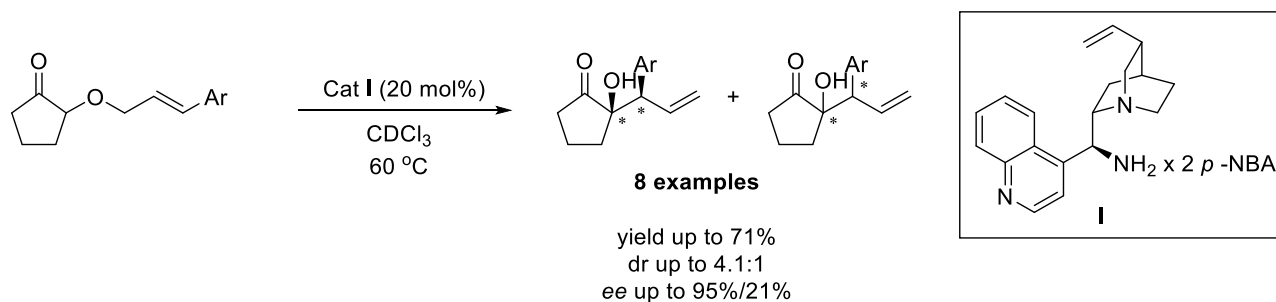


Fig. 2 Asymmetric Wittig [2,3]-rearrangement of cyclopentanone.

## References

1. Ošeka, M.; Kimm, M.; Kaabel, S.; Järving, I.; Rissanen, K.; Kanger, T. *Org. Lett.* **2016**, *18*, 1358-1361
2. Ošeka, M.; Kimm, M.; Järving, I.; Lippur, K.; Kanger, T. *J. Org. Chem.* **2017**, *82*, 2889-2897