U.S. Transuranium and Uranium Registries: 2010 – 2022 Research Accomplishments and Collaborative Efforts

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The United States Transuranium and Uranium Registries (USTUR), and the associated National Human Radiobiology Tissue Repository (NHRTR), is a federal-grant program funded by U.S. Department of Energy and operated by College of Pharmacy and Pharmaceutical Sciences at Washington State University in Richland, Washington, USA. The Registries was established in 1968 to study the biokinetics and internal dosimetry of actinides (uranium, plutonium, and americium) in occupationally-exposed Registrants who volunteered portions of their bodies, or their whole bodies, for scientific use posthumously. The USTUR is the only program worldwide that can comprehensively study biokinetics and dosimetry of internally deposited actinides. The USTUR serves as a source for both scientific research and public information regarding the biokinetics and tissue dosimetry of the actinide elements in humans. Since 1992, eight PhD and eight MS students have used USTUR data to complete the research requirements of their studies. Currently, USTUR research focuses on: (i) estimation of uncertainties in radiation dose assessment for internally deposited actinides, (ii) biokinetic modeling of individual cases, (iii) development of actinide chelation models, (iv) study of post-mortem distribution of actinides in the human body, and (v) study of occupational exposure to non-radioactive materials associated with the nuclear industry. The USTUR core operational functions are: (i) accepting and processing Registrant donations, (ii) completing radiochemical analysis of donated tissue samples, and (iii) completing the development and population of the USTUR databases. Currently, the Registries holds records and data for 364 deceased and 22 living Registrants. The USTUR/NHRTR data and materials are available to qualified scientists for their research upon request. The USTUR maintains well-established collaborations with national and international scientists and institutions, and develops new collaborative relationships. Since its establishment, the USTUR has published over 350 peer-reviewed manuscripts, and has contributed to six National Council on Radiation Protection and Measurements reports and nine International Commission on Radiological Protection publications.

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