



Correction to: A Short History of Nuclear Medicine

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**Correction to: Chapter 2 in: J. S. Lewis et al. (eds.), *Radiopharmaceutical Chemistry*,
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Chapter 2 : The text under the section “The Discovery and Use of the Radionuclides of Iodine” in page 15 was incorrect. This has been corrected as below.

Iodine was discovered in seaweed in 1811 and first used to treat goiter in 1819 [8]. The Massachusetts General Hospital (MGH) Thyroid Clinic—established by Dr. James H. Means in 1920—began using stable iodine to treat hyperthyroid patients. In 1936, MGH’s Dr. Saul Hertz (Director, 1931–1943) solely conceived of the medical uses of radioiodine (RAI) and asked MIT President Karl Compton, “Could iodine be made radioactive artificially?” [9]. Saul Hertz’s pivotal question lead to a collaboration between MGH’s Saul Hertz and MIT physicist, Arthur Roberts. Roberts produced I-128 ($t_{1/2} = 25$ min) using a neutron source to study the effect of I-128 on the altered thyroid gland of rabbits. The Hertz/Roberts animal study demonstrated the tracer quality of RAI to investigate thyroid physiology [10]. Berkeley’s Joe Hamilton and Mayo Soley confirmed the tracer quality of RAI. In 1936, using the Berkeley cyclotron, Glenn Seaborg and John Livingood bombarded tellurium-128 and created iodine-130 ($t_{1/2} = 12$ h) and iodine-131 ($t_{1/2} = 8$ days) [11] (Fig. 6).

Hertz and Roberts were the first to develop the experimental data and apply it in the clinical setting. Iodine-131 allowed the in vivo tracking of the radionuclide over long time periods [12]. The first therapeutic use of MIT cyclotron produced RAI was administered by Saul Hertz in early 1941.

Dr. Hertz conceived of using RAI to treat thyroid carcinoma at the time of the rabbit studies in 1937, and he administered and reported clinical trials of RAI to treat thyroid carcinoma in 1942. In 1943, Dr. Hertz advised Montefiore Hospital’s Dr. Samuel Seidlin, who treated a patient with metastasized thyroid cancer. Dr. Seidlin et al. confirmed that ablation of the normal thyroid—which eliminated the thyroid’s competition for the uptake of iodine—was necessary for the treatment of metastases [13, 14]. Thyroid cancer changed from an almost certain death sentence to a disease with an overall survival rate of about 85% [15].

References 9 and 10 were incorrect. The new references 9 and 10 have been corrected as below

9. Fahey FH, Grant FD, Thrall JH. Saul Hertz, MD, and the birth of radionuclide therapy. *EJNMMI Phys.* 2017;4:15. <https://doi.org/10.1186/s40658-017-0182-7>.

10. Hertz B. A tribute to Dr. Saul Hertz: the discovery of the medical uses of radioiodine. *World J Nucl Med.* 2019;18:8–12.

The updated online version of this chapter can be found at https://doi.org/10.1007/978-3-319-98947-1_2