

## Biokinetic modeling of chelation therapy for $^{241}\text{Am}$ – USTUR Case 0846

Bastian Breustedt<sup>1</sup>, Stacey McCord<sup>2</sup>, Sergei Tolmachev<sup>2</sup>

<sup>1</sup>*KIT-INE, Karlsruher Institut für Technologie, Institute for nuclear Waste Disposal, Eggenstein-Leopoldshafen, 76344 Germany;* <sup>2</sup>*United States Transuranium & Uranium Registries, College of Pharmacy, Washington State University, Richland, Washington, USA*

Chelation therapy is a method to avert doses after incorporation of actinides. The perturbation of the biological processes cannot be described by the existing biokinetic models. Currently no generic model to describe the perturbation by chelation therapy exists. USTUR Case 0846 was a whole body donor who accidentally inhaled ~67 kBq  $^{241}\text{Am}$ , which was first reported in 1967. After confirmation of the intake, he was extensively chelated over 380 wk. Overall 313.5 g DTPA were given in 342 i.v. injections; 57 of them were 0.5 g doses, and 285 were 1 g doses. Virtually all urine was collected during the therapy. The gentleman, who died more than 40 years after the intake, was a whole body donor to the U.S. Transuranium and Uranium Registries (USTUR). Data available at USTUR, including original dosimetry and medical reports, have been analyzed to generate a dataset suitable for thorough biokinetic modeling of the chelation therapy. Based on post-mortem radiochemical tissue analyses, the total skeleton and liver were estimated to contain 30 kBq and 290 Bq of  $^{241}\text{Am}$ , respectively. The dataset will be completed when the remaining tissues have also been radiochemically analyzed. These radiochemistry results will provide an insight on the effects of DTPA-chelation therapy and support the biokinetic modeling. The methods used to generate the dataset, and the first steps in the assessment of this case and the development of a biokinetic model of decorporation therapy will be presented.

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