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Sialic acid content in human chorionic gonadotropin depends on blood group

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Biological recognition mediated by sugar chains is an important mechanism in multicellular organisms. The N-linked sugar chains of glycohormones such as hCG may play a crucial role in their biological function. As with many specific receptors, the recognition site of hCG comprises terminal sialic acid. The aim of this work is the study of the number of sial-containing groups of natural hCG excreted by pregnant women with different blood groups. No discussion of blood group specificity of glycoprotein hormones has been found in literature and commercially available hCG-preparations are purified from urine of donors pooled regardless of their blood group. It is suspected that hCG in these preparations is not fully effective. The ion-exchange and gel chromatography for hCG purification from pregnancy urine of various blood group donors was performed (a porous carboxylic resin and Sephadex G-100 were used). The purified hCG-preparations were analyzed with HPLC. The highly purified hCG-preparations from various blood group donors were shown to differ in their sialic acid content. This is potentially important for dosage of hCG-preparations for clinical use. In the process of dose evaluation of chemiotherapeutic action of hCG the blood group of a patient should be taken into account. The optimal solution may be in differentiated use of donors' urine during the process of hCG isolation. We studied as well the correlation between the concentrations of free and bound sialic acids in highly purified hormone preparations of various blood group donors. The level of free sialic acids was checked which could be interpreted as measure of tissue sialidase activity.

Biography

Irina Chernova works as a Scientific Researcher at the Institute of Macromolecular Compounds of Russian Academy of Sciences since 1972 in the field of isolation and purification of biologically active substances. She obtained her PhD in 1985 concerned with isolation of microbial sialidase and spent a year (1998) at Bath University (UK) as a visiting scientist. She has published 38 papers. Her field of interest is the role of sialic acids in the regulation of intercellular interactions and occurrence of ABO-polymorphism.

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