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CELLULAR AND MOLECULAR CHARACTERISTICS OF REPLICATIVE SENESCENCE OF HUMAN MESENCHYMAL STEM CELLS

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The widespread use of human mesenchymal stem cells (MSCs) in biomedical technologies necessitates a detailed study of the various properties characteristic of these cells at different periods of their life. The review is devoted to the general and comparative characteristics of different human MSCs, the analysis of various cellular processes accompanying the replicative senescence of MSCs, which is an integral part of the vital activity of these cells during long-term cultivation. Cytogenetic instability, as well as some molecular mechanisms involved in the process of replicative aging of cells, including the reorganization of the extracellular matrix and structures of the cytoskeleton, are considered in more detail in the review.

Keywords: mesenchymal stem cells, replicative senescence, karyotype, extracellular matrix, cytoskeleton