عنوان مقاله:

Gene Expression Study in Radiation Workers Occupationally Exposed to Low Levels of Ionizing Radiation

محل انتشار:

سومین کنگره بین المللی و پانزدهمین کنگره ملی ژنتیک ایران (سال: 1397)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Abdulsahib K. Ali - *Ministry of Science and Technology/ Central Laboratories Directorate*

Amel J. Muttar - *Al- Mustansiriya University/College of Science*

Zainab Abbas Ouda - *Ministry of Science and Technology/ Central Laboratories Directorate*

خلاصه مقاله:

The present study aims to use of the gene expression as biomarker for investigation of exposed to low ionizing radiation in radiation workers occupationally in Al-Tuwaitha site, this study including 30 male blood samples, aged (30 - 55 year), as well as 30 male blood samples, aged (29 - 55 year) which are not smokers and alcohol as control. Total RNA was isolated using Trizol method from blood for the study groups mentioned. The RNA concentration was determined spectrophotometrically by measuring their absorbance using Nano- drop spectrophotometer that dependent on the ratio A260/A280 of the wavelength which lead to the determination of RNA purity, it ranged from 1.79-2.1 in all groups. This study involved the reverse transcription (RT) of the RNA for the manufacture of complementary DNA (cDNA) using the polymerase chain reaction (PCR) for investigation on above –mentioned groups of study. Complementary DNA was used in amplification of genes used in the present study, four types of specialized primer genes were selected for the genes such as RHOA, CDKN1, GADD45A and RAD52 which have a relation with ionizing radiation in addition to the primers for internal control (β-actin) gene.All of these genes play an important role in the organization of the Cell cycle/proliferation DNA repair and apoptosis. Therefore, the study was contributed to the possibility of using it as a biological evidence for the detection of radiation exposure or contamination and thus may contribute to understand some of unknown mechanisms that may occur during the process of cancer formation perhaps caused by radiation. The products of replicated specialized primers for the genes concerned and the cDNA for the studied samples were electrophoretically separated in agarose gels .The banding profiles were visualized by ethidium bromide staining, as the molecular weight were 135 bp , 165 bp , 185 bp and 470 bp, (nitrogen-base pair) for RHOA ,CDKN1A, GADD45A and RAD52 genes , respectively. Gene expression analysis revealed statistically significant transcriptional changes in a 4 genes (RHOA, GADD45A, CDKN1A up-regulated and RAD52 down-regulated).This study raises the possibility of using these genes as biomarkers for assessment of low radiation expo sure in humans.

کلمات کلیدی:

Ionizing radiation / Radiation workers / Occupational exposure / Gene expression profiles.

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/983808