

The influence of adult rats' endogenous thermostable protein complex on the proliferative activity of bone marrow

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Endogenous regulators of proliferation are considered as a main player of cell-cycle regulatory system. Specific action (stimulation or inhibition) on the target cells is the important feature of regulators. In the cell cycle regulation, the study of growth inhibitory endogenous protein factor is extremely important, but there is less evidence in the literature regarding this issue.

One of the growth inhibitory endogenous protein complexes is obtained from different cells of adult rats. It is established that, it is thermostable protein complex, which fraction with low molecular weight, due to inhibition of RNA synthesis, decreases the mitotic activity of homologous cells. Complex is identified in various organs of phylogenetically distance organisms (from bacteria to human) and is not species specific. Key point is that, the tissue specificity of protein complex reveals only in case of adult organisms. At the same time it is not known if the organ specificity reveals in case of actively proliferated tissues of adult organisms, for example bone marrow.

Goal:

Investigation of influence of endogenous protein complex on proliferative activity of bone marrow.

Research objectives and Methods:

Investigations were carried out on growing rats and adult mice. Endogenous thermostable protein complex from various organs of rat was obtained with alcohol extraction; determination of mitotic index was used for estimation of cell proliferation activity.

Results: It was established that mitotic index of adult mice bone marrow, which is $65 \pm 1,3\%$ is remains the same after the protein complex injection (mitotic index of experimental animals is $63 \pm 2.5\%$). Results were the same in case of growing rats' bone marrow.

Conclusion: According to the obtained results, we can conclude that the endogenous thermostable protein complex cannot decrease the proliferative activity of bone marrow in growing, as well as in adult animals. Thus, we can assume that, in contrast to other organs, in bone marrow (containing cells on various stage of differentiation) there are protective mechanisms that restrict the penetration of inhibitory protein factors.