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FUNDAMENTAL RESEARCH OF THE PROCESSES OF BONE TISSUE FORMATION IN THE PRESENCE OF OPTICALLY ACTIVE ORGANIC MOLECULES

T.A. Serykh, V.T. Badretdinova¹, A.P. Chernova²

Scientific supervisor – Ph.D. in Chemistry, associate research professor S.A. Ulasevich

¹ITMO University

Russia, St Petersburg, Lomonosova St., 9, itmo.ru

²Tomsk Polytechnic University

Russia, Tomsk, Lenin, 30, tpu.ru

Amino acids play an important role in the formation of natural objects. They create chiral objects with the anisotropy of properties. The amino acids also stabilize the structures of phosphates involved in the biomineralization process. Moreover, the co-precipitation of calcium phosphates and amino acids contributes to the local delivery of materials that enhance cell growth [1–3].

The aim of our research is to study of the biocompatibility of different cell lines and Liesegang rings in the presence of optically active organic molecules. The object of the study was C2C12 cells cultured with DMEM (Dulbecco's Modified Eagle's

Medium) containing glutamine and glucose at a concentration of 1 g/ml with the addition of 10% of fetal bovine serum and a mixture of antibiotics penicillin and streptomycin.

The C2C12 cells were seeded on the obtained samples. There were samples with L-glutamic and L-ascorbic acids, also, for comparison, the cells were seeded on samples without additives. Proliferation of C2C12 on the surface of calcium phosphates in different samples is shown in Figure 1.

The cells were calculated by ANOVA, $p < 0.1$. The data obtained are shown in Figure 2.

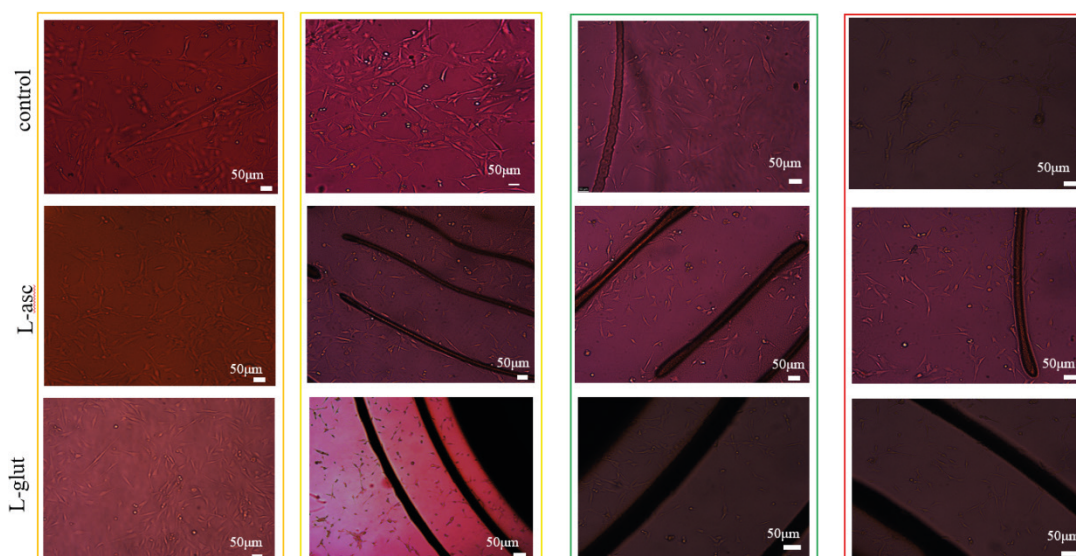


Fig. 1. Proliferation of C2C12 on the surface of calcium phosphates patterns during 5 days of cultivation

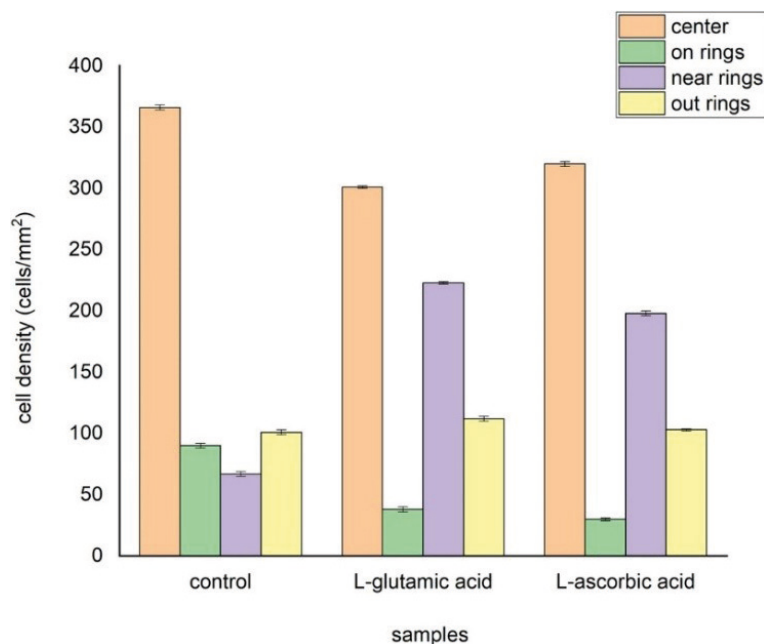


Fig. 2. Cell density in different regions of the obtained samples after 5 days of cultivation

It was found that the rings formed with α -amino acids are destroyed after 3 days when cultured with C2C12 cells, while the control (rings formed from calcium phosphates without additives) remains stable. Moreover, L-ascorbic and L-glutamic acids

cause a change in their shape towards more elongated cells and their more intensive growth, which is likely to contribute to directed cell differentiation.

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STRUCTURAL FEATURES AND LUMINESCENT PROPERTIES OF LANTHANIDE COMPLEXES WITH ENAMINEDIONE DERIVATIVES

K.S. Smirnova

Scientific supervisor – PhD, senior researcher E.V. Lider

Linguistic advisor – PhD, senior researcher E.V. Lider

Nikolaev Institute of Inorganic Chemistry SB RAS

630090, Russia, Novosibirsk, 3, Academic Lavrentiev Avenue, smirnova_ksenya96@mail.ru

Lanthanide coordination compounds are interesting because of their pronounced luminescent properties. Upon the impact of the direct excitation, the intense emission of lanthanide-based materials is rarely observed due to forbiddance of $f-f$ transi-

tions. Therefore, in the synthesis of complexes, organic molecules are used as ligands, which are capable to absorb the light well and transfer energy to a metal ion with subsequent emission. The mecha-