

Biopharmaceutics and Biologic Drugs

September 14-16, 2016 San Antonio, USA

Epigenetic change of genome by peptide bioregulators in extreme old age

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Purpose: The objective of the present investigation is to study the modification of chromosome (total heterochromatin, constitutive and facultative heterochromatin) under the influence of peptide bioregulators (Ala-Glu-Asp-Gly, Ala-Glu-Asp-Pro, Lus-Glu-Asp-Ala and Lys-Glu) and heavy metal in cultured lymphocytes derived from old individuals.

Methods: The level of total heterochromatin - identified by the method of differential scanning microcalorimetry; the level of facultative heterochromatin – by the method of sister chromatid exchanges (SCE), level of satellite stalk and C-heterochromatin under the combined effect of bioregulators and Co Cl₂ have been studied in lymphocyte cultures from individuals at the age of 80 and over.

Results: The results showed that: 1) epigenetics processes – progressive heterochromatinization of total, constitutive (pericentromeric, telomeric and NOR heterochromatin) and facultative heterochromatin occurred with aging; 2) peptide bioregulators induce deheterochromatinization of chromosomes in old age; 3) higher level of SCEs (deheterochromatinization) were registered in pericentromeric and telomeric heterochromatin upon combined effect of Co ions and peptide bioregulators.

Conclusions: The proposed genetic mechanism responsible for constitutive and facultative heterochromatin epigenetic change (hetero- and deheterochromatinization pericentromeric and telomeric region) of old age may lead to the development of therapeutic treat.

Biography

Lezhava T has discovered that the progressive heterochromatinization occurs in aging and his scientific works are generally dedicated to the problem Genetics of Aging. He delivers lectures in Genetics, Human Genetics with the Fundamentals of Molecular Genetics, Medicine Genetics and Evolution of Genome. He is a Member of Editorial Board of journals like: "Georgian Medical News"; "Gerontology and Geriatric Research" (NJ, USA); *Jacobs Journal of Gerontology* (Texas, USA); Edition "Inter ging" and *Journal of Deutscher Wissenschaftsherald* (Germany); *Journal of Biomedicina* (Russia). He is a member of the International Association and USA of Biomedical Gerontology, President of Georgian Gerontology Association, Head of Georgian Human Genetic Association and member of several local and foreign Scientific Academies.

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