

THE ROLE OF MECHANICAL PROPERTIES OF THE NUCLEUS
IN MAINTENANCE OF TISSUE HOMEOSTASIS

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Representing the meshworks of A- and B-type lamins, the nucleoskeleton, as known as nuclear lamina, is essential for maintaining the nucleus shape. Furthermore the change of its composition, particularly, of ratio of lamins, is likely to be crucial factor determining its mechanical properties. In this paper, the influence of the components composition of nuclear lamina on the cell resistance to mechanical stress and on the cell mobility is considered. Expression of the mutant forms of lamina A is accompanied by changes in the distance between microdomains of the lamins, and bubbling of the nuclear envelope is observed. When exposed to osmotic shock, there is an increased number of deformed nuclei. Evaluation of the effect of changes in the molecular composition of the nuclear lamina due to an increase/decrease in the lamin A, as well as the insertion of progerin, in the model of the experimental wound showed that in conditions of unlimited space there are no differences.

Key words: nuclear lamina, mechanical properties, LINC complex, cell mobility
