Influence of chronic low-dose rate gamma-irradiation on the life span of Drosophila inbred and outbred strains

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The hormetic effect of low dose rate irradiation is well known for the longevity of *Drosophila melanogaster*. However the mechanism is not well understood. Since the most of *Drosophila* laboratory strains maintained as inbred or isogenic, it was suggested that radiation hormesis in flies may be induced by increasing of the rate of genetic heterogeneity that abolishes the inbreeding depression (Moskalev, 2007). The objective of our research was to investigate the effect of low-dose rate irradiation on the longevity and genetic instability in inbred strain of *Drosophila melanogaster*.

We used wild type *Drosophila melanogaster* strain Canton-S, maintained in bottle population, and the inbred lineage initiated from it. Experimental strains were chronically irradiated in dose rate of 0.17 cGy/h during 3 generations. The rate of absorbed dose was 60 cGy per generation. The survivorship analysis for males and females was performed after 1, 2 and 3 generations of chronic irradiation. The genetic instability in somatic cells was examined by bristle defects assay.

The obtained results will be discussed in presentation.

References

Moskalev A. A. Chronic gamma-irradiation effect on *Drosophila melanogaster* lifespan in generations of wild-type isogenic and heterogenic strains // Int. J. Low Radiation, 2007. - Vol. 4, # 3. - P. 169-175.

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