

## MIKLÓS BEGE



University of Debrecen  
Faculty of Pharmacy  
Department of Pharmaceutical Chemistry

Address: Egyetem tér 1., H-4032 Debrecen, Hungary

## RESEARCH AREA

Synthesis of artificial carbohydrate- and nucleoside analogues, using primarily radical thiol-ene coupling and reductive amination cyclization methods. Synthesis of new type of nucleic acids analogues e.g. cysteinyl nucleic acids, containing oligocysteine backbone instead of the natural sugar-phosphate motif. Developing new nucleoside analogs with antiviral, cytotoxic and antiprotozoa effects. Synthesis of new, fluorine containing morpholinos, with reductive amination, radical perfluoroalkyl iodide addition or N-trifluoromethylation (via dithiocarbamate). Evaluation of the Robinson-Schöpf reaction of nucleoside dialdehydes with (among others) biogene amines such as triptamine, dopamine etc. Synthesis of modified ascorbic acid derivatives.

## TECHNIQUES AVAILABLE IN THE LAB

Executing preparativ organic chemistry tasks, including reactions in inert atmosphere and/or under waterfree circumstances. Regularly usage of photochemical reactions, induced by UV light or visible light, using different initiators and catalysts. Extraction, distillation. Thin layer chromatography for monitoring chemical reactions. Column chromatography and flash chromatography on silica gel. Characterisation of the obtained compounds: analysis of NMR and MS spectra.

## SELECTED PUBLICATIONS

**Bege, M.**, Singh, V., Sharma, N., Debreczeni, N., Bereczki, I., Poonam, Herczegh, P., Rath, B., Singh, S., Borbás, A. (2023) In vitro and in vivo antiplasmodial evaluation of sugar-modified nucleoside analogues. **Sci Rep** **13**: 12228.

Godoy, A. S., Nakamura, A. M., Douangamath, A., Song, Y., Noske, G. D., Gawriljuk, V. O., Fernandes, R.S., Pereira, H.D.M., Oliveira, K.I.Z., Fearon, D., Dias, A., Krojer, T., Fairhead, M., Powell, A., Dunnet, L., Brandao-Neto, J., Skyner, R., Chalk, R., Bajusz, D., **Bege, M.**, Borbás, A., Keserű, G.M., von Delft, F., Oliva, G. (2023) Allosteric regulation and crystallographic fragment screening of SARS-CoV-2 NSP15 endoribonuclease. **Nucleic Acids Res** **51**: 5255-5270.

**Bege, M.**, Kiss, A., Bereczki, I., Hodek, J., Polyák, L., Szemán-Nagy, G., Naesens, L., Weber, J., Borbás, A. (2022) Synthesis and Anticancer and Antiviral Activities of C-2'-Branched Arabinonucleosides. **Int J Mol Sci** **23**: 12566.

**Bege, M.**, Borbás, A. (2022) The Medicinal Chemistry of Artificial Nucleic Acids and Therapeutic Oligonucleotides. **J Pharm** **15**: 909.

**Bege, M.**, Bereczki, I., Molnár, D. J., Kicsák, M., Péntes-Daku, K., Bereczky, Z., Ferenc, G., Kovács, L., Herczegh, P., Borbás, A. (2020) Synthesis and oligomerization of cysteinyl nucleosides. **Org Biomol Chem** **18**: 8161-8178.