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POSTER ABSTRACT PRESENTATIONS

SESSION TITLE: MOLECULAR ORGANIZATION OF CELLS AND ORGANELLES

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**Abstract P-24: Extracellular Matrix Secreted by Stromal Cells from Soft Tissues
Contain Extracellular Vesicle-Like Structures**

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Background: In recent years, the role of extracellular vesicles (EV) in various biological processes has been actively studied. Interest in this object is caused by the fact that EV, which are nanoscale bilipid spherical containers, can transfer between cells a wide range of substances from noncoding RNA, including microRNAs (Phinney et al., 2015), to entire receptors (Andaloussi et al., 2013) and ion channels (Setti et al., 2015). In addition, the presence of EV in the composition of the extracellular matrix (ECM) of bone and cartilage is confirmed. ECM plays an important role in controlling cell behavior – viability, proliferation, migration and differentiation. Thus, the aim of this work was to evaluate the presence of EV in ECM secreted by stromal cells from soft tissues using electron microscopy.

Methods: We isolated human dermal fibroblasts and mouse pulmonary fibroblasts. In addition, we used immortalized human mesenchymal stromal cells (MSC) derived from adipose tissue. The cells were cultured until formation of cell sheet with prominent deposition of ECM. After that, ECM was isolated by decellularization using incubation with CHAPS and then DNase I. Samples were transferred to glass and were conducted through standard sample preparation for electron microscopy.

Results: According to the obtained results, EV-like structures were found in all samples of ECM produced by stromal cells of different tissues. In addition, we investigate the cell sheet formation and dynamics of EV-like structures deposition in ECM. It was shown that EV-like structures were similar to migrasomes. Previously, we found that EV secreted by adipose-derived MSC could prevent the differentiation of fibroblasts into myofibroblasts (Basalova et al., 2018). We also confirmed that ECM produced by MSC and isolated by decellularization retained biological activity toward different types of cells (Kuznetsova et al., 2018).

Conclusion: In summary, we have isolated the ECM secreted by different types of stromal cells from soft tissues. The presence of EV-like structures in the composition of all the samples was shown. These data may indicate their possible participation in the functioning of organs.

Key Words: extracellular vesicles • extracellular matrix • stromal cells • soft tissue

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