

SYNTHESIS AND CHARACTERIZATION OF NEW Mn COMPLEXES AND THEIR APPLICATION IN THE ASYMMETRIC DIRECTED OXIDATION OF NON-ACTIVATED C-H BONDS

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The selective oxidation of non-activated C(sp³)-H bonds is a reaction with enormous potential in organic synthesis since it allows the transformation of these poorly reactive bonds, which are very abundant in organic molecules, into alcohol or ketones, which are recognized as one of the most versatile functional groups in organic synthesis.^[1] The oxidation of non-activated C-H bonds in a regio-, chemo-, and enantioselective manner is one of the main challenges toward the development of new methodologies for organic chemistry.^[2, 3]

This work illustrates the combination of synthetic and computational chemistry to define a new way of explaining the rules of this play, thereby achieving outstanding site-selectivities for carboxylic acid substrates bearing diverse γ -C-H bonds and unprecedented levels of enantioselectivity.^[4, 5] This objective has been accomplished by expanding the dataset through systematic modifications of the electronic and steric properties of the catalyst. The potential to extrapolate these findings to other projects is significant, offering dual value: not only advancing our understanding of the underlying chemical processes but also enhancing our broader comprehension of chemical principles.

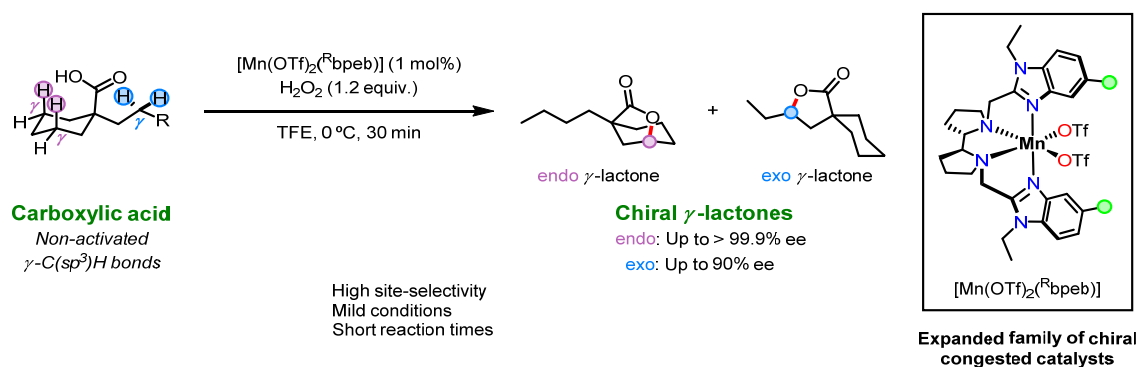


Figure 1. Highly enantioselective and specific oxidation of non-activated γ -C-H bonds.

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