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## STUDY OF BIOMARKERS OF TRANSFORMATION IN CELL CULTURE AS CRITERIA FOR ASSESSING THE CARCINOGENIC POTENTIAL OF CHEMICALS

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### Summary

**Objectives.** Tests for neoplastic cell transformation imitate some of the *in vivo* steps of multi-stage carcinogenesis process and can detect both genotoxic and non-genotoxic carcinogens *in vitro*. But there are a number of issues that hamper consensus on test approval. The aim of this work was to investigate the possibility of using biomarkers of cell transformation in culture as criteria for evaluating potential carcinogens in a test for neoplastic cell transformation.

**Materials and methods.** The proposed assessment of transformed cells in culture in the described methods is purely subjective in nature (morphological features, cell orientation relative to each other). Thus, the development of new approaches to the identification of transformed cells will increase the prognostic efficiency of neoplastic cell transformation.

**Results.** Cell lines of transformed and normal embryonic muscle-skin fibroblasts of mice, a Syrian hamster were obtained and characterized. Cultures of transformed cells were obtained at passage 8-12 of culturing cells from the "foci" of the cell layer with signs of transformation (random orientation of cells in a monolayer, lack of contact inhibition between cells and the formation of "foci" of cells).

A comparative analysis of the levels of proliferative activity was carried out. Histochemical indices for cadherin and integrin were established. The analysis of changes in the total area of the colonies and the morphology of transformed and normal cells after 8 days of cultivation was carried out.

**Conclusions.** The data obtained led to the conclusion that a change in indicators such as proliferative activity (an increase in the mitotic index by an average of 17%), an increase in the number of cells and the area of colonies, the level of ROS in the cells, adhesive ability (changes in the expression of adhesion molecules) are characteristic features of transformed cells and can be used as additional markers and criteria in neoplastic cell transformation.

**Keywords:** cell transformation, biomarkers, carcinogens detection