The U.S. Transuranium and Uranium Registries: a Unique Human Data Resource

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The U.S. Transuranium and Uranium Registries (USTUR), and the associated National Human Radiobiology Tissue Repository (NHRTR), is a federally-funded human tissue research program. It provides long-term follow-up of Pu, Am, and U (actinides) biokinetics, and potential health effects in nuclear workers (volunteer registrants) with accidental internal depositions of these elements.

Since its establishment in 1968, the USTUR has received tissues from 39 whole-body and 291 partial-body donations. An additional 13 whole-body and 60 partial-body potential donors are currently registered with the USTUR. Today, the NHRTR holds about 8,000 frozen or formalin fixed tissue samples. From 5 to 250 tissue samples from each donation - including lung, liver and bones – have been radiochemically analyzed to determine the actinide concentration in each organ, and estimate the total body activity at the time of death. About 10,000 acid-digested tissue samples, previously analyzed for actinides, are available as acid-solutions at the USTUR.

The USTUR's health physics database contains detailed work history, radiation exposure, medical, and industrial hygiene records from each registrant's worksite. These data in combination with radiochemistry results on the actinide content in individual tissues/organs make the USTUR/NHRTR a unique human data resource. The USTUR data and materials are currently used in the fields of health physics, radiation protection, and epidemiology.

In addition to the USTUR donations, the NHRTR houses frozen, ashed, dried, and plastic embedded bone samples from the radium dial painter studies carried out by Argonne National Laboratory/Argonne Cancer Research Hospital, the Massachusetts Institute of Technology, and the New Jersey Radium Research Project. All USTUR/NHRTR materials are available for a collaborative research.

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