

Ph. D. Seminar-II

Synthesis and Exploratory Reactivity Studies on  $\alpha,\alpha$ -Dihalo- $\alpha'/\beta$ -acetoxyketones

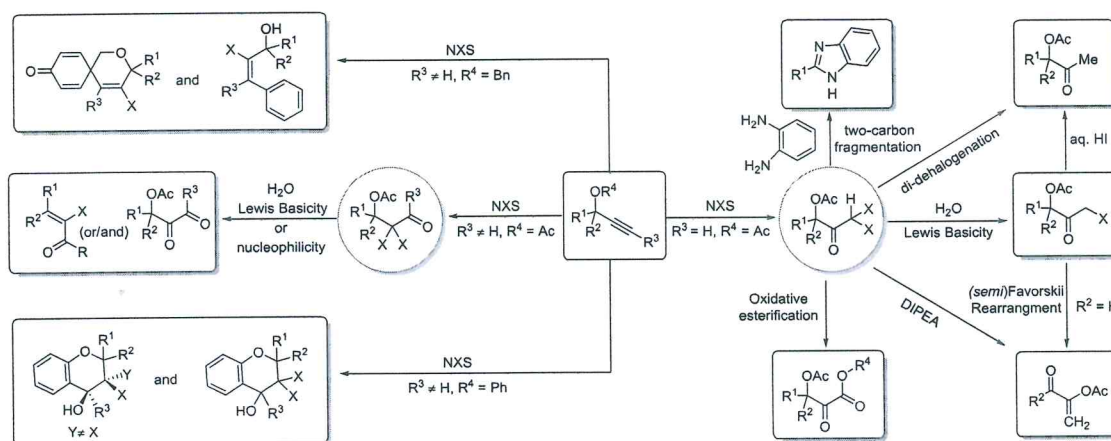
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Date: 12-02-2020

Venue: CB 310

Time: 3.00 PM

The *gem*-dihalocarbonyl functional group is one of the privileged scaffold in medicinal and organic chemistry due to its chemical and metabolic stability, lipophilicity and selective mode of binding.<sup>1</sup> Many methods have been developed for the preparation of biologically significant *gem*-dihalocarbonyl building block.<sup>1</sup> Additionally this moiety has been employed as a versatile building block in organic synthesis. We have synthesized a new class of  $\alpha,\alpha$ -dihalo- $\alpha'/\beta$ -acetoxyketones (i.e.  $\alpha,\alpha$ -dihalo- $\alpha'/\beta$ -acetoxyketones) employing an acetoxy-directed dihalo-hydration reaction of propargylic acetates under metal free conditions.<sup>2</sup> Then we have discovered the Lewis basicity of water instead of nucleophilicity (classical reactivity with *gem*-dihalo-compounds), when it reacts with  $\alpha,\alpha$ -Dihalo- $\alpha'/\beta$ -acetoxyketones. Furthermore, we have designed and developed various unconventional reactions utilizing the novel reactivity of these building blocks.<sup>2-5</sup> The details of the discovery and developments will be discussed in the seminar.



**Scheme 1:** Unique reactivity profiles of  $\alpha,\alpha$ -Dihalo- $\alpha'/\beta$ -acetoxyketones.

**References:** [1] (a) G. Pattison, *Eur. J. Org. Chem.* **2018**, 3520; (b) L. Arora, R. Prakash and R. Pundeer, *Synth. Commun.* **2019**, *49*, 1486; (c) S. Sadhukhan, J. Santhi and B. Baire, *Chem. Eur. J.*, DOI 10.1002/chem.201905475. [2] (a) S. Sadhukhan and B. Baire, *ChemistrySelect*, **2017**, *2*, 8500; (b) S. Sadhukhan and B. Baire, *Chem. Eur. J.*, **2019**, *25*, 9816. [3] S. Sadhukhan and B. Baire, *Adv. Synth. Catal.*, **2018**, *360*, 298. [4] (a) S. Sadhukhan and B. Baire, *Org. Lett.*, **2018**, *20*, 1748; (b) S. Sadhukhan and B. Baire, *ChemistrySelect*, **2019**, *4*, 3376. [5] S. Sadhukhan and B. Baire, *Unpublished results*.

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