

The skin is the largest organ of human body and its severe damage can cause even death of a patient. As the allografting of skin can not create permanent closure of wounds, the treatment (especially in cases of burn injuries) is rather demanding and prolonged. In my work I focused on determination of glyco-biologic characteristics of squamous cell epithelium, especially the skin, under normal and pathological conditions. Those results which we have obtained could be used for development of new methods of keratinocyte cultivation for clinical purposes. Epidermis was the very first human tissue that was prepared in vitro and returned back to the patient however the results of these transplantations were not satisfactory. (...) A new method of cultivation and transfer of keratinocytes on polymer support was developed. This way of cultivation of epidermal grafts exhibits some advantages compared with confluent sheets attached to textile. Namely the shortening of the cultivation period and the deletion of enzymatic detachment of the cells, that negatively influence their viability, are the main benefits. First of all the hydrogel support protects the cells from infection and desiccation after its application to the wound bed. So the optimal microclimate for the attachment and spreading of transplanted cells is created. These grafts were already used in clinical field with rather good results, namely in burned patients.