



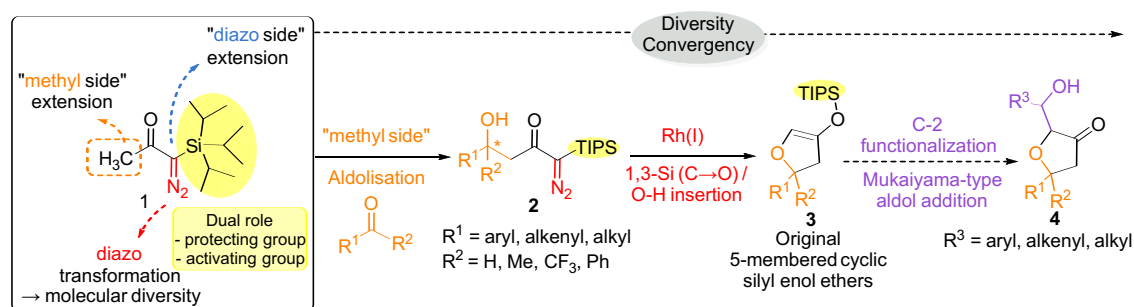
α -Triisopropylsilyl- α -diazoacetone as a Synthetic Tool For the Convergent Elaboration of Polyfunctionalized Tetrahydrofuran-3-ones

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In organic chemistry, innovative synthetic tools are constantly needed to achieve the synthesis of complex molecular scaffolds, particularly in the field of bioactive molecules. To this aim, diazocarbonyl compounds are high-value synthetic intermediates. Indeed, diazo decomposition triggers a range of transformations such as X-H insertions, sigmatropic rearrangements and cycloadditions, leading to high molecular diversity.¹ In this context, our group is studying the reactivity of α -trialkylsilyl- α -diazoacetones, three-carbon building blocks displaying a particular synthetic potential based on the dual role of the trialkylsilyl substituent. The latter can behave alternately as a protecting or an activating group, allowing for example selective “methyl-side” or “diazo-side” chain extensions by aldol-type reactions.² This methodology has already proven its efficiency in the function-oriented synthesis of Peloruside A analogues.³ In order to explore further the synthetic potential of these silylated diazocarbonyl building blocks, we are currently studying the reactivity of C-TIPS diazoaldols **2** resulting from “methyl-side” aldol addition on TIPS-diazoacetone **1** (scheme 1). We recently focused on the development of Rh(I)-catalyzed diazo decomposition/intramolecular X-H insertion process from substrates **2**. A simultaneous 1,3-Si(C \rightarrow O) migration was highlighted, providing regio-defined, stable tetrahydrofuran-3-ones derived TIPS enol ethers **3**. The latter constitute original precursors of polyfunctionalized tetrahydrofuran-3-ones like **4** which are widespread in bioactive natural compounds,⁴ particularly through Mukaiyama-type aldol addition.



Scheme 1: a convergent strategy towards polyfunctionalized tetrahydrofuran-3-ones.

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