OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Cell Science & Stem Cell Research
November 20-22, 2013 DoubleTree by Hilton Baltimore-BWI Airport, MD, USA

Epigenetic regulation of function of "aged" chromatin

Teimuraz Lezhava
Department of Genetics, Tbilisi State University, Georgia

Regulation of chromosome heterochromatinization (hypoacetylation and methylation causes heterochromatinization); mutation level (chromosome aberration covering telomere regions); reparation (intensity of unscheduled DNA synthesis and the frequency of sister chromatid exchanges) have been studied in lymphocyte cultures from individuals at the age of 80-114 years to reveal the chromosomes functional organization and to find explanations and therapeutic treatment of some senile pathologies.

The analysis of obtained results showed:

1. Chromosome progressive heterocromatinization (of eu- and heterochromatin regions) occurs at aging;
2. Decrease of repair processes and increase in frequency of chromosome aberration in aging are secondary to the progressive heterochromatinization. Chromosome heterochromatinization is a key factor of aging;
3. Chromosome heterochromatinization may be the reason for some senile pathologies (peptide bioregulators – Ala-Glu-Asp-Gly ; Lys-Glu-Asp-Ala and Lys-Glu induces deheterochromatinization - decondensation of total heterochromatin);
4. Chromosome heterochromatinization is an area where one should seek the ways for prolonging the lifespan.

lezhavat@yahoo.com