**212Pb: Production and Applications**

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Over the last twenty years targeted alpha therapy has demonstrated its high efficiency in treating various oncological diseases. 212Pb, with its convenient half-life of 10.64 h, and its daughter alpha-emitter short-lived 212Bi (T1/2 = 1 h), provides the possibility for the synthesis and purification of radiopharmaceuticals with minimum loss of radioactivity during preparation. It can be milked from a radionuclide generator via various techniques.

The main approaches applied for this purpose are considered and described, including chromatographic and other methods to separate 212Pb from its parent radionuclide. The results of preclinical studies with an estimation of therapeutic and tolerant doses as well as recently initiated clinical trials are presented.