

The National Human Radiobiology Tissue Repository

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The National Human Radiobiology Tissue Repository (NHRTR) is a part of the United States Transuranium and Uranium Registries (USTUR). The USTUR is a federal-grant program funded by U.S. Department of Energy and operated by College of Pharmacy at Washington State University. The USTUR studies the biokinetics and internal dosimetry of actinides - such as uranium, thorium, plutonium, and americium - in occupationally exposed individuals who volunteer their bodies (partially or entirely) for scientific use posthumously. A portion of the tissues received by the USTUR is radiochemically analyzed for actinide isotopes. The remaining portion is retained at the NHRTR in frozen or formalin-fixed state for future studies. Currently, the NHRTR holds ~9,000 frozen and formalin-fixed tissue samples from 40 whole- and 92 partial-body USTUR donors, and ~10,000 acid-digested tissue samples (acid solutions). The NHRTR also houses frozen, ashed, dried, and plastic-embedded bone samples from the radium studies carried out by Argonne National Laboratory, the Massachusetts Institute of Technology, and the New Jersey Radium Research Project. The NHRTR tissue materials: frozen, formalin-fixed, paraffin-embedded, or acid-digested tissues are available to qualified scientists for their research upon request. To qualify for receipt of USTUR/NHRTR samples, researchers must (a) provide a brief summary of the intended use of the samples, (b) sign a confidentiality statement agreeing to protect the identities of subjects; (c) provide a copy of Institutional Review Board for Protection of Human Subject approval, if appropriate. The USTUR authorship of published papers is not a condition for collaboration; however, acknowledgement of the source of the materials is required. Recently, the USTUR/NHRTR archived tissue materials were used by national and international researchers to study (a) elemental bio imaging of actinides and beryllium; (b) microdistribution and long-term retention of plutonium-nitrate in the respiratory tract and its carcinogenic and inflammatory effects; (c) distribution of actinides using synchrotron radiation micro X-ray fluorescence spectrometry; (d) beryllium distribution in the human body.

References

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USTUR-0373A-14