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DETERMINATION OF BACTERIAL CONTAMINATION OF RAT PANCREATIC CELL ISOLATES

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Abstract
Currently, diabetes mellitus is one of the major health problems. First of all, this is due to the high prevalence of the disease. The modern treatment of diabetes mellitus is based on cell therapy - the introduction of insulin-producing cells during allogeneic transplantation. The initial step in the use of pancreatic β-cells is to obtain a sterile cell culture of the islets of Langerhans.

Keywords: Diabetes mellitus, contamination, cell isolates, beta cells, rats.

Introduction
According to the International data, in 2021 more than 537 million people aged 20 to 70 years had diabetes, by 2030 their number will reach 643 million, and by 2045 - 783 million. In 2021, 541 million people glucose tolerance was impaired. Diabetes mellitus is the most important medical and social problem. Development carbohydrate metabolism disorders contributes to the progression of cardiovascular complications and early disability of the working population. Every year, about 6.7 million people aged 40-70 years. Besides, there has been an increase in the incidence

of diabetes mellitus among children and teenagers. By 2021, their number in the population was more than 1.2 million. Unfortunately, a significant number of patients (about 45%) live for a long time without knowing about the presence have such a formidable disease, and seek medical help only during the development of complications .

The task of this study was to select the conditions for maintaining the sterility and viability of cells from the stage of their isolation and their introduction into rats.

Based on the recommendations on GLP for cell therapy, we used one of the methods to prevent bacterial contamination and maintain the sterility of cell isolates by multi-stage washing with a sterile serum-free medium to the determining point. All work was carried out in a sterile box in a laminar.

During repeated washes, samples of the used medium were taken, 200 µl each, which were plated on Petri dishes with a rich YP bacterial medium to detect colonies of contaminants. The plates were incubated at 37°C for 3-5 days. The presence or absence of colony growth was used to determine the most appropriate number of isolate washes. The conditions of isolation, disintegration, and washing were varied until the maximum viability and complete sterility of cell samples were achieved. As a result of incubation of samples in a serum-free medium with 5-fold periodic replacement at a temperature of 22°C, it was possible to achieve a sterile isolate containing at least 70% of beta cells.

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