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A Short-Time Influence of Polyallylamine on Chinese Hamster Cells of RJK Line with Multiple Drug Resistance Results in the Destabilization of the Caryotype Structure

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The biologically active polymer polyallylamine (PAA) is used for the formation of microcapsules, for targeted drug delivery and the formation of multilayer films covering biomedical implants in order to provide primary contact of cells with the artificial surface during the healing of damaged tissues. The objective of this study was to evaluate the effect of PAA in sublethal concentration on the structure the cell genome at the karyotype level. As a model system, transformed CHL V-79 RJK fibroblast cells resistant to the agent causing multidrug resistance, ethidium bromide, were used. Analysis of a large number of metaphase plates using G-banding showed that the high concentration of PAA on CHL V-79 RJK-BE cells leads to multidirectional destabilization of the karyotype - aneuploidization and the appearance of chromosomal aberrations. Based on the results of the experimental work, it follows that the use of synthetic biotransporters for medical purposes requires a thorough preliminary study of their toxicity, including using cytogenetic and molecular methods.

Keywords: polyallylamine, cell genome, karyotype, chromosomes, multidrug resistance, morphological markers of amplification of *mdr* genes