

УДК 661.842

**DEVELOPMENT OF TECHNOLOGY FOR OBTAINING BIOCOMPATIBLE MATERIAL
BASED ON HYDROXYAPATITE IN THE PRESENCE OF OPTICALLY ACTIVE
SUBSTANCES**

Serykh T.A., Badretdinova V.T. (ITMO University)

Scientific supervisor – Ph.D. in Chemistry, associate research professor, Ulasevich S.A.
(ITMO University)

Biomimetic materials based on calcium phosphate were considered. A technology for producing biocompatible material based on hydroxyapatite in the presence of optically active substances has been developed. It was found that the calcium phosphate-based biomaterial is cytocompatible with the C2C12 cell line.

Introduction. It is known that bone tissue includes an inorganic part – hydroxyapatite (HA) and an organic part, which consists of cells and intercellular substance. In this regard, analogs of living nature based on calcium phosphate are used in regenerative medicine to replace and restore bone tissue. Once in the body, such biomaterial will be absorbed and replaced by body tissues. In addition, calcium phosphate-based materials are biocompatible and biologically active.

Since bone tissue is formed and grows in the presence of various vitamins and optically active substances, the purpose of our work is to develop a technology for obtaining biocompatible material based on HA in the presence of optically active substances.

Main part. The HA-based biomaterial in an organic matrix was obtained by mixing calcium phosphate, the active substance and agar. The active substance was L-glutamic and L-ascorbic acids. The approach has been adapted for thin layers. After that, a C2C12 cell line was planted on the HA-based material. It has been found that optically active substances affect cell growth. Cell attachment and growth are improved by the addition of L-glutamic and L-ascorbic acids.

Conclusions. Thus, the technology for obtaining biocompatible material based on HA in the presence of optically active substances was developed. It was found that the biomaterial based on calcium phosphate is cytocompatible with the cell line.

Authors acknowledge RSF grant №.19-79-10244 for the financial support.