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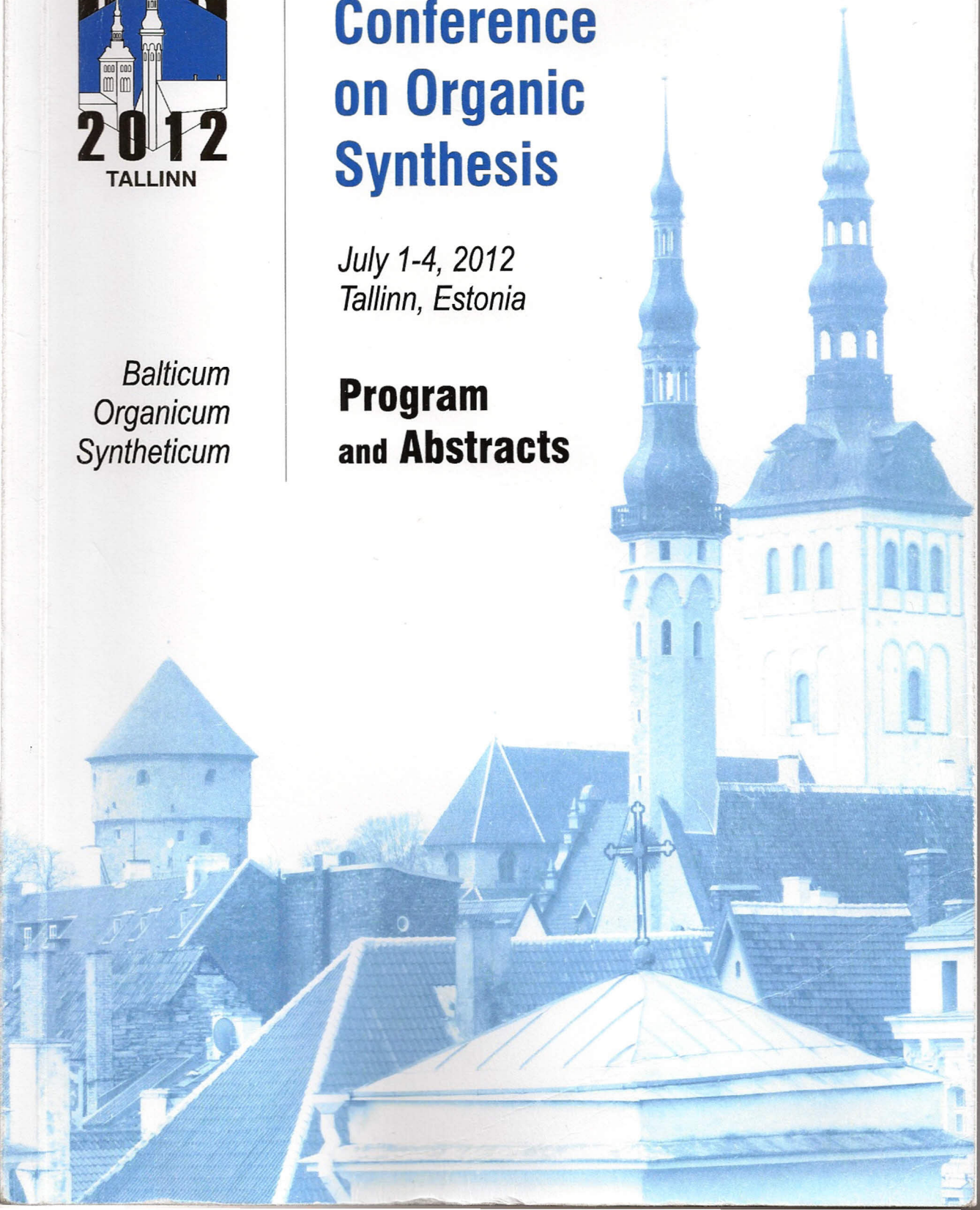
Program and Abstracts



AN EASY ENTRY TO SUGAR ISOXAZOLE DERIVATIVES *VIA* MICHAEL ADDITION/1,3-DIPOLAR CYCLOADDITION REACTIONS

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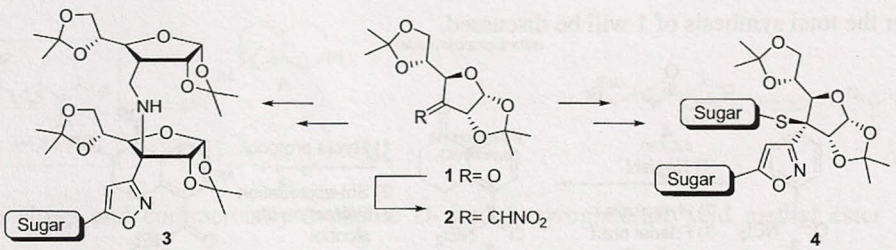
Isoxazoles are recognized as versatile structural elements in biologically active substances.[1] They are often used as linkers between different pharmacophores. Isoxazoles have found their way in carbohydrate chemistry together with triazoles which are other prominent azole congeners of the former.[2]

Here we report a novel approach for isoxazole- or/and thioether-linked glycoconjugates which is based on sequential Michael addition – 1,3-dipolar cycloaddition. We have identified glucose-derived nitroalkene **2** as a suitable structural motif which is capable to link a molecule possessing nucleophilic center and a molecule possessing terminal alkyne.



Similarly to diacetone-α-D-glucose derived ketone **1**, key-product **2** accepts nucleophiles selectively from its *si*-face.[3] This results in intermediates that contain nitromethyl group. These latter can be transformed into nitrile oxides and then coupled with suitable terminal alkynes. Both the Michael addition and the cycloaddition occur with excellent isolated yields. The overall process yields either disaccharides (only nucleophilic component is a carbohydrate) or trisacharides (type **3** and **4**).

1. a) Koufaki, M.; Tsatsaroni, A.; Alexi, X.; Guerrand. H.; Zerva, S.; Alexis, M. N. *Bioorg. Med. Chem.* **2011**, *19*, 4841. b) Kaffy, J.; Pontikis, R.; Carrez, D.; Croisy, A.; Monneret, C.; Florent, J. C. *Bioorg. Med. Chem.* **2006**, *14*, 4067.

2. Giguère, D.; Patman, R.; Bellefleur, M. A.; St-Pierre, C.; Sato, S.; Roy, R. *Chem. Commun.* **2006**, 2379.

3. Lugiņina, J.; Rjabovs, V.; Belyakov, S.; Turks, M. *Carbohydr. Res.* **2012**, *350*, 86.