



DEBRECEN COLLOQUIUM ON CARBOHYDRATES 2020 IN 2022

Rezső Bognár Memorial Conference on Glycomimetics

August 24-27, 2022



UNIVERSITY of
DEBRECEN

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**Functional Glyconanomaterials for the Development
of Diagnostics and Targeted Therapeutic Probes**

2nd Meeting, August 25-26, 2022, Debrecen, Hungary

PROGRAM AND ABSTRACTS

**Debrecen Colloquium
on Carbohydrates 2020 in 2022**

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SO₂-ASSISTED GLYCOSIDIC BOND FORMATION

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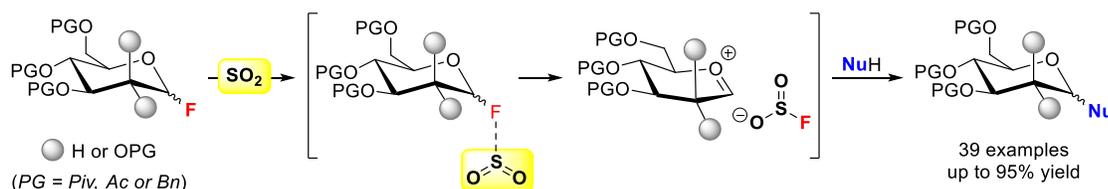
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Being one of the few polar solvents that possess Lewis acid properties, liquid SO₂ facilitates Lewis acid promoted and/or carbenium ion mediated chemical transformations.¹ Furthermore, SO₂ has an affinity towards fluoride ion that leads to covalent bonding in the form of fluorosulfite anion.²

Based on the aforementioned physico-chemical properties of SO₂, we have developed SO₂-assisted glycosylation with glycosyl fluorides as glycosyl donors in liquid SO₂ without an external promoter.³ The novel synthetic method was demonstrated with variously protected mannosyl and glucosyl fluorides, and series of *O*-, *S*- and *C*-glycosides were obtained in moderate to excellent yields. The α/β -selectivity of glycosylation was proposed to be substrate-controlled presenting thermodynamic equilibrium. The formation of fluorosulfite species during the glycosylation in the presence of SO₂ was proved by both ¹⁹F NMR spectroscopy and DFT calculations.



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3. Gulbe, K.; Lugiņina, J.; Jansons, E.; Kinēns, A.; Turks, M. *Beilstein. J. Org. Chem.* **2021**, *17*, 964.