64. TECHNIQUES FOR APPLYING GAN NANOSTRUCTURES IN BIOLOGICAL MATRICES

Author: Ignatov Olga

Co-author: Lavranciuc Felicia

Scientific adviser: Viorel Nacu, PhD, Professor, Department of Anatomy and Clinical Anatomy, Head of Laboratory of Tissue Engineering and Cellular Culture, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. From the beginning of the century XX several properties of amniotic membranes, including anti-inflammatory, anti-fibrous and pro-regenerative, have aroused interest in the possibility of its use as a transplant graft. The amniotic membrane has a major mechanical strength, which makes it an attractive biomaterial for use in surgery. The human amniotic membrane can also be used as a suture material, as it accelerates wound healing due to secreted growth factors. Impregnation of GaN nanoparticles on amniotic membrane wires, contributes to the promotion of cell differentiation, GaN nanoparticles, influences the process of cell proliferation, thanks to the piezoelectric effect.

Aim of study. To develop and characterize methods for placing GaN nanostructures on biological matrices. Bibliographic analysis on the topic "Techniques for applying GaN nanostructures on biological matrices". Characterization of known techniques for applying GaN nanostructures to biological matrices. Application of GaN nanostructures on amniotic membrane wires.

Methods and materials. The amniotic membranes were removed by hand, in sterile conditions from 3 placentas. Triton 1% solution and 0.5% SDS solution were used for the decellularization procedure. Identical wires were obtained from the amniotic membrane, on which the GaN nanoparticles were subsequently placed using the ultrasonic bath. Wires impregnated with GaN nanoparticles were characterized by electromicrospective scanning (SEM).

Results. With the help of SEM, images were obtained on which we can observe GaN nanoparticles on the threads in the amniotic membrane. These nanoparticles have been located along the entire length of the wire in different amounts, which may indicate that not all nanoparticles remain on the wire or that the wire is unevenly impregnated with nanoparticles. Portions without nanoparticles can also be seen on the wire.

Conclusion. Based on the results obtained, we assume that there is a need to improve the method of impregnating GaN nanoparticles on the wires obtained from the amniotic membrane.