

Brief information about the project

Name of the project	AP19679739 «Development of production technology for new immunomodulator based on monosaccharides combination for use in the complex cancer's treatment»
Relevance	This project is aimed at developing and implementing the production technology of a new generation immunomodulator with the working name "KM-1" based on a combination of pharmacopoeial monosaccharides in the form of a buffer system for oral use. The synthesis technique and formulation from the new immunomodulator with the working name "KM-1" were developed by us earlier. The drug was synthesized according to an original patentable technique and exhibits the ability to neutralize acidic non-cellular pH, which is provided by the KM-1 buffer system.
Purpose	Creation of production technology for a new-generation immunomodulatory drug based on a combination of pharmacopoeial monosaccharides with citrate for use in the complex treatment and prevention of cancer, development of a set of documentation for registration of the drug as a bioactive supplement.
Objectives	<ul style="list-style-type: none"> -Implementation of order and purchase of necessary materials, reagents and equipment. development under laboratory conditions of the main technological operations and processes of production of a new generation immunomodulator KM-1; -Development and testing of laboratory technological regulations for the production of KM-1; -Development of a package of medical and technical documentation, including the following documents: "Pharmaceutical development", "Risk management", technological instructions (TI). Development of laboratory technological regulations; -Execution and testing of semi-industrial technological procedure for production of KM-1; development of a trial batch of KM-1 drug; -Study under "in vivo" model conditions of regulation efficiency of acidic extracellular and alkaline intracellular pH in breast cancer tumors with buffered mixture of hexose sugars in combination with citrate (KM-1 preparation); -Study under "in vivo" model conditions of the effectiveness of anti-tumor activity of KM-1 preparate in combination with chemotherapy drug; -Preparation of the premises and registration dossier for KM-1 drug for its registration as a dietary supplement.
Expected and achieved results	<p>Main expected results:</p> <ul style="list-style-type: none"> - Necessary materials, reagents and equipment will be ordered and purchased. The main technological procedures and processes of obtaining a new generation immunomodulator KM-1 will be developed in laboratory; - Laboratory technological regulations for KM-1 production will be developed and tested; - Medical and technical documentation will be developed, including the following documents: "Pharmaceutical

	<p>development", "Risk management", technological instructions (TI). The laboratory technological procedures will be worked out;</p> <ul style="list-style-type: none"> - Semi-industrial technological procedure for KM-1 production will be executed and worked off; a pilot batch of KM-1 preparation will be manufactured; - The efficacy of regulation of acidic extracellular and alkaline intracellular pH in breast cancer tumors with the use of buffered mixture of hexose sugars in combination with citrate (KM-1 preparation) will be studied under "in vivo" model conditions; - An in vivo study of KM-1 effectiveness in combination with chemotherapy drugs under model conditions will be performed; - A room and a registration dossier for KM-1 will be prepared for its registration as a dietary supplement.
<p>Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles</p>	<ol style="list-style-type: none"> 1. Rauash A. Mangazbayeva Scopus Author ID: 6506806130 https://www.scopus.com/authid/detail.uri?authorId=6506806130; Researcher ID: A-4590-2015; https://www.webofscience.com/wos/author/record/1171838 ORCID: 0000-0003-1876-591X https://orcid.org/0000-0003-1876-591X 2. Kunnaz B. Murzagulova Scopus Author ID: 12803892700 https://www.scopus.com/authid/detail.uri?authorId=12803892700; Researcher ID: AAP-7751-2021; https://www.webofscience.com/wos/author/record/2294567 ORCID: 0000-0001-9960-5461 https://orcid.org/0000-0001-9960-5461 3. Bayana B. Yermukhambetova Scopus Author ID: 7801355509; 6507458589; https://www.scopus.com/authid/detail.uri?authorId=7801355509 https://www.scopus.com/authid/detail.uri?authorId=6507458589 Researcher ID: ERX-0117-2022 https://www.webofscience.com/wos/author/record/20740512 ORCID: 0000-0003-4950-0367 https://orcid.org/0000-0003-4950-0367 4. Aizhan I. Zhussupova Scopus Author ID: 35148696500; https://www.scopus.com/authid/detail.uri?authorId=35148696500 Researcher ID: O-2108-2014; https://www.webofscience.com/wos/author/record/110980 ORCID: 0000-0001-6561-2268 https://orcid.org/0000-0001-6561-2268 5. Daulet B. Kaldybekov Scopus Author ID: 55975396000; https://www.scopus.com/authid/detail.uri?authorId=55975396000 Researcher ID: F-1321-2014; https://www.webofscience.com/wos/author/record/454962 ORCID: 0000-0002-7191-5465 https://orcid.org/0000-0002-7191-5465 6. Laura E. Agibayeva Scopus Author ID: 57205186113; https://www.scopus.com/authid/detail.uri?authorId=57205186113

	<p>Researcher ID: B-8817-2013; https://www.webofscience.com/wos/author/record/1671467 ORCID: 0000-0002-5058-5305 https://orcid.org/0000-0002-5058-5305</p> <p>7. Zhanibek S. Assylkhanov Scopus Author ID: 57214104008; https://www.scopus.com/authid/detail.uri?authorId=57214104008 Researcher ID: CCJ-7806-2022 https://www.webofscience.com/wos/author/record/4418211</p> <p>8. Botagoz Khavilkhairat Researcher ID: CZA-8522-2022 https://www.webofscience.com/wos/author/record/9978926</p> <p>9. Adilet Zh. Alikulov Scopus Author ID: 57208745138; https://www.scopus.com/authid/detail.uri?authorId=57208745138 ORCID: 0000-0003-0380-0612 https://orcid.org/0000-0003-0380-0612</p> <p>10. Assel A. Rakhymzhanova 11. Saule Z. Yeskendiroya Scopus Author ID: 55438123400; https://www.scopus.com/authid/detail.uri?authorId=55438123400 Researcher ID: O-2344-2017; https://www.webofscience.com/wos/author/record/766885 ORCID: 0000-0002-9570-7433 https://orcid.org/0000-0002-9570-7433</p> <p>12. Anel G. Mun Scopus Author ID: 58038024400 https://www.scopus.com/authid/detail.uri?authorId=58038024400 Researcher ID: HOO-2448-2023 https://www.webofscience.com/wos/author/record/38752634 ORCID: 0009-0006-3526-8850 https://orcid.org/0009-0006-3526-8850</p>
List of publications with links to them	-
Patents	-