**Hírlevél**

**MTA Szénhidrát, Nukleinsav és Antibiotikumkémiai Munkabizottság**

**2019. február**

1.) A 2019. évi munkabizottsági ülés időpontja:

**2019. 05. 22. (szerda) - 2019. 05. 24. (péntek), Mátrafüred**

**A honlapunkon már lehetőség van a jelentkezésre, határideje: 05.07.**

http://mta-szenhidrat-nukleinsav-es-antibiotikumkemiai-mu.mozello.hu/

Nagy örömünkre szolgál bejelenteni, hogy elfogadta felkérésünket az MB ülésen való részvételre és plenáris előadásra

**Prof. em. Dr. Beat Ernst, Department of Pharmaceutical Sciences, Universitat Basel**

**Prof. Carmen Galan, School of Chemistry, University of Bristol**

**Tanja Wrodnigg, Institute of Organic Chemistry, TU Graz University of Technology**

**Lenka Malinovska, Masaryk University, Brno**

**Dr. Brijesh Rathi (New Delhi Egyetem, Hans Raj College)**

**Dr. Poonam (New Delhi Egyetem, Miranda College)**

2.) Az idei évben pályázatot nyújtottunk be az Akadámiához MB ülés kapcsán és keretein belül workshop rendezésére:

**International Workshop on Chemistry and Chemical Biology of Carbohydrates, Nucleic Acids and Antibiotics**

 Igyekszünk a külföldi vendégeink költségeire és egyéb dologi kiadásokra támogatást szerezni.

3.) **Bruckner-termi előadás**

2019. 03. 29. péntek, 14 óra

Csávás Magdolna: Multivalens szénhidrátok szintézise és bakteriális lektinekkel való kölcsönhatásának vizsgálata

3.) Szeretnénk a Munkabizottság tagjainak legújabb eredményeit, megjelent közlemények kivonatait hírlevelünkben is közzétenni. Kérem, aki élni szeretne a lehetőséggel, továbbítsa közleménye absztraktját.

**Tamás Szabó, Attila Bényei, László Szilágyi:**

**Bivalent glycoconjugates based on 1,5-diazabicyclo[3.3.0]octa-3,6-diene-2,8-dione (“bimane”) as a central scaffold.**

Carbohydr. Res., 2019, 473, 88-98.

https://doi.org/10.1016/j.carres.2019.01.002

**Abstract**

The heteroaromatic fused diazabicyclic “bimane” ring system, discovered four decades ago, is endowed with remarkable chemical and photophysical properties. No carbohydrate derivatives of bimanes have, however,been described thus far. Here we report on the syntheses of a range of bimanes decorated with various glycosyl residues. Mono- and disaccharide residues were attached to syn- or anti-bimane central cores via thio-, disulfido- or selenoglycosidic linkages to obtain novel fluorescent or nonfluorescent glycoconjugates. Cu(I)-catalyzed cycloaddition of glycosyl azides to a bimane diethynyl derivative furnished further bivalent glycoconjugates with sugar residues linked to the central bimane core via 1,2,3-triazole rings. We have determined the crystal and molecular structures of several glycosylated and non-glycosylated bimanes and report fluorescence data for the new compounds.

**Fruzsina Demeter, Fanni Veres, Mihály Herczeg, and Anikó Borbás**

**Short Synthesis of Idraparinux by Applying a 2-O-Methyl-4,6-O-arylmethylene Thioidoside as a 1,2-trans-α-Selective Glycosyl Donor**

Eur. J. Org. Chem. 2018, 6901–6912

**Abstract**: The fully O-sulfated, O-methylated, heparin-related anticoagulant pentasaccharide idraparinux was prepared by a new synthetic pathway in 38 steps using D-glucose and methyl α-D-glucopyranoside as starting materials, with 23 steps for the longest linear route. The L-idose-containing GH fragment was obtained by a short and straightforward synthesis whereby a 4,6-cyclic-acetal-protected L-idosyl thioglycoside bearing a C2- nonparticipating group was used as the α-selective glycosyl donor. The novel L-idose donor was prepared with high chemo and stereoselectivity by hydroboration–oxidation-based C5 epimerization starting from an orthogonally protected α-thioglucoside. The assembly of the pentasaccharide backbone was achieved by an F+GH and DE+FGH coupling sequence with full stereoselectivity in each glycosylation step.

**Vladimir Vimberg, Radek Gazak, Zsolt Szűcs, Anikó Borbás, Pál Herczegh, Jorunn Pauline Cavanagh, Leona Zieglerova, Jan Závora, Václava Adámková, Gabriela Balikova Novotna**

**Fluorescence assay to predict activity of the glycopeptide antibiotics**

The Journal of Antibiotics

<https://doi.org/10.1038/s41429-018-0120-5>

**Abstract:** Here, we describe a fluorescent assay developed to study competitive binding of the glycopeptide antibiotics to live bacteriacells. This assay demonstrated that the mechanism of action of the lipoglycopeptide antibiotics strongly depends on thehydrophobicity of the substitutes, with the best antibacterial activity of the glycopeptide antibiotics equally sharingproperties of binding to D-Ala–D-Ala residues of the nascent peptidoglycan and to the membrane.

**Kitti Szőke, Attila Czompa, István Lekli, Péter Szabados-Fürjesi, Mihály Herczeg, Magdolna Csávás, Anikó Borbás, Pál Herczegh, Árpád Tósaki**

**A NEW, VASOACTIVE HYBRID ASPIRIN CONTAINING NITROGEN MONOXIDE-RELEASING MOLSIDOMINE MOIETY**

Eur. J. Pharm. Sci., 2019, 131 (2019) 159–166

Abstract: Ischemic heart conditions are among the main causes of sudden cardiac death worldwide. One of the strategies for avoiding myocardial infarction is the low-dose, prophylactic use of acetylsalicylic acid (ASA), an inhibitor of platelet aggregation. To avoid the gastrointestinal damage, ASA prodrugs bearing nitric oxide (NO)-donating moiety covalently conjugated to ASA have been synthesized and evaluated extensively worldwide. Herein the synthesis of a new hybrid ASA ester covalently attached to the NO donor linsidomine, an active metabolite of molsidomine (MOL) is reported. Cell viability assay and hemolysis tests were performed in H9c2 cells and rat erythrocytes, respectively. Our new compound, the ERJ-500 not affected negatively the viability of living cells in the concentration range of 100 nM to 100 µM. Using the ex vivo Langendorff method on hearts originated from female rats, compound ERJ-500 displayed a dose-dependent, outwashable vasodilative effect in coronary arteries. Vasodilation was observed on isolated working heart model as well, with elevated stroke volume in hearts treated with ERJ-500. Furthermore, a decreased infarct size was also noticed in ERJ-500 treated hearts after ischemia/reperfusion. Based on these observations it can be expected that our new hybrid ASA may contribute to new pharmacological tool in the therapy of ischemic heart conditions and associated syndromes.

4.) CyclodextrinNews Blog

Elindult a ciklodextrinekkel kapcsolatos blog a <https://cyclodextrinnews.com/> címen.

*A havi rendszerességű hírlevélben megjelentetni kívánt anyagot kérjük minden hónap utolsó napjáig elküldeni a* *csavas.magdolna@science.unideb.hu* *email címre.*

Üdvözlettel: Csávás Magdolna

 a munkabizottság titkára

2019. február