

ABSTRACT

Nowadays, synthetically available carbohydrates are of urgent interest for the development of carbohydrate-based drugs, new drug delivery systems as well as new enzymes inhibitors. Thereby, we present the synthesis of hyaluronic acid (**Fig. 1**) subunits and their further use for the construction of certain complex structures, which can potentially act as drugs or drug delivery platforms in a modern medicine.

A significant number of experiments has proved that tissue cancer are surrounded by hyaluronic acid (HA) since it has an affinity to CD44 and RHAMM receptors. HA, as a naturally occurring in the human body polymer, can play an important role as drug delivery systems. Its nontoxic and biodegradable properties allow this molecule to conjugate with drugs.

The main goal of this research has focused on the synthesis of modified monosaccharides as building blocks for hyaluronic acid subunits. During this work two types of compounds were synthesized: saccharides with fluorinated aliphatic chain of different length and 1,2,3-triazole ring and fluorinated saccharides with phosphonate or phosphoramidate moieties. These modifications could allow the molecule to pass the cellular membrane, reach the targeted cells and increase the biocompatibility of the drug delivery system. The dissertation contains literature description of the main topics, results of research with experimental data followed by selected spectra and references.

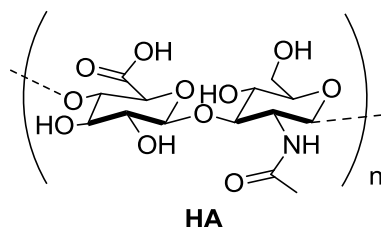


Figure 1. Hyaluronic acid (HA) subunits