

Study of variability of some epigenetic parameters of genome by diseases with hereditary predisposition

T.Jokhadze, T.Buadze, N.Baratashvili

tinatin.jokhadze@tsu.ge

Department of Biology, Faculty of Exact and Natural Sciences, Ivane Javakhishvili Tbilisi State University

Was conducted a comparative study of the variability of the epigenetic parameters of the genome: chromosome aberrations, fragile chromosome sites and interchromatid exchange of chromosomes in diseases with hereditary predisposition - pulmonary tuberculosis (before and after treatment), breast cancer and colon-rectal cancer and pulmonary tuberculosis. The possibility of normalizing the altered parameters with the help of peptide bioregulators - Livagen and Epitalone, and combinations - Livagen-cobalt is also studied. The lymphocyte cultures of diseased individuals were used as a research material.

The results of the analysis showed that the cells of patients with the studied diseases have a high level of genomic instability - was increased frequency of chromosome aberrations. This indicates the epigenetic nature of variability, in particular, indicates an increase in the level of chromatin condensation-heterochromatinization. The used correcting agents showed protective action - when exposed to these agents, the changed parameters of the patients approached the control parameters. It should be noted, that by patients with pulmonary tuberculosis the normalization of chromosomes status occurred after medication treatment, however, the maximum effect was observed only when exposed to Epitalone. The fragile sites of chromosomes were observed also with high frequency, what had a specific character for each group of patients. In the study of interchromatid exchanges, was revealed a specific epigenetic variability of the genome - differential redistribution of heterochromatin (in medial, centromeric and telomeric regions of chromosomes) in patients with breast cancer and pulmonary tuberculosis. The regulatory biopeptides have corrected in this case also, of the altered epigenetic picture.