## RADIOPHARMACEUTICAL DOSE DISTRIBUTION IN DIFFERENT ORGANS AND TISSUES FOR Lu-177 WITH DIFFERENT CARRIER

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<sup>177</sup>Lu refers to rare earth elements from a group of lanthanides. Relative to its short time span, <sup>177</sup>Lu has virtually pervaded all areas of in vivo radionuclide therapy and becomes one of important keys for therapeutic radionuclides of choice for targeted radionuclide therapy. The rising interest in the use of <sup>177</sup>Lu in targeted molecular therapies has primarily developed from recent unmatched advances in molecular and cell biology, which include the use of peptides targeted to cell surface receptors, which are overexpressed on the surface of tumour cells. Therefore, the use of <sup>177</sup>Lu-labelled radiopharmaceuticals have been the major factors evoking excitement among researchers and capturing the imagination of the clinical community thanks to advances in molecular and cellular biology. In this work, radiopharmaceutical comparison for <sup>177</sup>Lu ab-

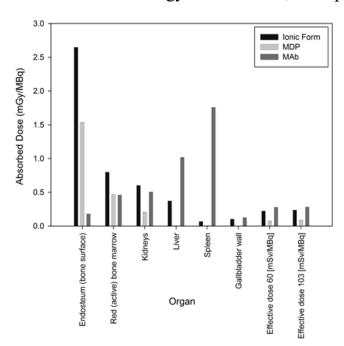


Fig. 1. Main organs absorbed dose

sorbed dose in health human organs and tissues is presented. The comparison between unlabelled <sup>177</sup>Lu (ionic form) and labelled with <sup>177</sup>Lu-MDP (methylenediphosphonate) and <sup>177</sup>Lu-MAb (monoclonal antibodies). The biokinetic model in each case are described and presented. The absorbed dose in health human organs and tissues are simulated with two recommended programs WinAct and IDAC 2.1 (Internal Dose Assessment by Computer) software<sup>1</sup>. The distribution of absorbed dose in the main organs nearly the same with different in the value for the ionic form and <sup>177</sup>Lu-MDP. The absorption in the case of ionic form is high (Fig.1). the distri-

bution is completely change while <sup>177</sup>Lu-Mab is used. The most absorbed dose fraction goes to spleen and liver unlike bone surface absorb nearly 50 % of dose.

1. Mostafa. Y.A.M et al., Radiological Physics and Technology, in press (2019).