

Reactivity and Site-selectivity of C–H Functionalization Reactions: The Acid Effect

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Late-stage functionalization (LSF) of C–H bonds is a powerful tool for the efficient synthesis of functionalized complex molecules. It enables synthesis of compound libraries by decoration of basic skeleton at the end of synthetic pathway. LSF is challenging because the C–H bond is functionalized in the presence of various other functional groups. However, these groups can be in some cases (DGs) advantageously used to control site-selectivity. This contribution will introduce a simple way for switching the DGs assisted site-selectivity of C–H functionalization of aromatic bonds by acid additives [1].

This concept is based on the fact that the stronger DG tends to be more basic. Therefore, addition of acid to the reaction mixture causes its protonation and thus loss of DG ability. Then, the weaker DG directs the reaction [2].

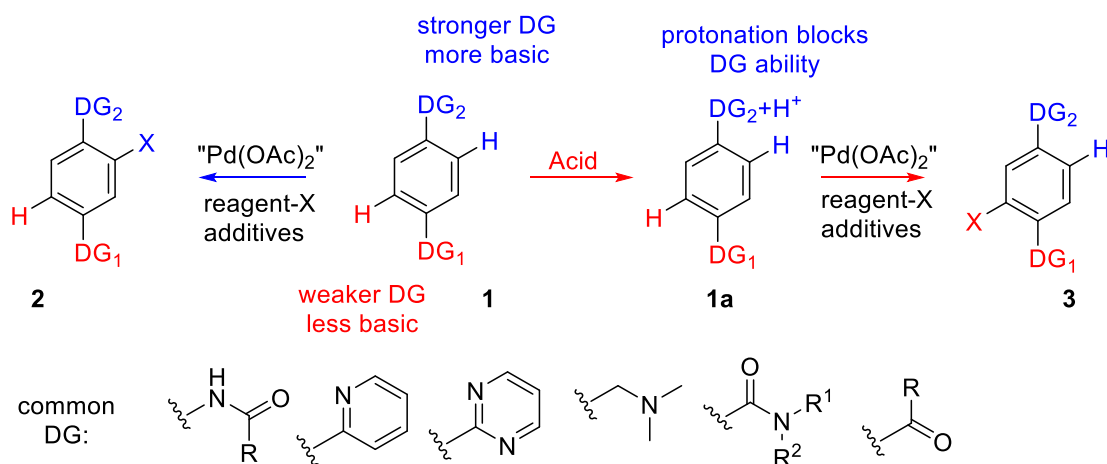


Figure 1. Basic principle of site-selectivity switch.

Acknowledgement: This work has been supported by project number SGS_2022_003.

References:

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