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“The development and use of exotic radionuclides towards the radiotheranostic principle”

The concept of “theranostics” in nuclear medicine involves the diagnosis and treatment of a patient using a radionuclide of the same element, to ensure what you image is what you treat. The concept is currently being followed by means of diagnosis with  $^{68}\text{Ga}$ , followed by radionuclide therapy using  $^{177}\text{Lu}$ .

Researchers at Paul Scherrer Institute, Switzerland, are pursuing the idea of the "matched pair" principle towards theranostics, where one utilizes the same element, but different radioisotopes thereof for diagnosis and therapy. Over the last decade, much research has been performed with radioisotopes of scandium and terbium. The production and use of these radionuclides are discussed, along with their potential for clinical use in future.