Applications of multi-component reaction chemistry in heterocyclic synthesis

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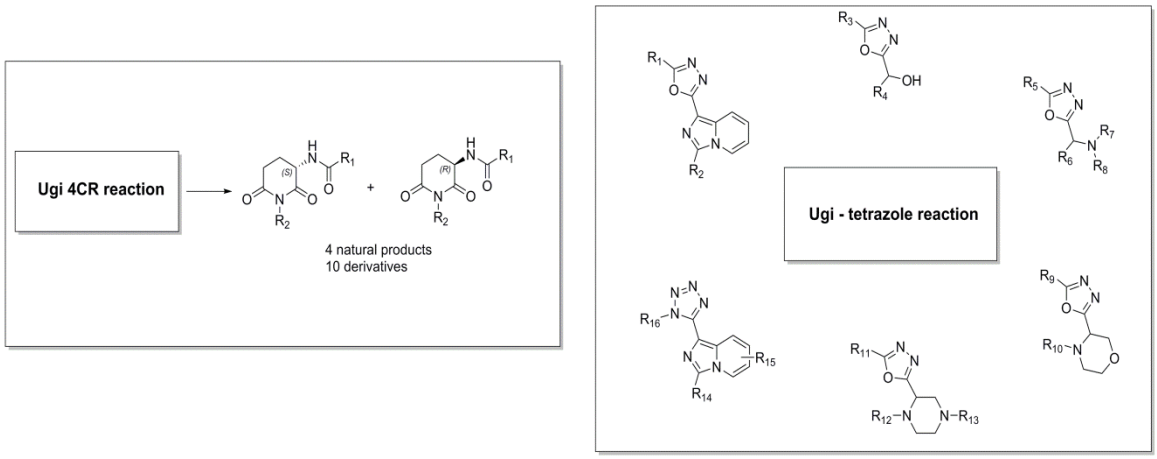
Heterocycles in general, represent the class of organic scaffolds, which is most commonly used in drug discovery and lead optimization. New synthetic routes are still of high demand from organic and medicinal chemists in order to shorten reaction schemes, simplify synthetic routes and in some cases discover greener approaches with high atom economy. Most of the these requirements are fulfilled by multi-component reaction chemistry (MCR), which in contrast to traditional step-wise synthesis, allows the synthesis of complex structures in a few synthetic steps, starting from commercially available or easily accessible starting materials.



Here, we present a MCR approach towards the synthesis of glutarimide alkaloids. Glutarimide derivatives are compounds of biological interest and recently have become essential building blocks for PROTAC design. The second case study, focuses on the synthesis of oxadiazoles, a signifinant heterocycle in drug discovery. Diverse scaffolds can be accessed in one-pot two-step procedures starting from commercially available starting materials.

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