

Comments on the Project Radiogene - **“The molecular genetics of radiation-induced changes at the gene, genome and transcriptome level in *Drosophila melanogaster*”**

The Project aims to investigate the poorly understood molecular nature (DNA) and mechanisms underlying radiation- induced mutation induction at the gene and genome levels in the germline cells following exposure to low-LET γ -irradiation of *Drosophila melanogaster* males as well as to study the genetic control of radiosensitivity/ radioresistance of the cell genome at the transcriptome level (RNA). The combination of radiation researchы, simultaneously affecting the structural and functional aspects of genomics in the same Project, makes it scientifically unique not only for JINR, but for the Russian Federation as a whole. The studies of the molecular structure of radiation mutations makes it possible to assess the nature and frequency of DNA changes inherited by the offspring of irradiated *Drosophila* parental males. These studies are the first in the radiation genetics of this classical genetic organism and are undoubtedly a priority given the importance of data in the *Drosophila* - mase system for extrapolation to human and for assessment of the genetic hazard (risk) of ionizing radiation at the molecular level. Functional studies in the Project are also of a genome-wide character, making it possible to establish, at the transcriptome (RNA) level, ensembles of genes that control the radiosensitivity / radioresistance of the cell genome of the animal test- organism under study. For the first time, these studies will allow to obtain priority results of a fundamental nature that may be of general radiobiological interest and important prognostic value. It is especially important to note that the methodology (comparative analysis) and the modern methods of DNA and IT-technologies (PCR, genome-wide sequencing, bio informализes) used in the Project fully correspond to the goals and objectives of the Project, emphasizing its high scientific level.

The above, as well as publications of the Project participants in specialized Russian ("Radiation Biology. Radioecology") and international (Mutation Research - Fundamental and Molecular Mechanisms of Mutagenesis) journals and regular talks at international conferences, allow me to give reasonably the highest scientific assessment of the Project "Radiogen "and recommend this Project be categorized as "A".

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