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INFLUENCE OF THE HYDROXYAPATITE PARTICLES FORM ON THE ACTINE CYTOSKELETON ORGANIZATION AND VIABILITY OF BONE MARROW MESENCHYMAL CELLS

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Hydroxyapatite (HA) is the main inorganic component of bone tissue. To form composite scaffolds with properties identical to native tissue, it is necessary to know how the shape of the HA particles influence on the cell properties. In this study we investigated the effect of the HA particles shape on the actin cytoskeleton organization (fluorescence microscopy) and the viability of bone marrow mesenchymal stromal cells (MTT test). After 5 days of cultivation in the presence of spherical particles, a greater number of viable cells were observed than the number of viable cells when cultured in the presence of needle-like particles. It is suggested that such dependence is due to a higher sorption capacity of proteins by the spherical particles surface having a large specific surface in comparison with the specific surface of needle-shaped particles.

Key words: hydroxyapatite particles, bone marrow mesenchymal stromal cells