

## **Alpha Radiation Risk Coefficients for Liver Cancer, Bone Sarcomas, and Leukemia**

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This study compares published risk coefficients with those determined from dose rates established by postmortem radiochemical analysis of tissues from two whole body donors to the U. S. Transuranium and Uranium Registries, both of whom had been injected with Thorotrast approximately four decades prior to death. The dose data from these cases were used in combination with published latent periods and epidemiologic study results to calculate the following risk coefficients: 0.020 liver cancers Gy<sup>-1</sup>, 0.002 bone sarcomas Gy<sup>-1</sup>, and 0.032 leukemias Gy<sup>-1</sup>. These compare with the range of 0.013 to 0.074 liver cancers Gy<sup>-1</sup>, 0.0016 to 0.0120 bone sarcomas Gy<sup>-1</sup>, and 0.005 to 0.060 leukemias Gy<sup>-1</sup> reported in the literature. The results of this study are generally consistent with previously reported values with two exceptions: the values for bone sarcomas fall below the range given by BEIR IV and the values for leukemia are a factor of 6 greater than those reported by BEIR IV. This suggests that the BEIR IV risk coefficient for bone sarcomas may be too high, and that for leukemia may be too low.

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