

# Analysis of amniotic membrane processing in the Human Tissue and Cell Bank

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**Introduction.** Since 2014, the amniotic membrane has been collected and preserved at the Human Tissue Bank (HTB) for use by ophthalmologists and combustologists. In recent years, the need for amniotic membrane grafts increased [1,2]. This has multiple applications in regenerative medicine. Its epithelial and mesenchymal cells are widely used in several components of modern medicine [3]. The amniotic membrane is a rich source of biologically active factors, promotes healing and acts as an effective wound dressing [4].

**Materials and methods.** The placenta is taken by caesarean section only after the informed consent has been signed by the donor. Serological tests for placenta sampling include human immunodeficiency virus, hepatitis B and C viruses, and syphilis, which must be negative. The amniotic membrane is prepared under sterile conditions, in the clean room. The primary method of processing the amniotic membrane (disinfection stage) includes washing with physiological solution, after which, for 24 hours, the amniotic membrane is kept in an antibiotic environment. In the second processing stage, the amniotic membrane is cut into pieces, depending on the purpose of use, and placed in culture medium and glycerol in a ratio of 1:1. The code, date, dimensions, and area of the graft are indicated on each kit. Amniotic membrane can be stored in a freezer at -80 degrees C for 5 years.

**Results.** Starting from 2014, 102 placentas were taken for HTB, of which 3 were unvalidated (positive tests of the donor's serum). In total, 928 amniotic membrane grafts were obtained and preserved, of which 639 grafts for ophthalmological use and 289 for use in burn patients. In total, 855 amniotic grafts were released and used, of which 578 with an ophthalmological score and 277 with a combustiological purpose.

**Conclusions.** The amniotic membrane can be preserved in different conditions, the cryopreservation method in glycerol or dimethyl sulfoxide or their mixture with culture medium is most often used. In the future, it is planned to manufacture and use decellularized and freeze-dried amniotic membrane, which will be processed and stored at HTB.

**Key words:** amniotic membrane, graft, conservation methods, ophthalmology, combustiology.

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