

ABSTRACTS
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Efficient Dimerization of 3-Azido-Allose and 3-Azido-Glucose Derivatives

Jevgenija Mackevica, Vitalijs Rjabovs, Maris Turks, *Riga Technical University*

A series of novel carbohydrate conjugates were synthesized via click chemistry. Among the pharmaceutical uses, triazole-carbohydrate conjugates are known as inhibitors of the proliferation of leukemia cells¹ and glycosidases.² Nevertheless it should be mentioned that 1,2,3-triazolyl glycohybrids also have been described as compounds with antifungal and antibacterial activity.³

Copper catalyzed 1,3-dipolar cycloaddition⁴ between azidomonosaccharides (D-glucose and D-galactose) and commercially available 1,n-diynes or "home-made" 2,2-dipropargyl dimedone and 5,5-dipropargyl Meldrum's acid gave the 1,4-substituted triazole-linked disaccharides. Two catalytic systems have been employed – CuSO₄/sodium ascorbate and CuI/DIPEA. Protecting groups were

easily removed using acetic or trifluoroacetic acid.

1. El Akri, K.; Bougrin, K.; Balzarini, J.; Faraj, A.; Benhida, R. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 6656.
2. a) Rossi, L. L.; Basu, A.; *Bioorg. Med. Chem. Lett.* **2005**, *15*, 3596; b) Péron, R.; Ferrières, V.; Garcia-Moreno, M. I.; Ortiz Mellet, C.; Duval, R.; Garcia Fernández, J. M.; Plusquellec, D. *Tetrahedron* **2005**, *61*, 9118.
3. Vijaya Raghava Reddy, L.; Venkat Reddy, P.; Mishra, N.N.; Shukla, P.K.; Yadav, G.; Srivastava, R.; Shaw, A.K. *Carbohydr. Res.* **2010**, *345*, 1515.
4. (a) Tornøe, C. W.; Christensen, C.; Meldal, M. *J. Org. Chem.* **2002**, *67*, 3057-3064. (b) Rostovtsev, V. V.; Green, L. G.; Fokin, V. V.; Sharpless, K. B.; *Angew. Chem. Int. Ed.* **2002**, *41*, 2596-2599.

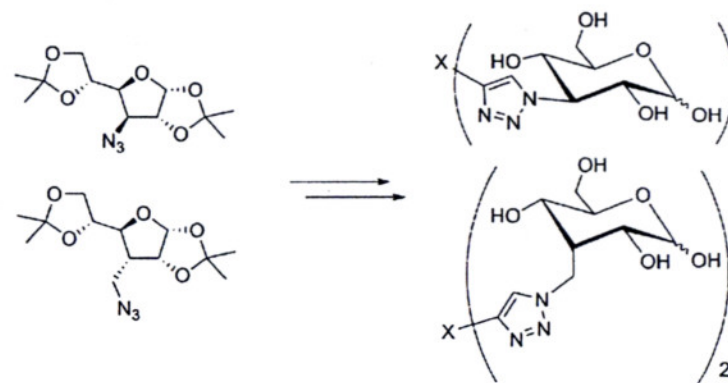


Fig.1 Synthesis of triazolyldisaccharides