

The study of the activity of protein-synthesizing apparatus in the cells of different age individuals when exposed with metal ions and regulatory oligopeptides

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Was studied the effect of metal ions - Co, Ni and Zn on the protein-synthesizing apparatus in cells of the middle-aged (30-38 years) and elderly (75-85 years) individuals with separate action to metals and their joint application with oligopeptides - Livagen and Epithalon. In study were used lymphocyte cultures from both age groups. For determining the efficacy of the protein-synthesizing apparatus it is important to study frequency of active Ag-positive nucleolar organizer regions (NOR) of acrocentric chromosomes and their association's frequency.

By the results of analysis it turned out that the overall rate of frequency Ag-NOR (1- and 2-ball plated blocks) in middle-aged individuals was not significantly different from the index of the intact cultures under the influence of metals and oligopeptides. In the cells of senile individuals, both oligopeptide increased the total value (in intact cultures 5.8 ± 0.2 Ag⁺NOR/cell; when exposed Livagen – 7.3 ± 0.2 Ag⁺NOR /cell. and 7.2 ± 0.2 Ag⁺NOR /cell - when exposed epithalon), what indicates that they activate the synthetic processes. It is interesting, that in this model system activating effect showed Zinc ions in the case of their separate action (7.3 ± 0.2 Ag⁺NOR /cell). Tested three metal in the case of separate action induces decrease in the frequency of large-sized 2-point Ag - NOR's as in average age group, as well as in cells of old individuals. The effect of the studied metals proved uneven in the study of the frequency of acrocentric chromosomes association. In particular, Co ions in both age groups slightly increased the frequency of association, Ni – lowered, but Zn had not effect.

The obtained results allow us to conclude that: 1. the studied metal ions reduced the intensity of synthetic processes in the cells; 2. their impact is specific; 3. Cell cultures of different ages are different model systems.