WOUND HEALING

THE DEVELOPMENT OF INNOVATIVE ADVANCED THERAPY MEDICINAL PRODUCT IN THE TREATMENT OF EPIDERMOLYSIS BULLOSA AND OTHER CHRONIC WOUNDS

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Introduction: The use of mesenchymal stem cells derived from placenta was already been shown to be effective in the treatment of chronic wounds in a course of epidermolysis bullosa, deep burn wounds and leg ulcers.

Objective: This study was aimed on preparation of biological dressing of the human race (advanced therapy medicinal product) for therapy of chronic wound.

Materials and Methods: The pieces of human skin obtained from post-bariatric operations. To produce a scaffold from human allogeneic dermis devoid of viable cells and immunogenic properties through the chemical and enzymatical processes, constituting a natural substrate for a biological dressing. In next step sterilization of scaffolds were performed by X-ray radiation. The structure of collagen matrix was tested by transmission electron microscopy and Ramman laser confocal microscopy. Allogenic mesenchymal stem cells, CD 73, 105 positive, were isolated from human placenta and seeding to the scaffold. Cell culture was performed for 72 hours. Finally, properties of biological dressing was tested by histology, immunohistochemistry and microbiology.

Results: Mesenchymal stem cells were effectively grown on the scaffold. Biological dressing showed lack of immunogenicity of a collagen matrix and well preserved structure of collagen fibers

Conclusions: We obtained biological dressing of human race. I contrast to currently available products on the market based of various synthetic materials, this dressings is

based on the allogeneic decellularized human extracellular matrix for the in vitro grown allogeneic stem cells. The advantage of a dressing prepared in this manner is the lack of immunogenicity of a collagen matrix, and creation of natural and optimal conditions for the growth and differentiation of the cells.