

## **The Distribution and Effects of Inhaled $^{239}\text{Pu}(\text{NO}_3)_4$ Deposited in the Liver of Dogs**

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The distribution and effects of inhaled  $^{239}\text{Pu}(\text{NO}_3)_4$  deposited in the liver of dogs were studied in five groups of 20 beagles exposed to initial lung depositions ranging from 1.0 to 520 Bq g<sup>-1</sup> lung. Following life-span observations, the liver contained  $40 \pm 1\%$  of the final body deposition of plutonium, second only to the skeleton. The liver-to-skeleton ratio of deposited plutonium for total organ was 0.8, or 3.5 when expressed on a per-gram basis. There was no effect of exposure level on liver-to-skeleton ratios. Autoradiographs showed that the dose rate delivered to parenchymal cells was higher than evident from radiochemical analysis of the whole organ. Elevated levels of serum liver enzymes were observed in groups with mean liver concentrations of 1.3 Bq g<sup>-1</sup> and liver doses of 3 Gy or higher. Nodular hyperplasia of liver and bile-duct epithelium, were late occurring and were observed at lower exposure levels at which life span was not shortened by lung or bone tumors.

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