

Genetic profiling of lymphoblastoid cell lines sensitive to low dose radiation

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Previous study from our laboratory has identified pathways associated with low dose ionizing radiation (LDIR) *in vivo* that is consistent across individuals. Furthermore, gene expression patterns have revealed genetic variation between individuals, which may play a role in individual sensitivity to LDIR. The aim is to evaluate microRNA and mRNA expression patterns in lymphoblast cell lines that exhibit sensitivity to radiation. Human lymphoblastoid cell lines were screened for low dose radiation sensitivity by apoptosis, cellular proliferation, and colony forming assay. Cells were irradiated with 5cGy and 10cGy and analyzed at multiple time points post-irradiation. Currently, lymphoplastoid cells are being screened for LDIR sensitivity. Once the sensitive cell lines have been established, microRNA and mRNA expression will be analyzed using gene arrays to examine pathways that may be involved in cell sensitivity. Biological statistical analyses from cells sensitive to LDIR will determine post-transcriptional regulators and genes that are consistently expressed across LDIR sensitive individuals. Results from this study will allow a more focused examination of microRNA and mRNA, and their relationship in response to LDIR sensitive lymphoblastoid cells.