عنوان مقاله:

Preparation and preliminary biological evaluation of [153Sm] samarium AMD3100; towards a possible therapeutic chemokine receptor CXCR4 targeting complex

محل انتشار:

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خلاصه مقاله:

Introduction: In continuation of recent development of possible C-X-C chemokine receptor type 4 (CXCR4) imaging agents, we report the development of a possible CXCR4 targeted therapy agent. Methods: [153Sm]labeled 1,1′-[1,4-phenylenebis(methylene)] bis-1,4,8,11-tetraazacyclo -tetradecane ([153Sm]-AMD3100) was prepared using [153Sm]SmCl3 and AMD-3100 for 24h at 50°C in acetate buffer.Stability tests, partition coefficient determination, toxicity tests and biodistribution studies of the complex in wild-type rats were determined. Results: The radiolabeled complex was prepared in high radiochemical purity (> 95%; RTLC and > 99% HPLC) and specific activity of 278 GBq/mmol and demonstrated significant stability up to 48h at 37 °C (in presence of human serum). Partition coefficient determination was calculated Log P= -1.09.Hepatotoxicity experiments demonstrated no distinguishable effect on hepatic enzymes in 10 days post injection.Initial complex biodistribution data showed significant liver and kidney accumulation in wild-type rats. Conclusion: Since lung and spleen are considered as CXCR4 rich organs, the best lung/blood and spleen/blood ratios were achieved 12 and 7 at 24 h post injection. Further investigations are .needed especially on therapeutic properties of this agent

کلمات کلیدی:

AMD3100, Targeted radiotherapy, Radiolabeling, Biodistribution, Sm-153