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The Cytogenetic Characteristic of Mesenchymal Multipotent Stromal Cell Diploid Lines

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The cytogenetic study of mesenchymal multipotent stromal cells (MMSC) lines isolated from bone marrow, adipose tissue, placenta and mucous human have been carried out Karyological analysis had showed a normal diploid karyotype of MMSC up to the 5th passage of cultivation Clonal chromosomal translocations have detected in 3 of the 22 (14%) MMSCs The rate of cells with chromosomal aberrations in GTG analysis was 202 ±0 67% (10 cell lines), and in mFISH – 331 ± 069% (11 cell lines) Unstable chromosomal aberrations (fragments, dicentric chromosomes)

have been accounted for 65%, and stable (translocations) – 35% of all cells with chromosomal damages (3–5%) identified by mFISH analysis of 1440 metaphase These results have been confirmed the importance of cytogenetic studies of MMSCs intended for medical purposes The accumulation of chromosomal and karyotypic variability data at different periods of cultivation will have been made determination of limits for the selection of genetically stability diploid MMSCs in order to prevent unwanted consequences of their use for therapeutic purposes

Keywords: Mesenchymal multipotent stromal cells, karyotype, chromosome aberrations, clone formation, multicolor fluorescent in situ hybridization