

Abstract Submitted
for the NEF17 Meeting of
The American Physical Society

Gene expression as a bio indicator for the radiation exposure in *Drosophila Melanogaster* SAMANA SHRESTHA, ADAM VANASSE, Univ of Rhode Island, LEON N COOPER, Brown University, MICHAEL P ANTOSH, Univ of Rhode Island and Brown University — This work reports a set of genes which could serve as a biomarker in irradiated *Drosophila Melanogaster* (fruit flies) on the basis of gene expression analysis. These radiation responsive panel of genes have human homologs and could potentially be used in the radiation dosimetry for human exposure to radiation. Gene expression analysis was done on the data obtained from an RNA sequencing gene expression experiment on 15222 genes of *drosophila melanogaster* at days 2, 10, 20 post irradiation. The fruit flies were exposed to x-rays of 10, 1000, 5000, 10000, 20000 roentgens. The analysis of these data showed that 6 genes behaved in a predictable way than the control. These genes have human homologs and showed a linear response at all time points post irradiation with dose. One of them, *Irbp* was a novel gene. This gene is a DNA repair gene and has a human homolog (*XRCC6*). Ignoring the lowest dose of 10R, a set of 13 genes of which 4 having human homologs and 8 having the known functions showed a linear response with dose at all the time points. 5 of 6 genes with all radiation doses included are found in this set of 13 genes. This suggests that these genes with human homologs could be used for the biodosimetry application to determine the radiation health risks.

Samana Shrestha
Univ of Rhode Island

Date submitted: 25 Sep 2017

Electronic form version 1.4