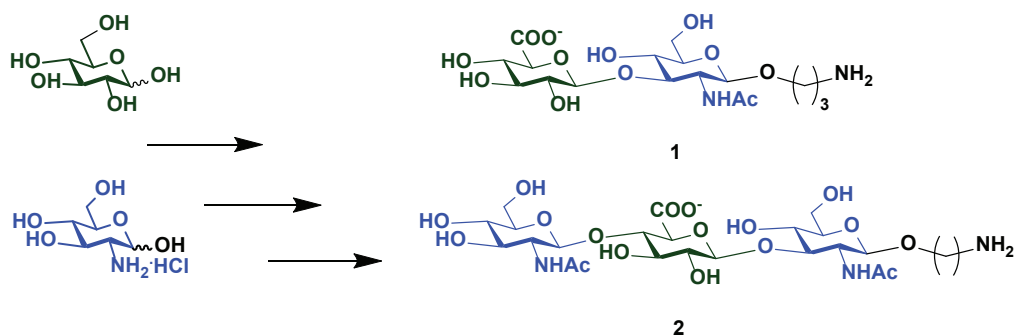


A.A. GRINKOVA, N.E. USTYUZHANINA, N.E. NIFANTIEV

## Synthesis of hyaluronic acid related oligosaccharides

Hyaluronic acid is a polysaccharide composed of repeating disaccharide units of  $\beta$ -D-glucuronic acid and N-acetyl- $\beta$ -D-glucosamine. This biopolymer is a part of glycoproteins and proteoglycans that carry out important function in living organisms. It is notably that specific biological roles of hyaluronic acid are related to its molecular weight. The polymers from 100 to 10000 disaccharides units  $\rightarrow 3$ )- $\beta$ -D-GlcNAc-(1 $\rightarrow$ 4)- $\beta$ -D-GlcA-(1 $\rightarrow$  usually perform a structural role. They are components of the synovial fluid, the vitreous of the eye, the intercellular matrix. At the same time it has been reported, that small hyaluronic acid fragments carry out a regulatory role. They have an important role in essential biological process such as cell migration, proliferation, angiogenesis, inflammation and tumor development.

In this work stereoselective and regioselective synthesis of disaccharide 1 and trisaccharide 2 (1), compounds related to hyaluronic acid, is described. The targeted compounds were synthesized from available monosaccharide precursors: D-glucose and D-glucosamine. Selective addition of protective groups was performed using modern methods of carbohydrates chemistry.



For glycosylation the sulfoxide as donor was employed. Model compounds 1 and 2 are required for making clear of the mechanisms of regulatory action of hyaluronic acid.

\* GRINKOVA Anna Ashotovna – Graduate student, USTYUZHANINA Nadezhda Evgenievna – PhD, Senior Researcher, NIFANTIEV Nikolay Evgenievich – Prof., Associate Member of RAS, The Head of The Laboratory (N.D. Zelinsky Institute of Organic Chemistry RAS, Moscow, Russia)

\*E-mail:grinkova81@gmail.com