

Abstract

*„Badania nad syntezą i wstępną oceną właściwości biologicznych glikokoniugatów,
pochodnych nukleozydów”*

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Glycosyltransferases are enzymes responsible for transfer of activated monosaccharide units in the form of their nucleotide diphosphate derivatives (NDP-sugar) to a specific free hydroxyl group of the acceptor molecule e.g. growing oligosaccharide, a protein or a lipid. Oligosaccharides and glycoconjugates that are found on the cell surface participate in many intracellular and extracellular events such as viral or bacterial infection, tumor metastasis, immune response or inflammation. The development of inhibitors of glycosyltransferase may lead to discovery of novel therapeutics for the treatment of certain diseases in which carbohydrates-protein interactions are involved.

The aim of the presented work was to synthesize potential glycosyltransferase inhibitors that are analogues of natural donor substrate: UDP-glucose and UDP-galactose. We focused on synthesis of glycoconjugates derivatives of nucleosides containing structure elements of natural substrates for glycosyltransferases: sugar moiety, linker and nucleoside moiety or part mimicking the nucleoside moiety – acyclic nucleoside.

Inhibitory activity of synthesized compounds was evaluated against β -1,4-galactosyltransferase from bovine milk. Synthesis of such models completes the library of already existing structures and biological evaluations are enriched with information concerning the biochemical relevance of size and structure of ribose mimicking motif of obtained glycoconjugates.

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