

## **DRUGS BASED ON MODIFIED POLYSACCHARIDES FOR THE LOCAL CHEMOTHERAPY OF MALIGNANT TUMORS**

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In Belarusian State University were implemented productions of the next pharmaceutical products (developed in Research Institute for Physical Chemical Problems of the Belarusian State University):

### Antitumor drug “Temodeks”

Temodeks is the original hydrogel substance for the production of the antitumoral drug for the local chemotherapy of malignant tumors of the brain, melanoma and other localizations of tumor process. Alkylating cytotoxic effect provided due to presence of temozolomide in the drug. A preparation in the form of sterile powders for the preparation of the gel. The product is temozolomide immobilized on a specially synthesized crosslinked gelling dextran phosphate, intended for local chemotherapy of malignant brain tumors. The cavity formed after surgical removal of the brain tumor is filled with the gel. Gelled state provides full access to all areas, providing, at the same time, complete destruction of the remaining tumor cells. Clinical testing of Temodeks as a means of local chemotherapy in patients with cerebral gliomas (Grade II-IV) are carried out on the base of City Emergency hospital. A good tolerance of the implantation of the drug was established. It is proved that use of Temodeks as a local chemotherapy drug of brain tumors extended the life of patients, duration of disease-free period, improve quality of life. Full cycle production of the substance Temodeks will be implemented in UE “Unitehprom BSU”, including the synthesis of the active component (Temozolomide) and the polymer carrier.

### Antitumor drug “Prospidelong”

Prospidelong is the original hydrogel antitumoral drug with prolonged action for the interperitoneal treatment of the patients with disseminated cancer of the stomach. A preparation in the form of sterile powders for the preparation of the gel. Represents prospidium chloride immobilized on a specially synthesized gelling mixed ether of dextrane containing phosphoric acid and carbonates groups. According to preclinical testing has a high and sustained anti-tumor activity, characterized by a rather low toxicity parameters. The organization of the full cycle production of the substance and the final dosage form of Prospidelong, including the active component (prospidium chloride) and polymer carrier (mixed phosphoric acid and carbamate dextrane ester), is planned in UE “Unitehprom BSU”.

### Antitumor drug “Cisplacel”

«Cisplacel» – domestic anti-tumor drug with prolonged action for local chemotherapy of malignant brain tumors and head and neck tumors, malignant tumors of the mouth, tongue, nose and paranasal sinuses. Prolonged cytostatic effect is ensured due to cisplatin immobilized by oxidized cellulose. The drug inhibits the biosynthesis of DNA, provides targeted traffic cytostatic in the damaged organ. Using of the «Cisplacel» can reduce the dose of cytostatic and reduce the toxic load on the organism of patient. According to PI «RSPC of Oncology and Medical Radiology N.N.

Alexandrov» MPH RB local application of drug «Cisplacel» after non-radical resection of primary and recurrent head and neck tumors leads to complete recovery of 51% of patients, reduce recurrence of by 25-40 % compared with traditional treatment. According to the results of clinical trials implantation of the drug «Cisplacel» in the area of surgically resected low-differentiated gliomas of the brain (Grade III-IV) followed by radiation therapy prolongs life of patients more than 2 times (from  $211,0 \pm 21,4$  to  $427,5 \pm 28,4$  days)

Competitive advantage (in comparison with traditional treatment):

- cytostatic targeted traffic in the area of the affected organ;
- prolongation of the therapeutic effect;
- effect of radiotherapy potentiation;
- ensuring of hemostasis;
- decrease the total dose of cytostatic and reduction toxic stress on the body;
- full biodegradation after implantation.