

**Petersburg Nuclear Physics Institute named by B.P.Konstantinov of NRC  
«Kurchatov Institute» (NRC «Kurchatov Institute» - PNPI), Gatchina.**

Review

for the project **Study of the radioprotective properties of Damage suppressor protein (Dsup)  
on a model object *D. melanogaster* and HEK293T human cell culture**

The presented Project focuses on an interdisciplinary topic, at the intersection of molecular biology and radiobiology - the study of the properties and mechanisms of action of the recently discovered Dsup protein, for which it was shown the ability to increase the radioresistance of cell cultures. The current state of Dsup protein research is described in detail and testifies to the undoubted relevance of this topic and a good opportunity to make a significant contribution to studies at an early stage of development.

The objectives of the Project are clearly defined, they cover the main effects that Dsup can cause, including the effect on the radioresistance of *D.melanogaster* and human cell culture and the life span of *D.melanogaster*. The data already obtained by the authors demonstrate the promising future of this topic and the importance of continuing work in this direction.

Undoubtedly, important and interesting results will be obtained using modern methods of transcriptome analysis of the initial and Dsup-expressing organisms/cells. The use of immunostaining of *D. melanogaster* polytene chromosomes will make it possible to describe the effect of Dsup at the chromatin level and evaluate the specificity of its distribution, which can provide valuable information on the mechanisms of regulation of gene expression not only for solving the problems of this project, but also for fundamental topics of molecular genetics. It should be noted that the project implementation methodology is at a high level and includes a wide range of methods, including the most modern, requiring many specialized skills, in which the project team is competent. The technical feasibility of the project within the indicated time period is not in doubt, since JINR has the necessary instrument base. The requested financial resources correspond to the objectives of the project, the schedule of work is described in detail, and the scientific team is fully capable to perform this project.

I believe that the proposed project should be supported.

Head of the Laboratory of Genetics of eukaryotes NRC «Kurchatov Institute» - PNPI

Doctor of science (biology)      Korolev V.G.