E125 Morphology and properties of lactate dehydrogenase of tissues in *Mus musculus* after irradiation

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After the 1 Gray(Gy) and 3 Gy irradiation separately, the morphological and physiological changes of parotid gland, skeletal muscle, heart, kidney, liver and testis in mouse were identified according to radiation amount with the time in H-E(hematoxylin-eosin) staining, TUNEL(terminal deoxyribonucleotidyl transferase-mediated dUTP- digoxigenin nick end labeling) staining, protein quantitative analysis, LDH(EC 1.1.1.27, lactate dehydrogenase) polyacrylamide gel electrophoresis and LDH activity measurment. Genomic DNA in the parotid glands of irradiated rat was electrophoresed. As a result of H-E stain, the apoptotic bodies were more easily observed in the liver than the other tissues and the quantity of the apoptotic bodies was proportionated to radiation amount. The number of apoptotic bodies was shown the highest at 12 hours and 1 day after irradiation. TUNEL staining was shown the same results as H-E staining. After the irradiation, the protein content was reduced in mouse tissues except kidney. It was decreased in the parotid glands. And protein content was reduced in all tissues at the initial period of 3 hours after 3 Gy irradiation. But it increased at 7 days after irradiation. LDH activity was increased mostly in mouse tissues at the early stage except the parotid glands after 1 Gy irradiation. The maximum activity was detected earlier stage after 1 Gy irradiation than 3 Gy irradiation. The change of LDH isozyme activity at the early stage showed the much difference with large amount of irradiation. The activity of A_4 isozyme in the mouse liver was detected high level and the activity of isozyme including subunit C elevated in mouse testis. When the amount of irradiation increased, subunit C of LDH activity was increased in the mouse testis and the activity of A_4 isozyme was decreased. Therefore, LDH isozyme was played a role of lactate oxidase in the most tissues except parotid glands and liver. These data was suggested that LDH isozyme was predominantly involved in the aerobic metabolism. The DNA extracted in parotid gland cells of irradiated rat was fragmented by 200 to 400 base pairs at 1 hour to 24 hours after irradiation. The fragmentation pattern was more clearly detected in the cells irradiated by 5 Gy than by 20 Gy.

E126 Subcellular Localization of Prostaglandin Endoperoxide H Synthases

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Prostaglandin endoperoxide synthases catalyze the committed step in prostaglandin and thromboxane A_2 (TxA_2) synthesis -- conversion of arachidonic acid to PGH_2. There are two PGHS isozymes called PGHS-1 and PGHS-2. Platelets, which form TxA_2 from PGH_2 as the major prostanoid product, contain only PGHS-1. Endothelial cells synthesize prostacyclin (PGI_2) from PGH_2, and express both isozymes. PGHS-1 is a resident protein of the endoplasmic reticulum (ER) and accordingly, is also found on the outer membrane of the nuclear envelope (NE). PGHS-2 is also present in the ER but is highly concentrated in the NE perhaps because PGHS-2 is also on the inner membrane of the NE. Both PGHS-1 and PGHS-2 are lumenal proteins and proposed to contain protein motifs responsible for the differential subcellular targeting of PGHS-1 and PGHS-2 to the ER and NE, respectively. To test the hypothesis, PGHS-1/PGHS-2 chimeras, in which the membrane binding domains are interchanged, were constructed and characterized whether a NE targeting signal for PGHS-2 resides in its membrane binding domain.